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# How the Lean Startup Approach Can Alleviate Poverty



By Serguei Netessine , Timken Chaired Professor of Global Technology and Innovation, and Ioana Popescu , INSEAD Professor of Decision Sciences and the Strategy& Chaired Professor of Revenue Management.

## **Experimenting before plunging into major investments can pay off in the long run.**

Most startups fail to take off. The traditional method of starting a business has been to come up with a business plan, get investors to back it, assemble your dream team, get a product in play and push it hard. But this approach often exposes entrepreneurs to risks that blindside them later. The same could be said of the big ideas often touted to help the poor in emerging markets, either with access to cleaner water and sanitation or education.

Take **PlayPump**, a children's carousel designed to help pump clean water in Africa. Despite getting US\$16 million in funding, it failed to gain traction. Three out of every four development projects in Africa fail. They are managed with a fixed plan in mind, as if they were always big infrastructure projects with fixed components and measured outcomes. But there could be an alternative approach.

## Lean growth

A new way to look at solving complex development problems could be the lean startup method, which favours hypothesis-based experimentation, iterative product releases and customer feedback over a big plan upfront with lots of intuition and conventional wisdom. The main pillars are better known as prototyping, experimenting and pivoting.

Take the market for kerosene as a good place to start with lean startup thinking.

Two billion people around the world don't have access to electricity, but the poor around the world spend around US\$37 billion a year on kerosene or other low-quality energy solutions for lighting. But kerosene is both expensive and a serious fire and health hazard. More people die from indoor pollution than malaria because of it. Solar solutions require big one-time investments that are out of the reach of people living on US\$1-2 a day.

We have been working with [Nuru Energy](#), a for-profit social enterprise in Rwanda that is dedicated to replacing the use of expensive, unhealthy and dangerous kerosene as a source of lighting. Nuru Energy offers ultra-affordable and portable LED solutions through a micro-payment business model. Its product has become the most popular off-grid lighting product in the country.

## Light at the end of the tunnel

Nuru did a lot of experimentation and pivoting to make a solid product. The solution consists of a small portable unbreakable battery-powered LED light about the size of a hockey puck and a recharging technology called the POWERCycle generator, which is a stationary bicycle.

Right off the bat, an AC-charging station was scrapped because most of the population didn't have access to grid electricity. A solar panel solution was tried but it was expensive and the charging cycle was too long. They even tried a hand-charging device but it required a lot of physical effort to use. After trying all of these things, the POWERCycle was proposed and successfully tested.

And the experimenting didn't end there. The product was complete, but how were they going to sell it to the rural poor? A financing solution was needed.

When takeup rates turned out to be lower than expected, Nuru dropped the upfront price of the lamp below cost and aimed to make up the margin loss in recharge revenues. They also had to grapple with payment collection costs. Experiments were required. Nuru initially partnered with microfinance institutions to select and finance entrepreneurs who would help with selling, but several experiments had to be carried out to get the incentives and tradeoffs between takeup and margin.

Payment collection was expensive so Nuru came up with an SMS technology that could remotely unlock the POWERCycle.

## **Reaching higher**

We are now launching a pilot to explore ways to reduce consumer inconvenience costs and encourage usage of the lights. We have received grants from the International Growth Centre and INSEAD to experiment with different revenue models, as well as giving households a subsidy to purchase additional lights. We also plan to understand usage of Nuru lights with electronic tracking.

The bottom of the pyramid is not an easy place to do business, but applying cookie-cutter business models isn't the answer. It is impossible to understand what works and what does not without experimentation and pivoting. Rather than huge projects with big funding and standardised approaches, we think development and funding agencies could better allocate money to small-scale experiments and studying the results to make the most out of the limited funding available.

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