



Reaching deep in low-income markets

Enterprises achieving impact, sustainability, and scale at the base of the pyramid

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I. Preface

Enterprises seeking to achieve both impact and financial returns—and the investors that back them—have been working hard over the past dozen or more years to deliver critical goods and services to those living at the Bottom of the Pyramid (BOP). While these collective efforts have clearly had tremendous impact helping large numbers of very poor people, it still remains unclear how deeply down into the BOP we as a field are reaching. Are these enterprises consistently reaching people living on \$8 a day? How about \$4, or \$2, or less? Given the lack of good data, we really do not know.

And yet we need to. In order to understand how to reach deeply down the pyramid, we need to understand who is successfully reaching customers in the lower-income ranges. In order to know when we should subsidize for-profit enterprises to get them to reach deeper into the BOP, we need a better understanding of the “natural” limits to their current reach.

This report is intended to help provide greater transparency and guidance to advance the broader field of funding for businesses serving the deep BOP. It builds off the recent report by Omidyar Network, Frontier Capital¹, in which a number of variables and hypotheses were proposed about how best to reach the BOP and other low-income populations.

This report synthesizes the ideas and contributions of numerous individuals and organizations; we are extremely grateful for their time, energy, and insights.

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II. Executive summary

Over the past 10-15 years, entrepreneurs, impact investors, incubators and accelerators, foundations, development banks, major donors, and even some large-scale corporations have been working hard to reach those living at the BOP by building, investing in, and supporting for-profit businesses that reach BOP customers. Unlike traditional development projects that often rely heavily on government or philanthropic grant funding (which often suffer from finite funding streams), for-profit enterprises can both sustain themselves and grow over time as long as the product offered elicits sufficient demand and revenues from its buyers. While important roles certainly remain for governments, philanthropic actors, and mission-driven non-profits in providing critical goods and services to the poor, the potential scalability and sustainability of for-profit enterprises serving the BOP as customers also holds significant promise for long-term development impact.

That said, there are going to be limits to whom for-profits can reach. At some point, a potential customer will simply not have enough money to buy the good or service. This begs the question of how deeply down into the BOP for-profit enterprises can reach while still achieving profitability, financial sustainability, and scale? As a field, we do not have a good idea as to how deeply we are reaching. The data on customer income is hard to come by and most of these organizations are hard pressed to spare the resources to gather it. And yet, if we are to better understand how to reach deeply into the BOP, we need to understand which enterprises are doing so; in order to specify best practices for reaching deeply, we need to know what a best practice is. Moreover, an enterprise operating in BOP markets will naturally seek to reach an underserved population that also has sufficient income that it can pay enough for the good or service to enable the enterprise to profit, sustain itself financially, and hopefully pay for scaling to a broader group of customers as well. But customers at the BOP often do not have the financial means to be a predictable customer base,

leaving enterprises with the appealing and often survival-focused option of moving up the pyramid to more stable customer segments. Governments and donors then face the decision of when to subsidize for-profit enterprises to reach customers that may be “slightly-too-poor” to buy the good or service. But to know if and when it is appropriate for a development actor to subsidize a for-profit enterprise, we first need to know how deeply an enterprise can “naturally” reach into the BOP without that help. And again, to know this, we need the data on the income level of the customers of various for-profit enterprises reaching BOP customers.

Our research makes an early effort to gather some of this data and to begin to assess what it takes to reach down deeply into the BOP. It is by no means a definitive statement on the depth of that reach or on how to do it. The data is simply too scarce and spotty at this stage to be able to do so. That said, we are confident this document presents the most comprehensive assembly of relevant data available today.

How deeply down into the BOP for-profit enterprises can reach while still achieving profitability, financial sustainability, and scale? As a field, we do not have a good idea as to how deeply we are reaching

Reaching the BOP—Key report concepts and variables:

Ability to reach deeply may be influenced by a few general conditions. One hypothesis is that enterprises, which are able to function effectively with an “asset light” business model, will be better able to serve poorer customers.¹ At a high level, asset light businesses have low marginal costs and up-front capital requirements (e.g., a mobile phone app). In contrast, “asset-heavy” businesses carry a higher cost structure due to the need for physical presence, complex distribution channels, and a skilled labor force (e.g., a manufactured product). The more asset light a business, the lower its infrastructure, overhead, and distribution costs, and the more it ought to be able to offer a low price for its products and thus, reach customers with limited purchasing power. A second hypothesized condition is that enterprises selling “pull” products will be able to reach more deeply than those selling “push” products. Highly valued products for which there is ready demand and that can be used immediately with little risk are pull products (e.g., food and electricity). These are in contrast to “push” products, which are goods and services with less obvious value or that provide uncertain benefits in the future (e.g., insurance, clean drinking water, and mosquito nets). Organizations selling pull products tend to have lower marketing and sales costs and thus, ought to be able to offer lower price points, again enabling deeper reach.

While it is important to consider and test whether or not asset light businesses or those selling pull products reach more deeply into the BOP, the reality is that much, if not most, critical development work necessarily entails asset-heavy operations, often delivering push products. Most of what we as a development field want to do involves efforts such as providing access to health, education, clean drinking water, basic sanitation, life-saving vaccines and medicines, safer cooking methods, and so forth. These are all goods and services that must typically be manufactured or carried long distances, distributed through real property, delivered by skilled and expensive workers, sold via lengthy educational campaigns, and the like. It stands to reason then that enterprises with asset-heavy or push products face quite challenging conditions to reach deeply into the BOP. The question then becomes whether there are conditions or variables that might mitigate these challenges.

Here we looked at whether or not having some customers at higher-income levels (e.g., \$8/day and \$10/day) might help companies also reach lower-income customers (e.g., \$2/day, \$4/day). On the one hand, accessing higher-income customers, in addition to the targeted lower-income groups, might confer a number of benefits, such as providing a larger number of prospective buyers, buyers who are able to purchase more consistently and reliably over time, less risk averse buyers, and so forth.

On the other hand, serving multiple income segments—segments with potentially different tastes, product preferences, desired price points, and modes of payment—could complicate business operations, driving up costs or detracting from an enterprise’s ability to reach lower down the pyramid through products and services tailored to the specific needs of the deep BOP.

Methodology: To assess the extent to which these three conditions help or hinder an enterprise’s ability to reach more deeply down the income pyramid, we opted for a case study approach. Through secondary research and interviews, we narrowed down a list of 100+ potential case studies to a set of 20. We recognize there are several limitations to using a relatively small sample size for case studies, including overrepresentation of enterprises that have lasted long enough to be studied (e.g., survivor bias), have volunteered to participate in the study (e.g., self-selection bias), and have made some effort to collect data on customers (potentially reflecting the maturity of the enterprise). Our view has also taken in a dynamic market environment, where many of these enterprises live on the thin edge of profitability on a year-to-year basis. Despite these issues, we are confident that at this stage, given the paucity of available data, our case study approach is the most effective one available.

Please see the main report for details on selection criteria. The table below provides a summary of the cases.

Sector	Enterprise	Est.	Geography	Description
Agriculture	Aldeia Nova	2012	Angola	Provides farmers with agriculture production inputs, and buys and distributes poultry and dairy farming outputs
	eKutir	2009	India, Cambodia, and Bangladesh	Operates a network of microentrepreneurs/kiosks that use technology to deliver inputs and sanitation solutions
Education	FINAE	2006	Mexico	Provides loans to low-income college students through risk- and cost-sharing agreements with university partners
	Urban Planet Mobile	2007	45 countries	Provides affordable, basic English language instruction via mobile phones
Energy (cookstoves)	Burn	2011	Kenya/East Africa	Designs, manufactures, and distributes fuel-efficient cookstoves for urban and peri-urban customers
	Envirofit	2003	45 counties (Asia, Africa, Latin America)	Develops and sells fuel-efficient cookstoves (charcoal, wood, and LPG), stove accessories, and lighting products
Energy (electricity)	Husk Power	2008	India and Tanzania	Designs, manufactures, and installs 25-250 kW “mini” power plants in villages and sells energy on a pay-per-use basis
	M-KOPA	2011	Kenya, Tanzania, and Uganda	Manufactures, sells, and provides financing for solar home systems that provide electricity to rural households
	Off-Grid Electric	2011	Tanzania and Rwanda	Manufactures, sells, and services solar electricity systems to rural and commercial customers
Financial services	IFMR/KGFS	2008	India	Provides financial products and services in rural areas through an adviser-driven wealth management approach
	Zoona	2009	Zambia, Malawi, and Mozambique	Provides domestic and international money transfer via an agent network of 1,500+ mobile money transfer outlets
Health	Aakar Innovation	2011	India and Bangladesh	Produces and sells compostable low-cost sanitary pads to low-income women via a female-led microenterprise model
	Livewell Clinics	2009	Kenya	Operates a network of health clinics, focused on quality and efficiency, that serve as a “one-stop-shop” for primary care
	Swasth Foundation	2008	Mumbai, India	Operates nonprofit health centers that provide high-quality primary health care services at half current market rates
Housing	Echale	1997	Mexico	Offers an affordable and sustainable “self-build” housing solution and provides low-cost financing solutions
	Patrimonio Hoy (unit of Cemex)	1998	Latin America	Provides market-based, do-it-yourself housing solutions to low-income families
Insurance	ACRE Africa	2009	Kenya, Rwanda, and Tanzania	Provides farmers microinsurance products that lower risk of investing in quality inputs, productivity, and access to loans
	BIMA	2011	15 countries	Provides low-cost insurance and m-Health services via mobile network operators and financial service providers
	MicroEnsure	2002	15 countries in Africa and Asia	Designs and delivers affordable microinsurance with insurance companies, mobile network operators, and microfinance institutions (MFIs)
Sanitation	Sanergy	2010	Kenya	Purchases, operates, and maintains a network of hygienic toilets; converts waste to agricultural inputs (fertilizer)

Ultimately, we wanted to understand how deeply enterprises can reach into the BOP, selling their goods and services while also achieving some level of profitability and scale; we wanted to know if enterprises are reaching a large number of very poor people in a financially sustainable way. Measurement was difficult due to scarce data, concerns about confidentiality, and the subjective nature of concepts like “sustainable” and “at scale.” What we were able to gather in a fairly consistent way was:

- **Total enterprise profitability and continuing to scale:** Reached profitability on a consolidated enterprise basis and continued ability to grow.

- **Financially sustainable² and investing in scale:** Demonstrated financial viability and focused on growing the business before achieving total enterprise profitability.
- **Not yet financially sustainable and moderate growth:** Moderate progress toward breakeven and scale.
- **Declared non-profit status:** Converted from for-profit to non-profit status.







As with business performance, assessing depth of reach into the BOP is easier said than done. As there is not yet a standardized and widely used method for measuring income levels of customers, we report the raw customer income data that our case study enterprises were able to provide. In

order from most rigorous to least precise, these include:

- **Rigorous external measure:** Grameen's Progress Out of Poverty Index survey or third-party funded measurement and evaluation studies.
- **Rigorous internal methodology:** Proprietary enterprise income or financial health tracking methodology, income verification through sales or enrollment process.
- **Impressionistic internal estimate:** Basic customer surveys or focus groups, proxy metrics to estimate income (e.g., ARPU, monthly rent, geographic level income data, and occupations).



Finally, we hypothesized that a few conditions affect enterprises' ability to reach deeply into the BOP while achieving sustainability and scale. The table below outlines the critical indicators used to classify enterprises along these variables (see the main report for a fuller explanation).

Asset intensity		Product preference		Customer base	
Heavy	Light	Push	Pull	Narrow	Wide
					
Physical product; requires manufacturing	Digital/mobile products	Not easily exchangeable	Provides fungible purchasing power	Revenue from one income segment	Different income segments with varying revenue contribution
Large sales and distribution network	Shifted risk of sales and distribution	Nice-to-have amenities	Necessary economic inputs	Relevant to only a particular customer segment	Undifferentiated products
Highly skilled labor	Paraskilled labor	Expensive non-replaceable good	Cheaper substitute	Single product, single price	Multiple products, different prices
Physical facilities	No/limited physical presence	Difficult-to-demonstrate or long-term benefits	Obvious or immediate benefits	Limited business model risk	Need to distribute risk across income levels

Findings: Despite the limitations of the data, as well as of the case study approach, there are several findings from the synthesis of our 20 case studies that we believe are worth calling out for various stakeholders actively seeking to reach the BOP. These findings include:

- First, most of the enterprises we studied are able to reach BOP populations with critical goods and services and some are able to reach surprisingly deep down (e.g., those living on less than \$2.50/day and even \$1.25 in some cases).
- Second, many of the enterprises reaching the BOP and deep BOP are operating fairly successfully, at least when we assessed them, both in terms of financial viability and growth.
- Third, being asset-heavy and selling a push product does not necessarily prevent companies from reaching the BOP in a financially sustainable way; several have done it. Moreover, selling to customers across a broader range of incomes is clearly possible, since the vast majority of our cases did so, and given its prevalence, may be critical to financial viability and growth.
- Fourth, regardless of sector or products sold, enterprises can improve their chances for success by using a number of common business model design tactics to get more asset light, make products more preferential, or serve customers across a broader range of incomes.
- Fifth, most enterprises in our study did receive some form of subsidized capital, which was often very helpful in mitigating start-up risks as well as navigating the challenges inherent in BOP markets. It was often received at an early stage and then replaced by more market-rate capital, suggesting subsidy does not preclude businesses from eventually becoming self-sustaining.
- Sixth, while all our enterprises had an obvious social impact from the goods or services sold to BOP customers (e.g., access to finance, and greater food security), these enterprises also yielded a number of less obvious development benefits (e.g., job and entrepreneurship opportunities, provision of public goods, and improved resiliency of individuals and communities).

Implications for the field: An obvious implication is that supporting for-profit enterprises that provide needed goods and services to the poor is a viable way to drive a development agenda. Our going-in expectation was that it would prove very difficult for asset-heavy businesses selling push products to reach deeply down the income ladder to those living around \$2-\$4 per day. Our subsequent research, however, tended not to support that expectation. Our research found that asset-heavy businesses selling push products could indeed reach BOP customers in a financially sustainable way, at scale.

This having been said, a second implication of the research is that many of these enterprises still seem to benefit greatly from, perhaps even require, some form of subsidy. With the exception of the asset light business selling pull products, virtually every organization received a subsidy of some type, indicating such financial support may be critical. Similarly, a third implication is that grant makers and impact investors ought not to insist that all or most of an enterprise's customers be at a certain level of poverty for that enterprise to be eligible for funding. Serving populations at somewhat higher-income levels does not

seem to prevent organizations from also reaching much lower-income levels; given its prevalence, this also may be a near necessity.

A fourth implication is that for-profit enterprises can be used to help deliver public goods and other services typically provided by government. Organizations provided power, sanitation, health care, housing, and education. For governments and donors, these enterprises could be a useful supplement or substitute to government services.

Finally, a fifth implication is that governments and donors might consider investing in public education campaigns to promote certain product categories or services that benefit society overall. Any spending to get customers to buy one brand of a product category (or service) over another should of course be shouldered by individual businesses. But educating customers about the value of a product category (e.g., preventive health care, insurance, and improved agricultural inputs) is a public good and can legitimately be taken on by government and other development organizations.

Conclusion and next steps: The report underscores several areas where there is an opportunity for further research, analysis, and support of enterprises serving the BOP. These opportunities span a wide range of topics, from data availability to better understanding how for-profit enterprises go to market within the context of other development programs. Based on our interviews and research with the enterprises, as well as feedback we received from leading experts in the field, three specific areas are particularly important for advancing our understanding of how to effectively serve the BOP: 1) improved information on BOP customers, including their needs and behaviors and the customer segments they form in the market; 2) advancing and standardizing how data is collected, analyzed, and shared for enterprises reaching BOP customers; 3) further analysis of when and how subsidies can play an appropriate role in the launch and growth of enterprises, in particular for asset-heavy enterprises providing push products. These three areas have implications for future research and technical assistance that is needed from governments, foundations, and BOP investors.



III. Introduction

Over the past 10-15 years, a movement has emerged in the development field that seeks to deliver critical goods and services to the very poor through more market-based approaches.³ Entrepreneurs, impact investors, incubators and accelerators, foundations, development banks, major donors, and even some large corporations have been working hard to reach those living at the BOP by building, investing in, and supporting for-profit businesses that serve BOP customers.

These efforts usually have an equally important dual purpose of profitability and scaled social impact. Traditional development projects often suffer from finite funding streams. While significant impact can be achieved, it often lasts only as long as the allocated budget allows. For-profit enterprises, in contrast, can both sustain themselves and grow over time as long as the product offered elicits sufficient demand and revenues from the buyers. While there certainly remains important, even dominant, roles for governments and mission-driven non-profits in providing critical goods and services to the poor, the potential scalability and sustainability of for-profit enterprises serving the BOP as customers also holds significant promise for long-term impact.⁴

While there is considerable potential in these more market-based approaches and a number of oft-cited success stories (M-Pesa, d.light, Aravind Eye Hospitals, etc.), even the most devout disciples of this movement will not argue that everyone can be served by a for-profit enterprise. Several challenges face BOP-focused enterprises,

from macro challenges related to serving customers in environments without the needed infrastructure (e.g., appropriate business regulations, physical infrastructure, and social services) to constraints faced by individuals living at the BOP, including income volatility and very limited purchasing power relative to those one or two steps up the pyramid. After all, these organizations are exchanging goods and services for money; at some point, a potential customer will simply not have enough money to buy the good or service. Put another way, there is a limit to how far down an organization can go on the income pyramid and still make sufficient profit to be both financially sustainable and able to scale. This begs the question of how deeply down into the BOP can for-profit enterprises reach while still achieving some level of profitability, financial sustainability, and scale.

As a field, we do not have a good measure of how deeply we are reaching. While some enterprises know their customers well enough to understand how far they are operating down the income pyramid, most do not. The data on customer income is hard to come by. Gathering it takes resources—time, money, person-power—and most of these organizations are hard pressed to spare such resources. And yet, as a field, it is very important for us to understand how far down into the pyramid we can go.

First, we want to understand how to reach deeply into the BOP; the more people we can reach with critical goods and services, the more lives we can improve and the more people we can help lift out of poverty. But,

The potential scalability and sustainability of for-profit enterprises serving the BOP as customers also holds significant promise for long-term impact

in order to understand how to move down the income pyramid, we need to understand which enterprises are doing so; in order to specify best practices for reaching deeply, we need to know who is modeling a best practice or at least good practice. To do that, we need data on the income level of the customers of various for-profit enterprises that are serving BOP customers.

Second, we think it is important to understand the impact of subsidies on for-profit businesses serving a poor customer segment. An enterprise operating in BOP markets will naturally seek to reach an underserved population that also has sufficient income that it can pay enough for the good or service to enable the enterprise to profit, sustain itself financially, and hopefully pay for scaling as well. But customers at the BOP often do not have the financial means to be a predictable customer base, leaving enterprises with the appealing option of moving up the pyramid to more stable customer segments; government organizations face the decision of when to subsidize for-profit enterprises to reach customers that may be a “slightly-too-poor” set of potential buyers for the good or service.

One way to reach these customers would be to develop a government or philanthropic program, and certainly that will be needed in many instances. But, likely, a more cost-efficient way to reach them is to subsidize the for-profit social business so that it can reach down a little deeper and do so in a way that does not jeopardize the financial health of the entire enterprise. This report aims to assess the use of subsidies through the case studies, providing some evidence, as available, of when and how subsidies were used to support the enterprises. The findings, however, do not provide a comprehensive framework or offer a set of guiding principles for future decisions on how government or investors should make decisions about how and when to support BOP-focused enterprises. Such a framework would likely be a useful tool, but first we need to know how deeply an enterprise can “naturally” reach into the BOP to understand when subsidies would be most effective and create the least distortion of the market that has paying BOP customers. And again, to know this, we need the data on the income level of the customers of various for-profit enterprises reaching BOP customers.

Our research makes an early effort to gather some of this data and to begin to assess what it takes to reach down deeply into the BOP. It is by no means a definitive

statement on the depth of that reach or on how to do it. The data is simply too scarce and spotty at this stage to be able to do so. That said, we are confident this document presents the most comprehensive assembly of relevant data available today. Moreover, we are pleased to report that the findings are, on the whole, encouraging. Specifically, most of the enterprises we studied are able to reach BOP populations with critical goods and services and some are able to reach surprisingly deep down (those living on less than \$2.50/day and even \$1.25/day in some cases). Many of these deep-reaching organizations are also operating fairly successfully, both in terms of financial viability and growth (though given the tight margins, difficult operating conditions, and fragile customer base, caution is warranted). Finally, these enterprises are not only having the direct social impact that results from the goods or services sold to BOP customers (e.g., provision of power, and food security), they also generate a number of less obvious, broader development benefits, such as creating significant job and entrepreneurship opportunities, providing a wide range of public goods (e.g., health care and sanitation), and improving resiliency of individuals and communities through products, such as health and crop insurance.



IV. Reaching the BOP—Key report concepts and variables

Depth of reach on the income pyramid will depend to a large extent upon factors specific to a given business, its customers, and its operating environment. Indeed, in later pages, this report will relay some “tricks of the trade” that may be useful to entrepreneurs (and investors) seeking to serve the BOP. However, ability to reach deeply might also be influenced by some more general conditions. One hypothesis along these lines is that enterprises that are able to function effectively with an “asset light” business model will be more able to serve poorer customers.⁵ At a high level, asset light businesses (e.g., a mobile phone app) have low marginal costs and limited up-front capital requirements. In contrast, “asset-heavy” businesses (e.g., a manufactured product) carry a higher cost structure due to the need for a physical presence, complex distribution channels, and a skilled labor force. The more asset light a business, the lower its infrastructure, overhead, and distribution costs, and the more it ought to be able to reduce the price of its products and, thus, reach more deeply down the income pyramid.

A second hypothesized condition involves enterprises that sell “pull” vs. those that sell “push” products. Conceptually, push vs. pull is about a buyer’s expected return on what they spend, adjusted for risk and the time lag needed to realize that return. Highly valued products for which there is ready demand and that can be used immediately with little risk are pull products (e.g., food and electricity). These are in contrast to push products, goods, and services with less obvious value or that provide uncertain benefits in the future (e.g., insurance, clean drinking water, and mosquito nets). Even if buyers see value in push products, they are typically quite reluctant to part with their money to acquire them. Organizations selling pull products tend to have lower marketing and sales costs and thus ought to be able to offer lower price points, again enabling deeper reach.

While it is important to consider and test whether or not asset light businesses or those selling pull products reach more deeply into the BOP, the reality is that much, if not most, critical development work necessarily entails asset-heavy operations, often delivering push products. Most of what we as a development field want to do involves efforts such as providing health and education to populations in urban slums and rural villages. It’s about finding solutions for access to clean drinking water, basic sanitation, life-saving vaccines and medicines, safer cooking methods, and so forth. These are all goods and services that must be manufactured or carried long distances, distributed through real property, delivered by skilled and expensive workers, sold via lengthy educational campaigns, and the like.

It stands to reason then that enterprises with asset-heavy or push products face quite challenging conditions to reach deeply into the BOP. The question then becomes whether there are conditions or variables which might mitigate this challenge. Here we looked at whether or not having some customers at higher-income levels (\$8/day and \$10/day) might help companies also reach lower-income customers (\$2/day and \$4/day).

On the one hand, a number of benefits may follow from having a wider range of customer income levels. Accessing higher-income customers, in addition to the targeted lower-income groups, adds a larger number of prospective buyers and may enable an organization to more quickly achieve economies of scale. Higher-income customers might provide a steadier base of buyers who are able to purchase more consistently and reliably over time, and, therefore, help a company weather dips in purchases from poorer income segments subject to financial volatility. Wealthier buyers with more disposable income are typically less risk averse and more willing to test out a new product; presuming they like

The reality is that much, if not most, critical development work necessarily entails asset-heavy operations, often delivering push products.

the product, their observable use of it can make a product seem less risky from the perspective of lower-income buyers, leading to product adoption. Similarly, wealthier buyers might make a product somewhat “aspirational” and encourage purchase by lower-income buyers.

On the other hand, serving multiple income segments could complicate business operations, driving up costs or detracting from an enterprise’s ability to reach lower down the pyramid through products and services tailored to the specific needs of the deep BOP. It is a maxim of marketing that different customer segments prefer different attributes in their purchases. Wealthier buyers might be difficult for an enterprise focused on the BOP because they may prefer different products, such

as sturdier, higher-quality goods that last longer and have value-add services, such as technical assistance. Or, they might want to lower the risk of their purchase with warranties or maintenance plans. Thus, it is possible that developing a product that sells well to higher-income segments might make it harder for a business to sell to lower-income segments.

Additionally, wealthier buyers might prefer different payment options and price points. Most obviously, all the product attributes noted above increase a product’s price, and so wealthier customers desiring additional features may prefer higher prices for more advanced goods or services. Less obviously, wealthier buyers might prefer to pay the full cost for a product up front because doing so drives down their per-use price over

the long run, whereas poorer customers might not be able to do so and, thus, have to pay per use or rely on financing options available. Alternatively, wealthier customers might want financing to smooth out payments, while poorer buyers might not want the risk of taking on a long-term stream of payments. Again, it could be that offering pricing options that are attractive to higher-income segments would discourage sales to lower-income segments.

Our research—interview questions, data gathering, and case selection—seeks to assess the extent to which these three conditions help or hinder an enterprise’s ability to reach more deeply down the income pyramid.



V. Methodology

Case study approach: To make these assessments, we opted for a case study approach. While a large “n” quantitative approach may have been preferable, there simply was not enough high-quality data available on the key variables in question. Through secondary research and interviews with investors and other stakeholders, we narrowed down a list of 100+ potential case studies to a set of 20 cases. We recognize there are several limitations using a relatively small sample size for case studies, including overrepresentation of enterprises that have lasted long enough to be studied (survivor bias), have volunteered to participate in the study (self-selection bias), and have made some effort to collect data on customers (potentially reflecting the maturity of the enterprise). It is also worth noting that the information presented in the case studies, as well as the conclusions in our findings, is also a snapshot in time of these enterprises. These snapshots are taken in a dynamic market environment, where many of these enterprises live on the thin edge of profitability on a year-to-year basis. Despite these issues, we are confident that at this stage, given the paucity of available data, our case study approach is the most effective one available.

The criteria for selecting cases, in rough order of importance, were:

- *Access to the enterprise and availability of data:* Since we needed to conduct several in-depth interviews with senior leaders at each enterprise studied, as well as understand the income composition of their customer base and relative profitability and scale, we needed participants willing to connect with us and to share information.

Through secondary research and interviews with investors and other stakeholders, we narrowed down a list of 100+ potential case studies to a set of 20 cases.

- *Coverage across the factors affecting reach on the income pyramid:* Cases were also selected to help ensure that some of our enterprises operated in conditions of asset light or pull products, while others were asset-heavy and either push or pull. We also sought to have a sample of enterprises with a broader range of income levels to test if a mixed-income customer base helped reach into the BOP.
- *Breadth across industries and sectors:* All case studies were from industries where the products or services have social impact. In addition, we sought to be diverse across these social sectors because often a particular industry has inherent conditions that make operating a profitable business more challenging than others. Industries covered in this report include health, education, clean energy (electricity and cookstoves), insurance, housing, agriculture, sanitation, and financial services.
- *Geography and size:* We wanted examples across continents (Asia, Africa, and South America), as well as both start-up enterprises and larger corporations; however, this was a tertiary consideration often trumped by the first three criteria.

Case studies profiled in the report: Using the criteria outlined above, we selected 14 full case studies and six shorter “snapshot” case studies. The table below provides a summary. See Case Studies on page 41 for additional information.

Sector	Enterprise	Est.	Geography	Description
Agriculture	Aldeia Nova	2012	Angola	Operates agro-industrial centers that provide farmers with agricultural production inputs and buys and distributes the poultry and dairy farming outputs
	eKutir	2009	India, Cambodia, Bangladesh	Operates a network of microentrepreneurs and kiosks that use technology to deliver agricultural inputs and sanitation solutions
Education	FINAE	2006	Mexico	Provides loans to low-income students for a bachelor’s or other postgraduate studies at affordable interest rates through risk- and cost-sharing agreements with university partners
	Urban Planet Mobile	2007	45 countries	Partners with local mobile network operators to provide affordable, basic English language instruction via mobile phones
Energy (cookstoves)	Burn	2011	Kenya/East Africa	Designs, manufactures, and distributes fuel-efficient cookstoves for urban and peri-urban customers
	Envirofit	2003 (became operational in 2007)	45 countries (Asia, Africa, Latin America)	Develops and sells varying types of fuel-efficient cookstoves (wood, charcoal, and LPG), as well as lighting products and cookstove accessories
Energy (electricity)	Husk Power	2008	India, Tanzania	Designs, manufactures, and installs 25-250 kW “mini” power plants in villages that households, businesses, and small factories connect to on a pay-per-use basis
	M-KOPA	2011	Kenya, Tanzania, Uganda	Manufactures, sells, and provides financing for solar home systems that provide electricity to rural households
	Off-Grid Electric	2011	Tanzania, Rwanda	Manufactures, sells, and services solar electricity systems to rural and commercial customers
Financial services	IFMR/KGFS	2008	India	Provides a suite of financial products and services to individuals in remote rural areas through an advisor-driven wealth management approach linked to household needs
	Zoona	2009	Zambia, Malawi, Mozambique	Provides domestic and international money transfer service via an agent-based network of 1,500+ mobile money transfer outlets
Health	Aakar Innovation	2011	India and Bangladesh	Produces and sells compostable low-cost sanitary pads to low-income populations through a female-led microenterprise model
	Livewell Clinics	2009	Kenya	Operates a network of health clinics, focused primarily on quality and efficiency, that serve as a “one-stop-shop” for primary care
	Swasth Foundation	2008	Mumbai, India	Operates nonprofit health centers that provide access to high-quality primary health care services at half current market rates
Housing	Echale	1997 (became for-profit in 2006)	Mexico	Offers an affordable and sustainable “self-build” housing solution and provides low-cost financing solutions
	Patrimonio Hoy (a business unit of Cemex)	1998	Latin America	Provides market-based, do-it-yourself housing solutions to low-income families
Insurance	ACRE Africa	2009 (became for-profit in 2014)	Kenya, Rwanda, Tanzania	Provides farmers microinsurance products that lower risk of investing in quality inputs, productivity, and access to loans
	BIMA	2011	15 countries	Provides low-cost personal life, accident, and health insurance as well as m-Health services through partnerships with mobile network operators and local financial service providers
	MicroEnsure	2002 (became for-profit in 2012)	15 countries in Africa and Asia	Designs, implements, and operates affordable life, health, accident, and other microinsurance by partnering with insurance companies, mobile network operators, and MFIs
Sanitation	Sanergy	2010	Kenya	Purchases, operates, and maintains a network of hygienic toilets; collects waste from toilets and converts it to agricultural inputs (fertilizer) that are sold to farmers

Note: All data and information in the case studies was sourced from extensive primary and secondary research and has been vetted and approved by the enterprises and in some cases also by their investors or board.

Depth of reach on the income pyramid and business performance:

Ultimately, we wanted to understand how deeply enterprises can reach into the BOP selling their goods and services while also achieving some level of profitability and scale; we wanted to know if enterprises are helping a large number of very poor people in a sustainable way.

While perhaps simple in concept, this is quite difficult to measure in reality. Data is scarce, organizations are understandably sensitive about sharing it, and definitions of concepts like “sustainable” and “at scale” are inherently subjective. The variability in quality and availability of data on profitability and scale across the enterprises we connected with were notable. What we were able to gather in a fairly consistent way was: 1) the scale at which an enterprise would break even (number of units sold per year, number of outlets opened, etc.); 2) how close enterprises were to that break-even point; and 3) how long it had taken to get to their current scale (and, therefore, very roughly, how long it would take to break even).

Based on this, we categorized the business performance of case study enterprises into four separate buckets:

- **Total enterprise profitability and continuing to scale:** Reached profitability on a consolidated enterprise basis and continued ability to grow.
- **Financially sustainable⁶ and investing in scale:** Demonstrated financial viability and focused on growing the business before achieving total enterprise profitability.
- **Not yet financially sustainable and moderate growth:** Moderate progress toward break even and scale.
- **Declared non-profit status:** Converted from for-profit to non-profit status.

As with business performance, assessing depth of reach into the BOP is easier said

than done. Different organizations define the BOP differently, some using income per day, and others looking at factors, such as cash flow variation, amount of accumulated wealth, or ability to consume a basket of goods that allow a minimal living. Even among those using income earned per day, there are different cutoff points (e.g., two common cutoffs are earning below \$2/day or below \$8/day), as well as inconsistencies around standardizing income based on purchasing power parity. Rather than take a position on where the BOP starts and how best to measure that, we simply look at how far down on the income pyramid enterprises are reaching.

As there is not yet a standardized and widely used method for measuring income levels of customers, we report the raw customer income data that our case study enterprises were able to provide. In order from most rigorous to least precise, these include:

Rigorous external measure:

- Grameen’s Progress Out of Poverty Index survey.
- Third-party funded measurement and evaluation studies.

Rigorous internal methodology:

- Proprietary enterprise income or financial health tracking methodology.
- Income verification through sales or enrollment process.

Impressionistic internal estimate:

- Basic customer surveys or focus groups.
- Proxy metrics to estimate income (ARPU, monthly rent, demographic data, geographic and country level income data, and customer occupations).

For transparency, each case study has a detailed “data methodology” section that describes what method was used for gathering data and how precise or imprecise the estimates actually are.



Factors affecting reach on the income pyramid:

As previously mentioned, we hypothesized that a few general conditions affect enterprises' ability to reach deeply into the BOP while also achieving sustainability and scale. While we tend to speak of these as "either/or" conditions (asset-heavy vs. light, push vs. pull, narrow vs. wide range of customers), they are in fact all more nuanced and continuous. Thus, below we outline some of the critical, relevant indicators we used to classify enterprises along these variables.

Asset intensity: Heavy vs. light. At a conceptual level, there are at least three factors affecting the asset intensity of an enterprise: 1) size of fixed costs (does the company need to carry real estate, buy equipment, pay a large labor pool, etc.); 2) "lumpiness" of variable costs as the enterprise scales (a scaling cookstove business faces fairly smooth scale-up costs whereas a system of health clinics or schools faces a series of discrete big costs as new sites are opened); and 3) size of marginal costs (businesses with a digitized product face much lower marginal costs to serving the next customer than does a company with a tangible product). Not

surprisingly, data measuring these factors is very difficult to gather and doing so was beyond the means of this research effort. Nevertheless, we did observe a number of characteristics that serve as rough proxies for asset intensity. In decreasing order of relative importance, these are:

- **Physical vs. digital products:** Some products can be fully (or at least substantially) digitized and transmitted through the Internet or mobile networks (e.g., mobile money), whereas others require physical infrastructure to manufacture, package, and transport to reach the end customer (e.g., fertilizer dairy products). The more intangible the product, the more asset light the enterprise and the lower the infrastructure or overhead costs to develop and deliver the product.
- **Relative labor intensity of sales/distribution:** Some products, even digitized ones, require a large salesforce to educate customers and sell and deliver the product. Some organizations hire a relatively large network of agents to do this. Even when these agents are from the local community and, therefore, fairly inexpensive on an individual basis, the

cost of the network can be considerable. Alternatively, some enterprises educate, sell, and distribute through microentrepreneurs, which shift some or all of the cost and risk of sales onto the entrepreneurs. This turns the sales and distribution channel into a potential revenue stream as opposed to a cost, in turn making the model much more asset light. For operations located in densely populated areas, a predictably high volume of sales can help spread costs over many customers and drive the marginal costs down. The more these strategies are used to drive down distribution costs, the more asset light the business.

- **Real Estate/Costly Equipment:** Some industries require a physical presence in a particular place. While some health and educational services can be substantially digitized, the full range of these services cannot (at least not yet). The need for stores, schools, and clinics imposes a more asset-heavy cost structure on some enterprises, which requires a higher price point for customers. In addition, clinics and other manufacturing sites often require expensive technology (medical devices, advanced machinery) that further drive up the up-front capital requirements.



- **Highly skilled/expensive labor:**

Similarly, while some educational and health services can be provided by paraskilled employees, the full range of services still requires trained teachers, doctors, nurses, and the like. Again, this imposes a higher, asset-heavy cost structure on some organizations.

In some cases, it is obvious how to categorize an organization in terms of asset intensity. The critical factor that determined if a product in our study was asset light was whether it was an intangible digital or mobile product. For example, Zoono was clearly asset light with its digital money transfer system and network of entrepreneurs that take on significant company risk. As discussed above, in some instances companies with intangible products also have other aspects that make the model heavier (e.g., an expensive salesforce). Ultimately, in these cases because of the digital nature of the overall business we still categorized the company as asset light.

On the other hand, enterprises that manufactured tangible products and, thus, required significant infrastructure or real estate were more easily categorized as asset-heavy. For example, Burn, with its product design and manufacturing needs combined with wholly owned sales and distribution network, is asset-heavy.

Most companies we categorized as asset-heavy did find ways to “lighten up” their business model; however, they still ended up categorized as asset-heavy depending on their physical requirements. For example, KGFS has a costly real estate presence with hundreds of bank branches around India, as well as a significant salesforce. However, they use a sophisticated back-end platform to track customer financial health and generate recommendations based on algorithms, so they can employ some low-cost local employees rather than requiring highly skilled financial advisors. Nevertheless, the real estate and salesforce needs still led us to categorize them as asset heavy.

- **Product preference—push vs. pull:**

Conceptually, where a product falls on the “push-pull” spectrum depends on the return that product provides to its buyer, adjusted for both time and risk—essentially the product’s Return on investment (ROI). Products that pay a high return quickly and with little risk (e.g., food) are highly desired. Products that pay an uncertain return in the future (e.g., insurance) are less desirable.⁷ Again, while it is very hard to measure this concept with data, we did observe a fairly clear hierarchy of goods from higher (more “pull”) to lower desirability (more “push”). In decreasing order of desirability, these are:

- **Fungible purchasing power:** A product such as mobile money, microfinance, or microloans that helps the BOP customer purchase whatever it is he or she desires.
- **Necessary economic inputs:** These are products or services critical to an individual’s main economic activities and often directly and immediately expand the person’s ability to generate revenue (e.g., agricultural inputs for a farmer that increase yield, access to electricity that enhances a business’ productivity, and nutritious food to keep oneself healthy).
- **Cheaper substitute:** Something that enables the buyer to perform a necessary function (e.g., power to charge a phone, and a cookstove) in a more cost-effective way. People are performing these functions now, so when a cheaper alternative comes on the market, they feel they should buy it since doing so eventually puts money back into their pocket. For example, Burn cookstoves enable households to save ~\$120/year, including a 57.7 percent reduction in household charcoal expenditures.
- **Amenities:** Products that an individual do not require to live, but that are nice to have and ultimately improve the quality of life in some way. The more expensive the amenity is, the less “pull” it is. For example, good roofing or flooring materials are relatively expensive and more “push.”

Conceptually, where a product falls on the “push-pull” spectrum depends on the return that product provides to its buyer, adjusted for both time and risk—essentially the product’s ROI.

- Uncertain/difficult-to-demonstrate benefits:** These are goods or services that, even if they are of high quality, do not necessarily pay a return to the BOP customer. Examples include insurance against an event that may never happen or preventative health care that does not immediately show results.

Push vs. pull was a particularly tricky categorization to make, especially given that push products can become pull products over time as product awareness grows and there is more widespread adoption. The two most critical factors in categorizing a product as pull were whether the product fell under fungible purchasing power or a necessary economic input. In some cases, a cheaper substitute for a costly existing good, particularly one that was essential for daily life, was also clearly pull. However, for cheaper substitutes we discovered that there is also a relative hierarchy within the category: the cost savings needed to be realized over a short enough time frame and also be easily understandable, requiring less customer education. There is also

the notion of “aspirational goods,” those that are more desirable because they give customers the arbitrary feeling of being or becoming wealthier—for example, English language learning products, clean toilets, and lanterns. This aspirational nature of products or cultural traditions can change the push-pull categorization of a product or service.

For example, solar home systems (M-KOPA and Off-Grid Electric) were considered “pull” products because the electricity immediately enhances productivity, the economic savings are realized in a short time frame, and electricity is considered an aspirational product. On the other hand, cookstoves would seem to also be “pull” because they provide cost savings to the customer; however, due largely to the cultural importance of preserving traditional ways of cooking, selling cookstoves requires significant education and can be met with resistance by purchasers, in particular, relative to solar-based systems. Thus, we categorized cookstoves as “push” products.

Amenities, goods with difficult-to-demonstrate benefits, and aspirational goods all played into our understanding of push vs. pull, but typically if a product did not generate fungible purchasing power or was not a necessary economic input or cheaper substitute, it was categorized as a push product.

Range of customer income levels:

Narrow vs. wide: Finally, we assessed whether enterprises focused their sales primarily at a single, low-income segment or if they sold to a range of customers across income levels. Achieving a wider range could come from selling the same products at the same or different prices to different income level customers or having segmented product offerings with different products at different prices for different income level customers.

While this would seem like it has an obvious characterization based on the percentage of customers at given income levels, we realized there was often a discrepancy in the percentage of customers at a particular









income level and the revenue contribution from that segment. In many cases, higher-income customers are buying higher-priced products and, thus, contribute a greater percentage of revenue than the number of customers alone would suggest. However, we did not often have access to this level of detailed revenue contribution breakdown per customer income segment (or it did not exist).

At one end of the spectrum are products that are clearly intended for a single, lower-income base, which was obvious because the enterprise sells only products that higher-income customers would not buy or would not need. For example, Aakar Innovation currently provides affordable sanitary pads only to women in the slums who otherwise go without. On the other hand, even slightly higher-income customers likely already have access to some type of low-cost product for basic menstrual hygiene.

At the other end, some enterprises clearly serve a wide range of customers, evidenced by different products at different prices that are sold to different income segments based on the purchasing power of the customer. For example, Envirofit offers a portfolio of different cookstoves ranging from a very affordable version for poor rural households to much more expensive commercial products.

However, in between, there were surprisingly many cases where the classification was less obvious. In these instances, the most important driver of income range categorization was the test: "Would the company be profitable and successful without higher-income customers?" This we assessed on a relative and qualitative basis through in-depth primary and secondary research. For example, Sanergy's very poor pay-per-use toilet customers vastly outweigh the number of higher-income customers, the farmers purchasing fertilizer. However, without the fully integrated value chain where the end product of fertilizer converted from toilet waste is sold to farmers, the company would not be profitable because they rely on the for-profit fertilizer business for long-term sustainability. Another gray area was undifferentiated products that could be relevant to multiple income levels regardless of the intended end user. This was particularly true with digital, asset light products. For example, FINAE provides student loans at the same interest rates to all customer income ranges. Given the higher risk of lower-income customers, they need to have a balanced portfolio of customers to distribute the risk. The model would not work with only the lowest income customers.

Factors affecting reach

Asset intensity		Product preference		Customer base	
Heavy	Light	Push	Pull	Narrow	Wide
					
Physical product; requires manufacturing	Digital/mobile products	Not easily exchangeable	Provides fungible purchasing power	Revenue from one income segment	Different income segments with varying revenue contribution
Large sales and distribution network	Shifted risk of sales and distribution	Nice-to-have amenities	Necessary economic inputs	Relevant to only a particular customer segment	Undifferentiated products
Highly skilled labor	Paraskilled labor	Expensive non-replaceable good	Cheaper substitute	Single product, single price	Multiple products, different prices
Physical facilities	No/limited physical presence	Difficult-to-demonstrate or long-term benefits	Obvious or immediate benefits	Limited business model risk	Need to distribute risk across income levels



VI. Findings

Despite the limitations of the data, as well as of the case study approach, there are several findings from the synthesis of our 20 case studies that we believe are worth calling out for those interested in serving the BOP, namely entrepreneurs, investors, government officials, and stakeholders across the private sector. These are:

- First, most of the enterprises we studied are able to reach BOP populations with critical goods and services, and some are able to reach surprisingly deep down (e.g., those living on less than \$2.50/day and even \$1.25 in some cases).
- Second, many, if not most, of the enterprises reaching the BOP and deep BOP are operating successfully, both in terms of financial viability and growth.
- Third, being asset-heavy and selling a push product does not necessarily prevent companies from reaching the BOP in a financially sustainable way; several have done it. Moreover, selling to customers across a broader range of incomes is clearly possible, since the vast majority of our cases did so. Indeed, in several instances, selling across a broad range of income segments was critical to the success of an enterprise.
- Fourth, regardless of sector or products sold, enterprises can improve their chances for achieving desired results by influencing how asset light it is, how desirable its products are, and whether it serves a broad or narrow range of customers through a number of common business model design tactics.
- Fifth, most of the enterprises for which we have the information did receive some form of subsidized capital, which was often very helpful in mitigating start-up risks as well as navigating the challenges inherent in BOP markets. It was often received at an early stage, replaced over time by more market-rate capital, suggesting subsidy does not preclude businesses from eventually becoming self-sustaining.
- Sixth, while all enterprises profiled in the report had an obvious direct and

immediate social impact resulting from the goods or services sold to BOP customers (e.g., provision of power, food security, and health care), these enterprises also yielded a number of less obvious, broader development benefits. These include significant job and entrepreneurship opportunities, the provision of a wide range of public goods, and improved resiliency of individuals and communities through products, such as health and crop insurance.

Finding I: Enterprises are able to reach deeply down the income pyramid

Given the difficulty of reaching the poorest people on the planet through a for-profit organization, as well as the dearth of quality data on the income levels of the customers being served, the question arises, how low are these enterprises going? How far down the income pyramid are they able to reach?

Of our 20 case studies, we found that about three-quarters of them were reaching fairly low down the income pyramid. Most of these (about 10) have done rigorous internal or external studies to measure the income level of their customers. For instance, Burn leveraged PPI methodology to understand that 24 percent of its customers earn \$2.50/day or less, and another 19 percent earn between \$2.50 and \$4.00. BIMA also conducted a survey based on the PPI, finding the percentage of its customers living on \$2.50/day or less to be 53 percent. M-KOPA partnered with the Gates Foundation to measure its customers, learning that 82 percent live below \$2/day. IFMR used a proprietary methodology to determine that 70 percent of its customers live on \$5/day or less.⁸

Of the remaining, many use quite impressionistic approaches to assess income levels. Some, however, used proxies to estimate income levels. For example, based on demographic data, Swasth calculates that 90 percent live on \$3/day or less. Based on rent in the geographic areas where they operate, Livewell figures that 60 percent live on \$4/day or less. Urban

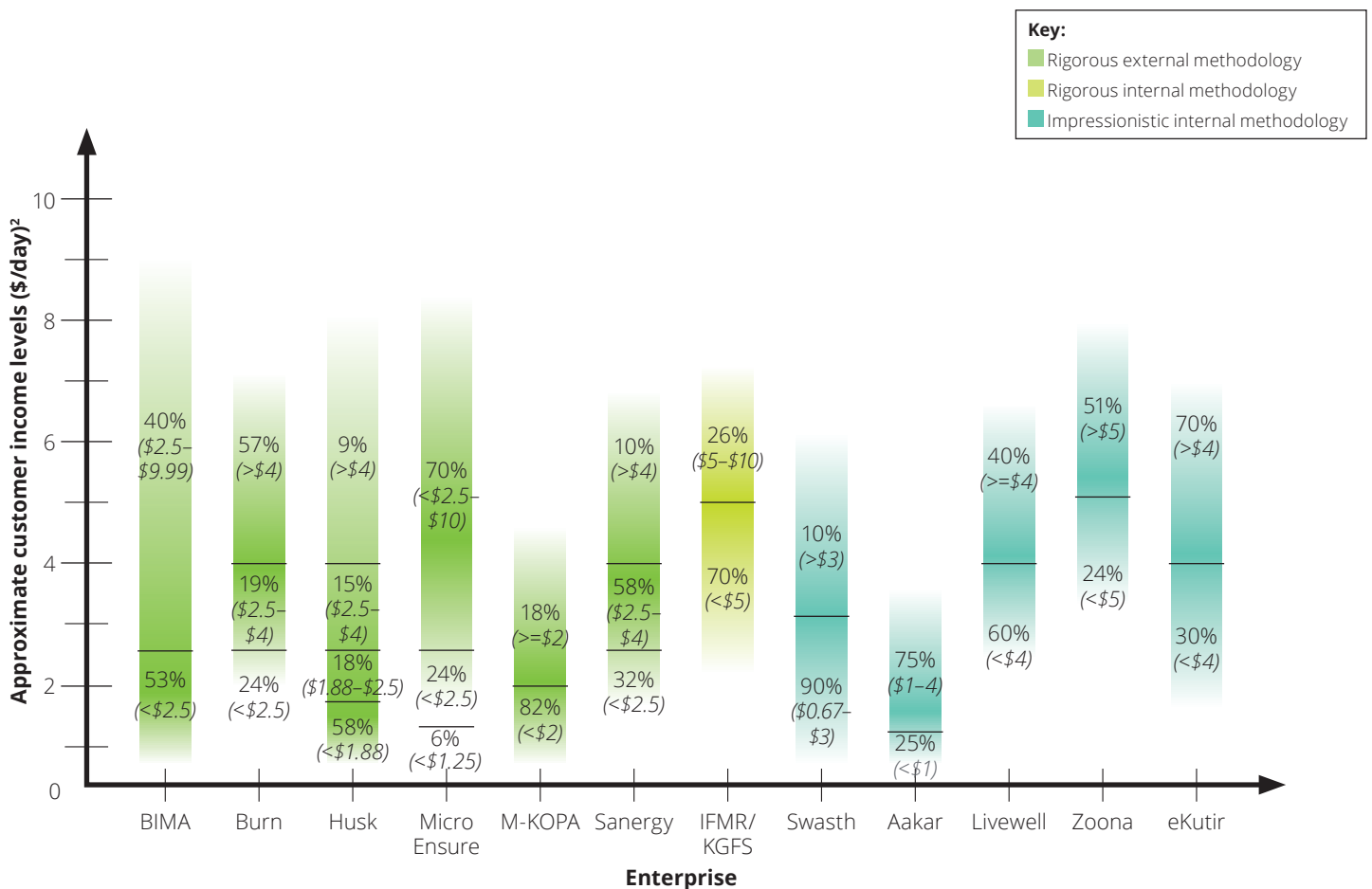
Most of the enterprises we studied are able to reach BOP populations with critical goods and services, and some are able to reach surprisingly deep down (e.g., those living on less than \$2.50/day and even \$1.25 in some cases).

Planet Mobile, based on the monthly spend on a customer’s mobile phone, figures 80 percent of its customers are likely in the BOP, though not necessarily deeply down in the BOP. While these methods are arguably less rigorous than those noted above, the income levels of the people served are very low. This suggests that even if the measurements are overly optimistic regarding their depth of reach, they are still almost certainly reaching a large number of very poor people.

Other impressionistic approaches include customer focus groups and surveys with varying level of detail and

accuracy. For example, eKutir canvasses its microentrepreneurs to gather their viewpoints on the income levels of their customers. Others simply observe their customers and feel confident relaying that the majority of their buyers are earning between \$2 and \$4 per day. While these impressions may very well be inaccurate, it is worth pointing out that many enterprises that do deploy rigorous methods, like the PPI, are surprised at how poor their customers turn out to be. That is to say, we know that many have impressionistically pegged their customers have higher-income levels than they are actually at.

Depth of reach into BOP by select enterprise (see appendix for more detail)



1 Chart only has enterprises with comparable available data. Not included: ACRE Africa, Aldeia Nova, Echale, Envirofit, FINAE, Off-Grid, Patrimonio Hoy, and Urban Planet Mobile. The approximate income data is reported based on interviews with enterprise leaders and data provided directly from enterprises and investors. The income level ranges are a rough extrapolation developed by the Monitor Deloitte team based on these inputs.

Finding II: Many of the enterprises reaching deep into the BOP are also financially sustainable and scaling rapidly

The next question: Can enterprises sustain this reach? While it is certainly encouraging that so many enterprises are reaching so low, some of the luster of Finding I would come off if we found they could only do so at a loss or through continued reliance on subsidies which would, sooner or later, put them out of business.

Fortunately, this does not seem to be the case. As outlined in the methodology section, we defined business performance in four categories: 1) total enterprise profitability and continuing to scale, 2) financially sustainable and investing to scale, 3) not yet financially sustainable and moderate progress toward breakeven, and 4) declared non-profit status. These parameters for business success, while often blurred at the edges given the inconsistent nature of start-up enterprises' revenue year to year, provide a useful way to organize the enterprises.

A few have achieved total enterprise profitability. This includes all three of the enterprises operating in Mexico and Latin America (FINAE, a higher education loan program; Patrimonio Hoy and Echale, both affordable housing solutions), in addition to eKutir (tech-enabled kiosks providing farmers agricultural inputs and market access), Aldeia Nova (enhanced agricultural production and distribution of outputs), and Urban Planet Mobile (English language instruction via mobile phones).

A large number of cases have reached financial sustainability. Many of these could be profitable now, but are instead reinvesting earnings in growth rather than focusing on continuing to be profitable. In these cases, achieving financial sustainability is an indicator of success because these enterprises have unit economic profitability or are already profitable in one or more markets. Enterprises in this group cut across industries, including those in financial

services, power, and cookstoves (M-KOPA, IFMR/KGFS, and Zoona, among others). In other cases, enterprises are hovering around or moving rapidly toward their breakeven point (i.e., they will reach that point in a year or two)—for example, Aakar, Husk, and Livewell.

It is probably worth pausing here to note that, while this success is impressive and welcome, it is not inevitable or assured over the long term. These remain relatively young companies, which operate in difficult environments and sell to very poor people, people whose circumstances can change quickly and leave them unable to continue to pay for goods and services from these companies. Based on our research, optimism in these sorts of enterprises is warranted, but cautious optimism.

Finally, a few are either not yet financially sustainable or have opted for non-profit status. These are also typically scaling more slowly relative to peers in their sector. It is worth pointing out that these enterprises are mostly in industries—health and sanitation—that typically receive considerable support from the government, even in very rich countries.

Another important measure of success at reaching BOP populations is the scale of the enterprise: Is it reaching a lot of poor people? Although it is difficult to directly compare the scale and growth rates of the enterprises included in this report due to the vastly different nature of the goods and services they provide as well as the geographies they operate in, we have shared our general observations below. We ultimately focused on revenue (US\$M), where available, as a metric that makes comparison most possible.

In our study, there seemed to be a scale gap separating companies into two groups, with one set at or below \$1M and then another set at about \$5M and higher. On one end of the spectrum, we have companies like Envirofit with approximately \$20M in revenue in 2015, operating in 45 countries

globally, and BIMA with approximately \$11M in revenue in 2015 operating in 16 countries globally. At the other end, we looked at much smaller companies like Aakar Innovation, which currently operates exclusively in the slums of India and had revenue of approximately \$110K in 2015 or Sanergy operating exclusively in the slums of Kenya.

We found companies that successfully scaled across sectors, industries, and geographies. The sectors with the most demonstrated success in scale were financial services, insurance, cookstoves, housing, and electricity. It is not surprising that the asset light companies in insurance and financial services were able to scale quickly due to the decreased marginal costs of adding a new customer and the low distribution costs and requirements. But, it is interesting to note the success of the cookstove, housing, and electricity companies, all of which are asset-heavy and, in the cases of housing and cookstoves, push products. Not surprisingly, scaling appeared most difficult in health care.

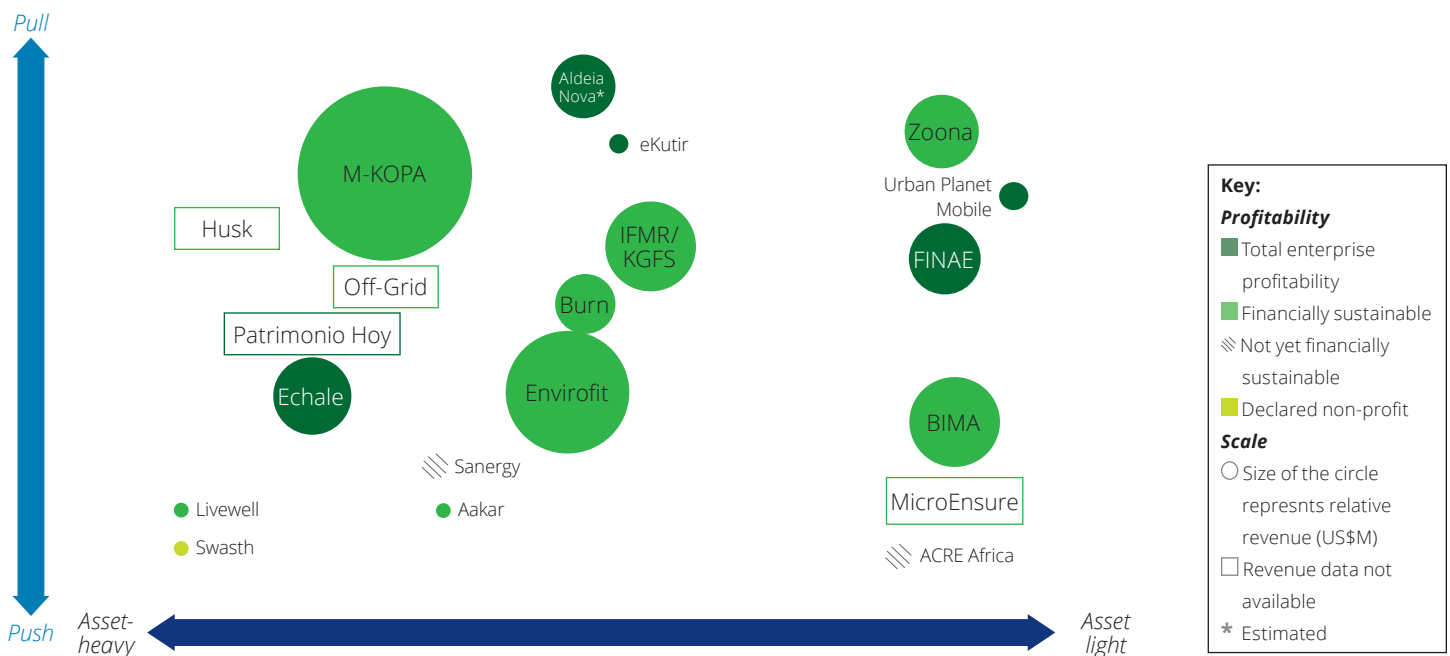
Finding III: Even asset-heavy businesses selling push products can be successful in reaching the BOP

As noted above, one of our objectives was to assess whether or not a few factors—asset light businesses, pull products, and breadth of customer income levels—help enterprises reach lower while still achieving sustainability and scale. In a sense, it is fairly clear that they do. How could highly desirable products that sell themselves, have a low cost structure, and attract a wealthier set of customers not be helpful? But our question goes deeper than this. Are BOP customers so poor that asset-heavy, push product companies simply cannot generate sufficient revenues to adequately cover costs? Further, in order to survive and thrive, do these types of companies need to find alternative sources of income, be it from subsidies or perhaps by broadening the customer base to include some wealthier customer segments?

As to the first question—are asset-heavy push companies unable to really reach the BOP?—we did not find this to be the case (as to the second question, please see the

subsection, Serving a wider range of income levels, below). In assessing the range of enterprises across the push vs. pull and asset light vs. asset-heavy spectrum (see chart below), we find financially successful companies reaching fairly deeply into the BOP across all values of these variables. Certainly there are instances of successful asset light businesses selling pull products (Zoono and Urban Planet Mobile), which are toward the upper right of the graphic. There are also successful asset light businesses selling push products (BIMA and MicroEnsure) in the lower right. So too are the upper-left asset-heavy businesses with pull products able to thrive (eKutir and M-KOPA). Perhaps most surprising, even several enterprises facing the hardest test, asset-heavy businesses selling push product, have shown to be successful (bottom left).

Asset intensity vs. product preference: Enterprises across two key continuous variables



The cookstove enterprises are cases in point. Burn and Envirofit are asset-heavy since they manufacture and distribute a tangible good, and cookstoves are widely viewed as push products, with significant investments in customer education around the benefits relative to the costs to get to a sale. Still, these two organizations are already growing strongly and continuing to invest in growing more. Similarly, the low-cost housing providers—Patrimonio Hoy and Echale—are two relatively successful asset-heavy push companies. They manufacture and install heavy, relatively low-value goods (e.g., cement and bricks) and their product is a more expensive necessity (since it replaces some sort of existing housing) or an amenity (since upgrades are made to an existing structure). Hence, they are asset-heavy push organizations, well placed in the lower-left section of the graph. Still, they are reaching fairly deeply into the BOP—with Patrimonio Hoy having 29 percent of households served living on less than \$8/day and Echale serving households making \$8-\$21 per day—and both companies are profitable on a consolidated basis.

Nevertheless, while our research did identify asset-heavy push companies profitably serving the BOP at scale, it is worth noting some nuance around this finding. This finding mainly rests on the performance of the cookstove and housing enterprises. With respect to the cookstoves, these exhibit the most pull of all the push products we looked at. While the field has, for the most part, decided cookstoves are push products, the executives at the organizations themselves do not agree. They point out that, although the stoves are more expensive up front, they offer a cheaper alternative cooking method over the longer run. Put another way, after four to six months, cookstoves begin to put money back into the pockets of their users. So, some might argue that Burn and Envirofit are more like M-KOPA and Off-Grid than Aakar and Sanergy

(see chart above), and that it is the pull qualities of their product that helps them overcome the inherent asset-heavy nature of their business.

Housing examples are among the least comparable cases in our portfolio. These enterprises report income by household, whereas all the others report it by individual. They are operating more in middle income countries (e.g., Mexico), whereas the others operate in poorer countries. Finally, they assess income level by looking at paystubs (which does not necessarily rule out other sources of income), whereas the others assess it by looking at living conditions (which would account for all sources of income, formal and informal). So, while it is quite clear that these are asset-heavy push companies serving very poor people, it is not as clear that they are serving people as poor as those served by our enterprises operating in Sub-Saharan Africa and South/Southeast Asia.

Finally, to foreshadow Finding V, the asset-heavy push companies are among those that received some degree of subsidy. Both Envirofit and Burn have received subsidies and capital from investors over the years. Patrimonio Hoy did not receive direct funding from its parent company, Cemex, but it certainly benefited in myriad ways (e.g., access to established back-office functions, marketing, and brand recognition) by being part of a large corporation. Echale reports that about 30 percent of its customers receive a 30 percent housing subsidy from the government. In contrast, the asset light push companies—Zoono and Urban Planet Mobile—were among the few that did not receive any subsidy. In short, while it is clearly possible for asset-heavy companies selling push products to profitably serve the BOP, there remain grounds for caution about the relative ease of doing so in comparison to lighter companies and those selling pull products.

While it is clearly possible for asset-heavy companies selling push products to profitably serve the BOP, there remain grounds for caution about the relative ease of doing so.

A word on public goods

It might be tempting to make inferences about the difficulty of being an asset-heavy push business based on the fact that the three cases that are not scaling as rapidly as many of the others are all in the lower-left area. Livewell and Swasth run health clinics and provide a wide range of services, thus carrying the costs of real estate, expensive equipment, and highly skilled workers (i.e., doctors and nurses). Sanergy manufactures toilets, distributes them in slums, and gathers and treats the human waste, so it bears the costs of production, processing, and transport of tangible materials. All are clearly asset-heavy. They are also pretty clearly push products. Health care provides uncertain value, since one can never know the counterfactual (i.e., maybe the same outcome would have happened without taking medicine or visiting a doctor) and sometimes the negative effects occur over long periods of time, e.g., inhalation of toxins from traditional cooking methods. Access to a toilet is a more expensive way to perform a necessary basic function relative to the current free methods.

Swasth opted to become a non-profit because for-profit status made it too hard to serve the very poor patients it wanted to serve. Sanergy split its toilet business off from its fertilizer business and made the toilet operations not for profit. Moreover, while it continues to grow, it has a long way to go to reach break-even. Finally, Livewell is financially sustainable. It has, however, had to shrink in order to consolidate operations and cut costs. It also depends upon the 40 percent of its higher-income customers who have insurance (i.e., are paying for health care services with other people's money) in order to achieve financial sustainability.

On the one hand, these results might point to the difficulty of selling push products via an asset-heavy operation. On the other, it is well worth pointing out that not only are these push products, they are also public goods. That is, the enterprise selling the product does not monetize the full value of that product. A person who receives health care is presumably a healthier person and that makes the people around him or her healthier and more productive. But, those people do not pay the health care providers

for that benefit they received. Similarly, a person who uses a toilet makes the people around him or her healthier and more productive. But again, those people do not pay Sanergy for that benefit. It is very hard to build a successful for-profit enterprise that sells public goods. Even in the richest, most advanced capitalist economies, governments play a major role in providing health care and disposing of human waste. The fact that these enterprises are achieving some level of success serving some of the poorest people in the world is impressive to say the least.

Serving a wider range of income levels

In addition to assessing the impact of push vs. pull products and asset-heavy vs. asset light businesses, we also wanted to understand whether selling to a wide range of income segments could help enterprises successfully serve the BOP. Based on our cases, it is fairly clear that, indeed, this can help significantly in terms of both financial sustainability and growth.

The vast majority of our cases served customers at different income segments.



In some instances, financial sustainability did not depend upon having a broad mix of customer incomes, but it was helpful and expanded the size of the organization. For example, eKutir—the provider of agricultural inputs through tech-enabled kiosks—reached breakeven financial sustainability selling to a fairly narrow base of commercially oriented smallholder farmers. Then, in 2014, it started opening its “veggie kiosks”, which sell the farmers’ output to wealthier urban dwellers. Revenues jumped from \$43,000 in 2013 (about at breakeven) to nearly \$540,000 in 2015.⁹ KGFS, the provider of financial advice and products, started off by focusing on a fairly poor segment of the population, but over time found it made sense to diversify their product offering to be relevant to the whole village and to keep pace with their customers as incomes rose and they graduated to higher-income segments. It seems possible that these, and other, cases could be successful without diversifying their customer base, but since there was little downside to diversification—diversification did not seem to hurt their ability to serve their poorer customers—and potential upside, there was little reason to stay focused on a narrow, lower-income segment only.

For a second set of cases, having a mix of customer incomes was critical to business success. For example, the insurance provider BIMA sells a high volume of low-margin products to very poor customers (53 percent of customers live below \$2.50/day). Having digitized much of its business, BIMA has very low marginal costs and having this volume of sales, even at low price points, helps cover its fixed costs. Each additional sale chips away at the total amount of costs that must be covered. BIMA also offers a range of products (e.g., higher coverage amounts and different types of services; and, more recently, value-added services
















such as telehealth), some of which are only affordable to wealthier buyers. While volumes on the higher margin products are small relative to the total business, these higher margin sales are critical to the success of a business. Like an airline that provides both first class and economy seating, the combination of high volume from the deep BOP and the growing revenue share from higher earners are critical to BIMA’s success.

Another unique example is Sanergy. Its business model is dependent on processing the waste from toilets used by very poor urban dwellers and converting it to fertilizer, which is sold to relatively large-scale farmers (40+ hectares). From the perspective of the toilet business, Sanergy is turning a core cost (waste processing) into a revenue stream (fertilizer sales). From the perspective of the fertilizer business, Sanergy is substantially defraying a core cost (acquisition of key raw materials) by making that a break-even business. To make this synergistic relationship work, it clearly needs both poor and wealthy customers.

A particularly instructive comparison is Livewell and Swasth, the two health care providers. Of all our cases, Swasth may well have the largest percentage of very poor customers, with 90 percent living on between \$0.67 and \$3.00 per day. To continue operating and serving such a low-income population, however, Swasth had to become a non-profit and grants account for half or more of its annual revenues. Livewell, in contrast, is financially sustainable and has remained a for profit. To accomplish this, Livewell depends upon the 40 percent of its customers (wealthier customers) who have insurance. This 40 percent generates about 60 percent of Livewell’s revenues, whereas the poorer 60 percent provide the remaining 40 percent of revenues

Finding IV: To drive financial success and growth, most businesses employ a number of tactics that help them be lighter, more desirable, and reach a wider base of customers

While enterprises were shown to be successful regardless of where they fell on the push vs. pull, asset-heavy vs. light, and narrow vs. broad income spectrums, the fact still remains that, all else being equal, becoming more pull, lighter, and broader is probably helpful. Indeed, virtually all of our case examples took steps to get more pull or lighter or broader. Through our research, we identified several business characteristics that were commonly used to do this. These factors are not the only factors that enterprises can leverage in order to better serve customers at the BOP,¹⁰ but they were some of the most significant we identified during our examination of the 20 case studies and through the interviews. These individual factors have varying levels of importance, based on a number of other contextual considerations for the enterprise (type of product, industry, and business environment).

Characteristic	Description
Increases product preference	
 Reputation partner	Leverage an established organization for their relationships, connections, and trust of BOP customers to build brand credibility. Partners can be local commercial brand, well-known global brand, the government, and an NGO, among others.
 Pay per use	Customers pay each time they use a good or service for one use at a time. In some instances, companies create single serving size version of a larger product.
 Financing options	Access to finance to purchase a product over time; can include starting a community financing arm as well as working with MFIs, the government, or other lenders and payment platforms to coordinate access to finance.
Decreases asset intensity	
 No frills	Strip down a product or service to the most basic elements and remove features that would make the product or service too costly for very low-income customers to afford.
 Optimized internal processes	Leverage technology—digital, mobile, and Internet platforms—to reengineer business processes, increase data connectivity, extend the enterprise's reach into the BOP, provide more efficient services, and reduce overall corporate costs.
 Paraskills	Break down complex services and business processes into a set of individual, basic tasks and use low-skilled workers that lack special qualifications to do these standardized tasks.
 BOP as employees	Employ low-income populations from the local communities.
 Business within a business	BOP-focused business setup as a separate unit or line within a larger (often multinational) corporation that serves higher-income customers.
 Microentrepreneurs	Introduce conduit to selling to BOP—microentrepreneurs typically purchase the knowledge, platform, or product from the social enterprise and once they own that, sell directly to the BOP customers. The enterprise collects a royalty fee.
 Shared channels	Leverage existing distribution channels that can often reach deep into the “last mile” of rural markets. Partner to tap into existing customer base of other companies.
 Up-sell, cross-sell	Sell existing customers' follow-on goods or services after the initial product purchase.
 End customer does not pay¹¹	Government, corporation, or other third party pays for the goods or services that are consumed by BOP populations.
Deepens reach on the income pyramid	
 Price discrimination	Charge wealthier customers more for the same products.
 Product segmentation	Different products, different prices, often for different customer income levels.
 Vertical integration	Own the entire supply chain from design through manufacturing, distribution, sales, and post-sales customer service.

Product preference (push vs. pull)

Enterprises used a few tactics to build trust and access customers within the communities they serve to make their products more desirable. Two of the most noteworthy include reputation partners and financing.

Working with an established partner was used by nearly half of the enterprises with push products. Reputation partners can be a variety of stakeholders, including local commercial brands, a well-known global brand, or a government or NGO already established in the local community with trust and credibility among the BOP populations the enterprises are seeking to reach. These partners provide the enterprise with credibility and name recognition that can be helpful for education about the benefits of the product or to increase the aspirational value of the product. For example, Patrimonio Hoy benefits from the trusted reputation of its parent company, Cemex, one of the largest building materials companies globally. FINAE, a student loan organization, uses its relationship with well-known universities to build trust with students who are in need of student loans. This strategy is particularly helpful in poorer populations who are very discerning with how they spend their limited income, as well as with products that are inherently social goods and the benefits are not always easy to demonstrate—for example, insurance products provided by MicroEnsure or BIMA, where the immediate need is not apparent and oftentimes no benefits are ever realized if the negative event does not occur.

Two other important tactics critical for very low-income populations are financing options and the opportunity to pay per use. Virtually, every enterprise in our set of cases employed one of these approaches. A number of our enterprises produce goods that are cost prohibitive for BOP customers to buy outright (e.g., cookstoves, solar systems, and housing). Access to financing allows BOP customers to access products that would otherwise be too expensive

through a variety of payment mechanisms that better match their cash flow and are often flexible for income volatility faced by low-income customers. For example, 30 percent of Burn Manufacturing's cookstove sales use some type of informal or formal credit and 98 percent of M-KOPA's solar systems are purchased using financing options. In both examples, customers build a credit history and can gain access to even better financing options for other future purchases. Off-Grid Electric's financing mechanism employs both access to payment, over time as well as pay per use because if clients cannot make a payment then Off-Grid can remotely disable the system and turn it back on as soon as the next payment is made, enabling customers to choose if they want electricity or not depending on their other financial needs in a given time frame.

Similarly, enterprises develop pay-per-use pricing models to drive down the practical cost of a product. This tactic was widely used by enterprises using mobile networks—BIMA, Urban Planet Mobile, MicroEnsure, and Zoona. This allows enterprises to charge a very small fee on a transaction basis (Zoona), a prepaid coverage basis (BIMA and MicroEnsure), or for an initial lesson (Urban Planet Mobile), improving the likelihood of repeat customers and addressing the cash flow challenges faced by many BOP customers. It is also widely used for enterprises that sell goods that are used or consumed by individuals on an as-needed basis, for example eggs (Aldeia Nova), sanitary pads (Aakar), and sanitation (Sanergy).

Product intensity (asset-heavy vs. asset light)

Many BOP customer needs require an asset-heavy business. Schools, hospitals, production facilities for agricultural inputs, and solar systems, for example, all create up front costs that are often challenging to overcome when selling to the BOP. These enterprises have to get their costs down to succeed. One tactic widely used, including by more than 80 percent of the enterprises

in the study, is BOP as employees. The benefits of this include not only reduced costs by employing less skilled workers, but also a deeper knowledge of their customers, which helps increase sales and guide product design. For example, Patrimonio Hoy provides employment to more than 3K BOP, 97 percent women, who serve as the local salesforce for the enterprise. Echale, in building affordable housing, has been able to create 200K temporary jobs while keeping the cost low by depending on local labor and affordable materials.¹² Even asset light businesses, like Zoona and BIMA, employ BOP workers where possible, opening up agent-based sales channels with connections to the communities where they sell their products.

Shared channels were used by about half of our enterprises. This allows for easier customer acquisition and more cost-effective market access, addressing the “last-mile” access issue that is common in developing markets. Shared channels also save the enterprise significantly on the infrastructure costs to deliver low-cost, low-margin products. For example, MicroEnsure partners with mobile network operators (MNO) to provide affordable insurance products through their network. Burn Manufacturing, in designing, selling, and distributing cookstoves, partners with banks, MFIs, and pay-as-you-go solar enterprises like M-KOPA and Mobisol to gain access to both shared channels and for necessary business capabilities for the enterprise (e.g., easy-to-use payment systems). Both Patrimonio Hoy (part of Cemex) and KGFS (part of IFMR) leverage their parent companies’ existing infrastructure to access customers—for Patrimonio Hoy, relationships with cement distributors, and for KGFS, the existing wealth management technology platform.

Range on the income pyramid (narrow vs. wide)

Enterprises targeting a broader spectrum of customers on the income pyramid have several methods for reaching a broader set of customers. One is price

discrimination, whereby enterprises offer the same products, but wealthier customers are charged higher prices to offset lower prices for the BOP. For example, eKutir and Aldeia Nova both sell the same agricultural products (fresh vegetables, and dairy and poultry, respectively) at premium prices to wealthier buyers and at a discount to lower-income customers. Health care clinics often charge more for various services to their wealthier customers, particularly those who have insurance.

Product segmentation can help organizations leverage wealthier customers to enhance the overall financial viability of the business. In this case, enterprises develop different products at different price points that appeal to different customers based on distinct customer needs and budgets. Product segmentation is widely used for enterprises offering insurance or financial products (KGFS, BIMA, ACRE Africa, and MicroEnsure), where they often provide a free version of the product for customers to test and then a premium version once they have built more trust or graduated to a higher-income level. This approach is also used by enterprises selling durable goods, such as cookstoves, solar, and housing (Burn, Envirofit, M-KOPA, Off-Grid, Echale, and Patrimonio Hoy), that offer smaller or simpler products as well as larger, more comprehensive and sometimes commercial goods. Product segmentation can help companies move either up or down the income ladder depending on where they started and their long-term objectives in terms of customer reach.

It is worth pointing out that product segmentation can provide a welcome alternative to price discrimination. As a core component of an enterprise’s business model, price discrimination puts that enterprise at a competitive disadvantage over the long run, because non-socially motivated organizations can copy its business model, but not charge wealthier customers more and undercut the socially motivated enterprise on price. If the wealthier customers do not

place a high value on their contribution to poorer customers, chances are the socially motivated organizations will be driven from the marketplace due to the presence of lower-cost competitors who offer a comparable product. Product segmentation, in contrast, offers enterprises a more competitively sustainable tactic for retaining wealthier customers and generating higher margins from them that enable the organization to continue to serve lower-income customers.

Finding V: Financial subsidies are common, very helpful, and do not seem to discourage organizations from becoming self-sustaining

While the focus of our report was on how low on the income pyramid successful enterprises are reaching, we recognize that funding often plays a critical role in an enterprise’s ability to reach low while also achieving profitability and scale. Thus, whenever possible, we sought to understand the different types of funding enterprises had leveraged and the role of the investors in design, development, and scale of the enterprise.¹³ Note that we gathered information on only the 14 full case studies in the report, not the 6 snapshots.

Based on the cases we profiled in the report, most enterprises received subsidized capital at some point in their start-up phase (10 out of the 14 full case studies).¹⁴ The most common forms of subsidy were philanthropic grants, prize awards, and below-market-rate capital. While it is hard to know if these subsidies were absolutely required for enterprise survival, it is clear that these various forms of financial help were extremely helpful for mitigating the high risks of starting a business in volatile and low-margin BOP markets. Almost certainly, the failure rate of these for-profit enterprises would increase without subsidy.

Subsidies were often awarded to an enterprise for a specific purpose, at a (very) early stage. Purposes included product development, branding, customer/market research, testing, and piloting the concept

and exploring new markets, among others. For example, Aakar Innovation received a \$550,000, two-year grant for a pilot in Africa and expansion in India from the Millennium Alliance (which includes USAID and the World Bank, among others). In the case of Sanergy, the company got started with prize money from competitions and fellowships totaling \$250K in 2010-2011.¹⁵ Moreover, the fact that subsidies tended to be provided early on, and then did not appear in later stages, suggests that it is possible to get enterprises “over the hump,” and then on to self-sustaining financial viability; in other words, subsidy does not seem to doom these firms to remaining perpetually on the take.

Not surprisingly, we found that subsidies were most common for enterprises with asset-heavy, push products, while those enterprises that required no subsidy were all (relatively) asset light and pull products. The subsidies were often used to offset the risk of developing an asset-heavy, push product-based business. These risks include developing the infrastructure to produce and distribute the product, as well as the labor needed to educate customers and create sales in the market. The four companies that did not require a grant or patient capital were KGFS, BIMA, Urban Planet Mobile, and Zoona. Of these, BIMA, Urban Planet Mobile, and Zoona are all digital products that scaled quickly through their technology platforms. All have similar profiles to traditional venture capital investments in developed markets. While KGFS has a network of physical bank branches, they do also have a technology platform and digital financial recommendation engine that significantly lighten the asset intensity and are helping them to scale into new markets. In addition, all four of these companies provide a relatively desirable product. In particular,

Zoona provides access to funding through digital money transfers and Urban Planet Mobile provides English language training, which could be a direct pathway to a higher-speaking job once English skills are acquired. The investors in these four companies were typically strategic and financial investors, as well as some investors with a dual mission to achieve both social and financial return (profit and purpose). The other 10 companies in the report all received some level of clear subsidy over varying time horizons from philanthropic or investors. For example, M-KOPA received grants from the Gates Foundation and Shell Foundation, while Burn received below-market-rate investments from Acumen and OPIC, and, eKutir received no-interest debt from Yunus Social Business Fund.

Finding VI: Aside from the direct impact resulting from the products sold to BOP customers, enterprises also generated a number of broader development benefits

We care about financially sustainable and scalable businesses serving the BOP because we want to improve the quality of life of the poorest on the planet and because we want to have more development impact. The enterprises studied in this report have considerable impact in their target areas, as we have outlined extensively in each case study. Collectively though, they are also creating an impact that goes beyond the direct products and services they offer. They are creating broader opportunities for employment, filling existing gaps in public services and social goods, and creating more inclusive and resilient families and communities. We have outlined a number of these benefits below.



Expanded economic opportunities: While we intentionally chose to study enterprises focused on delivering goods and services to the BOP, as opposed to those focused on creating livelihoods for the BOP, we still found that our cases generated considerable employment and economic opportunity at the base of the pyramid. For example, BIMA's distribution force comprises local agents who deliver product education and support, and Patrimonio Hoy has trained and employed more than 3,000 "promoters" from local populations that drive housing sales within their own communities.¹⁶

In addition to direct employment, several enterprises also leverage local microentrepreneurs as part of their business model. While this transfers some of the risk of success from the enterprise to the microentrepreneur, it also creates economic opportunity for the microentrepreneur, who not only accesses stable employment, but also has the potential to build up his or her own business and workforce within the context of the enterprise. While these microentrepreneurs were typically low-income, they are not usually from the lowest-income ranges because some capital is required up front to purchase the materials to start their franchise. For example, Zoono has generated employment opportunities for more than 900 agents (microentrepreneurs) who in turn employ more than 1,800 tellers (most likely BOP employees).¹⁷

Provision of public goods and quasi-government services: To some extent, the poorest people in the world are as poor as they are because they live in places that generally lack public goods. Transportation infrastructure, communications infrastructure, water and sanitation, reliable power, health care, education and workforce training, rule of law and the enforcement of contracts, and the like are weak or missing. These public goods are critical for

a well-functioning economy—an economy capable of generating a sufficient number of jobs that provide good livelihoods—and they are generally provided by governments (because, as noted above, the entity providing public goods generally cannot capture the full value of these goods and so for-profit organizations tend not to offer them).

Many of the enterprises we looked at, however, are offering public goods or other services generally provided by government and are doing so in a financially sustainable way. These public or government goods reach across a broad spectrum of what we experience in daily life: housing, health, sanitation, nutrition, and education.

Patrimonio Hoy and Echale both provide low-cost housing, a good that is typically provided to some extent by governments for people who are not able to afford housing. These affordable housing solutions offer low-income populations safe, affordable places to live while helping to reduce the severe overcrowding conditions in Latin America. Patrimonio Hoy has provided new or improved housing for 527,000 families, reaching 2.5M individuals, while Echale has reached more than 180,000 families and 1M people.¹⁸

In health care, Livewell Clinics has served 250,000 patients since inception and Swasth has improved treatment compliance by two times the market average.¹⁹ The cookstove providers are also, in a sense, health care providers as they are mitigating a major cause of illness for the BOP (i.e., exhaust from charcoal fires in the house). For example, Envirofit's cookstoves reduce smoke and toxic emissions by 80 percent.²⁰

There are also fairly successful examples in sanitation. Lack of access to hygienic sanitation leads to diseases, death of children, and lost GDP and productivity. To combat these problems, Sanergy has

installed more than 800 Fresh Life Toilets with 37,000 daily uses from 25,000 users in Nairobi, and eKutir has installed toilets for more than 80,000 BOP customers in India.²¹

Education is also an area where these enterprises were making a significant impact, both in sheer numbers and in how education is financed and delivered. Urban Planet Mobile, through their nonsmartphone English language platform, has reached 750,000 customers who downloaded 23M lessons per month across 45 countries.²² FINAE, which provides loans for students to attend higher education programs, distributed more than \$55M in student loans to almost 10,000 students; of these students, 2,000 have graduated and 60 percent of graduates are first-generation students.²³

These enterprises are stepping in where government is under resourced and failing, helping to upgrade the enabling environment in these poor communities. As these sorts of dual-purpose enterprises grow and spread, they will tend to make it easier for yet more enterprises—socially oriented or not—to operate successfully, provide livelihoods, and improve the quality of life of those at the BOP.

Improved resiliency through financial security and inclusion: Income and cash flow volatility are significant problems for BOP populations in developing countries. These populations are subject to significant financial shocks stemming from macro events such as weather and currency risks and life events such as the unexpected death of the sole breadwinner in the family; or more generally, from having informal employment that does not generate steady income or stable cash flow. Living conditions can deteriorate drastically and suddenly—including losing access to food, shelter, and water—as a result of any of these financial shocks.

Several enterprises profiled in this report directly improve the overall financial security of BOP customers and reduce the immediate impact of financial shocks. For

example, KGFS provides savings programs that enable customers to generate a savings asset base that will protect them in a downturn. Over time, KGFS customers have experienced a 48 percent increase in assets.²⁴ BIMA provides access to insurance (75 percent of customers access insurance for the first time through BIMA), which represents a significant safety net, especially for a family where an unexpected death occurring leaves them without income.²⁵ MicroEnsure has paid out \$28M to its customers, many of whom have never had insurance previously.²⁶

For-profit enterprises serving BOP customers also improve overall financial security by providing products that are cheaper substitutes for currently expensive products, often products that are required for daily living. For example, Envirofit's cookstoves reduce fuel use by 60 percent, which increases annual income by 15 percent. Over time, Envirofit's customers have saved \$138M in fuel costs.²⁷ Freeing up this extra cash flow enables customers to either purchase additional goods and services that improve their lives or to start saving money and building assets.

In addition, we noted several instances where for-profit enterprises were enabling future access to expanded financial inclusion. For example, once an M-KOPA customer has successfully paid off their solar home system on credit, he or she then has a formal credit history, which M-KOPA allows them to use to finance the purchase of additional follow-on products—for example, cookstoves. Half of M-KOPA customers have already paid off their initial solar system purchase and are eligible to finance follow-on goods. In another example, Livewell Clinics has an adjacent financial inclusion impact to its core health care clinic business by ultimately improving insurance rates for its BOP customers from five percent to more than 30 percent in five years.²⁸

Enterprise	Development Impact²⁹
Aldeia Nova	1.7M customers receiving vital protein in their diets; 700 farmers active in program, with average net profit increase of \$500 per month; 510 people directly employed and 3,100 indirectly employed.
eKutir	Participating farmers cut costs by 50 percent and increased productivity by as much as 75 percent. Incomes of participating farmers were 2x non-participating farmers.
FINAE	More than 55M in student loans to almost 10K students; of these students, 2K have graduated; 60 percent of graduates are first-generation students.
Urban Planet Mobile	Reached 750K customers who have downloaded 23M lessons per month across 45 countries.
Burn	54 percent reduction in sick days per household due to less smoke; households save on average \$120 per year; overall, Burn has helped customers save more than \$15M in reduced fuel costs.
Envirofit	Cookstove reduces fuel use by 60 percent, which increases annual income by 15 percent; reduce smoke and toxic emissions by 80 percent; 2,400 jobs created and \$138M in fuel costs saved.
Husk Power	Use of electricity instead of kerosene and diesel saves small business roughly 40 percent and households 30 percent of energy costs; created 300 jobs in India.
M-KOPA	Customers save an entire year's income within three years; 50 percent of customers have already paid off initial solar system purchase.
Off-Grid Electric	An average increase of 149 percent in study time once home is connected to off-grid power system; 800 jobs created in Tanzania.
IFMR/KGFS	Customers, on average, have experienced a 48 percent increase in assets, 200 percent increase in asset value, and a 254 percent increase in household income.
Zoona	Generated employment opportunities for 900+ agents and 1,800+ tellers, many of them female; safely moved over \$1B.
Aakar Innovation	Reached 50K low-income women customers; use of product decreases school dropout by 90 percent; generated \$2M in revenue for 750+ workers in minifactories.
Livewell Clinics	Served 250K patients since inception; adjacent impact of improving insurance rates for BOP customers from five percent to more than 30 percent in five years.
Swasth Foundation	Reduced out-of-pocket expenditures by \$1.15M; improved treatment compliance by 2x market average.
Echale	30K new homes; 150K home improvements; and more than 200K temporary jobs. Reached more than 180K families and 1M people.
Patrimonio Hoy	New or improved housing for 527K families, reaching 2.5M individuals; training and employment for 3K BOP promoters.
ACRE Africa	Participating farmers generated 17 percent more in total income than uninsured farms, based on a 2012 survey of 630 farmers.
BIMA	75 percent of customers accessing insurance for the first time; 47 percent of customers were completely unbanked.
MicroEnsure	\$28M paid out to MicroEnsure's customers, many never had insurance previously.
Sanergy	400 operators now managing more than 800 toilets; 37K daily uses from 25K users; 800 new jobs created.

Finally, it is worth pointing out that the increasing penetration of technology-enabled financial services helps with the development of rule of law and contract enforcement. These technologies create more trustworthy mediums of exchange because available cash can be checked in advance, credit histories are established and more transparent, and service can be cut quickly due to non-payment—so the costs of taking the risk of making a transaction are reduced. Historically, trust in these sorts of transactions is established in an expensive way via laws, regulations, effective enforcement, and the like. The spread of these financial tools, therefore, is helping provide a public good that governments have had trouble providing in the past.

VII. Implications for the Field

The 20 case studies and the broader findings on how enterprises are reaching the BOP provide a window into the potential that exists in serving BOP customers, the possibilities related to developing for-profit and scalable businesses, as well as delivering social goods that are beyond the reach of government capacity. We conducted in-depth interviews and reviewed secondary sources to gather data on the financial performance of companies, the income levels of the customers they are serving, the characteristics of their business that enable them to operate successfully, and the impact their businesses are making in the communities they serve. We were encouraged by the level of engagement from those leading the enterprises, a reflection of the desire to learn from others in the field.

We found that many enterprises are able to reach fairly deeply down the income pyramid, and often seem to be able to do so sustainably and at scale. While the sample size is not large, we even found cases of asset-heavy businesses selling push products reaching the BOP. This having been said, financial subsidies are common, and may be needed to get these sorts of enterprises off the ground and onto somewhat more solid footing. Finally, in addition to their direct social impact, organizations also generated corollary development impact, including creating economic opportunity, providing public goods (i.e., health and education) and other government services, and improving the resiliency of individuals and communities.

These findings imply a number of implications for the field. First, and most obviously, supporting for-profit enterprises that provide needed goods and services to the poor is a viable way to drive a development agenda. Our going-in expectation was that these sorts of for-profit enterprises would be able to reach the very poor under some conditions, but likely not under others. In particular, our concern was that it would prove very difficult for asset-

heavy businesses selling push products (which as noted constitutes much of what we want to do in development) to reach deeply down the income ladder, to those living around \$2-\$4 per day. Our subsequent research, however, tended not to support that expectation, and the resulting implication is that donors, foundations, impact investors, and even governments would do well to consider supporting these sorts of enterprises as one way to achieve their development goals.

This having been said, a second implication of the research is that this path to impact probably requires some sort of financial subsidy. With the exception of the asset light business selling pull products, virtually every organization received a subsidy of some type, be it grant funding, patient capital, or brand and back-office support. The implication is that development organizations ought not to reject *prima facie* the idea of subsidizing a for-profit enterprise. While they certainly need to fully understand the opportunity, and not pay for something that the company would have done anyway, various forms of subsidy to for-profit enterprises would seem to be legitimate tools for achieving development impact.

Similarly, a third implication is that development organizations ought not to insist that a certain percentage of an enterprise's customers be at a certain level of poverty in order for that enterprise to be eligible for donor funding. Serving populations at somewhat higher-income levels does not seem to prevent enterprises from also reaching much lower-income levels. In fact, given how widespread the practice is, it might be a near necessity. Any stipulations along these lines should probably be oriented around the absolute numbers reached per dollar granted.

A fourth implication coming out of the research is that these enterprises can be used to help deliver public goods and other

services typically provided by government. Enterprises studied provided power, sanitation, health care, education, and even some limited enforcement of contracts. For governments, these enterprises could be a useful supplement to government services. For donor organizations, they could serve as a useful alternative to supporting governments when governments have proven incapable of providing desired services.

Finally, a fifth implication is that governments and donors might consider investing in public education campaigns to promote certain product categories that they would like to see used more widely. Enterprises spend considerable resources educating customers on the value of their products in an effort to make them more pull than push. Any spending to get customers to buy one brand of a product category over another should of course be shouldered by individual organizations. But

educating customers about the value of a product category (e.g., preventive health care, insurance, and improved agricultural inputs) is a public good and can legitimately be taken on by government and other development organizations. Doing so would likely free up some resources for the individual enterprises and enable them to focus more on achieving social impact.



VIII. Conclusion and next steps

The report underscores several areas where there is an opportunity for further research, analysis, and support of enterprises serving the BOP. These opportunities span a wide range of topics, from data availability to better understanding how for-profit enterprises go to market within the context of other development programs. Based on our interviews and research with the enterprises, as well as feedback we received from leading experts in the field, three specific areas are particularly important for advancing our understanding of how to effectively serve the BOP: 1) improved information on BOP customers, their needs and behaviors, and the customer segments they form in the market; 2) advancing how data is collected, analyzed, and shared for enterprises serving the BOP; 3) further analysis of how subsidies play a role in the launch and maturation of enterprises, in particular for asset-heavy enterprises who are providing push products. These three areas have implications for future research and technical assistance that is needed from governments, foundations, and BOP investors.

1. **Customer Segmentation:** Many of the leaders we interviewed for the case studies identified the need to better understand the customers they serve at the BOP, both as individual actors and as collective segments interacting in a broader market. Enterprises often had limited customer knowledge, particularly at the launch of their enterprise, and many had limited insight into their customers even for businesses that were well established. Several gaps seem to exist, including the need to understand buying behaviors, such as what financial trade-offs BOP customers are willing to

make to purchase a new product versus maintain existing spending patterns; what are the buying constraints due to fluctuations in cash flow and how should enterprises adjust their go-to-market strategy; how customer education and marketing makes a push product more of a pull product; and what incentives work best to create repeat customers.

Better understanding customer behaviors and customer segments could potentially have a lasting influence on how enterprises serve the BOP. From an enterprise perspective, this information would help inform company leadership on what types of products, business models, and financing options would most effectively reach their customer base; who makes up that customer base; and how that customer segment evolves over time. From a development perspective, having this information will allow investors, government organizations, and other stakeholders to make more informed decisions about what types of enterprises will likely be successful in reaching the BOP and what types of assistance are most effective. Customer information would also help these organizations better understand the limitations of for-profit enterprises in reaching the BOP and where government and non-profit enterprises are best suited to provide critical public goods and services.

2. **Data Collection and Analysis:** Good data on for-profit enterprises' depth of reach into the BOP, as well as their financial sustainability and scale are lacking. Because we as a field do not know which enterprises are successfully

reaching deeply, it is hard to identify best practices for how to reach deeply. Gaining better access to data on the income level of the customers being served, through information on a range of customer attributes, would no doubt be helpful in better understanding what is working and what is not in reaching the BOP.

There is a broad consensus that collecting and analyzing customer and enterprise data is needed for the continued advancement of the field. However, enterprises face many limitations, most notably the resources to collect and organize the data in order to share it more broadly. Enterprises, as we often heard through our interviews, are also hesitant to share the information they do have in that it could undermine their competitive advantage or have a negative influence on raising capital. Governments and foundations play an important role in helping to achieve the balance of these desired outcomes, by both providing technical assistance for data collection, as well as a safe place where data can be anonymized and analyzed at the industry or sector level. Improved data collection would also allow for better benchmarking between different programs and approaches to serving the BOP. Over the long term, this would allow for more accurate measurement of the real costs to reach the BOP and the level of impact created by different BOP-focused programs, whether run by governments, non-profits, and for-profits aiming to achieve a similar set of outcomes.

3. Use of Subsidies: A secondary goal of the research was to understand the use of different types of investments into these enterprises—grants and subsidies, patient capital, and a myriad of other types of support that are highlighted in each case study. The use of subsidies and their impact on for-profit enterprises was of particular interest to many of those we interviewed. Based on our findings, it appears that some subsidization is almost certainly a good idea, but how much, when, and for what purposes is not well understood. Future research should further examine the question of when is it appropriate to subsidize a for-profit business to encourage them to serve a poor customer segment. A narrower question, but equally intriguing, is the use of subsidies to support enterprises with asset-heavy, push products—a business model that is often critical to delivering BOP goods and services (e.g., education and health care), but usually with significant up front costs and risks.

There is also a need to look more closely at the intersection of subsidies and specific industries, for example, household energy (e.g., solar), health services, or financial tech. This analysis will help us understand what subsidies are most effective in creating a set of outcomes desired—how can investors and government organizations best use subsidies to stimulate, scale, stabilize, or support long-term maturation of a particular industry or type of enterprise serving the BOP.³⁰ Understanding the effective use of subsidies, as well as when they should not be used, will provide an important insight for future support of enterprises working at the BOP, as well as those organizations that invest in those enterprises.

Questions like those outlined above—questions that are critically important for helping us understand how to better reach those living at the BOP—remain unanswered, and getting those answers will depend upon more investment by those most interested in sustainable market interventions to serve the BOP.



Case Studies

Aakar Innovations

Sector	Year founded	Geography
Health	2011	India and Bangladesh

Company background

Opportunity: In India, the use of sanitary pads is scarce among the BOP due to a lack of awareness, limited access, and discomfort of use. In addition, roughly 70% of families cannot afford brand-name pads and do not have a healthy alternative. This leads to numerous problems: 1) limited empowerment for females due to the social stigma associated with menstruation; 2) decreased livelihood options by reducing a woman's ability to work and attend school for roughly 50 days each year; 3) major health problems, including urinary tract and sexually transmitted infections, and bacterial vaginosis; and 4) the lack of disposal options for existing pads, leading to environmental challenges.

Solution: Aakar has a sustainable, microenterprise model, led by women, to produce and sell compostable sanitary pads at a low cost to BOP populations. This model also:

- Allows women to leave the house during menstruation and provides jobs as microentrepreneurs, increasing livelihoods
- Increases access to remote areas in a sustainable way
- Creates an entry point for conversations to normalize menstrual hygiene management (MHM)
- Eliminates health risks associated with disposal with a 100% compostable, environmentally friendly product

Main Product(s): 1) Sell low-cost machines, raw materials, and training services to enable sanitary pad production at "minifactories" and 2) purchase pads from minifactories and sell in bulk to government and NGOs.

Business performance: Path to profitability and scale Financially sustainable and investing in scale

Aakar has 44 minifactories employing 750 women, reaching 50K BOP customers and has expanded to Africa.

- **Revenue '15:** ~\$109K with 60% two-year compound annual growth rate (CAGR)
- **Revenue '16 (Sept.):** \$192K; typically 70% of revenue realized in last quarter based on past three years
- **Profit Margin:** Profitable in early pilot years '12 and '13; lost money in '14 and '15 from investing in growth; will be profitable in '16

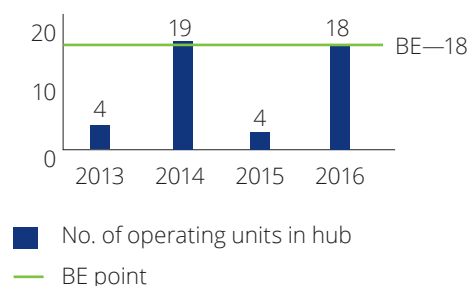
Income pyramid reach

Aakar is reaching deep on the income pyramid with 100% of customers earning below \$4/day.

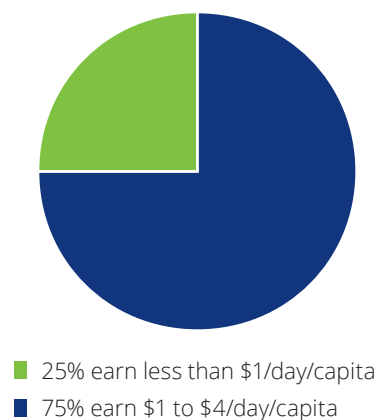
To successfully reach very low-income customers, Aakar operates two legal entities: 1) Aakar Innovation sells the minifactories to women and purchases outputs for resale to local NGOs, and 2) Aakar Social Ventures raises menstrual hygiene awareness to educate consumers on product benefits. In addition, Aakar focuses its R&D efforts on innovative technology and inputs with the goal of decreasing product prices for low-income customers. The combination of these efforts allows Aakar to sustainably reach remote areas and customers deep on the income pyramid.

Methodology: Aakar completes baseline studies to understand consumer profiles, which include earnings/disposable income for menstruating family members.

Breakeven (BE) Analysis



Customer Base Income Levels



Aakar Innovations (cont.)

Factors affecting reach

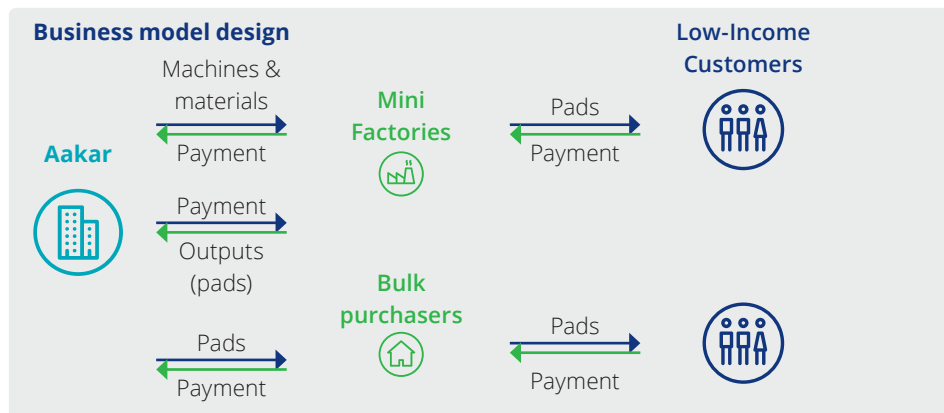
Key factors		Narrower Cust. Base	Wider Cust. Base
Asset light	Pull		
Asset-light	Push		
Asset-heavy	Pull		
Asset-heavy	Push		X

Push vs. pull

Asset light vs. heavy

- | | |
|---|---|
| <ul style="list-style-type: none"> • Difficult-to-overcome cultural disapproval of sanitary pads. • Significant consumer education about benefits required to sell. • Need high frequency of purchase to benefit. | <ul style="list-style-type: none"> • Tangible products and centers to manufacture machinery. • Rural distribution has high transportation and labor costs. • Labor-intensive market outreach is costly. |
|---|---|

Narrower vs wider: While Aakar is currently serving a narrow customer base with 100% customers earning less than \$4/day, it is in the process of shifting wider due to rising demand for compostable pads in urban areas. It is expanding the brand by creating a new, higher margin product that will cost twice as much as its existing pads. The new product is 100% compostable and targets the less price conscious, more environmentally focused user. It is available for sale, but pricing and commercial distribution are still being tested.



Business model characteristics to reach deep on the income pyramid

BOP As Employees	BOP women employed in both production and door-to-door sales
Vertical Integration	Model incorporates production and distribution of pads
Financing Options	Partner with MFIs to help women secure loans for minifactories
Microentrepreneurs	Franchise model—women purchase and own minifactories
Pay per use	Pads are sold in packets of eight, so women purchase as needed
Paraskilling	Simplified factory technology—easy to operate and maintain
Price Discrimination	Creating higher priced, rebranded product for higher-income levels
End Customer Does Not Pay	Portion of sales to NGOs who distribute free pads to customers

Critical success factors and barriers

- **Female-Only Workforce:** A “no-men” sales channel minimizes cultural stigma of menstrual hygiene.
- **Competitive Pricing:** Aakar’s pads are 12.5% cheaper per pack than the closest competitor due to streamlined operations and low-cost minifactories.
- **Innovative Product:** Use indigenous raw material derived from local plant and agricultural waste, creating a compostable, effective sanitary pad.
- **Operation of two separate legal entities:** In addition to for-profit entity responsible for sales, Aakar Social Ventures provides educational programs to promote awareness of women’s health needs/risks and to generate awareness and acceptance of products.
- **Barrier: Cultural Taboos:** Considered unacceptable to discuss menstruation and female hygiene in Bangladesh, complicating marketing efforts.

Aakar Innovations (cont.)

Value capture

For Aakar, revenue comes from different sources:

- 60% from minifactory machines with 60% paid in advance and financing available to purchaser
- 25% from raw materials and maintenance
- 10% from bulk pad sales to government and NGO
- 5% from training services provided to BOP employees

For Minifactory Owners:

- An eight-pack of pads is \$0.44 for rural customers (\$1.17 for urban); nearest competitor charges \$0.48
- Minifactories must sell 260K pads to break even; on average, owners profit ~\$300 to \$400 USD/month

Development impact achieved

Aakar Innovations is **improving menstrual hygiene and health** for **50K** low-income women in rural areas by selling pads at affordable prices. The use of pads:

- **Increases number of working days by at least 30 days** for women each year, leading to increased income
- **Generates \$2M in revenue for more than 750+ low-income women** owning and working in minifactories

Aakar Social Ventures, the education affiliate, **raises awareness of menstrual hygiene products**, increasing cultural acceptance.

Investments overview

As of 2016, investors provided debt and equity totaling \$0.15M over five years, including:

- **Raised \$150K in '14 with an expected 15% IRR** from Rianta Capital, CIIE-IIMA, and multiple angel investors
- Obtained \$550K, two year grant in '16 for pilot in Africa and expansion in India

from **Millennium Alliance (incl. USAID, UKAID, World Bank, Govt. of India, and FICCI)**

- **India Institutes of Management**—undisclosed investment in December 2014

Key Learnings

- To stabilize the company's profits, Aakar focused on addressing **one key customer pain point in one geographic area** for first three to five years.
- Funds taken as compulsorily convertible preference shares have helped Aakar by 1) increased accountability to improve performance and 2) improved valuation, leading to less equity dilution.
- Aakar found debt funding challenging in the early days given volatile cash flow to service the debt.
- Investor's focus on performance milestones helped Aakar improve the "hub and spoke" model (minifactories reaching the BOP), proving that this model has provided Aakar with a path for future expansion.



Data and information in this case study gathered and confirmed via interviews with, and documents provided by, executives at the enterprises.

Aldeia Nova

Sector	Year founded	Geography
Agriculture	2012	Angola

Company background

Opportunity: Angola suffers from pervasive poverty (70% of population) and undernourishment (41%); half of households have insufficient calories per capita and many more lack diet diversity. Protein shortage is a particular problem, with average daily consumption of 43g/person (versus 104g to 133g/person in the developed world). Finally, Angola has chronic underemployment.

Solution: Aldeia Nova's agrocommunal model fuses agricultural production with service provision and social development. Its principal service is supporting local communities of farmers for poultry and dairy production, simultaneously addressing local dietary protein shortages and underemployment. Note: Poultry sales include all products from chicken (e.g., eggs, ready meals, and pate).

Main Product(s): Aldeia Nova operates a vertically integrated agroindustrial center focused on two activities:

- **Agriculture production**—Provide farmers with inputs that are produced (e.g., crops for animal feed and hatchery chicks) or imported (e.g., equipment).
- **End Product Distribution**—Buy outputs from farmers (i.e., poultry and dairy) and process, package, and distribute to customers in Angola. Note: The remainder of the case focuses on egg sales because it is the most significant source of revenue for Aldeia Nova.

Business performance: Path to profitability and scale

Total enterprise profitability and continuing to scale

Supporting 700 farmers to produce 250K eggs/day for 1.7M customers annually.

- **Revenue and Profit Margin:** Not public; however, IRR (defined as net [posttax] financial return) is >20%.
- **Other:** Aldeia Nova broke even in March 2013 and continues to operate profitably to date.

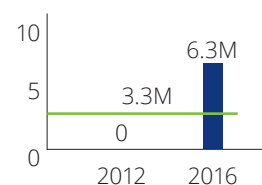
Income pyramid reach

Aldeia Nova has limited customer data, but given that it sells eggs in different parts of the market, it likely reaches both low- and slightly higher-income levels.

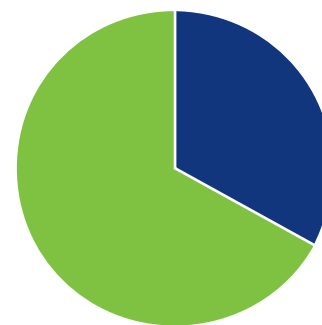
Consumer behavior indicates low-income customers purchase via informal markets (accounting for 66% of sales). To be conservative, Aldeia Nova estimates 50% of these customers are likely low-income (33%). To reach customers, Aldeia Nova requires farmers to purchase inputs that improve quality of outputs (e.g., animal feed at quality nutrient levels). It encourages this ongoing investment by extending farmers' credit against outputs to address cash flow issues. This limits a farmer's up front costs and makes participation feasible for all income levels.

Methodology: Define low-income customers by Impact Reporting and Investment Standards definition of below-median per-capita income in Angola (\$24/day); Microincome data is unavailable in Angola.

Breakeven (BE) Analysis



- Egg sales per month (M)
- BE point



Customer Base Income Levels (per capita)

- 67% estimated to earn above \$24/day
- 33% estimated to earn less than \$24/day

Aldeia Nova (cont.)

Factors affecting reach

Key factors	Narrower Cust. Base	Wider Cust. Base
Asset light	Pull Push	
Asset-heavy	Pull Push	X

Push vs. pull

Asset light vs. heavy

- | | |
|---|---|
| <ul style="list-style-type: none"> • Egg protein has clear health benefits and is an affordable meat substitute. • Eggs in high demand—they are widely inaccessible outside of local production. | <ul style="list-style-type: none"> • Tangible products made at agroindustrial centers increases unit production costs. • Labor-intensive egg distribution to retailers, decreasing margin. |
|---|---|

Narrower vs wider customer base

Aldeia Nova is reaching multiple income levels through its egg sales. An estimated 34% of eggs are sold through formal retail outlets (i.e., grocery stores) that reach higher-income levels, while 66% are sold through informal outlets, (e.g., road stands) that reach lower customer levels. Of sales in informal channels, an estimated ~50% of customers earn below the median income of <\$24/day.

Business model design



Business model characteristics to reach deep on the income pyramid

BOP As Employees	Hire BOP in logistics centers and as farmers to supply eggs
Vertical Integration	Support egg production with farmers and distribution in market
Financing Options	Farmers obtain inputs on credit against egg outputs
Pay per use	Customers continuously purchase eggs based on consumption needs
Up-sell/Cross-sell Products	Sell eggs, poultry, and other items to same retail partners
Price Discrimination	Packaging, branding, and pricing varies for high-/low-end channels

Other critical success factors and barriers

- **Create positive and negative incentives:** Mechanisms prevent farmers from reselling agri-inputs and reward farmers for producing quality outputs.
- **Communicate long-term value to farmers:** Farmers see the path to sustainability, which decreases the value of immediate gains from input sales.
- **Generate revenue by turning waste into products:** Pursue creative initiatives (e.g., use damaged eggs for cookies and older chickens for prepared meals).

- **Strong leadership and management (including experienced western CEO):** Willing to make heavy investments in new value-added activities (e.g., machinery and complementing products) and demonstrated ability to build relationships with local/national leaders.
- **Barrier: Competition from imports:** Occasionally, Aldeia Nova faces reduced demand due to foreign imports.
- **Barrier: Currency shortage and production limitations:** Low access to USD to purchase required imports (e.g., feed supplements and packaging) creates egg production limits that could otherwise reach 400K eggs per day.

Value capture

Aldeia Nova generates 75% of revenue from poultry sales, mainly eggs, and 25% from dairy sales to consumers.

Revenue from inputs is not significant, but they are still an important model aspect—quality inputs impact the quality of farmers' outputs. Pricing info:

- Inputs sold to farmers for cost + 10% margin.
- Outputs priced at market prices, but are often sold for higher rates in formal markets (e.g., a dozen eggs ranges from \$0.82 USD in the market to a \$2.80 official retail price).

Aldeia Nova (cont.)

Development impact achieved

- **1.7M customers** in rural and urban areas are regularly receiving **vital protein in their diets**, thanks to egg sales.
- Aldeia Nova's egg supply represents **25% of local production**, a significant portion of the market share.
- 700 farmers are active in an outgrower scheme and provided with electricity, water, and social/agricultural services; **farmer income increases to \$900/month (~\$30/day), or six times the Angolan minimum wage.**
- **510 people are directly employed** in the centers and another **3,000+ indirectly**, alleviating unemployment and underemployment simultaneously.
- Other benefits bestowed on local communities include **4K hours of employee training** (in 2015 alone) and information sharing on farming techniques.
- Aldeia Nova makes **\$23M in purchases from local, independent suppliers** located within 200 miles of agrocenters, including \$8M in direct egg purchases from farmers as well as parts, supplies,

chemicals, etc.

- Aldeia Nova is a GIIRS (Global Impact Investing Rating System)-rated company and receives a third-party evaluation of its development impact, benchmarking its performance relative to other enterprises in its environmental, social, and governance practices.

Investments overview

Aldeia Nova started as a government settlement initiative to provide retired soldiers with economic opportunities. Individuals from Vital Capital involved in the initial project decided to make an investment based on the potential for future success.

- **In 2012, active investors from the Vital Capital fund committed \$10M in backing to Aldeia Nova with the goal of making it a sustainable business venture.**
- Vital Capital's investment agreement includes an exclusive management contract to run Aldeia Nova.
- The large investment allowed Aldeia Nova to pursue scale, which is critical for the system to succeed.



Data and information in this case study gathered and confirmed via interviews with, and documents provided by, executives at the enterprises.

BIMA		
Sector	Year founded	Geography
Fintech/Insurance	2011	16 countries across Asia, Africa, and Latin America

Company background

Opportunity: Those living very low on the income pyramid are among the most at risk of illness and personal injury due to poor living and working conditions, and they are prone to feel the economic burden of these shocks immediately. Despite the risk, very few individuals have protection in the form of insurance due to a lack of information about the benefits, a skepticism that claims will be paid, or simply a lack access.

Solution: BIMA leverages high mobile penetration and mobile technology to create a new way to access low-income consumers. BIMA partners with MNOs and local insurers, creating value through expert product design, driving distribution, and managing the customer experience. A trained, managed sales agent force distributes products, providing vital education and executing registration of customers via BIMA's front-end mobile apps. Back-end technology platforms link with MNO systems and local financial service providers to facilitate payment, service delivery, and claims management.

Main Product(s): Low-cost, simple insurance built around the needs of the customer. The current portfolio includes personal insurance and recently launched m-Health services. BIMA customizes products to meet the needs of each operator, and to match the behaviors of customers in the local market. The payment model has evolved from “freemium”—cover earned in exchange for loyalty to MNO—to a paid model. The dominant payment channel is via deduction of small daily amounts of prepaid airtime credit. BIMA now also collects payments via mobile money and postpaid billing for higher-income customers.

Business performance: Path to profitability and scale
Financially sustainable and investing in scale

- **Revenue '15:** \$11.3M.
- **'15 growth: 113%.**
- **Scale:** 16 countries reaching 24M subscribers, is currently profitable in three to four markets.
- One to seven new markets per year is the key hurdle to overall profitability.
- Expects to double number of profitable markets in near future.

Income pyramid reach

BIMA is reaching deep on the income pyramid with 53% of customers living under \$2.50/day.

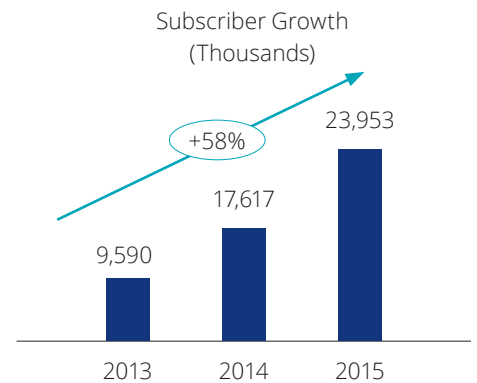
BIMA has reached very low-income customers with services, distribution models, and payment channels tailored for these consumers' needs.

BIMA is successfully penetrating a market that was previously unserved.

On an average, more than 70%³ of the population in BIMA's markets was previously underserved, lacking access to or information about insurance. BIMA has successfully communicated the value of its product to a broad range of customers.

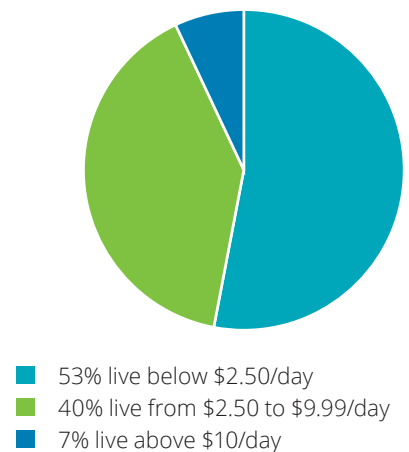
Rigorous External Methodology: BIMA uses a variant of the PPI methodology² to segment its customers. BIMA surveyed more than 400 randomly selected respondents per geographic market and worked with the economist who designed PPI to define specific segments in their study.

Ability to Scale:



BIMA is currently adding 500K subscribers per month

Customer Base Income Levels



BIMA (cont.)

Factors affecting reach

Key factors	Narrower Cust. Base	Wider Cust. Base
Asset light	Pull	
	Push	X
Asset-heavy	Pull	
	Push	

Push vs. pull

- Due to lack of familiarity and trust, there is a **lack of inherent demand for insurance** in low-income markets. As a result, BIMA is differentiated by its agent salesforce.

Asset light vs. heavy

- Mobile-driven model **reduces need for brick and mortar sales assets.**
- Partnerships with MNOs diffuse some fixed costs for infrastructure.

Narrower vs wider customer base
BIMA's model works by targeting large volumes of very low-income customers and segmenting its offering to also reach higher-income customers. The combination of high volume from the BOP and the growing revenue share from higher earners are critical to success.

Plan for growth

- Continue to launch in several new markets yearly
- BIMA will continue to scale its telehealth offering

Business model characteristics to reach deep on the income pyramid

BOP As Employees	BIMA distribution force is made of local agents who deliver product education & support.
Shared Channels	Partnerships with MNOs are essential to the revenue model and achieving necessary scale.
Brand Partner	BIMA often uses MNO partners' brands to build trust in the product.
Optimize Internal Processes	Digitized processes, a mobile-based product, and tech-enabled back-end platform enable streamlined operations.
Pay-per-use	Primary revenue is driven by prepaid coverage in small amounts.
Product Segmentation	Different coverage amounts at different prices for different customers.

BIMA (cont.)

Other critical success factors and barriers

- **Successfully align incentives:** BIMA successfully identified win-win arrangements with MNOs to drive consumer behaviors that benefit both partners.
- **Strategic partnerships are critical to growth:** MNOs have been key in identifying new product opportunities and guiding geographical expansion.
- **Adapt products to geography:** New product testing to understand local regulatory landscape and customer habits.
- **Build trust with customers:** Motivate low-income customers to see value of insurance with a simple product before upselling and invest in educating target customer base with distribution salesforce.
- **Successfully identify adjacent markets:** BIMA quickly recognized the opportunity of moving into the health insurance and telehealth market spaces.

Value capture⁵

- **BIMA captures value through effective revenue-share agreements with MNOs.** Revenue from underwriting revenue goes to BIMA (where it is a licensed microinsurance company) or is shared with local underwriting partners, where necessary.
- **Unit economics, scale, and active user base are all key to profitability.** BIMA's active user base—individuals who qualify for insurance coverage in any given month—represents nearly 50% to 60% of the total user base. These customers generate earnings of roughly \$1 USD per customer, per month.

Development impact achieved⁶
BIMA creates opportunities to access financial services. It is often the only source of insurance coverage for the majority of its customer segments. Moreover, its insurance coverage is likely amongst one of the first formal financial services these customers will have ever accessed:

- **Access to insurance**—In 2015, 75% of BIMA customers were accessing insurance for the first time.
- **Broader Financial Inclusion**—In 2015, 47% of BIMA users were completely unbanked.

Investments overview

To date, **BIMA has raised \$75 million in capital** from both strategic and financial investors, including:

- Kinnevik—Holds a 40% stake, investor since 2011.
- Leapfrog Investments—Holds a 23% stake, investor since 2012.
- Millicom (MNO)—Holds a 27% stake, investor since 2011.
- Digicel (MNO) —Holds a 7.5% stake, investor since 2014.

BIMA closed a Series C round in 2015 for \$38M, with all existing investors recommitting proportionally.

Key Investment Learnings

- **Strategic investors are critical to long-term success.** BIMA wants strategic partners to enable further scale by lending expertise in emerging markets, insurance, telecoms, and digital.

Endnotes

1. GSMA 2016 Mobile Economy, <http://www.gsma.com/mobileeconomy/#>.
2. PPI is Grameen's Progress out of Poverty Index. Organizations and businesses with a mission to serve the poor use the index to help them measure poverty outreach, improve social performance, and track poverty over time.
3. BIMA Customer Demographics Report, 2016.
4. BIMA Customer Demographics Report, 2016.
5. BIMA Management Interview, 8/19/2016.
6. BIMA Customer Demographics Report, 2016.

Burn Manufacturing

Sector	Year founded	Geography
Energy—Cookstoves	2011	Kenya/East Africa

Company background

Opportunity: Indoor air pollution from open fires and traditional stoves will kill roughly 4M people this year. Up to 25% of black carbon emissions come from burning solid fuels for household energy. Most urban households in East Africa cook on charcoal, despite its increasing cost and damaging effects on one's health and environment.

Solution: Burn Manufacturing (Burn) designs, manufactures, and distributes fuel-efficient cookstoves in order to improve lives and save forests in Africa. Eighty percent of Burn's sales are in Kenya, and 20% are spread across Uganda, Tanzania, Somalia, DRC, and Nigeria.

Main Product(s): Burn has one product on the market, the **Jikokoa**, which is a clean, fuel-efficient charcoal stove sold to urban and peri-urban customers. The **Jikokoa** outperforms other cookstoves, cooks faster, and has a higher TRC rating. Burn has four cookstoves in the pipeline: a wood stove targeted at rural customers, a large charcoal stove, an ethanol stove, and a pellet stove.

Business performance: path to profitability and scale

Financially sustainable and investing in scale

Began operations in 2013

Revenue '15: \$2.1M

Revenue '15 growth: 60%

Profit margin '15 (Kenya): 38%

- **Scale:** 200K stoves sold.
- Selling 10K stoves/month; break even at 16K stoves/month.
- 50% CAGR over the past three years, as well as planned expansion in Uganda and Tanzania, and two new product launches suggest Burn will break even in 2017.
- Profitable in Kenya.

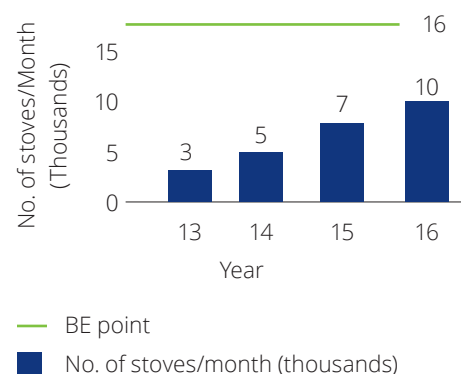
Income pyramid reach

Burn is reaching deep on the income pyramid with 43% of customers living below \$4/day.

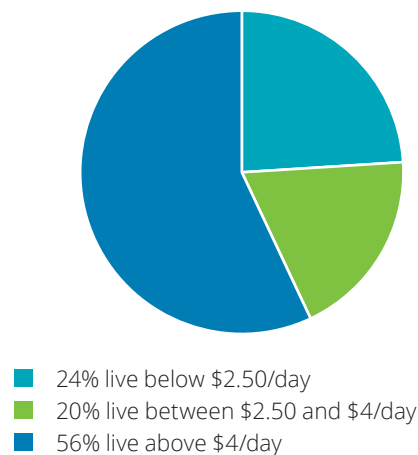
Burn's lower-income customer base has grown over time. Those earning >\$4/day were early adopters because they could afford to take the risk of trying a new product. Those earning <\$4/day only began to purchase the Jikokoa at scale once Burn's brand and reputation were proven; this portion of Burn's customer base is growing.

Rigorous External Methodology: Income level data is from an Acumen Lean Data study, which used Grameen's "Progress out of Poverty" five-question tool to estimate consumption levels, per person, per day. The sample size comprised 355 phone interviews with a randomly selected group of customers who registered their **Jikokoa** warranties between August 1 and 17, 2016.

Breakeven (BE) Analysis



Customer Base Income Levels



Burn Manufacturing (cont.)

Factors affecting reach

Key factors	Narrower Cust. Base	Wider Cust. Base
Asset light	Pull	
	Push	
Asset-heavy	Pull	
	Push	X

Push vs. pull

- **Difficult to demonstrate** health benefits.
- Cheaper substitute to kerosene, but **roughly 11-week payback period**.
- Does **not increase economic output**, only savings.
- Cost to **educate consumer**.

Asset light vs. heavy

- **Tangible product** requires physical manufacturing centers/high production costs; sales, distribution, and follow-up customer service is **labor intensive**.

Narrower vs wider customer base

Burn is leveraging multiple customer types and products to achieve scale and improve financial sustainability.

Customers deep on the income pyramid are widely dispersed, and the market is limited in size; by also selling to higher-income customers, Burn has been able to scale more quickly, driving financial viability.

Plan for growth

- Expand across East Africa in both urban and rural markets and, in 2017, also expand to West Africa.
- **Key Considerations For Market Expansion:** Availability of fuel options and cost of fuel (i.e., fuel mix and prices), which affects competitiveness.

Business model characteristics to reach deep on the income pyramid

BOP As Employees	An estimated 70% of the manufacturing team, as well as some distributors and customer care agents, are BOP when hired.
Shared Channels	Partnerships with banks, MFIs, and pay-as-you-go solar (e.g., M-KOPA and Mobisol) provide access to established consumer channels.
Financing Options	30% of Burn's sales utilize credit; MFI partnerships are a key path to growth; goal to be 50% cash and 50% credit sales.
Vertical Integration	Integrated from performance/durability testing and manufacturing to sales, which brings the best product to market quickly while keeping costs low.
Product Segmentation	Launching new stove targeted at commercial customers.

Other critical success factors and barriers

- **Up front Market Research:** Consumer-focused design process and field testing ensure Burn's products are "aspirational" and meet consumer needs.
- **Best-in-Class Product:** Carefully chosen staff, training programs, incentive payments to assembly line teams, and quality control checks ensure high quality.
- **Postsales Support:** The **Jikokoa** comes with a two-year warranty, which helps de-risk the purchase for the customers deep on the income pyramid; 47 (and growing) service stations spread around the country; customer care centers make repairs; <1% return rate.

- **Committed Leadership:** Committed team of "problem solvers" across various areas of expertise, including engineers willing to work for below-market rates.
- **Barrier:** Brand recognition/trust is a key barrier to success for many cookstove companies; Burn's design, manufacturing, and distribution are all done in country, which increases brand recognition/trust.

Value capture

- **Revenue:** Sole revenue stream is cookstove sales.
- **Product Pricing:** \$40 per cookstove with several financing options available, for example:
 - Six-month energy-specific loan through equity bank.
 - Purchase via Burn's partnership with Kenya Women Microfinance Bank.
 - Purchase at \$0.40/day via M-KOPA.
 - Purchase through Chamas (new partnership/channel currently in trial/testing phase).

Development impact achieved

- Customers reported **health benefits**, including a 54% reduction in sick days per household; 89% attributed health benefits to less smoke in the house.
- **Jikokoa reduces PM2.5 emissions** by 65% as compared to the "improved ceramic jiko".
- **Jikokoa households save ~\$120/year**, including a 57.7% reduction in household charcoal expenditures.
- In total, Burn has helped consumers **save more than \$15M** in reduced fuel costs and 465K tons of wood.
- Creates local jobs with more than 60% female employment.

Burn Manufacturing (cont.)

Investments overview

Investors have provided debt and equity totaling \$5.5M over six to seven years, including:

- **General Electric**—Six-year investment of \$1M in 2013 with expected returns of 10% to 12% p.a.
- **US Overseas Private Investment Corp (OPIC)**—Six-year investment of \$3M in 2013 with expected returns of 6% to 8%.
- **Acumen Fund**—Seven-year investment of \$1.5M from 2014 to 2016 with expected returns of 10% p.a.

GE, OPIC, and Acumen have fully disbursed their committed funds; moving forward, **Burn is focused on financial restructuring** in order to reduce debt overhang and allow for the inflow of new equity and access to

working capital loans.

Key Learnings

- **Burn Manufacturing split from a nonprofit (Burn Design Lab) in order to have access to larger sums of capital** via equity investments.
- **Investor requirements prevented Burn from investing in a local manufacturing facility immediately, which slowed the path to profitability but enabled Burn to prove its model;** investors wanted additional data proving the market prior to making a full investment in the manufacturing facility.
- Burn is currently raising money from investors seeking **financial returns and social impact.**



Data and information in this case study gathered and confirmed via interviews with, and documents provided by, executives at the enterprises.

eKutir

Sector	Year founded	Geography
Agriculture and Sanitation	2009	India, Cambodia, and Bangladesh

Company background

Opportunity: Rural farming communities in India have limited access to high-quality products and services and counterfeit products are rampant, especially in agriculture and sanitation. Low-price realization, fragmented ecosystems, and dilapidated sanitation conditions keep smallholder farmers and families at the brink of poverty.

Solution: eKutir has established a network of ~700 microentrepreneurs operating several types of franchised kiosks that provide services & products to improve sanitation and agricultural outputs. A critical component is the back-end software platform, which gives microentrepreneurs access to knowledge, inputs, raw materials, and buyers. eKutir identifies and trains entrepreneurs, who engage consistently and reliably with the communities providing them need-based products and services, such as crop inputs, advisory, market access, crop sales, and toilet facilities.

Main Products: Kiosks that serve as a “one-stop shop” for farmers are providing information and advice to improve yields, buy quality inputs, and sell crops. Kiosks for eKutir are existing physical hubs within the community, such as neighborhood stores, micro-retail outlets, and unorganized vendors. As eKutir evolved, it set up Sani-kiosks to provide needs-specific toilets and veggie kiosks at the other end of the agriculture value chain to sell quality farm fresh veggies, enabling higher realization for the farmers. Kiosks can be existing stores that connect to eKutir digital platform in addition to existing operation, or new shop that eKutir helps to set up.

Business performance: path to profitability and scale

Total enterprise profitability and continuing to scale

- **2015-16 Revenue:** \$625K from operations.
- **2015-16 Revenue Growth:** 16%.
- **2015 Gross Margin:** 11%.
- Slow growth since 2009 due to focus on building infrastructure for sustainable growth, conducting pilots and securing profitability at the unit level. High revenue growth for 2015-2016 driven from tapping into higher margin sectors: Sanitation and retail.
- **# of Units Sold in fiscal year 2015:** 16,000 toilets and \$1M worth of veggies.
- **Scale:** 700 microentrepreneurs, 70K farmers, and 102K end-product consumers.
- **Geography:** Primary operation in India with additional sales in Bangladesh and Cambodia via software licensing and knowledge share.

* Numbers refer to India operation only

Income pyramid reach

While eKutir does not formally track income, it is estimated that the majority of customers are BOP.

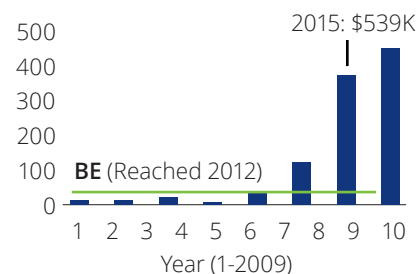
Higher-income customers support the enterprise and include veggie buyers and microentrepreneurs

- 70K farmers estimated to earn between \$1-\$2.75/day.
- 80K toilet consumers and 25K veggies customers that live in urban slums.
- 77K middle-to high-income veggies consumers .

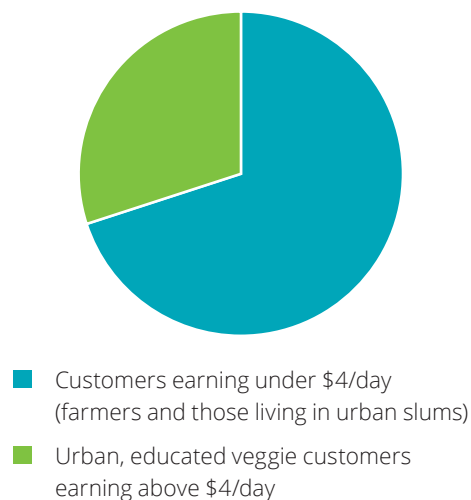
Impressionistic Internal Methodology:

eKutir’s microentrepreneurs work closely with customers to help eKutir estimate income levels.

Ability to Scale: Breakeven Analysis



Estimated customer base income levels



eKutir (cont.)

Factors affecting reach

Key factors	Narrower Cust. Base	Wider Cust. Base
Asset light	Pull Push	
Asset-heavy	Pull Push	X

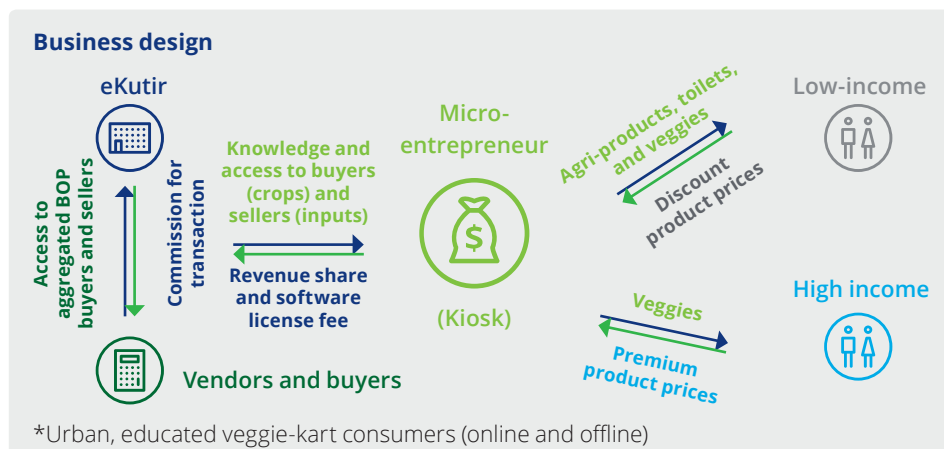
Push vs. pull

Asset light vs. heavy

- Agri-inputs are desirable because they increase farmers' yields and income.
- Toilets are aspirational because they are a status symbol and also increase health and quality of life.
- Kiosks and toilet raw materials are costly tangible products.
- eKutir's sales and distribution networks are labor intensive.

Narrower vs wider customer base

While eKutir initially targeted smallholder farmers in rural India, they have more recently extended to higher-income vegetables consumers to increase profitability for farmers and reach economies of scale on heavy assets. They remain focused on serving low income, farmers and customers.



Business model characteristics to reach deep on the income pyramid

Price Discrimination	Vegetables are sold at a premium price to high-income customers and at a discount to lowest-income customers.
Optimize Internal Processes	Digitized processes streamline value chain and optimize buyer-seller connections.
Microentrepreneurs	Local entrepreneurs are connected to a digital platform, selling agri-inputs, vegetables, and toilet services.
Reputation partners	Contracts with financial institutions, credit bureaus, fair trade organizations, and leading consumer products companies.

eKutir (cont.)

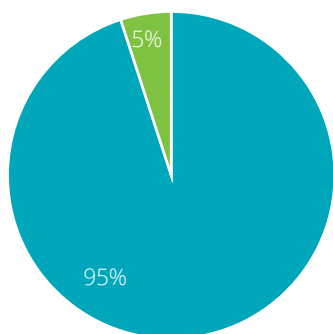
Other critical success factors and barriers

- **Robust digital platform**—Organizes and shares information, e.g., market data, risk planning, and pricing to improve business for all stakeholders.
- **Community trust via local employees**—The microentrepreneurs are often trusted members of the local community, which drives trust and increases sales.
- **Rural infrastructure development**—The Indian government has invested in connecting rural areas to the Internet, providing access and higher connection quality in rural areas and allowing more people to connect to eKutir platform.
- **Government sanitation campaign and funding**—The Indian government reinitiated a sanitation campaign (2014) that provided a matching subsidy for households to install toilets. The subsidy is matched by both central and state governments.

Value capture

Revenue: eKutir and kiosks share revenue with percentage's split determined separately per kiosk. Typically, eKutir captures 50% to 60% of revenue. eKutir's primary revenue source is commissions from buying crops or selling agri-inputs, toilets, and vegetables.

Breakdown



- Commissions from transactions
- Software license fee

Product Pricing: Agri-kiosks sell input bundles, plus advice and information for farmers at a ~20% discount to market price. Microentrepreneurs pay \$100/year for software license. Veggie-kiosks sell vegetables at market or premium prices for middle- to high-income customers and at a discount for low-income customers; toilet prices range from \$120 to \$450 per toilet.

Development impact achieved

- According to a study conducted by IFPRI and McGill University, farmers who worked with eKutir cut their costs by 50% and increased their productivity by as much as 75%. This enabled them to earn twice the profits relative to farmers who did not work with eKutir.
- eKutir has provided toilets for 80K BOP consumers.

Investments overview

Investors and donors have provided different forms of support totaling \$1.8M over three years since 2013:

- **Angel Impact Investors**—Equity investment of \$100K in 2013 with expected returns of only the principle
- **Yunus Social Business Fund**—Patient Capital (debt) of \$15K in 2013, paid back in 2015, no interest or returns
- **Unilever UK and Hindustan Unilever**—Working capital of \$550K in 2013 with expected returns in the form of future markets
- **Total awards and venture philanthropy**—\$1.8M

Key Learnings

- While a for-profit entity, eKutir has raised less than 10% through equity investments and patient capital; **angel investors hold 30% of company** without expectation for financial return.
- **Venture philanthropy was necessary as a risk capital to support innovation and enhance value** for customers and beneficiaries without risking the core business. Operation revenue was invested back to the core business to achieve scale.
- eKutir is focusing on investments from **strategic partners** that provided additional value in addition to money.

FINAE

Sector	Year founded	Geography
Education	2006	Mexico

Company background

Opportunity: Mexico has a growing demand for higher education. Of 11M young people between ages 19 and 24, 8M cannot continue their studies due to financial constraints. Few lenders will engage these lower-income students given the little experience/historic data available, perceived risk levels, and high interest rates required for a loan. This is supported by macrodata that demonstrates only 20% of low-income youth enroll in higher education.

Solution: FINAE is a financial institution that provides student loans to university-age, low-income Mexicans seeking a bachelor's degree or other postgraduate studies. To provide affordable interest rates, FINAE creates risk and cost-sharing agreements with university partners:

- **Risk Sharing**—A portion of all disbursements to the universities are invested in a First Loss Liquid Guarantee Trust; if student reaches 180+ delinquent days, the trust acquires the loan. FINAE is able to continue collecting payments and any proceeds remain in the trust.
- **Cost Sharing**—Mainly marketing and infrastructure.

Main Products: FINAE's customers can request a loan from 24 of the top universities across 102 campuses in 21 states in the Mexican Republic in which FINAE has an agreement. Once students apply, submit paperwork, and identify a guarantor, they obtain a 12%-18% interest rate loan (compared to 30%-50% market rates).

Business performance: path to profitability and scale

Total enterprise profitability and continuing to scale

- **Projections '18:** \$10M in revenue, increased margins, and 18K accumulated loans
- **Revenue '15:** \$4.1M USD with three year CAGR of 37%
- **Net Profit Margin '15:** 1%

* Note: Historical margins in '12 and '13 were 12% and 10% respectively, but faced losses in '14 from unhedged USD lines of credit; today FINAE is 100% hedged and back to profitability.

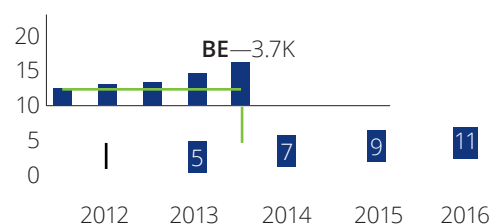
Income pyramid reach

FINAE is reaching different income levels on the pyramid with 49% of customers earning <\$20 per day.

FINAE is able to reach the \$4-\$20 income levels successfully by 1) sharing costs and risk with universities, and 2) balancing its risk portfolio by providing ~50% of loans to lower-risk, higher-income segments. Initially, FINAE provided loans to students earning <\$4/day, but faced high default rates because the term and monthly payments for students were too high given volatile incomes. This led FINAE to target students one step up the income ladder.

Rigorous Internal Methodology: Income levels are required when students apply to loans and FINAE is able to verify them during the loan approval process.

Breakeven (BE) Analysis



— BE point
 ■ No. of accumulated loans (K)

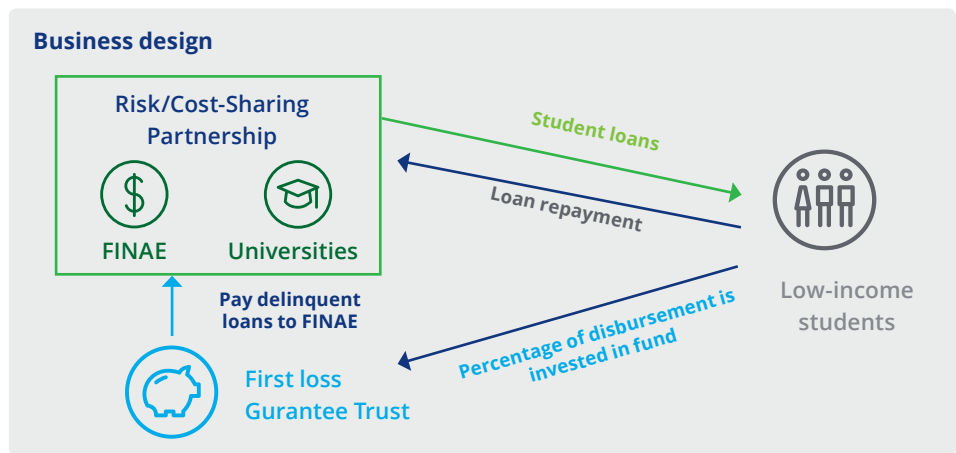
FINAE (cont.)

Factors affecting reach

Key factors	Narrower Cust. Base	Wider Cust. Base
Asset light	Pull Push	
Asset-heavy	Pull Push	X

Push vs. pull	Asset light vs. heavy
<ul style="list-style-type: none"> Loans are initially push because cost limits purchasing power. Over time loans become pull due to long-term ability to benefit from better jobs/more money. 	<ul style="list-style-type: none"> Loans are intangible products with limited fixed costs. Reaches students via universities, decreasing marketing and distribution costs.

Narrower vs wider customer base
FINAE targets multiple customer types to distribute risk, achieve scale, and improve financial sustainability. While lower-income customers have higher levels of risk, by also selling to higher-income customers, FINAE can balance its risk profile and decrease the overall discount rate available to lower-income populations.



Business model characteristics to reach deep on the income pyramid

Shared channels	Target students through university partners
Reputation partners	Use brand of university to reach students and build initial trust
Financing options	Student loans with customized repayment
Price Discrimination	Higher-income students subsidize lower-income students by paying the same price even though they have a lower risk profile

Other critical success factors and barriers

- **Require guarantor for 100% of loans** —Loans are made directly to student, but guarantor decreases risk.
- **Partnerships with universities for risk/cost sharing**—Enable low interest loans and help FINAE reach optimal students by leveraging university brand.

- **End-to-end student engagement increases likeliness of long-term success**—University recruiters identify optimal students and customer service teams provide ongoing financial support to help students renew loans.
- **Customized repayment plans based on individual student needs decrease default rates**—Students can choose repayment plans that start low and increase over time, stay steady, or start high and go low. These options increase student's flexibility to make payments.
- **Support for students to make it to following semester increases loan renewal rates**—If students are able to continue with schooling through the first year, the likeliness of dropout significantly decreases.
- **Barrier:** The largest barrier to success is being able to predict dropouts of students with FINAE loans.

FINAE (cont.)

Development impact achieved

- **In seven years, FINAE has granted more than \$55M in student loans to almost 10K students, 99% earning between \$4-\$140/day. Of these students, 2K have successfully graduated and 60% of graduates are first-generation college students.** These loans have a 12%-18% interest rate, compared to the typical ~30%-50% rates elsewhere in the market, with a typical payback period of 3-12 years. In the future, FINAE is planning to open a philanthropic association to support even lower-income students with high potential.
- **FINAE leads the private student lending market in Mexico and has won international recognition** from B. Corp., the Inter-American Development Bank, GIIRS Impact Rating, Opportunity for the Majority, and others.

Investments overview

FINAE has raised \$8.8M USD (Pesos \$117M) in equity over several rounds of financing with numerous investors, including Omidyar, Calvert, Oasis, Elevar Equity, Adobe Capital, Mexico Ventures, etc.:

- **2006**—Initial round of \$1.1M USD (Pesos \$21M) was funded by friends and family.
- **2009**—Seed round of \$700K USD (Pesos \$13.5M).
- **2011**—\$99K USD (Pesos \$1.9M).
- **2013**—\$2.8M USD (Pesos \$54.7M); Note: First securitization was in 2013 and was the first ever student loan securitization in Latin America history.
- **2014**—\$1.3M USD (Pesos \$25.9M)
- FINAE's second securitization was done in 2015 and expect to do a third in 2017.

Key Learnings

- Shareholders support FINAE in reaching low-income students by authorizing the organization to grant loans with both a social and financial return; with that said, clear financial targets are agreed upon for management.
- To support growth out of start-up phase, FINAE is strengthening corporate governance, general processes, and loan products to push toward sustainability.
- In 2017, FINAE will begin a Business Model Transformation Endeavour to transition to the digital era to improve the general student's experience.



Data and information in this case study gathered and confirmed via interviews with, and documents provided by, executives at the enterprises.

KGFS/IFMR Holdings

Sector	Year founded	Geography
Financial Services	2008	India

Company background

Opportunity: A majority of people in India still lack access to financial services. Without access to credit products, many poor Indians are unable to avoid cash flow problems or invest in income-generating businesses. Without savings and insurance, they are unable to absorb the financial impact of a health or economic shock.

Solution: The Institute for Financial Management and Research (IFMR) developed the Kshetriya Gramin Financial Services (KGFS) model to address these issues and promote financial inclusion for every individual by providing a holistic suite of financial services and products to individuals living in rural Indian areas; the model is an adviser-driven wealth management approach that uses a financial well-being report to link the product and service to the needs of the household.

Main Products: KGFS offers a comprehensive set of financial products and services designed to be simple, user-friendly, and tailored to the needs and goals of each customer. The offering includes a range of **credit products** (joint-liability group loans, enterprise term and working capital loans, livestock loans, etc.); **savings and investment products** (SB accounts, RD, pension, and gold investment); and **insurance products** (personal accident insurance, term life insurance, and shopkeeper's policies).

Business performance: Path to profitability and scale

Financially sustainable and investing in scale

The KGFS model serves more than 680K customers across 236 branches. Four of six KGFS business units have broke even or made a profit. KGFS has scaled to assets under management of \$68M¹

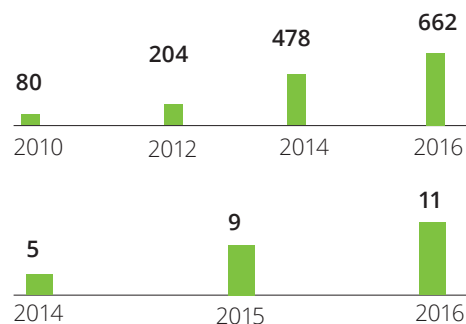
Income pyramid reach

KGFS is reaching deep on the income pyramid with 70% of customers earning below \$5/day.

KGFS successfully reaches the BOP by actively focusing operations in remote rural areas. Although KGFS branches can serve anyone within their geographical limit, roughly 70% are considered the lowest income level customers; an additional 26% are also from relatively deep on the income pyramid.³

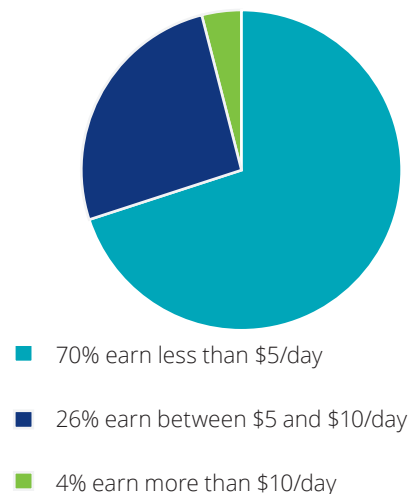
Methodology: IFMR uses a proprietary methodology to track the holistic financial health of its customers' households. The survey tracks a comprehensive set of variables, including demographics, income sources, household expenses, assets (e.g., property and jewelry), and liabilities such as formal and informal loans, as well as long-term financial goals.

Customer Base (000s)



Profitability: KGFS expects profitable results in 2017.²

Customer Base Income Levels



KGFS/IFMR Holdings (cont.)

Factors affecting reach

Key factors	Narrower Cust. Base	Wider Cust. Base
Asset light	Pull	
	Push	
Asset-heavy	Pull	X
	Push	X

Push vs Pull

Asset light Vs Heavy

- Some financial products, like credit, have natural demand; however, others such as insurance and savings and investment products require educating customers.
- Currently uses a network of brick and mortar branches with advisers; however, the delivery is highly technologically enabled with the capacity to go asset light.

Narrower vs wider customer base

With a diverse suite of products, KGFS is able to serve the entire population of remote rural villages, including the 4% earning more than \$10/day. However, KGFS products are designed to focus on the vast majority (96%) of customers who earn less than \$10/day. Having a broad product suite enables KGFS to remain relevant as their low-income customers graduate to higher-income brackets.

PLAN FOR GROWTH

- **Digital delivery of wealth management products:** KGFS is planning to layer digital distribution of financial products and services on top of the existing field-based distribution model. The new channel will enable ID authentication, customer acquisition, underwriting, transaction approval, document storage, and transaction execution all to be conducted or enabled digitally.

Business model characteristics to reach deep on the income pyramid

Pay Per Use Microloans, savings products, and insurance coverage designed for high volume and small investment amounts.

Paraskilling Advisers generally have no background in the financial services sector or higher education and receive training and technological support from KGFS.

Business within a Business Other IFMR subsidiaries contribute to the KGFS model's success (e.g., IFMR Rural Finance provides seamless tech-enabled processes and the wealth management tech platform).

Product Segmentation Different products offered based on needs and goals of individual customer.

Other critical success factors and barriers

- **Emphasizing customer centricity to build relationships:** KGFS is differentiated because of closeness to customers. Developing a holistic understanding of customers' lives and financial needs is key to making better recommendations, which creates lasting customer relationships. This is a primary source of competitive advantage against potentially lower-cost MFIs.
- **Investment in wealth managers:** Substantial investment in hiring, training, and developing wealth managers from the communities they serve is critical to building customer trust.

- **Willingness to partner:** KGFS originates directly and also leverages partnerships with other financial institutions to provide insurance, lending, and investment products.

Value capture

- **Revenue:** Revenue derived from interest, premiums, and other liability product fee income (e.g., remittance, insurance, and savings products).
- **Product Pricing:** Prices vary for different types of credit, savings, investment, and insurance products
 - Overall, the rate for classic joint liability group loans is 25%.
 - The average loan size is typically \$300 to \$400⁵.
- By comparison, the MFI industry average in FY16 was 25.5%.⁶

Development impact achieved

- **Significant household financial well-being improvements**—In KGFS' most mature branch, customers, on average, have experienced:
 - 48% increase in assets
 - 200% increase in asset value
 - 254% increase in household income⁵
- Preliminary results of an ongoing impact study also suggest **households in KGFS branch areas use more financial services:**
 - 40% higher incidence of formal borrowing
 - 20% increase in number of formal loans
 - Households with informal loans were 11% lower and the average informal loan amounts were 17% lower⁷

KGFS/IFMR Holdings (cont.)

Investments overview

Investors and donors have provided different forms of support totaling \$1.8M over three years since 2013.

- **Public and private investors have provided both debt and equity to facilitate the growth of the KGFS model over the past eight years. Types of investors have included:**

- Strategic investors for equity: Accion, LeapFrog, Proparco, and Sarva Capital
- Debt capital from public and private domestic banks, and other domestic and foreign financial institutions

Key Learnings

- **IFMR found it critical to select investors with aligned interests**, particularly those that shared the view that a multiproduct wealth management approach was critical to fostering financial inclusion.

Endnotes

1. IFMR Holdings Management Interview
2. Ibid.
3. IFMR Holdings Overview Presentation; IFMR Holdings Management Interview
4. IFMR Holdings Management Interview
5. KGFS Case Study; IFMR Holdings Management Interview
6. Weighted average from Micrometer Issue 17; IFMR Holdings Management Interview
7. KGFS: Impact on Lending Patterns, Preliminary findings Impact Evaluation Study by Center for International Development at Harvard University and Center for Micro Finance at IFMR Research



Data and information in this case study gathered and confirmed via interviews with, and documents provided by, executives at the enterprises.

Livewell Clinics

Sector	Year founded	Geography
Health	2009	Kenya

Company background

Opportunity: In Kenya, 40% of health services are provided by private facilities, many of which are rife with problems, including unlicensed providers and counterfeit drugs. When available, high-quality services are expensive and inaccessible to most low-income customers.

Solution: Livewell Clinics is a network of health centers, focused primarily on quality and efficiency, that serve as a “one-stop shop” for low-income customers seeking primary health care services in urban Kenya.

Main Product(s): Health centers offer comprehensive preventative and primary care services under one roof, including consultation, laboratory, and pharmacy services. Livewell also brings specialists into the center on an as-needed basis (e.g., OBGYN and pediatrics).

Business performance: Path to profitability and scale

Financially sustainable and investing in scale

- Most growth in 2012/2013 was too rapid and a result of investor pressure; Livewell has now reorganized to break even with fewer outlets (roughly five clinics).
- Broke even in '14; has maintained the position since.
- Scale: >250K patients seen (since '09); seven operational clinics with the plan to add one minihospital this year.
- Five well-performing clinics are required to break even; clinics must attain high enough volumes (~15 patients/day) and sell enough higher margin services to be sustainable (e.g., it is not the number, but rather the performance of clinics that is most critical to break even).

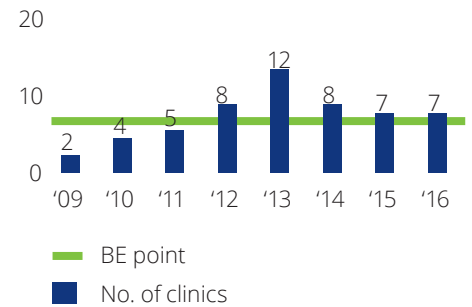
Income pyramid reach

While exact customer income levels are unknown, Livewell is likely reaching very poor customers, as ~60% of customers are uninsured.

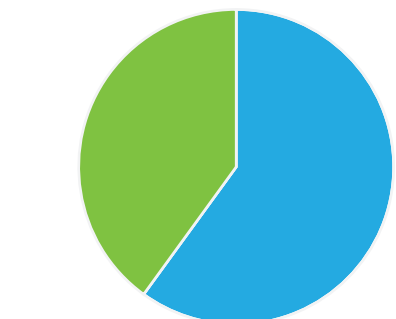
To reach lower-income customers, Livewell tailors its offerings. Livewell provides lower-income customers with inexpensive pharmaceuticals and promotional offerings. Higher-income customers tend to purchase Livewell's more expensive services (e.g., radiology).

Methodology: Livewell estimates customer income using average rent in Livewell communities, which ranges from \$20 to \$300/month; this translates to an income of ~\$60 to \$900/month per family. Assuming an average family size of four, this is \$0.50 to \$7.50/day per capita. Roughly 60% of Livewell's customers are uninsured and in the lower portion of this range (e.g., <\$4).

Breakeven (BE) Analysis



Estimated Customer Base Income Levels



- 60% live below \$4/day
- 40% live at or above \$4/day

Livewell Clinics (cont.)

Factors affecting reach

Key factors	Narrower Cust. Base	Wider Cust. Base
Asset light	Pull	
	Push	
Asset-heavy	Pull	
	Push	X

Push vs. pull	Asset light vs. heavy
<ul style="list-style-type: none"> • Difficult to demonstrate risks of disease and long-term benefits of care. • Consumer education required; promotional offerings (e.g., free clinics) spread awareness. 	<ul style="list-style-type: none"> • Labor-intensive consumer education via free clinics. • High real estate and medical equipment costs. • Doctors/experts are expensive resources.

Narrower vs wider customer base
Livewell locates clinics in densely populated urban centers with populations that represent a range of income levels; this enables high volumes, as well as some slightly higher-income customers, to cover fixed costs associated with Livewell's asset-heavy model. Furthermore, roughly 40% of Livewell's customers that are insured (>\$4/day) generate approximately 60% of the revenue and are critical to financial sustainability.

Business Design



Livewell operates a network of clinics with a central management office. Each clinic is transitioning to clinical officer (CO) ownership, which Livewell views as more sustainable long term. Today, three clinics are CO-owned.

Business model characteristics to reach deep on the income pyramid

No Frills	Clinics have fewer amenities than other private clinics.
BOP as Employees	Clinic employees are from the communities Livewell serves.
Optimized Internal Processes	Uses an electronic medical record system to send patient information out of network, and an early detection and prevention system to diagnose and suggest treatment.
Product Segmentation	Affordable drugs and free clinics for lower-income customers; more expensive products and services for higher-income segments.
End Customer Does Not Pay	Contracts with National Hospital Insurance Fund (NHIF)/government for maternal health clinics, cancer screenings, etc.

Other critical success factors and barriers

- **Network of clinics with central management:** Provides consistent quality and enables cost sharing, which helps Livewell compete with stand-alone providers that struggle to reach quality standards and manage high costs without economies of scale.
- **Quality doctors/staff sourced locally:** Enables doctors/staff to better connect with patients and understand their needs; reputable doctors/staff are a critical brand-building/marketing technique.
- **Customer loyalty:** Livewell relies on repeat visits and word of mouth referrals to keep marketing costs low.
- **Barrier:** Physical infrastructure is a potential barrier to success; Livewell establishes clinics in poor urban centers at the edge of slums where it has access to roads, running water, and formal property ownership, as well as high volumes necessary to sustain low margins.

Value capture

- **Revenue:** Livewell's services have varied prices and margins, and there is some cross-subsidization. For instance, child immunizations are sold at a loss and covered by higher margins on more expensive services (e.g., radiology). Ninety percent of Livewell's revenue comes from patients in the communities it serves, while the remaining 10% comes from contracts with the NHIF/government; however, these contracts are expensive due to long credit cycles.

Livewell Clinics (cont.)

- **Product Pricing:** Most services have two associated rates—individuals that “pay now” with cash/credit are charged one rate, while individuals that “pay later” through an insurance company are charged a higher rate. Prices vary by service and certain services are free (e.g., promotional offerings); consultation fees are \$2 to \$4.

Development impact achieved

- Served >250K patients since inception.
- Brings low-cost medical consultations to market, as consultations are ~50% cheaper than market average.
- Improved health outcomes due to a high patient follow-up rate (e.g., patients, especially those with chronic ailments, are consistent with filling prescriptions, and diagnostic follow-up).

- Availability of quality services for the BOP has led to an increase in insurance uptake among the BOP, as evidenced by an increase in Livewell’s insured customers from 5% to more than 30% over five years.

Investments overview

- In 2011, Livewell received an equity investment of \$300K to scale to five clinics; investors primarily included the original owners, family, and friends
- In 2012, Livewell received a large equity investment of ~\$2M; the investor wanted to see significant growth (more than 20 units added per year), which led to a huge investment in infrastructure to support growth; in 2013, however, the investor divested from the business, which caused significant disruption

- Other investors include USAID SHOPS and Global Giving, among others

Key Learnings

- Livewell has found that it is prudent to build a solid foundation with slower, organic growth at the start of the investment and scale with a great deal of care
- The health care market is very fragmented, with most players making low profits or losses; investors should consider the benefits of funding consolidation and solutions to improve the overall market dynamics



Data and information in this case study gathered and confirmed via interviews with, and documents provided by, executives at the enterprises.

M-KOPA		
Sector	Year founded	Geography
Solar	2011	Kenya, Tanzania, and Uganda

Company background

Opportunity: In sub-Saharan Africa, ~590 million people lack access to electricity, including 85% of rural populations; only one in five has access to formal financial services.

Solution: M-KOPA manufactures, sells, and provides financing for solar home systems that provide electricity to rural households (average size of 500 ft.²).

Main Product(s): M-KOPA's main solar home system includes a solar panel, two LED bulbs, an LED flashlight, a rechargeable radio, and an adaptor for charging a phone. M-KOPA's advanced solar home system includes a larger panel and battery, as well as a 16-inch television. M-KOPA also finances the sale of follow-on consumer goods (e.g., cookstoves and bicycles) to customers that have entirely paid off their solar home systems.

Business performance: Path to profitability and scale
Financially sustainable and investing in scale

- 83% solar sales CAGR from 2013 to 2016
- Profitable on a per-unit basis
- Currently focusing heavily on growth

Scale:

- 410K total solar systems sold to date, including 400K introductory and 10K advanced systems
- Currently selling ~600 solar systems per day
- Projected annual solar sales to reach 450K units in 2017
- Have also sold 100K units of follow-on goods

Geographic solar sales breakdown (year operations started):

- 79% in Kenya (2011)
- 18% in Uganda (2014)
- 3% in Tanzania (2015)

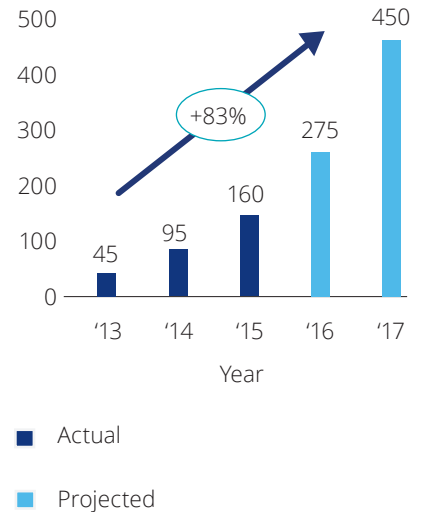
Income pyramid reach

M-KOPA is reaching deep on the income pyramid with 82% of customers having a household income below \$2/day per household member.

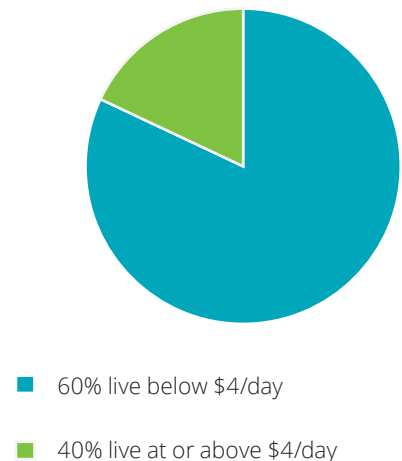
M-KOPA reaches low through rural distribution channels, product pricing for affordability (including the removal of VAT), and flexible financing mechanisms.

Rigorous External Methodology: M-KOPA partnered with Gates and Intermedia to survey 704 randomly selected, active Kenya customers in Dec. '14. The survey asked customers to give a breakdown of their average total monthly income by category, including formal and informal sources and removing any income associated with loans. Surveys were designed/conducted to ensure a high level of consistency and data quality.

Breakeven Analysis



Customer Base Income Levels



M-KOPA (cont.)

Factors affecting reach

Key factors	Narrower Cust. Base	Wider Cust. Base
Asset light	Pull Push	
Asset-heavy	Pull Push	X

Push vs. pull

- Although a salesforce is required, it is relatively easy to demonstrate the benefits of solar lighting because it is similar to electricity, increases productivity in the home, and is aspirational.
- Kerosene, phone charging stations, and flashlight batteries are expensive substitutes.

Asset light vs. heavy

- Tangible product with physical manufacturing centers.
- Labor-intensive salesforce required to educate/support sales.
- Significant back-end technology systems investment required to process ~50K daily payments.

Narrower vs wider customer base

Given requirements from its investors, M-KOPA started with a low-margin product aimed at customers earning less than \$2/day. In the future, M-KOPA will continue to aggressively target those customers, while also growing its higher customer base to scale up and improve financial viability. M-KOPA projects sales of its recently launched, high-margin, advanced solar system to represent 30% of total sales by 2017 (currently it is only 2.5% of total sales).

Plan for growth

- **Immediate plan to scale in current markets. Long-term plan to expand in sub-Saharan Africa and South Asia.**

Business model characteristics to reach deep on the income pyramid

BOP as Employees	1,000 person salesforce hired from the communities M-KOPA serves.
Reputation Partner	Co-branded with Safaricom for launch, which was critical to gaining initial market share.
Shared Channels	Payments are made through M-Pesa.
Financing Options	98% of customers purchase solar systems on finance; once repaid, they can use credit history to finance other household items.
Vertical Integration	M-KOPA manufactures and sells solar home systems.
Optimized Internal Processes	SIM card in solar system allows M-KOPA to disable solar home systems remotely, which enables a more effective/less costly payment collection process.
Up-Sell/Cross Sell Products	25% of customers have purchased follow-on goods.
Product Segmentation	Advanced solar system targets higher-income customers than the introductory system.

Other critical success factors and barriers

- **Local salesforce:** Helps customers understand the savings associated with products; salesforce receives training, M-KOPA gear, marketing materials, and commission.
- **Postsales customer service:** Helps gain consumer trust; M-KOPA offers a two-year warrantee, and has more than 60 service centers in Kenya and a 24/7 care line.

- **Accounts for volatility of customer cash flows:** By enabling flexible repayment; M-KOPA checks in when customers miss payments and allows them to miss up to 30 consecutive daily payments before defaulting.
- **Barriers:** M-KOPA may only expand to new markets with mobile payment platforms; furthermore, vertical integration makes entering new markets difficult.

Value capture

- **Revenue:** M-KOPA earns 85% of its revenue from its introductory solar system, 10% from follow-on products, and 5% from its advanced solar system. For follow-on goods, which M-KOPA does not manufacture, M-KOPA makes money on the wholesale-to-retail markup and the financing spread.
- **Product Pricing:** M-KOPA's introductory solar system has a cash price of \$175 and a finance price of ~\$215 (a \$35 up front payment + one year of \$0.50 payments daily); 98% of customers pay the finance price. M-KOPA's advanced solar system has a cash price of \$435 and a finance price of ~\$535 (\$80 up front payment + one year of daily \$1.25 payments); 7% of customers pay the cash price, which is more competitive in the market than the cash price of the regular solar home system. Customers that have purchased the introductory system may also upgrade to the advance system for two years of \$0.50 daily payments. M-KOPA also finances nonsolar products, which have varying prices, but often have a \$0.50 daily payment plan and no up front payment.

M-KOPA (cont.)

Development impact achieved

- Consumer saves an entire year's income within three years.
- Increased safety from elimination of accidental fires caused by kerosene lamps, better health due to lower levels of indoor air pollution, and increased productivity.
- Customers build credit and gain access to new markets:
 - 50% of customers paid off the solar system and are eligible to buy follow-on goods; 50% of those eligible (100K total) have bought follow-on goods to date

Investments overview

Investors provided debt and equity funding totaling \$65.45M over five years. Major investments include the following:

• Five rounds of equity funding, totaling at least \$41.45M

- Oct. 2011—Series A (undisclosed amount)
- Dec. 2012—Series B (undisclosed amount)
- Feb. 2014—Series C for \$10M
- Feb. 2015—Series D for \$12.45M
- Dec. 2015—Venture for \$19M

• Two rounds of debt financing, totaling \$24M

- Feb. 2014—\$20M
- May 2016—\$4

Major investors include Acumen Fund, Shell Foundation, LGT Venture Philanthropy, Grey Ghost Ventures, and Generation Investment Management, among others.

Key Learnings

- Gates grant requires 50% of customers to earn below \$2/day, which has kept M-KOPA aggressively focused on reaching deep on the income pyramid.
- Having demonstrated unit profitability, investors prefer that M-KOPA reinvest in scale rather than seek immediate consolidated profitability.
- M-KOPA's next round of funding (~\$30M) will likely come from DFIs, mainstream PE, and other large investors, and will support the growth of M-KOPA's advanced systems products.



Patrimonio Hoy

Sector	Year founded	Geography
Housing	1998	Mexico & Latin America

Company background

Opportunity: Lack of affordable housing is a severe problem for low-income families in Mexico given 60% make less than \$5 per day. Most homes are also overcrowded with one to two rooms for six to ten family members. Building is difficult due to limited access to financing, affordable materials, and technical skills, all which leads to material waste of ~30% and a build time of four to five years per room.

Solution: Patrimonio Hoy (PH) is a business unit of Cemex, the 7th largest building materials company worldwide, providing market-based, do-it-yourself housing solutions to low-income families. Solutions are based on need (e.g., one room and full house) and consist of four components:

- 1. Technical assistance** via architect home visits to co-create design and develop customized building plan.
- 2. Building materials** with guaranteed fixed prices through duration of payment plan, including free delivery to homes based on owner's scheduling preferences.
- 3. User-friendly payment plans** with no credit checks required that are customized based on client need; For example, a customer pays 70 consecutive, weekly payments of ~\$17 for materials to build about a 10 square meter room.
- 4. Savings and credit schedule:** Customers save to buy materials and then receive additional materials on credit.
- 5. For additional fee:** Legal services and construction labor.

Historically, 35% of families continue building beyond one room toward a multiroom housing solution.

Business performance: path to profitability and scale

Total enterprise profitability and continuing to scale

PH broke even in 2004 and has 117 selling points in 110 cities in Mexico and has expanded to Nicaragua, Colombia, Costa Rica, and the Dominican Republic.

Metrics represent PH as a stand-alone business unit and do not include increases in cement sales to Cemex.

- **Revenue:** Not public
- **Profit Margin '15:** Positive
- **Other:** 28% growth of new customers in '15
- **Scale:** 200K stoves sold

Income pyramid reach

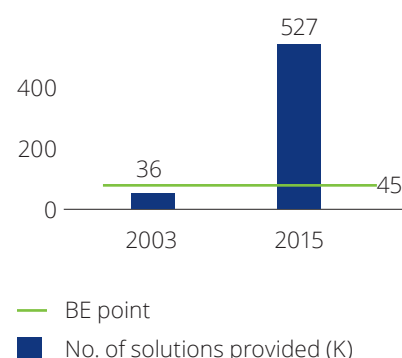
PH successfully reaches very low-income customers with 29% making less than \$8/day/household.

To reach low-income customers, PH provides access to materials on credit.

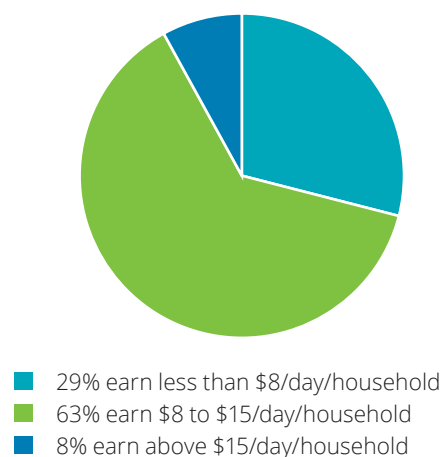
Typically, customers save to buy a set amount of materials and receive double that amount, half paid and half on credit. Then, they pay off the materials on credit, save up again, and repeat the process, receiving larger amounts on credit over time as trust is built.

Methodology: PH tracks income per household and targets families where one to five members make the Mexican minimum wage (~\$4/day). On an average, 4.8 people live in one house, three of which have an income and two whom do not work and/or are children. Therefore, per capita income is even lower than depicted in the chart. Proof of income is verified with paystubs during enrollment and no credit checks are required to start the process.

Breakeven (BE) Analysis



Customer Base Income Levels



NOTE: Data is per household, not per person and does not include informal income sources.

Patrimonio Hoy (cont.)

Factors affecting reach

Key factors	Narrower Cust. Base	Wider Cust. Base
Asset light	Pull Push	
Asset-heavy	Pull Push	X

Push vs. pull

- Obvious benefits to quality homes but **high barriers** due to long-term payoff periods required for purchase.
- **Limited purchasing power** given lack of product transferability.

Asset light vs. heavy

- **Tangible** materials over 1.5 yrs create high production unit costs.
- Sales promoters **increase labor intensity**.
Note: In housing industry, PH is asset light because it does not build the homes.

Narrower vs wider customer base

PH reaches a wide range of low-income customers, where some make up to \$2.5 more per household. Over time, PH has shifted from a “one-size-fits-all” approach to customized payment/delivery plans to meet various needs.

This increases flexibility for families to manage cash flow volatility along with other competing expenses. PH targets customers in urban/semi-urban areas, but not rural, to ensure they are within reach of distributors.

Business design

BOP Farmer

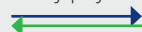


Money for material orders



Distributor

Weekly payment



Housing Solution:

- Tech assistance
- Credit in materials
- Coordinate material orders

BOP Socios



Delivery of materials

Business model characteristics to reach deep on the income pyramid

Reputation Partner	Leverage Cemex brand to build trust with customers and partners
BOP As Employees	Job opportunities for local women hired as promoters to drive sales
Financing Options	“Savings-credit” model to access housing materials on credit
Business Within a Business	Operate as stand alone business unit within Cemex
Up-Sell/Cross-Sell Products	Customer can purchase one room at a time and continue to add onto house over time

Other critical success factors and barriers

- **Develop deep empathy** – Understand the BOP’s habits, needs, and obstacles and adapt products accordingly (e.g., increased customization available to clients).
- **Shift in core product based on client’s needs** – Focus on holistic housing solution (e.g., work directly with client to provide tech. assistance and customized payment plans) vs selling cement via retailers.
- **Build customer trust to increase sales (e.g., 60% from word of mouth)** – Demonstrate long-term support (e.g., guaranteed fixed pricing and materials credit).

- **Design unique distributor requirements** – Select partners based on service level to clients and willingness to reduce margins given increases in volume.
- **Build flexible management culture** – Adapt company processes/standards based on customer needs; ensure Cemex leadership understands and supports operational differences to run an inclusive business.
- **Embed social capital in model** – Support community needs through initiatives and adaptive products.
- **Barrier** – Meeting different needs of BOP clients was a barrier in early years of operation - PH was able to shift its model to provide more customized solutions.

Value capture

- **PH Clients** – Example, payment option for a 10 m2 room is ~\$20/wk for 70 wks totaling \$1.4K, but can be as low as \$17/week with option to pause payments if needed.
- **Patrimonio Hoy** - PH has two main revenue sources:
 - **Membership fees:** ~21% of client payment for access to fixed prices and tech assistance
 - **Margins with distributors:** PH creates demand for distributors by providing access to a new, untapped customer base; this enables PH to negotiate higher margins; amount varies by distributor and by client

Patrimonio Hoy (cont.)

Development impact achieved

PH is improving the living conditions for the BOP:

- New or improved housing for 527K families, reaching 2.5M individuals, totaling 3.5M m2 of new space
- Improved home quality from technical support leads to higher home values and enhanced quality of life
- Decreased average building costs by 30% and cut average time to completion by 60%
- Improved social development and safety for children (e.g., increased space, more privacy, decreased exposure to illness, and adequate sleeping areas).
- Increased access to credit/financial inclusion for BOP customers with letter of recommendation from PH

Indirect benefits of PH also include increasing employment for the BOP based on the following:

- Training and employment of more than 3K BOP promoters, 95% of which are women
- Increased hiring of builders due to increase in local construction activity (65% of customers hire builders)
- Long-term economic benefit for home owners, given 29% use new space to develop their own businesses

Investments overview

PH started as business unit within Cemex, so it does not have an investor base. Today, PH operates autonomously within Cemex as a profitable unit with its own set of internal performance requirements.

Key Learnings

Cemex provided immense support in early years, incl.:

- **Financing** – access to funds to hire a team, develop a BOP-focused model, and test it in the market
- **Industry expertise and relationships** – access to all necessary experts to develop the model
- **Cemex brand** – well-known and recognized brand decreasing the need to prove quality of materials to a naturally skeptical target market
- **Distribution channels** – access to distributors/suppliers with ability to leverage CX brand and volume discounts
- **R&D Support** – ability to experiment in early stages



Data and information in this case study gathered and confirmed via interviews with, and documents provided by, executives at the enterprises.

Sanergy

Sector	Year founded	Geography
Sanitation/Agriculture	2010	Kenya

Company background

Opportunity: 4.1 billion people lack access to hygienic sanitation options, leading to diarrheal diseases—the #2 cause of disease worldwide. Each year, 760K children die, and developing countries lose ~2% of GDP (~\$260B) due to health care costs and impaired productivity. This crisis is prevalent in slums due to high population density, limited space, and lack of resources. Most of Nairobi’s 2M slum residents (8M total in Kenya) defecate in bags and use pit latrines. Environmental damage is also an issue, given that 90% of waste is untreated and discharged into waterways.

Solution: As of September 2016, Sanergy has a network of 400 franchisees called Fresh Life Operators (FLOs) who purchase, maintain, and operate more than 800 hygienic Fresh Life Toilets (FLT) across slums in Nairobi. Sanergy provides FLOs with training, access to financing, and support to create a successful franchise business. It then collects the waste from FLT, converts it into agricultural inputs, and sells these products to medium-sized farmers in Kenya.

Main Products and Services: This integrated model has three distinct categories: 1) hygienic waste management services, with toilets distributed through three channels (commercial, schools, and landlords); 2) safe, professional waste collection and removal; and 3) agricultural inputs, including organic fertilizer and insect-based animal feed.

Business performance: Path to profitability and scale

Not yet financially sustainable, but scaling moderately toward breaking even

- **Tons Sold in '14 & '15:** 25 and 125; 124% growth.
- **2020 Projected Split:** 67% fertilizer; 33% animal feed.
- Moderate overall growth due to recent shift in customers for agricultural products.
- **Revenue Proxy:** Waste collected '15: ~3K tons; 35% annual growth; 10:1 ratio of waste collected to end product produced. Note: Growing collection services to meet product demand; projected split is 25% from FLT and 75% from other waste sources.
- **Profit Margin:** Negative, but growing.

NGO '19 Projections: Cost/person/year from \$57 to \$23

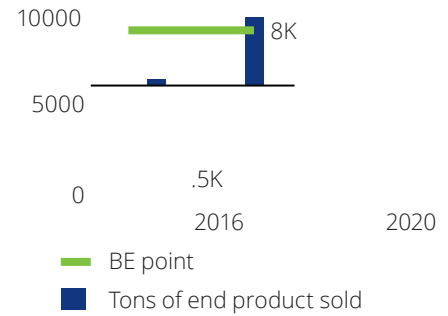
Income pyramid reach

Sanergy is reaching deep on the income pyramid by building an integrated sanitation value chain.

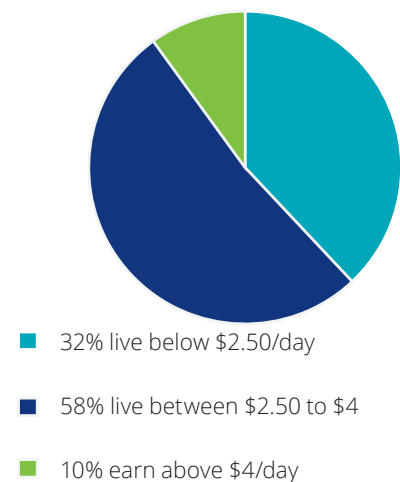
To do this successfully, Sanergy’s mandate for its hygienic waste management services is to test ideas that reach the BOP; this process has led to increased FLT access via well-established school and residential distribution channels.

Rigorous External Methodology: Income-level data for FLT users is from an Acumen Lean Data study, which used Grameen’s PPI five-question tool. Survey results also showed FLT users were NOT wealthier than non-FLT users in the community. For the agricultural product business, Sanergy has three customer segments: large commercial farms (55%), smallholder farms (45%), and feed millers.

Breakeven Analysis



Customer Base Income Levels



Sanergy (cont.)

Factors affecting reach

Key factors	Narrower Cust. Base	Wider Cust. Base
Asset light	Pull	
	Push	
Asset-heavy	Pull	
	Push	X

Push vs. pull

Asset light vs. heavy

- | | |
|--|---|
| <ul style="list-style-type: none"> Hygienic FLT users are low-cost amenities that improve quality of life, driving high demand; sales teams educate the FLO network and agricultural customers on product benefits. | <ul style="list-style-type: none"> Tangible products (FLTs and agricultural inputs) require higher production costs; waste collection and management are labor intensive, increasing distribution costs. |
|--|---|

Narrower vs wider customer base

Sanergy created a hybrid legal structure to support two customer types with different income levels, across different product categories. The NGO serves FLT users (the majority of whom are in the BOP); the for-profit (FP) sells waste collection services and agricultural inputs to farmers.

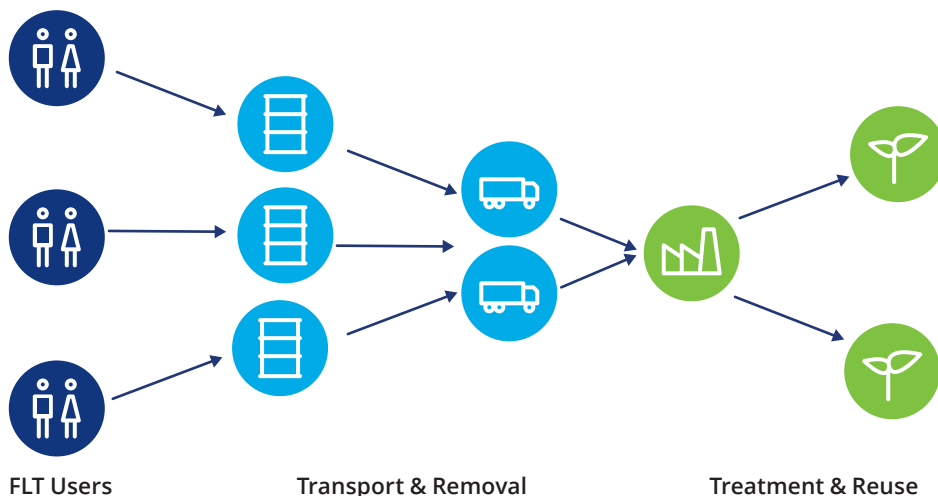
To reach sustainability, Sanergy must achieve scale across both sets of customers.

High volumes of FLT users create waste, which the FP uses as input for agricultural products. In addition, scaling ag product sales is main revenue driver.

Business model characteristics to reach deep on the income pyramid

Pay Per Use	Small payments (~5 cents)
No Frills	Simple, low-cost FLT design
BOP as Employees	Employee FLOs and company employees
Financing Options	FLOs can access credit to purchase FLTs

Business Design



Microentrepreneurs	FLOs operate FLTs as franchise businesses
Up-Sell/Cross-Sell Products	Sell fertilizer and animal feed to same farmers
Product Segmentation	Agricultural products for farmers and FLT fees for BOP
Vertical Integration	Own entire supply chain from waste collection to reuse

- Government's support of model:** Partnership required to obtain and keep ownership of land for FLTs.
- Legal structure provides more flexibility to innovate to reach the BOP** (e.g., less profit pressures for NGO).

Value capture

Sanergy is unique in that it captures revenue from different activities along the value chain, including:

Other critical success factors and barriers

- Target locations based on level of infrastructure and customer norms** (e.g., high-density areas help FLOs make a profit, customers accustomed to paying for latrines, and microentrepreneurship is accepted in culture).
- Aspirational product focus is effective selling point.**
- Adapt customer base with market learnings:** Shifted from commercial to medium-sized farmers to gain access to decision makers and decrease cash flow volatility.
- Kenyan-based employees increase rate of learning:** More than 90% of team is Kenyan, which drives innovation.
- At Sanitation Level:** Sanergy receives revenue for the cost of the structure (~\$240 to \$350 paid up front) and an annual fee for service provision (\$60 to \$120); incurs direct cost/use of \$0.024 with a five-year goal of \$0.01.
- At FLO Level:** FLOs charge ~\$0.05/FLT use and receive 100% of revenue from users (~\$2K per year).
- At Ag. Product Level:** Sanergy charges farmers \$350/ton.

Sanergy (cont.)

Development impact achieved

Sanergy has made significant, tangible strides in providing the deep BOP with healthy sanitation options. In September 2016, metrics included:

- 800 active FLT's in informal settlements
- 400 FLO's in franchise network
- 37K daily uses from community members (25K users)
- 9K metric tons of waste safely removed and treated
- 800 new jobs created
- 6% penetration of 550K Mukuru community

Sanergy's commercial fertilizer business also generates positive impact for farmers by creating an average yield increase between 30% and 100%.

Investments overview

Sanergy's model gives the organization flexibility to deploy different types of capital based on business needs.

Where there are clear, proven markets, Sanergy's FP attracts investment capital. For less proven components, where there is opportunity for high levels for social return, Sanergy can obtain philanthropic funds through the NP. To date, Sanergy has raised >\$8M.

Sanergy's commercial business has raised \$4.4M in equity over two rounds of financing including:

- Competitions and fellowships—\$250K from 2010 to 2011
- Seed round—Raised convertible debt with Eleos (now global partnerships) in '12

- Series A and A2—Raised equity with Eleos, Acumen, and Novastar in '13 followed by equity from Cornerstone Enterprise in Kenya in '16
- Commercial grants for FP—USAID awarded \$1.5M grant and Gates awarded \$2.3M in '14

Sanergy's nonprofit raised >\$4M in philanthropic capital from 28 funders, the largest of which included the Stone Family Foundation and Vitol Foundation.

Key Learnings

Developing a mutual understanding of funding goals is imperative for successful relationships with funders (e.g., improve hygienic options for kids in schools).

Sanergy must then demonstrate traction toward these goals.



Swasth Foundation

Sector	Year founded	Geography
Health	2011	Mumbai and India

Company background

Opportunity: India has limited high-quality health care services, and malpractice is rampant. There are also no pricing regulations on products/services, which has caused high prices in health care. Furthermore, 80% of health expenditure is out of pocket, making health shocks the greatest cause of impoverishment in India.

Solution: Swasth Foundation (Swasth) operates a nonprofit patient-centric health system that provides one-stop access to high-quality health care services at half the market rates.

Main Product(s): Swasth health centers offer primary care services, including dental, diagnostics, drugs, and referrals to secondary/tertiary care. **Community Outreach** via “health workers” expands the reach of preventative-promotive care, including health education, early disease diagnosis (e.g., diabetes and hypertension), low-cost products, and follow-up treatment compliance. **School Health Camps** provide early diagnosis and detection of high incidence and underdiagnosed conditions (e.g., anemia, refraction error, and undergrowth) to low-income student in the slums.

Business performance: Path to profitability and scale

Declared nonprofit

Goal to break even on an earned income basis to reduce donor subsidies

- **Revenue '16:** \$400K.
- **Revenue '16 growth:** 40%.
- **Other:** Customer visits average 2.5/year, compared to market average of one/year; Swasth customers visit the doctor more often/sooner, which increases cash flows.
- **Scale:** 103K families registered and 455K visits (since '11).
- Operating 18 clinics; break even at 50 clinics.
- Project to break even in 2019, given current cost estimates.
- Most clinics are cash flow positive, averaging 40 patients/day and peaking at 100 patients/day; break even at 35 to 40 patients/day.

Income pyramid reach

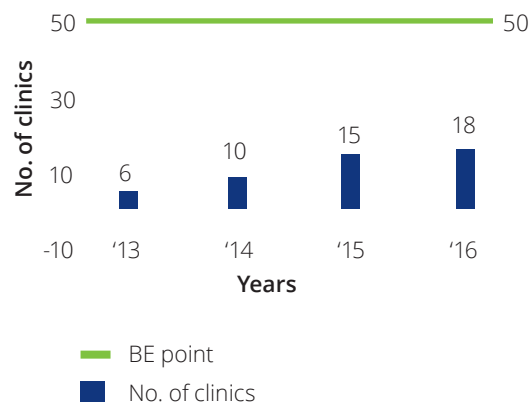
Swasth is reaching deep on the income pyramid with 90% of customers living on less than \$4/day.

Swasth targets lower-income customers by establishing its clinics in Mumbai slums. A typical family that Swasth serves consists of a full-time daily wage earner, an additional earning member at half this income, and three children. Ninety percent of customers make \$100 to \$450/family/month.

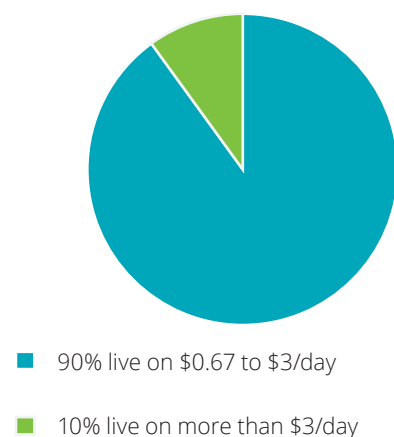
Impressionistic Internal Methodology:

Swasth uses customer occupation in combination with benchmark data (e.g., demographic data on Mumbai slums) to estimate per capita customer income.

Break-even (BE) Analysis



Customer Base Income Levels



Swasth Foundation (cont.)

Factors affecting reach

Key factors	Narrower Cust. Base	Wider Cust. Base
Asset light	Pull	
	Push	
Asset-heavy	Pull	
	Push	X

Push vs. pull

- Difficult to demonstrate risks of disease and long-term benefits of care.
- Some outreach/education required.
- Note: Treatment for chronic conditions requires more outreach than treatment for acute diseases and dental; Swasth relies primarily on the latter for revenue.

Asset light vs. heavy

- Doctors/experts are paid competitive rates.
- Labor-intensive outreach—health workers bring in one-third of customers.
- Medical equipment costs are significant.
- Note: Swasth's model is "lighter" than most health clinic models; buildings are leased, and the total investment is <\$1/person in the catchment area.

Narrower vs wider customer base

To maintain its mission to maximize lives impacted, Swasth spun out as a nonprofit to continue delivering affordable health services to lower-income customers.

As part of the for-profit, Swasth had a dual purpose—maximize profits and impact; however, Swasth found a tension between these two objectives, including pressures to quickly raise profit margins through price increases, which would have reduced the number of lives impacted, as price is a barrier to access care.

Plan for growth

In the short term, Swasth will expand primarily in Mumbai. In the long term, Swasth will target other Indian cities. Swasth

has initiated a pilot in Ahmedabad and will target other cities based on the experiences in Mumbai and Ahmedabad.

Business model characteristics to reach deep on the income pyramid

BOP as Employees	Women from community are trained as health workers, physician assistants, dentists assistants, and receptionists.
Shared Channels	Refers patients to closed network of secondary/tertiary care providers; members get 20% to 40% discount.
Optimized Internal Processes	Back-end innovation/integration, including: purchasing drugs directly from manufacturers and an in-house IT system to store, manage, and analyze information (electronic medical records and enterprise resource planning).
Financing Options	Customers to pay for higher-priced dental services over time; other financing options being explored.
Vertical Integration	Established its own supply chain and set up a central laboratory, warehousing facility, and in-house tech team to minimize costs and better meet customer demands.
Up-Sell/Cross Sell Products	After customers receive free/low-priced care from the community outreach or school health program, they often visit a Swasth Health Center (SHC) for follow-up, higher-priced care.

Other critical success factors and barriers

- **Labor force incentives:** Incentivizes doctors/dentists on volume and not value so they do not overprescribe, which reduces out-of-pocket expenditure.
- **Best in class:** SHCs are better looking and equipped than other clinics in the slums, which makes the centers desirable for the BOP, contributing to Swasth's 90% customer satisfaction; BOP expects products/services to be high quality despite low prices.
- **Barrier:** Consumer health care preferences in India are different than in the United States; Swasth completes occasional surveys to better understand consumer needs and tailors services accordingly to attract more customers and better meet existing customer demands.

Value capture

Revenue:

- Services have varied prices and margins

Product Pricing:

- **Swasth Health Centers**
 - SHCs offer comprehensive health services in department of family medicine and dentistry. Price of services range from \$0.15 to \$100.
 - \$0.50 for a family physician consultation.
 - \$0.33 for a dentist consultation.
 - Average spend per visit, including prescription medicines, tests, and procedures, as required:
 - Family Medicine: \$1.50
 - Dental: \$4.50
- **Community Outreach and School Health Camps**
 - Most offerings are free (cost covered by donors or Swasth), but some are priced at ~\$1 per customer.

Swasth Foundation (cont.)

Development impact achieved

- Health care priced at ~50% of market rates
- 77M INR (\$1.15M USD) reduction in out-of-pocket expenditure, which reduces health shocks in vulnerable populations
- Improving quality of care, as exhibited by:
 - 1) a treatment compliance (i.e., medicine adherence) level of 60%, which is twice the market average of 30%;
 - 2) a patient recovery rate of more than 90%; and
 - 3) a patient satisfaction rate of more than 90%

Investments overview

Investors provided grant funding of ~1.9M, including:

- **USAID**—Three-year grant of \$900,000 in 2015
- **Tata Trusts**—Three-year grant in 2016
- **Arvind Ltd.**—Two-year grant in 2016

Key Learnings

- Swasth India's investors were supportive of Swasth's decision to spin out as a nonprofit, and they still support Swasth in an advisory capacity today.



Data and information in this case study gathered and confirmed via interviews with, and documents provided by, executives at the enterprises.

Urban Planet Mobile

Sector	Year founded	Geography
Education	2007	45 Countries

Company background

Opportunity: In countries with large BOP populations, there is limited, affordable access to English lessons, which are crucial to obtaining higher-income jobs (e.g., tourism). In India, English speakers earn 34% higher wages than others, which is evidence of a strong market need.

Solution: Urban Planet Mobile (UPM) cooperates with local MNOs to provide affordable, daily educational content via phones/Internet to BOP customers. UPM spread to 750K users downloading 23M lessons/month across 45 countries, including East Asia, the Middle East, and Latin America, before its acquisition in '15.

Main Products: The main product, Urban English, provides BOP learners with access to daily English lessons, delivered as a highly compressed audio file, via basic, prepaid phones. Users can choose between 12 courses (out of 25 UPM developed, with various difficulty levels. Each course includes 60 to 90 daily lessons, including vocabulary and grammar content. Users pay a subscription fee of USD \$3/month (based on local context), and can prepay daily or weekly. This fee is split between UPM and MNOs.

Business performance: Path to profitability and scale

Total enterprise profitability and continuing to scale

- **Revenue '14:** \$900K with a 34% two-year CAGR
- **Profit Margin:** 30%
- **Other:** Could have broke even in '13 but decided to reinvest in business
- **Acquisition:** UPM purchased by Sibling Group for ~\$6M in equity and cash

Income pyramid reach

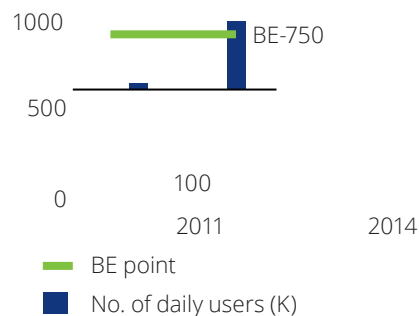
UPM is reaching deep on the income pyramid by tailoring its model specifically for these customers.

To successfully reach the BOP, UPM focuses all aspects of its model on customer affordability. For example, UPM:

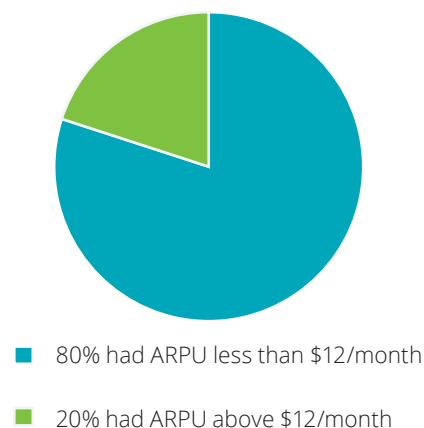
- Designs products for prepaid phones used by the BOP
- Requires MNOs to cap pricing at 25% of the average mobile revenue per unit (ARPU) and waive data fees.

Methodology: Estimated customer income levels based on average mobile phone spending by customers (ARPU) and marketed to migrant workers in countries with high ARPU; also use type of mobile phone as proxy for income levels (e.g., low-income users buy prepaid phones) and did NOT market to postpaid or smartphone users.

Breakeven Analysis



Customer Base Income Levels (Per Capita)



Urban Planet Mobile (cont.)

Factors affecting reach

Key factors		Narrower Cust. Base	Wider Cust. Base
Asset light	Pull	X	
	Push		
Asset-heavy	Pull		
	Push		

Push vs Pull

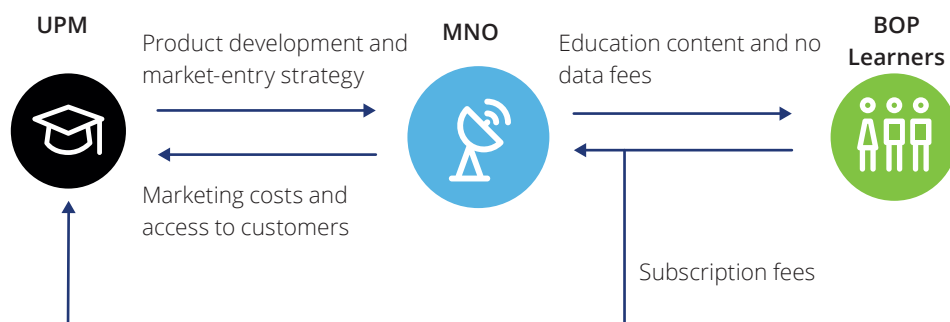
Asset light vs Heavy

- English lessons are seen as a necessary economic input to increase earnings, more directly than traditional math/English language (ELA) courses, driving customer demand.
- Intangible mobile products require low production unit costs; access to customers through MNO partners decreases labor intensity and distribution costs.

Narrower vs wider customer base

UPM focuses on selling exclusively to low-income users. While some higher-income customers buy the product, they are not required to help UPM reach sustainability, indicated by the scale achieved with low-income users. **UPM may have faced long-term difficulty maintaining its focus on BOP customers.** For instance, UPM invested in smartphones products to stay relevant in the market (e.g., smartphone penetration doubled from 1.3B in '13 to 2.6B in '16). This shift was necessary, but would have likely resulted in a material increase of higher-income customers.

Business Design



Business model characteristics to reach deep on the income pyramid

Pay Per Use	Small payment options available (~10 cents per day)
No Frills	Standard courses with small data file for basic phones
Shared Channels	Leverage MNO partner to access customers
Optimized Internal Processes	Mobile product with digital distribution
Vertical Integration	Used MNO brand to build customer trust
Up-Sell/Cross-Sell Products	Sell multiple courses to existing subscribers

Other critical success factors and barriers

- Labor force incentives: Adapt products to geography:** Conduct product testing in every country to understand local context.
- Leverage first-mover advantage:** First to push education content through MNO (music was common).
- Government's support of commercial model:** Find market with limited regulatory access/content barriers.
- Build trust with customers:** Allow low-income users to test products for free before purchase.

- MNO partnership development process:** Required for success, but MNO must agree to a set of affordability best practices; UPM also found working with MNO product leads was more effective than the corporate social responsibility (CSR) divisions because they viewed the BOP as customers.
- Barrier:** UPM faced significant problems if MNO partners were not willing to follow best practices. For example, in Thailand, UPM gave the MNO more control over go-to-market strategy—200K users signed up immediately and this dropped to 18K in two months, because MNO priced products too expensive for users.

Value capture

- MNO Profitability—**Receive 40%-60% of user fees, but must waive product data charges to drive scale; own marketing costs; estimated 90% profit margin
- UPM Profitability—**Receive remaining 40% to 60% of subscription revenue; own training and product development costs; prioritized scale because MNO collection rates were only 12% to 15% with prepaid phones
- Product Pricing—**Target 20% to 40% of local market ARPU (average mobile revenue per user), which UPM found to be desirable price point for BOP (~\$3/month)

Urban Planet Mobile (cont.)

Development impact achieved

UPM has limited visibility into direct impact metrics (e.g., English improvement) given its indirect relationship with customers. The best impact proxy is performance as a value-added service (VAS) relative to other options.

Results show that UPM was the highest performing VAS across MNOs, which indicates that users found UPM valuable to learning over extended time periods.

- User engagement—Average subscription length of six months, which was twice that of any other MNO VAS
- Product use—Users responded to MNO marketing messages at double the rates of other VAS products, and 20% to 25% subscribed to a second UPM product

Investments overview

Private investors, mostly tech-focused, provided both debt and equity totaling ~\$4.5M over seven years, including the following:

- **2007:** Funded by founders
- **2008:** \$250K from international tech firm
- **2009:** \$350K from US tech firm and tech angel
- **2010:** \$375K from US tech angel group
- **2011:** \$1.25M from international tech angel group and a US repeat investment
- **2012:** \$1M from US/global super angels
- **2013:** \$750K from international tech group
- **2014:** \$500K from US/global tech angel group

Key Learnings

- Investors expected ROI from 30% to 200% depending on time and stage of investment; all investors were liquid with common and preferred stock upon merger.
- US investors had limited understanding of the value of an aspirational product and were skeptical of the BOP's willingness to pay. The first US investor had experience in emerging markets and others were able to review strong performance as proof points.
- Profitability and scale were the primary goal for private investors who helped UPM maintain this focus.

Zoona

Sector	Year founded	Geography
Fintech	2009	Zambia, Malawi, and Mozambique

Company background

Opportunity: In developing economies, cash transactions dominate the economy, and the majority of people are unbanked relying on informal financial service providers. In particular, an immature financial infrastructure coupled with high transaction costs and physical distances makes money transfer between individuals both inefficient and insecure. Yet, there is a strong demand for these services as families' breadwinners require a mechanism for sending money home and small business owners need to make payments to suppliers who may not be locally based.

Solution: Zoona addresses this problem by managing a network of more than 1,500 mobile-enabled money-transfer outlets across Zambia, Malawi, and Mozambique. The core offering is an agent-based or over-the-counter (OTC) mobile money-transfer platform. Agents are entrepreneurs who effectively act as franchisees of the Zoona brand. They operate Zoona-branded kiosks where end users can conveniently transfer money over the Zoona platform via the mobile device of the agent. Value is transferred between the mobile wallet of the sending entrepreneur and is redeemed by the recipient at any Zoona outlet. The OTC model enables a secure and efficient transfer of funds without the need for the customer to have a bank account, mobile wallet, or even mobile phone of their own.

Main Products: Domestic and international money-transfer service.

Business performance: Path to profitability and scale

Financially sustainable and investing in scale

Zoona broke even in 2014 and is now focused on investing in scaling the business before returning to profitability at some point in the future.

- **Revenue ('15):** \$8.1M.
- **'11 to '15 Revenue CAGR:** 84%.
- **Growth Ambitions:** Zoona has expanded from Zambia to Malawi and Mozambique with the target of reaching 70% market share.
- Currently developing an international remittance product.

Income pyramid reach

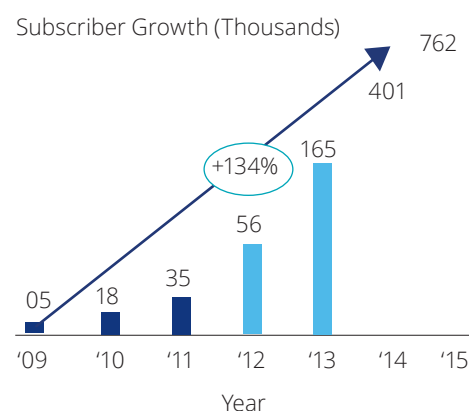
While Zoona does not formally track customer income, a recent survey indicates they do reach low-income customers (24%), while also attracting a significant portion of higher-income earners (51%).

Zoona users do not need a formal bank account or even a mobile phone to transfer money, making the product accessible to very low-income customers. Those making less than \$5/day comprise primarily traders and those who receive money only. Those earning above \$5/day are business people and other high-income earners.

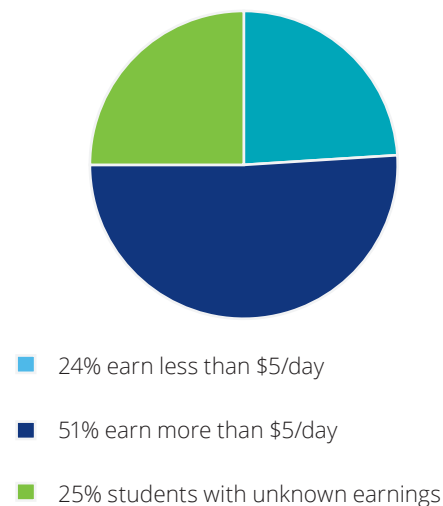
Impressionistic Internal Methodology:

Zoona segments customers based on their purpose for using Zoona, and whether they send or receive funds on the Zoona platform. Income level data is based on a limited survey and focus groups in 2015 in Zambia. Zoona is currently revisiting its customer segmentation and income levels.

Ability to Scale:



Customer Base Income Levels



Zoona (cont.)

Factors affecting reach

Key factors	Narrower Cust. Base		Wider Cust. Base	
Asset light	Pull			X
	Push			
Asset-heavy	Pull			
	Push			

Push vs Pull

- There is a strong demand for remittances and money-transfer services in Zoona's markets and significant unmet demand beyond the firm's current capacity.

Asset light vs Heavy

- Technology-driven mobile money service coupled with a franchise model that limits fixed costs attributable to agents and shares in the benefits of their upside potential.

Narrower vs wider customer base

As the company grows and user base expands, Zoona has also started to reach more higher-income segments. For example, higher-income family members living in urban areas send money home to a poor relative living in a rural village.

Plan for growth

- Enter new markets across Southern Africa, including recent launch in Mozambique in September 2016
- Explore markets that create synergies with existing geographic reach (e.g., high frequency of international remittances or lack of similar product)

Business model characteristics to reach deep on the income pyramid

BOP as Employees

Tellers at Zoona kiosks employed by agents are often sourced from local BOP communities.

Pay Per Use

Zoona's transaction fees are small and affordable to even very low-income customers. Fees are a percentage of monetary value transferred.

Financing Options

Zoona provides working capital financing to agents to reduce cash flow risk and ensure liquidity.

Microentrepreneurs

Zoona has built a large network of independent entrepreneurs who are franchisees of Zoona.

Zoona (cont.)

Other critical success factors and barriers

- **Invest in distribution force development:** Significant investment in providing a superior customer experience is critical to building awareness and trust.
- **Willingness and Ability to pivot business focus:** Recognize when certain partnerships and products (e.g., SABMiller distributor payments and utility payments) were not well suited to the core value proposition and pivoted to focus on the domestic remittances and franchisee model.
- **Design sophisticated incentive structure:** Increased monitoring and leverage over agent performance by introducing agent performance reports and bringing key infrastructure (e.g., kiosks) onto the balance sheet as a means to sift out lagging performers.
- **Cultivate regulator support:** Develop understanding of regulatory requirements and include them as a partner in building financial inclusion.
- **Carefully sequenced geographical expansion:** Target fragmented markets to avoid battles with dominant incumbents (e.g., M-Pesa).

Value capture

- Zoona sets fees for its money-transfer business based on competitor activity and agent profitability.
 - The average transaction fee is between 3% and 4%.
 - Of that fee, Zoona collects a share, and the agent receives a share as commission.
- Rather than pricing lowest in the market, Zoona attempts to differentiate its service from competitors based on its distribution network, as well as focus on creating a positive customer experience.

Development impact achieved

- **Generating employment opportunities—** As of summer 2016, Zoona generated valuable employment opportunities for 906 agent entrepreneurs and 1,809 tellers.
- **Creating opportunities for females—** Zoona provides employment, business and financial literacy training, motivation, and a positive physical environment.
- **Secure payments and savings—** Zoona's money-transfer service has enabled individuals to safely and quickly move more than \$1 billion without having to travel long distances, thus giving them additional time to focus on income-generating activities. Zoona is also piloting a product to help users grow their savings.

Investments overview

Zoona has raised \$19 million in equity and \$3 million in debt throughout the last seven years. Series A equity round in 2012 raised \$4M and Zoona closed its Series B in 2016 raising \$15M.

Investors from the public and private sector, including:

- Omidyar Network
- Accion
- International Finance Corporation (World Bank Group)
- 4Di Capital
- Patrick Pichette (former Google CFO):

Key Learnings

- **Choose investors with aligned philosophies—** Zoona carefully chose investors with an impact and development orientation to obtain patient capital.
- **Use Series A to lay a strong foundation—** Successfully raising a substantial Series A from key investors was critical to build a high-quality team and invest in the infrastructure needed to scale the business.

Snapshots

ACRE AFRICA

Sector	Year founded	Geography
Insurance/ Agriculture	2009—Started as Project Kilimo Salama within Syngenta Foundation; June 2014—Created for-profit called ACRE Africa, short for Agriculture and Climate Risk Enterprise, Ltd. (ACRE)	Three countries in Africa with majority focus in Kenya

Company Overview:

ACRE Africa works with local insurers and other stakeholders to link farmers to microinsurance products to lower their risk of investing in quality farming inputs, overall productivity, and access to loans. ACRE Africa views the following as critical to the success of its model:

- Partnerships along the full agriculture insurance value chain to reach farmers**—The ACRE Africa team undertakes a risk assessment, product development, and risk monitoring while building numerous additional partnerships to get its insurance products to BOP farmers. Some examples include relationships with insurance companies, financial service providers (for savings and credit), off-takers (for produce purchases), and extension service providers (for good agricultural practices).
- Distribution through farmer aggregators (e.g., banks, MFIs, large-scale farms, and agribusinesses) to reach scale in a cost-effective manner**—Direct education is expensive and not feasible to reach the BOP, so ACRE Africa targets organizations to reach large volumes of farmers at the point of sale.
- Digital, index-based insurance products to streamline processes**—With traditional indemnity-based crop insurance, it is costly and difficult to reach the BOP because it typically requires four visits/season to each farm (e.g., initial assessment, check-ins, and damage review). Given this, ACRE Africa uses an

index-based approach, grounded in data from weather and yield-based indices, to develop products that reach the BOP. This use of objective, evidence-based data decreases the need for human-centered processes. For instance, excess rain and drought insurance uses a proxy to quantify loss (e.g., rainfall in millimeters based on local rain gauges). This reduces visits required to farms and, therefore, unit costs. Also, as more data is collected, premiums will continue to decrease.

- Highly customized products based on local populations' needs**—For instance, premiums can be paid in congruence with cash flow from growing season and claims triggers can be set based on need.

Successful Low-Cost, High-Volume

Products: The Replanting Guarantee Product, an offering that bundles seeds and insurance, is a mass-market product that uses a simple mobile platform to register farmers for a seed replacement cover. The farmers are trained to “activate” the insurance at the point of sale by registering a unique code placed in the bag of seed. Payouts are triggered using satellite data for an aggregated location based on poor rainfall at the germination phase. The seed company covers the cost of the insurance premium as part of its marketing strategy to demonstrate additional product value in the form of free insurance to farmers. This product is an introduction to insurance for many farmers, and ACRE Africa plans to invite farmers to increase their premium for coverage of the entire crop season.

Customers Served: ACRE Africa designs its products for farmers with less than two hectares while still serving some higher-income farmers—totaling 2% of customer volume—to mitigate against the risk associated with serving low-income populations. Originally, ACRE Africa focused solely on the deep BOP, but discovered that farmers with a purely subsistent mind set needed more education on agronomy best practices and financial literacy before insurance could be introduced, significantly increasing unit costs for digitized products. This led ACRE Africa to widen its customer base to slightly higher-income farmers who view farms as a business (e.g., something worth protecting), not just a means for consumption.

Performance: ACRE Africa has a four-year CAGR of 66%, starting with approximately 86K farmers insured in 2012 and growing to roughly 390K in 2015. It has generated \$1.5M in premiums paid and must reach \$4.2M to break even. While the company is not yet profitable, it is scaling moderately toward sustainability.

Development Impact: ACRE Africa surveyed 630 farmers in 2012, which showed that insured farmers invested 16% more in inputs per acre and generated 17% more in total income than uninsured farms.

Envirofit

Sector	Year founded	Geography
Energy – Clean Energy Products and Services	2003 (operational in 2007)	Multinational – 45 countries in Asia, Africa, and Latin America

Company Overview:

Envirofit International is a social enterprise that innovates smart energy products and services, which can improve lives on a global scale. Envirofit launched its first cookstove in India in 2007 and has since expanded globally. Envirofit currently offers 11 different cookstoves (seven wood/biomass, three charcoal, and one liquid propane gas model line) with varying fuel types and performance levels to target customers across a range of geographies, cultures, and income levels. Envirofit also sells a limited selection of lighting and accessory products that serve as additional follow-on income from cookstove customers. Envirofit has grown from a business with one product to a global company serving more than 5M people, with over a dozen user-designed products and regional headquarters in East Africa, West Africa, Asia, and Latin America that offer the local production, distribution, and customer care.

All of Envirofit's products are designed with the end consumer in mind through thousands of consumer surveys and focus groups that ensure products meet the needs of the end consumer. Furthermore, all products come with a one- to five-year warranty (depending on the product) that helps establish consumer trust, which is particularly critical in low-income markets where customers are very discerning with what limited funds they have. While BOP consumers are price sensitive, Envirofit found that quality is also an important factor in choosing a product as consumers want a durable product that will deliver value for their money. Customer care is also integral to Envirofit's model. Envirofit provides sales and marketing training to support distributors, and a toll-free line for customers to gain clean cookstove awareness and adoption.

Envirofit's domestic products retail from \$20 to \$50, and commercial products range from \$85 to \$1K, depending on product and location. To make its products affordable for customers at the base of the income pyramid, Envirofit partners with MFIs, NGOs, and other last-mile distributors that provide financing for its cookstoves. The majority of Envirofit's cookstoves are purchased via consumer-financing channels. Finance partners are Envirofit's main distribution channel because they not only make cookstoves accessible, but also are more likely than standard retailers to "push" the product. Retailers typically rely on walk-in customers and are agnostic about how customers spend money in their stores.

Customers Served: Envirofit's tiered product offerings enable it to sell to both low- and high-income customers across both urban and rural channels. Envirofit also reaches customers deep on the income pyramid through government programs, refugee camps, and aid and relief programs. Higher-income customers in emerging markets' middle class are critical to business success because their increased expendable income makes them more likely to be early adopters, which in turn makes the product aspirational for poorer customers.

Business Performance: Envirofit is financially sustainable and investing in scale. Envirofit is profitable on a unit economic basis, but is currently prioritizing scale over consolidated profitability. Envirofit projects approximately \$30M in 2016 revenue and, to date, has sold more than 1.2M cookstoves, as well as lighting products and accessories.

Development Impact: Envirofit cookstoves reduce fuel use up to 60%, which increases annual income by up to 15% due to efficiency savings. Envirofit cookstoves also reduce smoke and toxic emissions up to 80%. Additionally, Envirofit has supplied tens of thousands of cookstoves to relief efforts in Sudan, Somalia, Nepal, and Haiti, as well as to a refugee camp in the DRC to explore how cookstoves could reduce gender-based violence. Furthermore, in selling more than 1M cookstoves, Envirofit has saved consumers \$138M in fuel costs and 18 working weeks, and created more than 2,400 jobs.

Ecoblock/Echale

Sector	Year founded	Geography
Housing	1997—Created foundation; 2006—Registered as private company; 2013—Created community financing company	20 states in Mexico; trials in South Africa and Colombia

Company Overview:

Echale offers an affordable and sustainable “self-build” housing solution for vulnerable communities through the creation of three separate legal entities:

- **Nonprofit Foundation**—Provided early R&D support to develop new, ecologically friendly adobe bricks called Ecoblocks, as well as a Terrapress machine to build the Ecoblocks. The bricks are 95% clay and 5% cement, making them a lower-cost alternative to a typical 100% cement house.
- **Private Company**—Provide families with the robust housing solution—technical knowledge to design homes, how to save money for projects, and construction training to create Ecoblocks and execute the “self-build” operation. During this process, customers work closely with community housing committees who help oversee the design while also ensuring builders earn a decent wage.
- **Community Finance Company**—Provide low-cost financing solutions that blend household savings, government subsidies, and low-interest loans (its loans are usually 30%, versus an 80% market rate). Echale negotiated with the government to help its customers obtain access to a housing subsidy that covers 30% of housing costs. For the roughly 30% of families eligible, Echale coordinates these payments with the government to ensure customers can maximize financial support.

Building Process: Building a 40m² Echale house takes approximately six months start to finish and costs \$10K. The process consists of the following major steps:

- **Savings plan**—Families must save 10% of the cost of house before starting the building process.
- **Build process**—Echale provides training to five local builders and rents out Terrapress machines to create Ecoblocks on-site. The \$10K cost to purchase a house includes the cost of technical assistance, and materials and labor for the community builders. Once a customer has started the building process, it takes approximately six months to complete a home.
- **Payment Period**—The customer pays off the remainder of the cost of the house over five years in monthly installments of \$113.

Customers Served: Echale targets families in rural areas making between \$8 and \$21 per day, per household for its full housing solution, but it can also serve lower-income levels by offering smaller homes or home-improvement projects. Echale captures customer income levels by surveying customers using standard surveys developed by the National Housing Committee (Comisión Nacional de Vivienda). Echale focuses on communities where most people live in tin houses with no water, electricity, or bathrooms, and it has maintained this focus over time. In fact, Echale abandoned its pilot in Guatemala when architects started focusing on higher-income clients.

Performance: Echale is profitable and broke even in 2011 with average returns of more than 4% over the last five years. The organization is also scaling, generating more than \$6M in revenue in 2014, with a 10%, four-year CAGR. Echale is piloting a social franchise model in South Africa and Colombia to expand internationally.

Impact Created: Since its launch in 2006, Echale has built more than 30K new homes, completed 150K home improvements, and created more than 200K temporary jobs for home builders, reaching 180,000 families and 1M people. In addition, Echale creates additional cost savings for families through more efficient home designs. For example, rainwater tanks reduce water purchased by 20%, efficient stoves reduce firewood purchased by 70%, and efficient lightbulbs reduce energy usage by 10%.

Husk Power Systems

Sector	Year founded	Geography
Electricity	2008	Bihar and Uttar Pradesh, India, and Tanzania

Company Overview:

Husk designs, manufactures, and installs 25 kW-250 kW “mini power plants” in villages, that households, businesses, and small factories connect to on a pay-per-use basis. Husk operates 84 minigrids in India and Tanzania (76 in India and eight in Tanzania), of which 10 are hybrid plants and 74 are a combination of solar DC microgrids and biomass plants. In 2015, Husk launched its proprietary hybrid power plant that synchronizes biomass gasification technology (converts abundant agricultural waste into electricity) and solar photo voltaic technology to deliver 100% renewable power 24 hours per day, seven days per week in rural areas. Going forward, all Husk plants will be hybrid.

Husk’s transition to hybrid plants is a significant pivot in response to increasing consumer demand for 24-hour power. Hybrid plants use solar power during the day and biomass at night to provide 24-hour power at a cost of ~\$300/customer (onetime CapEx), which is significantly lower than competitors’ costs because the hybrid approach reduces the plant’s battery size by approximately 70%. During rainy seasons, competitors often have to run on batteries for three to four days, which is extremely expensive, while Husk can rely primarily on biomass gasification.

Prior to setting up a power plant in a village, salespeople sign up customers to connect to the Husk minigrid by educating them on the product, specifically its greater reliability and lower price than alternatives. Consumers using solar home systems or unreliable grid electricity are often early adopters because they are already accustomed to electricity, familiar with its benefits, and aspire to have 24/7 reliable power.

Husk’s energy prices vary based on several factors: 1) time of day: most expensive after 10 PM, 2) volume: usage discounts, and 3) customer type: businesses pay a 15% to 20% premium over household prices. While rural utility is Husk’s core business and focus for growth, Husk has two other critical business lines:

- **Biomass power plant sales**—Husk sells biomass power plants for \$25K to \$75k to agroprocessing units (e.g., rice mills) and entrepreneurs, who run the plants to electrify their community.
- **Incense sales**—Husk turns the waste products from its power plants into incense sticks, which are in high demand in India. Approximately 10% of Husk’s revenue comes from incense sales.

Customers Served: Husk targets customers across a wide range of income levels in rural areas. According to an Acumen survey, 28% of customers live on less than \$1.25 per person, per day and 76% on less than \$2.5; and 91% on less than \$4. That said, Husk’s customer base consists of both households and businesses and small factories. Businesses and small factories, which make up 30% of Husk’s customer base and are typically the higher-income customers, are critical to the model because they use three to four times more electricity than households and account for approximately 70% of revenue. Small business customers will become increasingly important as Husk launches more hybrid sites because the high daytime demand generated by these customers is required to cover the higher up front costs of the hybrid plant.

Business Performance: Husk is financially sustainable and investing in scale. Husk reaches profitability on a unit economic basis in four months after a site goes live. Husk has roughly 15K customers and provides electricity to more than 200K people. Husk temporarily reached consolidated profitability in January 2016. Husk will be able to maintain consistent consolidated profitability once it has 100 total sites in operation; its transition to hybrid plants will enable it to break even with fewer total plants than it would with only biomass plants.

Development Impact: By connecting customers to electricity, Husk effectively displaces kerosene and diesel, which increases small business savings by roughly 40% and customer household savings by 30% (approximately \$50 per year, per household). This also reduces indoor air pollution in rural communities—thereby, improving health—and eliminates 150 tons of CO2 per year, per biomass plant and 250 tons of CO2 per year, per hybrid plant. Husk also contributes to economic development by enabling businesses to stay open at night and children to study after dark. Furthermore, Husk employs 300 local community members in India, most of whom are BOP.

MicroEnsure

Sector	Year founded	Geography
Insurance	2002—Pilot within Opportunity International microfinance institution; 2005—Became separate nonprofit entity; 2012—Became for-profit with Omidyar Network and IFC investments	15 countries in Africa and Asia

Company Overview:

MicroEnsure designs, implements, and operates affordable life, health, accident, and other types of microinsurance for people living on less than \$4 per day. To successfully reach such low-income populations, MicroEnsure has formed two critical types of partnerships:

- **Partners with insurance or reinsurance companies who bear the risk of insuring customers while MicroEnsure handles the front-end product design and back-end implementation—**

MicroEnsure takes on services, including product design, marketing, risk selection, operations, pricing, and payment management (e.g., claims). MicroEnsure also analyzes customer data, which has led to developing more than 200 insurance products. These combinations are created for different regions based on local market needs so customers are most likely to receive claims payments. MicroEnsure receives a commission from the insurance/reinsurance companies for each policy sold.

- **Bundles products with companies already reaching target customer segments, e.g., MNOs and micro finance institutions—**This distribution model allows MicroEnsure to better reach customers by 1) leveraging a strong partner brand to build immediate trust, 2) offering innovative enrollment options and payment methods to simplify processes, and 3) decreasing the cost to reach each customer by eliminating sales agents and using mobile phones.

Freemium Products to Support Path to Scale with MNOs:

To leverage its distribution partnerships, MicroEnsure creates “freemium” products to bundle with mobile phone minutes at no cost to the customer. The insurance amount is based on the total airtime a customer purchases each month and is communicated by text message. After several months, customers have the option to upgrade to premium coverage for as little as \$1/month; 20% to 40% continue with a paid plan. This also benefits the MNO by creating customer loyalty—in most BOP communities, customers frequently switch SIM cards to get the best airtime rate. Therefore, MNOs are willing to pay MicroEnsure and the local underwriter a fee for basic coverage. The company piloted its first freemium product in 2009 with telecom company Tigo Ghana and was able to successfully scale in 2010, reaching 1M people in 14 months.

Customers Served: MicroEnsure started with a BOP focus, but as it began to distribute through MNOs, its products were made available to a wider range of customers, mostly in the middle 70th percentile of income levels, to meet MNO requirements. For instance, to incentivize loyalty, MNOs require users to spend at least \$2/day to access the freemium insurance. Many customers fall below this spend level, which naturally sorts out customers in the bottom 20% of the income pyramid. The top 10% are also not a focus given the volume of competition at this level. With that said, MicroEnsure is still reaching a significant percent of BOP customers. In Kenya, for example, Grameen’s “Progress out of Poverty” tool showed 6% of customers make <\$1.25/day and another 24% make <\$2.50/day. This is representative of the middle 70%, given that people making \$10/day fall in the 80% to 90% income decile.

Performance: MicroEnsure is financially sustainable and is currently focused on investing in scale to reach consolidated profitability. A majority of operating countries are profitable month over month, and the company has scaled rapidly. In 2009, MicroEnsure reached 4M customers, and today it has roughly 28M active customers, having reached 43M in total over time.

Development Impact: \$28M in claims have been paid out to MicroEnsure customers who have had little to no previous access to insurance protection.

Off-Grid Electric

Sector	Year founded	Geography
Energy – Electricity	2011	Tanzania and Rwanda

Company Overview:

Off-Grid Electric sells solar systems to rural customers in Tanzania and, as of early 2016, Rwanda. Off-Grid's introductory solar home system comes with two LED lights, a radio, and a USB charger. Off-Grid also offers advanced solar home systems that provide extra energy for charging additional mobile phones and powering appliances and televisions. In addition, Off-Grid sells commercial systems that power small businesses, such as sports bars. To reach customers in remote locations, Off-Grid partners with last-mile distributors.

Off-Grid's customers pay for their solar system via mobile payment platforms (e.g., Vodacom, Airtel, Tigo, and MTN). Off-Grid's introductory system costs approximately \$10 to install and then \$6 to \$8/month for 24 months, while one of Off-Grid's more advanced systems, paired with a television satellite decoder, costs roughly \$25 to install and then \$12 to \$15/month for 36 months. Many of Off-Grid's customers upgrade to more advanced products, once they get comfortable with Off-Grid's services and know they are reliable.

Off-Grid has the ability to disable customers' solar systems remotely if they miss a payment. Off-Grid also has a four- or five-step escalation process where a customer may intervene to prevent the removal of the solar home system following a missed payment; default rates have thus far been negligible. Off-Grid also offers customers payment-time-length flexibility (e.g., an immediate purchase, 24 months, or 36 months). Furthermore, Off-Grid is working on ways to provide bridge payments and address issues of seasonality/fluctuations in income cycles. Based on a customer's payment history, Off-Grid's software is also able to accumulate a credit profile for customers, which helps inform future offerings.

Off-Grid's customer-centric model uses a proprietary software platform (Web, mobile apps, and SMS) to provide efficient, personalized customer service from installations through upgrades. Off-Grid focuses on deeply understanding market needs and pricing products similar to current market expenditure (e.g., benchmarking to kerosene or grid electricity). Off-Grid is vertically integrated from design through postsales support services, which help establish and maintain consumer trust. Additionally, Off-Grid employs community members, some of whom are BOP, in its factories, sales team, and 24/7 customer support call centers.

Off-Grid has a track record of successfully pivoting its business model as it continues to learn more about its markets and consumers. The company is currently making adjustments to 1) cost/pricing structure, 2) technology/product offerings, 3) distribution, and 4) product maintenance/support. As Off-Grid continues to evolve, it will maintain its focus on lower-income customers; however, to grow the business and meet investors' scale expectations, Off-Grid will expand its advanced systems business, as well.

Customers Served: While the vast majority of Off-Grid's customers earn \$2 to \$4/day (estimate based on census data), it specifically targets customers across a wide range of income levels so that the higher-income customers with a more steady income stream mitigate for the volatility of cash flows at lower-income levels. Furthermore, by targeting higher-income customers, Off-Grid is able to sell higher margin products that buffer against currency fluctuations and changing tax structures, which negatively impact profitability.

Business Performance: Off-Grid is financially sustainable and investing in scale. Today, Off-Grid is able to completely cover operating costs in certain regions and in other regions is still growing/progressing toward financial sustainability. Due to its scale, Off-Grid has also achieved profitability on unit economic basis. Off-Grid's systems currently light 100K households in Tanzania and Off-Grid is adding 10K new homes per month. In Rwanda, it is approaching 5K homes and adding nearly 1K/month. Although Tanzania (50M population) is much larger, Rwanda (12M population) is expected to be an important market for growth due to its population density.

Development Impact: For each household, Off-Grid's solar system eliminates 140 kg of CO₂ and 1.45 kg of black carbon emissions per year. In addition, customers report an average 149% increase in study time once their home is powered by Off-Grid. Off-Grid employs 800 people in Tanzania (adding ~30 to 40 new jobs/month). Lastly, repayment of Off-Grid's solar system is often the first formal financial service some customers have received and improves their likelihood of financial inclusion in the future.

Appendix 1: Poverty levels of select countries mentioned in this report

Country	Year	National poverty line (USDs, 2011 public-private partnership (PPPs))	Source of national poverty rate
Angola	2009	2.17	World Bank
Brazil	2011	3.05	World Bank
Colombia	2011	5.42	World Bank
Costa Rica	2011	7.04	World Bank
Dominican Republic	2011	6.66	World Bank
Fiji	2009	4.49	World Bank
Haiti	2012	2.15	World Bank
Honduras	2011	6.43	World Bank
India	2012	1.91	World Bank
Kenya	2005	2.39	World Bank
Macedonia, FYR	2006	4.69	World Bank
Malawi	2010	1.27	World Bank
Mexico	2012	8.02	World Bank
Mozambique	2009	1.45	World Bank
Nicaragua	2009	4.49	World Bank
Pakistan	2006	2.05	World Bank
Papua New Guinea	2010	1.92	World Bank
Paraguay	2011	6.32	World Bank
Rwanda	2011	1.46	World Bank
Sri Lanka	2010	2.60	World Bank
Tanzania	2012	1.44	World Bank
Uganda	2012	1.46	World Bank

Note: All values are expressed in per capita terms, per day. Data not available for Bangladesh and Cambodia.

Endnotes:

1. Matt Bannick, Paula Goldman, and Michael Kubzansky, *Frontier Capital: Early Stage Investing for Financial Returns and Social Impact in Emerging Markets*, Omidyar Network, 2015.
2. For purposes of the report, we define financial sustainability as: not reliant on any type of subsidy, increasing levels of profitability over time, moving quickly toward breakeven or hovering around breakeven, or profitable on a unit basis but not yet consolidated basis.
3. United Nations Development Programme. *Creating Value for all: Strategies for Doing Business with the Poor*. July 2008. http://www.undp.org/content/dam/rwanda/docs/povred/RW_rp_Creating_Value_for_All_Doing_Business_with_the_Poor.pdf.
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Washington DC: International Finance Corporation, International Business Leaders Forum, and the CSR Initiative at the Harvard Kennedy School. [<https://www.hks.harvard.edu/centers/mrcbg/programs/cr>]
Karamchandani, Ashish, Mike Kubzansky, and Nishant Lalwani, "Is the Bottom of the Pyramid Really for You?" *Harvard Business Review*, March 2011.
Simanis, Erik, "Reality Check at the Bottom of the Pyramid." *Harvard Business Review*, June 2012.
4. We recognize that there are several ways for low-income populations to be included as part of market-based solutions, specifically, as customers, employees, or suppliers. While all are important ways of helping poor populations escape poverty, for purposes of this report, we focus on BOP as customers in order to draw lessons learned in a comparable manner (though it is worth noting that many enterprises also use BOP so there is some mixing of approaches). In addition, we focus on for-profit enterprises where the BOP customers not only consume the goods and services, but also pay for those goods and services. This distinction is important because there are a number of for-profit enterprises where the BOP consumes products and services that are paid for by a third party, such as the government, a corporation, or NGO.
5. Bannick, Matt, Paula Goldman, and Michael Kubzansky, *Frontier Capital: Early Stage Investing for Financial Returns and Social Impact in Emerging Markets*, Omidyar Network, 2015.
6. For purposes of the report, we define financial sustainability as not reliant on any type of subsidy, increasing levels of profitability over time, moving quickly toward break even or hovering around break even, or profitable on a unit basis but not yet consolidated basis.
7. Of course, products that provide a low return, even promptly and at little risk, are not particularly desirable, especially for the poor.
8. The case studies at the back half of this report indicate in which countries the various enterprises are operating. For a sense of the relative poverty levels in those countries, please see Appendix 1.
9. Interviews and correspondence with executives at the enterprises, as well as company documents (e.g., annual reports and organization financials).
10. For example, for a useful framework on factors to consider assessing ability to reach deeply, see Harvey Koh, Nidhi Hegde, and Ashish Karamchandani, "Beyond the Pioneer: Getting Inclusive Industries to Scale" (April 2014).
11. There are a number of organizations that reach large BOP customer groups that focus exclusively or primarily on end customers that do not pay; however, we excluded those from our report as our focus was on goods and services that the BOP pays for directly.
12. Interviews and correspondence with executives at the enterprises, as well as company documents (e.g., annual reports and organization financials).
13. Note that detailed information about funding can be sensitive and we often were only given partial information about an enterprise's funding.
14. This includes Patrimonio Hoy, which received considerable subsidy-like support from Cemex in its early years, including financing to hire a team, develop a BOP-focused model, and test it in the market; industry expertise and relationships; access to distributors and other suppliers with Cemex volume discounts; and R&D support.
15. Interviews and correspondence with executives at the enterprises, as well as company documents (e.g., annual reports and organization financials).
16. Interviews and correspondence with executives at the enterprises, as well as company documents (e.g., annual reports and organization financials).
17. Interviews and correspondence with executives at the enterprises, as well as company documents (e.g., annual reports and organization financials).
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25. Interviews and correspondence with executives at the enterprises, as well as company documents (e.g., annual reports and organization financials).
26. Interviews and correspondence with executives at the enterprises, as well as company documents (e.g., annual reports and organization financials).
27. Interviews and correspondence with executives at the enterprises, as well as company documents (e.g., annual reports and organization financials).
28. Interviews and correspondence with executives at the enterprises, as well as company documents (e.g., annual reports and organization financials).
29. All the information provided in this table comes from interviews and correspondence with executives at the enterprises, as well as company documents (e.g., annual reports and organization financials).
30. This research could examine several categories of subsidy: (a) one-off subsidy to seed a new organization with a new business model in a new market; (b) an injection of subsidy to an established organization in a more established market to defray the costs of a capital-intensive innovation or expansion (e.g., developing a new product line or expanding to a difficult but high-impact potential geography); or (c) ongoing subsidy to enable a business model to reach lower than it can sustainably do on its own.



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