Everyone wants “Smart” meters.

Word “Smart” loosely used as a marketing term (not technical term) to promote a silver bullet “solution to all utility problems”.

No clear definition of a “Smart” meter in Water Industry.

A Smart Meter is a measuring device that, as a minimum requirement, is capable of communicating data to a remote interface at regular intervals.

In its basic form, smart metering is Automatic Meter Reading (AMR).

“Continuous” AMR → Logging

LoRa™ RF technology is a long range and secure, bidirectional communication.

Features:
- Low Power WAN
- Ideal for Internet of Things (IoT), metering, security, asset tracking, and machine-to-machine (M2M) applications
- Honeywell piloting LoRa in SA (water meters) – 10.7km LoS

What metering investments provide best value?
- Reliable and accurate basic metering and
- Financially feasible solutions that add value

Water meters are the cash registers for water suppliers

“To measure accurately is to know” – Honeywell

“To measure is to know” – Lord Kelvin

Every drop of water should be counted
Because every drop counts.

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Smart Meter Financial Feasibility

Is there another financially feasible solution that can eliminate or minimize the challenges that Utilities face?

“Lean Smart” Metering (Do more with less)
– Smarter solution that excludes the high costs associated with “smart” electronics added to each meter
  e.g. 100,000 meters require an additional ZAR 70.7M to upgrade good meters to become basic “smart” meters.
– Smart meter projects are not always financially feasible.

Cost Comparison: Smart Metering Vs Basic Metering

<table>
<thead>
<tr>
<th>Description of Cost</th>
<th>Number of Units</th>
<th>Additional Smart Cost</th>
<th>Smart Costs: Basic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10,000</td>
<td>R 7,285,091 ($ 70,671,103)</td>
<td>R 7,250</td>
</tr>
<tr>
<td></td>
<td>100,000</td>
<td>R 70,671,103 R</td>
<td>R 72,50</td>
</tr>
</tbody>
</table>

*Product cost only

Smart Meter Financial Feasibility

Lean Smart Metering Solution

Meter Reading and Billing Smart Phone App

Seamless digital meter reading solution that uses affordable smartphones to collect meter information, readings, pictures and GPS co-ordinates for water or electricity connections.

Meter Reader or Consumer inputs meter reading into smart phone App, data read by online platform.

Automated message sent to consumer with:
- Opening Reading
- Closing Reading
- Water / Electricity usage in period
- Invoice amount / Bill

Online payment option via separate App (integration into App planned).

Replaces paper forms and adds functionality such as time-stamped pictures of the meter reading and GPS co-ordinates.

Mobile App can be complete in 4 weeks.

Water is very Cheap

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
<th>Cost per lt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tap Water 1kl</td>
<td>R13.91</td>
<td>1.39c</td>
</tr>
<tr>
<td>Bottled Water 500ml</td>
<td>R7.00</td>
<td>R14.00</td>
</tr>
<tr>
<td>Coca Cola 2lt</td>
<td>R17.00</td>
<td>R8.50</td>
</tr>
</tbody>
</table>

* Assumes that reliable and accurate meter is used

Water is very Cheap

Product cost only

The Home of Kent Meters
Water is very Cheap

Non-Revenue Water (NRW) - Met

High NRW = Opportunity!

Impact of Leak Run Time
Impact of Leak Run Time

Leak Run Time (days) = (A + L + R) x flow rate [m³/d] = Water Lost [m³]

- 0.2 Days: 2.5 Days
- 0.1 Days: 0.2 Days
- 0.2 Days

Volume of Water Saved:

- 0.2 Days: 120 [m³]
- 0.1 Days: 552 [m³]
- 0.2 Days: 672 [m³]

Value of Water Saved = 672 - 120 = 552 [m³]

Value of Water Saved x 500 Leaks = 500 x R 17 813 = R 8,907M

War on Leaks

President Jacob Zuma announced at the State of the Nation Address (SONA) 2015:

"Let me honourable Speaker and Chairperson urge all in the country to conserve water. Every drop counts. This country loses seven billion rand a year to water losses. To mitigate this challenge, Government through the Department of Water and Sanitation will launch a thousand artisans and plumbers who will be visiting households in their local communities.

Phase 1 - September 2015 with 5000 artisans - plumbing, instrumentation, filter and tunnel electrical wiring and water agents.

Phase 2 - 7000 artisans on the 30th of August 2016.

Phase 3 - 5000 artisans.

Lean Smart Solution

Water Incident Reporting Smart Phone

App

- Allows the Utility to dynamically respond to the issue logged (quickly respond to leaks and reduce water lost due to leaks), and
- Plot and record water issues against geographic locations.

This framework could tightly integrate the water utility’s core operations (possibly including War on Leaks Teams).

Convenient, easy to use, cost-effective tool to reduce water wastage.

Raise awareness of water use by engaging and empowering citizens.

Smart Citizens = Smart City.

Mobile App can be complete within 4 weeks!

Water Incident Reporting Smart Phone - Conclusions

Do smart metering projects have a reasonable and feasible financial payback?

It’s been financially a very bumpy ride for many smart metering projects.

There is “no one size fits all” solution in metering or Smart metering:

- A Reliable and Accurate meter
- Informed and optimised data management
- Analysis and decisions can be made and
- Accurately billing and enhanced revenue collection
- Focus on selecting the right investment
- Also consider tools and technologies that do more with less (“Lean Smart Solutions”).
Thank you

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