Revenue and Network Protection in River Park, Alexandra

Xolani Lembede
City Power
Introduction

• World
  – Africa
    • South Africa
      » Gauteng
        » Johannesburg
      • Greater Alexandra
    • River Park
History of Alexandra

- One of the oldest townships - 1912
- eight square kilometres and has an estimated population of 470 000 people
- Alexandra Renewal Project (ARP) has introduced new townships with clearly demarcated stands
- River Park Township project
  - located just across a tributary of the Jukskei River from the "established" suburban area of Lombardy East and on the east bank of the river opposite traditional Alexandra Township
Challenges

• Social
  – Population of 4.4 million
  – 10000 people every year
  – Shelter, Food, Clothing, *Services*...

• Revenue
  – Low LSM, non payment culture
  – Middle LSM, mixture on non payment culture and unsophisticated cheating
  – High LSM and Industry, Highly sophisticated way of cheating

• Infrastructure
  – Thermal loading
  – Vandalism
Deployed Solution

- Resources
- Technology
- Enablers
Resources - Critical Role Players

- Community
- Energy Ambassadors
- Employees
  - Project
  - Field
  - Back Office
  - Customer Service
- Politicians
- Service Providers

- Community
  - Door to door engagement on:
    - Electricity safety
    - Electricity tariffs (Domestic and Business)
    - Energy saving tips
  - Public Meeting to:
    - Introduce the project
    - Project benefits
- Energy Ambassadors
  - Continuous education on electricity safety and consequences of electricity theft
- Politicians
  - Engage with local political structures to engage community on responsibilities of utilities
- Service Providers
  - Coordination of activities
  - Respect working arrangements between utility and community
  - Minimise technology frustration to community
Technology Overview – Power Line Carrier (PLC)

PLC Split Prepayment Meter/s → Remote Access Terminal (RAT) → WAN → Communications Controller (Suptalk) → Suptalk Client → Prepayment System (Suprima)

- 66 kHz

Customer Interface Unit/s → Consumer

- Landis+Gyr (PLC Technology Overview)
Normal Metering System

- Two figures represent a healthy system
  - Peaks indicating purchase dates and deeps indicating consumption patterns
- The green ring indicate number of meters visible to the RAT
  - This particular ring indicates all meters are healthy and are visible to the RAT
Metering Anomalies

- The first figure indicates a meter stuck a certain value
- This meter is either faulty or been tempered with
- The meter raises alarm for investigation
- On Figure blow, the RAT has picked up an anomaly in 1 of the meters
- This will raise an alarm for analyst at the back office to interrogate further
Access Control

- To control access to the meters, a number of utilities have resorted to thick protective enclosures.
- Access is electronically controlled and logs history of individuals who had access.
- The system uses any form of communication.
- Boxes come in different sizes, depending on the township layout and network configuration.
Enablers

- Processes
  - Broken processes leads to frustrations and collapse of great initiatives
- Skills
  - Right skills for the right job
- Dashboards
  - Relevant dashboards for the ease of monitoring
- Management
  - Management buy in, support and monitoring
  - Clear KPI’s to all relevant stakeholders
Observations and Experience

- Revenue
- Network Loading
- Benefits/Challenges
Load Profiles before and after the project

- The brown and blue graphs indicate the load profiles of the feeder supplying the study area in 2 different years.
- Green graph indicate the percentage difference of load in two different profiles.
- It is clear, the project is bearing fruits through the behavioural change on the consumers.
Revenue Benefits in Different Areas

• The top graph shows comparison on revenue collected in two financial years in 3 different townships

• Significant changes on revenue due to intervention

• Bottom graph shows continuous revenue performance from 2013 to 2014
Challenges and Benefits

- Period
- Input Cost
- ROI

- Revenue Collection
- Network Stability
- Customer Data Clean-up
- Local Employment Opportunities
- Community Safety
- Less call outs
Conclusion

• Time
• Consultation
• Implementation

• Time
  – Invest time on consultation to help reduce execution time

• Consultation
  – Consult as wide as possible

• Implementation
  – Implement as fast as possible

• Monitoring
  – Continuous monitoring is key