

Business on the Frontlines VII, 2015

Extending electrification in Northern Uganda with CE3 & Accenture, 2015

Decades of conflict, particularly between the Lord's Resistance Army and the Ugandan military, has driven thousands from their homes and severely limited economic development. In addition to many infrastructure challenges which restrict education, healthcare provision and entrepreneurial business activity is the lack of a developed electricity grid.

What was the problem?

Accenture, the Notre Dame Initiative for Global Development (NDIGD), and Battery Operated Systems for Community Outreach (BOSCO) Uganda have come together to support the Connectivity, Electricity, and Education for Entrepreneurship (CE3) Uganda (CE3) Initiative to develop technology that may begin to address the limits of electricity infrastructure. The Physics Department of the University of Notre Dame developed new low cost solar power technology. In Phase I, three pilot sites, each with a 1.2 kW solar power system, were implemented in northern Uganda. The three sites include two schools and one community center in close proximity to an outdoor market. The intent of each site is to distribute solar energy and earn revenue from its users to support the ongoing costs of operations while also providing Internet connectivity and entrepreneurship education. At the time of BOTFL's involvement, the CE3 Uganda initiative was entering Phase II of its lifecycle. Accenture and NDIGD asked the BOTFL team to evaluate and provide recommendations for the scalability and sustainability of CE3. BOTFL commissioned a multi-disciplinary team of graduate students in business, peace studies, human rights law, and two faculty advisors.

What did we do?

The BOTFL team evaluated CE3 Uganda's product offerings, regulatory compliance, organizational structure, competitive landscape and basic assumptions in an attempt to understand the electrification and entrepreneurship needs and challenges that face the people of northern Uganda. Through in-depth market research, customer interviews, market visits, stakeholder engagement, business model analysis and a two-week consulting trip to northern Uganda, the team gathered insights integral to the understanding of the current and future states of the CE3 Uganda rural electrification initiative.

As a result, the team determined that current CE3 operations were sustainable neither in Phase I nor the way Phase II was designed for implementation. The business model for CE3 fundamentally required large amounts of donor funds to cover costs of operations. The challenges were of technical, business planning, and legal nature. To begin with, the technology generated voltage of solar power that was too low for it to be widely distributed. This technical challenge prevented CE3 from being able to sell excess power to the surrounding community, thereby limiting revenue generation. Moreover, the original business modeling of the opportunity both overestimated the price for power in Northern Uganda and severely underestimated the costs of installation. Finally the BOTFL team found that CE3 had not established the legal payment system necessary to collect money from partner organizations for sale of electrical power.



Photo by Kristin Hughes Srouer

What was the turning point?

The turning point came in a small church in Northern Uganda as the team reassessed the problem. After significant in-country research, the law student team member found that the generation and distribution of power in Uganda requires regulatory approval. CE3 had been operating for some time, generating, distributing and selling electricity in northern Uganda without a legal license. Therefore, a viable transition from Phase I to Phase II would rely on four factors: substantial funding beyond the original Accenture grant, strategic site selection to reduce installation costs and improve pricing, improvements in technology to meet well-defined technical needs and regulatory approvals.

What was the recommendation?

To achieve this transition, the BOTFL team developed a series of recommendations outlined below:

1. Stakeholders should review the mission of CE3 and the local partner, BOSCO-Uganda, based on the pilot phase outcomes and recent thorough in-country analysis. Based on stated goals, evaluate and identify effort to focus on:
 - a. Commercial applications such as schools, hospitals, ICT labs and business cooperatives which provide the capacity for greater economic activity.
 - b. Criteria for site selection:
 - c. Needs of the Ugandan beneficiaries:
 - d. CE3 and BOSCO's competitive advantage in the local space:
2. The various partners of the CE3 project need to develop a timeline for addressing both the current issues relating to the existing CE3 sites, as well as the implementation of the next phase of expansion of CE3.
3. Develop relationships with local authorities.
4. Identify and engage local Ugandan legal counsel, ultimately to obtain regulatory approval for operation.
5. Explore partnerships with equipment providers that have expressed interest in doing business in Uganda.
6. Develop a budget with financial projections over the next five years.
7. Establish a standard Memorandum of Understanding for end-users.
8. Evaluate a "pay as you go" plan

What actually happened?

Shortly after the BOTFL team presented their recommendations to Accenture, IGD and CE3, CE3 obtained local legal counsel in Uganda and began working with the local legal authority to address license issues. Further, CE3 partnered with a solar panel manufacturer to get solar panels donated, in order to further reduce upfront installation expenses. CE3 has selected two well run and financially stable schools to install two 30 kW solar systems during the first half of 2016. Finally, IGD developed a grant proposal for Accenture to continue to support CE3. After its own internal review process, Accenture decided that the program merited additional funding of \$1.2 million.

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