Path to Profitability Webinar
EEP Africa and IFC Lighting Global
Path to Profitability Webinar - Jointly organized by IFC Lighting Global and EEP Africa

Webinar Logistics
- Keep your microphone muted
- Write your questions to the chat box
- We will stop for questions and then you can also voice your question

Agenda
- Introductions
- Presentation of the Path to Profitability tool
- Q&A
Introduction to EEP Africa

• Multi-donor fund providing early stage grant and catalytic financing to innovative clean energy projects, technologies and business models

• Hosted and managed by NDF with funding from Austria, Finland, NDF

• Covering 15 countries in Southern and East Africa
EEP Africa based on Three Pillars

- **Clean Energy Financing**
- **Investment Facilitation & Business Development**
- **Knowledge, Policy & Partnerships**
BUSINESS DEVELOPMENT SUPPORT

❖ **Covid-19 Rapid Response BDS**

❖ **Need based** support to portfolio companies
  • Cash flow management
  • Financial management support
  • Business model development
  • Access to finance

❖ **Content through webinars**
  • Financial Management Training
  • eWaste market trends – together with Clasp
  • Path to Profitability - together with IFC

❖ **Reach out to your EEP Africa Portfolio Coordinator** when you need help!
Path to Profitability

Introduction

Miguel A. Soriano, PhD
June 11, 2020
Agenda

1. Introduction
2. Webinar Objectives
3. Presentation on Path to Profitability Framework / Tool
4. Discussion / Q&A
1. INTRODUCTION TO LIGHTING GLOBAL
2. WEBINAR OBJECTIVES
Webinar Objectives

• Introduce the Path to Profitability framework / tool to OGS companies
  o Why this framework is important for companies serving customers at the Base of the Pyramid (BOP)
  o Provide deeper insights into the underlying variables that shape performance in low-income, last mile markets
• Walk through the main components of the Path to Profitability framework / tool
  o Two key components: operational model mapping and bottom up financial modeling
  o These components connect operations to profits and highlight the path to profitability
3. PATH TO PROFITABILITY FRAMEWORK / TOOL
A. OVERVIEW
What is Path to Profitability?

• Path to Profitability (P2P) is a unique framework designed for off-grid solar (OGS) firms operating in emerging markets that allows them to evaluate their pricing, margins and cost structures in order to achieve profitability at a unit level.

• P2P is designed with early-stage, middle and scaling firms in mind to support the firm’s profitability at various phases including launching, refining and pivoting.

• The core principle of the framework and methodology is the Integrated Venture Modeling (IVM) approach, which relies on two main tools: (1) Operational Model Mapping and (2) Bottom Up Financial Modeling.

• Ultimately, the methodology looks at how OGS firm can achieve profitability at scale at the last mile operating unit.
During the COVID-19 pandemic, the focus of most OGS companies has been on survival and maintaining liquidity.

As lockdowns are being relaxed in most parts of the world, OGS companies need to start thinking about the future of their business and how to go to market in the new “normal”.

The focus on costs and unit economics becomes crucial for businesses to become sustainable – this is where Path to Profitability can be extremely helpful.

The diagnostic tool is not a replacement of your financial statements, but provides a way to better understand your operations and how to go to market.
Path to Profitability – Program Stages

01 Plenary Sessions
Presentations to educate firms on the methodology

02 Pilot Test with OGS Firms
Development of operational business model and bottoms up financial model

03 Implementation of Recommendations

Current Progress
• Plenary Sessions conducted in Kenya, India and Myanmar
• Pilot test with 2 PAYGo firms in Myanmar
• Implementation ongoing in 1 PAYGo firm in Myanmar
B. THE MAIN ISSUES RUNNING A BUSINESS AT THE BOP
Downstream Profit Squeeze

Downward Pressure on Operating Unit Revenues

- Limited geographic reach
- Lower unit sizes & price points
- Lower consumption/use rates
- Slower adoption rates

Upward Pressure on Operating Unit Costs

- Smaller operating units with lower economies of scale
- High touch sales to drive sustained adoption
- Low literacy rates and smart phone penetration
- Cash-based payments
Blind Spots of Conventional Modeling

Scale
• Conventional models work top-down, focusing on venture level operations
• However, key choke points for businesses at the BOP are at the unit level

Scope
• Models narrowly focused onto operations and profits flowing between their ventures and immediate paying customer
• However, those customers in many cases are distributors rather than end users

Last-Mile Operating Unit

Downstream Channel Gap
Need to look at the **total net margin across the entire upstream and downstream ecosystem**, and ensure that is sufficient to provide a competitive return to ALL players – *else, the new venture will fail*.
The Last-Mile Operating Unit – The Engine of a Business

Smallest, self-sustaining entity within a larger venture with responsibility for sales and service to end customers
The Last-Mile Operating Unit – 4 Critical Variables

- **Reachable Market** (R): the population of potential customers accessible by the operating unit
- **Steady-State Penetration** (P): the percentage of the reachable market that are regular customers of the operating unit at steady-state
- **Transaction Intensity** (I): the time required to support the sales/service transactions the operating unit conducts with its customer base over the course of a month
- **Customer Load** (L): the number of transactions that one (sales) person can manage in a month
Balancing the Profitability Equation

\[
\text{CASH OUT} = \text{CASH IN}
\]

- Start Up Costs + Running Costs + Finance Costs
- \[\text{Price} \times \text{Margin}\]
- \[\text{Reach} \times \text{Penetration}\]

1. Rising unit costs (I & L) weigh down the cost side of the equation...
2. Downward pressure on price increases imbalance...
3. Margins and Reach are fixed in near term...
4. Penetration acts as a “steam valve” for the venture, rising to allow the numbers to “balance out” under the existing business model.

Penetration Trap
### The Last Mile Penetration Trap in Action

<table>
<thead>
<tr>
<th>Households Reached By Unit</th>
<th>30,000</th>
<th>30,000</th>
<th>30,000</th>
<th>30,000</th>
<th>30,000</th>
<th>30,000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monthly Operating Unit Costs</strong></td>
<td>$1,000</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$1,000</td>
<td>$1,000</td>
</tr>
<tr>
<td><strong>Cost Increase %</strong></td>
<td>10%</td>
<td>20%</td>
<td>30%</td>
<td>40%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td><strong>Monthly Operating Unit Costs</strong></td>
<td>$1,000</td>
<td>$1,100</td>
<td>$1,200</td>
<td>$1,300</td>
<td>$1,400</td>
<td>$1,500</td>
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<tr>
<td><strong>Price</strong></td>
<td>$20.00</td>
<td>$20.00</td>
<td>$20.00</td>
<td>$20.00</td>
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<tr>
<td><strong>Gross Margin</strong></td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
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<tr>
<td><strong>Contribution, Gross</strong></td>
<td>$8.00</td>
<td>$8.00</td>
<td>$8.00</td>
<td>$8.00</td>
<td>$8.00</td>
<td>$8.00</td>
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<tr>
<td><strong>Repurchase Period, Months</strong></td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
<td>24</td>
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<tr>
<td><strong>Contribution, Month</strong></td>
<td>$0.33</td>
<td>$0.33</td>
<td>$0.33</td>
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<table>
<thead>
<tr>
<th>B/E Households Baseline</th>
<th>3,000</th>
<th>3,300</th>
<th>3,600</th>
<th>3,900</th>
<th>4,200</th>
<th>4,500</th>
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</thead>
<tbody>
<tr>
<td><strong>Penetration %</strong></td>
<td>10%</td>
<td>11%</td>
<td>12%</td>
<td>13%</td>
<td>14%</td>
<td>15%</td>
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<tr>
<td><strong>B/E Households 5% Price Cut</strong></td>
<td>3,429</td>
<td>3,771</td>
<td>4,114</td>
<td>4,457</td>
<td>4,800</td>
<td>5,143</td>
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<tr>
<td><strong>Penetration %</strong></td>
<td>11%</td>
<td>13%</td>
<td>14%</td>
<td>15%</td>
<td>16%</td>
<td>17%</td>
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<tr>
<td><strong>B/E Households 10% Price Cut</strong></td>
<td>4,000</td>
<td>4,400</td>
<td>4,800</td>
<td>5,200</td>
<td>5,600</td>
<td>6,000</td>
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<tr>
<td><strong>Penetration %</strong></td>
<td>13%</td>
<td>15%</td>
<td>16%</td>
<td>17%</td>
<td>19%</td>
<td>20%</td>
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<tr>
<td><strong>B/E Households 20% Price Cut</strong></td>
<td>6,000</td>
<td>6,600</td>
<td>7,200</td>
<td>7,800</td>
<td>8,400</td>
<td>9,000</td>
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<tr>
<td><strong>Penetration %</strong></td>
<td>20%</td>
<td>22%</td>
<td>24%</td>
<td>26%</td>
<td>28%</td>
<td>30%</td>
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</table>
C. INTEGRATED VENTURE MODELING
The Logic Behind Integrated Venture Modeling

- **Translate** operational parameters into a P&L statement and NPV
- Required price/margin for "whole system" profitability **over the investment period**
- Last mile operating unit’s **whole cost structure** (I & L)
- Granular flows of product, info, & money to/from the end user
- Last-Mile Operating Unit’s at-scale transactions (R & P)

Key Characteristics

**What it Can be Used For**
- It is a pricing and business model innovation tool
- Aligns field-level managers, CFOs and investors on the critical operational KPIs that ultimately determine a venture’s success / failure

**What it Cannot Do or Be Used For**
- It is a methodology to understand and simulate operational drivers of performance—not a “turbotax” that kicks out an answer
- It is not a substitute for a traditional P&L...legally reporting on your firm’s current performance
The Logic Behind Integrated Venture Modeling

Success = ROC
Cash, Not Valuation
Operational Modeling

A systematic approach to detailing the activities and actors involved in fulfilling a business’s three core flows
• Product
• Money
• Information

Bottom-Up Financial Modeling

A systematic approach to understanding the profit and cost drivers underpinning a venture by building a complete picture of the total costs that a single, last-mile operating unit has to support.
Operational Model Mapping

Mapping the Flows of Product, Money and Data / Information

Step 1: Identify Key Places and People
Step 2: Identify Key Business Flows
Step 3: Map the Business Flows & Bracket the Units
Step 4: Determine Steady-State Activities & Staff

VENTURE HEAD OFFICE

LAST-MILE OPERATING UNIT

PRODUCT FLOW

Data & Information Flow

MONEY FLOW

Operating Unit Reach

N = x
STEP 1
Identify Key Places & People

STEP 2
Identify Key Business Flows

STEP 3
Map the Business Flows & Bracket the Units

The Head of the Model
Place: XYZ Co

The Tail of the Model
Place: End User
Home

User: Child
Enabler & Customer: Parent

PLACE

Customers
Users
Enablers

Making
Selling
Marketing
Using

PRODUCT

Core
Support
Enabling

INFORMATION

Production
Marketing

MONEY

Inflows
Outflows

PEOPLE

CUSTOMER

OPERATIONAL

MODEL

MAPPING

OVERVIEW
OF KEY STEPS

STEP 1
STEP 2
STEP 3

Identify Key Places & People
Identify Key Business Flows
Map the Business Flows & Bracket the Units

Operational Model Mapping – Overview of Key Steps
Operational Model Mapping – Example
STEP 4
Determine Steady State Activities & Staff

- Define **key activities** that need to happen to move each flow to/from one Place/Person to the other:
  - Who would **perform** this activity?
  - Who would **support** this activity?

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**EXAMPLE**

HR Positions => Activities => Drivers => Variables

<table>
<thead>
<tr>
<th>Operating Unit</th>
<th>Mkt Sales</th>
<th>Drivers</th>
<th>Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruit New &amp; Place Staff Out</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 1: gather interests</td>
<td>Conferences</td>
<td>Assumes 2 days per conference, 2 days preparation per conference and 3 conference per year per province</td>
<td></td>
</tr>
<tr>
<td>Stage 2: gather leads</td>
<td>Community Events</td>
<td>Assumes 3 days per event, 7 days preparation per event and 4 events per year</td>
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</tr>
<tr>
<td>Stage 2: warm call</td>
<td>Follow up calls on leads</td>
<td>Requires 3 calls to schedule longer call to discuss business needs, assumes 25% conversion rate at this sales stage</td>
<td></td>
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<tr>
<td>Stage 3: close deal</td>
<td></td>
<td>Requires 2 calls to close deal, assumes 30% conversion rate at this sales stage</td>
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<tr>
<td>Stage 1: gather leads</td>
<td>Research &amp; Network</td>
<td>Desk research on corporate with high volume of low skilled labour and high turnover; contact via Pearson rate and LinkedIn</td>
<td></td>
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<td>Follow up calls on leads</td>
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<td>Stage 3: close deal</td>
<td>Meeting to close deal</td>
<td>Assumes 2 hours to travel and meet, Requires 3 meetings to close deal, assumes 50% conversion rate at this sales stage</td>
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Bottom-Up Financial Model - Relating Price to Profitability

Competitive rate of return on capital provided

Capital assets & development/launch costs

Human resources & general operating (e.g., marketing, advertising, training)

Raw materials, components, packaging, duties/tariffs, shipping

Investment Costs (IC)

Start Up Costs (SC)

Running Costs (RC)

Product Variable Costs (PVC)

Price = PVC + RC + SC + IC

Investment Profitability
- Self-scaling

Price = PVC + RC + SC

Venture Profitability
- Subsidize investors

Price = PVC + RC

Operating Profitability
- Subsidize replication

Price < PVC +RC

Operating Losses
- Subsidize operating unit

Price < PVC

Product Losses
- Subsidize product
Bottom-Up Financial Modeling – Key Steps

Last-Mile Operating Unit’s At-Scale Whole Cost Structure

**Step 1:** Bound the Unit & Head Office

**Step 2 (a):** Calculate Unit’s Running Costs

**Step 2 (b):** Allocate Head Office Running Costs

**Step 3 (a):** Calculate Unit’s Start-Up Costs

**Step 3 (b):** Allocate Head Office Start-Up Costs

**Step 4 (a):** Calculate Unit’s Investment Costs

**Step 4 (b):** Allocate Head Office Investment Costs

**Step 5:** Calculate Required Price & Margin

**Step 6:** Build Whole-Cost P&Ls & Calculate IRR

Activity Drivers
There is no universal financial template...but every business can be modeled.

Core structure will (post-pilot) reflect PAYGo context...but every PAYGo business model will be different.

- Multi-product, durable good
- Sold “direct” to households
- Customer financing option, ranging from 0-24 months
- 5-year investment period
• All variables on a control tab; variables are listed out in the order by which the calculations are performed

• Each Whole Cost dimension calculated on a separate tab (sometimes broken into two parts)

• The Whole Cost calculations “ladder-up”; early ones are linked to later ones
• Bounding the Unit is a series of calculations to determine **how many customers and sales transactions** the average last-mile operating unit will manage at scale.

• By knowing a last-mile operating unit’s average sales transaction volume, an entrepreneur or venture manager can **determine how big the op unit needs to be**—in terms of human resources, capital assets, and business activities—and the costs associated with running it.

• Similarly, Bounding the Head Office indicates **how many last-mile operating units** the venture will need to support at scale—the critical determinant of the head office’s size and cost structure.

**Step 1:**
Bound the Unit & Head Office
• Two components to Total Running Costs:
  • Human Resource Cost
  • General Running Cost

• Keys to Total Running Costs are good activity drivers; the more granular, the more they connect them back to customer base calculations, the more valuable the model. Examples:
  o Churn Rate
  o Sales Conversion Rate
  o Lead Conversion Rate
  o Marketing Mix

• Head Office costs allocated to single Operating Unit by dividing Head Office cost by the total number of operating units at scale
Bottom-Up Financial Modeling – Step 3

- Two components to Total Start-Up Costs:
  - Cap Ex
  - Development & Launch Costs

- Start-up Costs include launch marketing and tech / product development
  - Costs fully amortized over the investment period
- Start-up Costs at Last Mile Operating Unit and at Head Office

Step 3 (a)
Calculate Unit’s Start-Up Costs

Step 3 (b)
Allocate Head Office Start-Up Costs
• Two components to Total Investment Costs:
  • **Investment Costs, Debt**
  • **Investment Costs, Equity**

• Note: Working Capital calculated as an input – working capital to fill losses, and working capital for customer financing

• Debt financing level can be specified as variable; amount applied first to Cap Ex, then to Start-Up, and then to Working Capital

• Cost of Equity best considered the opportunity cost of capital (what could I earn on this money without risk?); total cost of equity based on all start-up cost and working capital requirements not covered by available debt financing
Pricing has two main steps:
- **Adding up all variable products** for a single unit of product;
- **Allocating “whole costs”** to a single unit of product

Model shows the **deviation** between **required** pricing and **targeted** pricing

Model specifies cost cutting required, or the price increase possible
- To **increase price**, use “Goal” seek function (set required to equal target price by changing targeted pre-tax ROI)
- To **decrease price**, find the cost driver by identifying biggest cost components of Whole Cost, and then the biggest components of the specific dimensions

**Step 5:**
Calculate Required Price & Margin
• Whole-Cost P&Ls (Operating Unit Level and Venture Level) show the average performance of the OU/Venture over the investment period (i.e., the performance based on average unit sales as a % or at-scale sales volume).

• The Whole Cost P&L “sums up” to 0; note that cost of equity is treated as a cost, not as a residual.

• Annual P&Ls show the average annual performance based on the sales ramp up assumptions specified in the control tab.

• The early years all typically have “negative deviations from the mean” and later years positive.
  • The sum of all the deviations equal 0.

• NPV/IRR calculation includes a terminal value; allows for the timing of start-up costs to be specified.

Step 6: Build Whole-Cost P&Ls & Calculate IRR.
Path to Profitability is a Business Model Design Tool, Not a One-Time Exercise
4. DISCUSSION / Q&A