

Using analytics to protect the return on smart meter programmes



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Analytics is key to securing smart meter ROI at scale, writes Neil Barry, Senior Director - EMEA, Space-Time Insight.

Ask Italy, Finland or Sweden - ubiquitous smart meters are definitely beneficial, but they are not set-and-forget devices. Once you have your full fleet of smart meters installed, you need to make sure your fleet continues to operate at a peak performance. Otherwise people will ask: "Is this thing on?"



It's an important question because there are many potential answers, each with a different cause, cure, and various implications. It's important that the meter is on because although the value of smart metering is high, it can be easily eroded.

The problem with scale

Smart meters are highly reliable devices by design. Most meter purchase contracts require an annual reliability rate of 99.5%. That sounds great, but for every million meters you install and operate, that means 5,000 are allowed to fail each year. That means potentially 5,000 work orders and site visits as well as record updates and myriad other tasks.

Add to this the meter problems and anomalies that aren't outright failures but still require investigation, labour and paperwork. This includes:

- Meter not installed correctly
- Meters not communicating properly
- Meter being serviced
- Meter has been tampered with
- Power to the meter is out.

Since smart meters are communicating devices, you also need to consider problems with the cell relay or other communication point that connects the meter to the wider utility network. For instance, the communication point could have failed, is overloaded, is being worked on, has been tampered with, or could even be without power.

This is the problem with scale: small individual problems are quickly amplified.

Lost benefits

When small problems grow large through scale, they erode the return on investment for smart meters.

Consider these projected savings from the UK Smart Meter Programme that are directly related to smart meters remaining online:

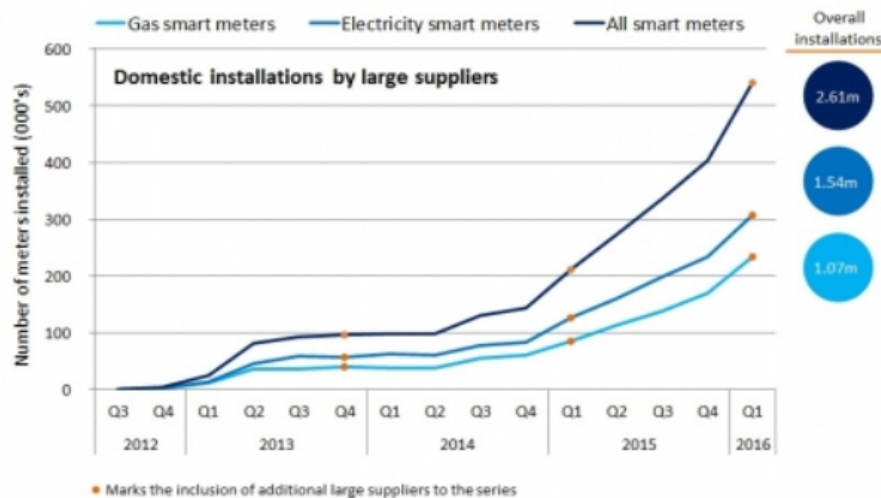
	Total benefit of 53 million meters	Benefit per meter
Avoided site visits	£3.0 billion	£56.60
Reduced inquiries and customer overhead	£1.2 billion	£22.64
Prepayment cost to serve	£1.0 billion	£18.87
Switching savings	£1.5 billion	£28.30

With the costs associated with human intervention in problems - labour, facilities, vehicles and fuel to run them - one small problem can consume a large portion of the savings projected over the 20-year life of a meter.

For instance, when a utility sends a technician to a residence to determine whether a meter has stopped working or simply isn't connected to the communications point, the £56.60 savings for avoided site visits is quickly consumed in labour costs and vehicle operations. If the technician must make another trip to fully resolve the problem, the remaining ROI for that meter is quickly dissolved.

Analytics tame scale

You don't want to troubleshoot meter and communications problems manually. That defeats the purpose of smart, automated devices and scales small problems into large ones.



Smart meter installations are taking off in the UK to meet the 2020 deadline. Chart available at [DECC - Smart Meter Statistics](#)

Analytics tames scale by:

- Identifying and even predicting the few problem devices among the multitude of healthy ones
- Determining if missing meter reads represent a problem with the meter or the communications network
- Locating and remotely diagnosing meter problems
- Locating and remotely diagnosing overloaded communications points
- Initiating automated corrections where possible
- Prioritizing smart meter issues that require human intervention
- Prescribing preventive steps to avoid meter and communications problems.

Analytics applications such as [Smart Meter Intelligence](#) from [Space-Time Insight](#) correlate, analyze and visualize data from multiple disparate systems from across the enterprise to identify the few problem meters and situations requiring investigation and action. Visualizing the results of asset profiling, change point detection and anomaly detection related to meters and communication networks helps meter operations identify root causes and resolve problems quickly.

Getting your money's worth from smart meters

For example, one benefit from smart meters is fewer bills based on estimated reads. Such bills create unnecessary variance in revenues and cause customers to call with questions or complaints.

Analytics can reduce the frequency of estimated billing by identifying meters that are approaching their billing date and missing reads. The system requests consumption reads of these meters. If the consumption read fails, analytics correlates data from workforce management, outage management, the meter communications network and other sources to determine the reason why the meter is not reporting a consumption read.

Based on the result of analytics, a work order is generated for a communications technician if the network is at fault, a meter technician if it's a meter problem, or a revenue assurance agent if it looks like the meter has been tampered with.

In this way, analytics has increased data quality, improved revenue flow, protected ROI on smart metering, and increased productivity of utility personnel by getting the right work order to the right person or department.

Smart meter success depends on a positive cost-benefit analysis. Efficient operation of the meter fleet and its associated networks is key to fully realizing the benefits of placing these smart devices in the field. With the scale of smart meter networks, you need analytics for efficient operations and positive ROI.

For more on smart metering join Engerati's In Focus programme [Smart metering - end to end rollouts](#)

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