

Tomorrow's smart cities will need equally smart utilities

by Hannes Venter, Industry Advisor: Utilities at SAP Africa

Sustainable energy consumption and 'green' energy production at home is becoming a new lifestyle. Today's hyperconnected consumer expects a reduced environmental footprint while still enjoying seamless services and ease of use, improving their quality of life through fully digitised processes that give them complete control over every aspect of their lives.

According to IDC, 30 billion 'things' will be connected by 2020. Everything from cars and appliances to lights and temperature control will be connected in an interoperable network that will give consumers unprecedented control and choice over their energy use. Energy itself is also becoming more sustainable: Bloomberg New Energy Finance predicts that by 2040, 72% of total new power generation capacity investment globally will go to renewable energy, with the falling cost of residential renewable energy disrupting the relationship between utility companies and their customers. This decentralisation is changing consumers into prosumers, who are able to generate energy and manage their usage in sustainable and convenient ways.

However, in Africa the picture looks distinctly different: here, the true empowerment of the energy utility lies with the interplay between consumers, utilities, connected devices and the software that links it all together in a cohesive whole.

Empowering the energy utility and its customers

Historically, the meter has been the centrepiece of the energy utility company's relationship with its consumer. A contract is set up with the consumer to provide energy, and the meter is read to determine how much energy has been used. The utility company then bills the consumer according to their energy usage. Unless something - a billing query or outage, for example - compels the consumer to contact the utility via a call centre, the bill sent to the consumer is the only touchpoint the utility company would have with them.

However, with the advent of smart metering systems and the rise of powerful technology platforms such as SAP S/4HANA and tailored software solutions such as SAP Predictive Maintenance and Service that incorporate advanced analytics, big data, machine learning and AI, this interaction is evolving in exciting ways.

Energy utilities can now continuously collect and analyse data from smart meters, SCADA systems and sensors to determine and monitor the health of infrastructural assets. This is creating new opportunities to reimagine business processes and business models: while in the past each asset provider had its own system producing its own set of analytics, we are now able to collect all of the data from each asset into a single IoT platform in near-real time. Linking this to advanced predictive analytics capabilities enables utilities to proactively manage key assets within its value chain, driving down maintenance costs and optimising customer satisfaction through the uninterrupted supply of power.

Energy consumers are further empowered by gaining real-time visibility of consumption behaviour, enabling better energy management at a business or household level. In a smart city environment, this also enables benchmarking, which can give energy consumers insight into the energy usage of neighbours as well as at a neighbourhood, city, and potentially national level. When energy consumption levels exceed supply, utilities can better communicate with major consumers of energy and incentivise them to reduce consumption.

Disrupting 100 years of business-as-usual

Not much has changed for utility companies' business models over the past century. However, there are three major disruptors currently challenging utility companies, namely:

- 1 **Decentralisation**, which is changing where energy is created and how it is consumed. A famous example is Elon Musk's Solar City, which features renewable solar roofing tiles that generate electricity at the local level.
- 2 **Deregulation**, which is allowing a new breed of disruptive competitor to enter the market with services and devices aimed at consumers, such as the broad range of home energy monitoring and control devices and applications.
- 3 **Decarbonisation**, which is driving the adoption of non-fossil fuel energy sources.

These three disruptors are enabling the rise of the off-grid consumer, typified by businesses and individuals who generate their own energy via renewable sources. Aside from the obvious loss of revenue, these consumers pose a further risk through their potential to sell surplus energy to their

neighbours, further diverting the energy utilities' revenue stream. In South Africa, for example, nearly all municipalities restrict consumers from selling their own generated excess electricity back to the grid, and the infrastructure needed to enable such prosumers to supply excess power back into the grid is not yet in place.

However, utilities need to prioritise a journey of digital transformation that reimagines their business models and reengineers business processes. By embracing exponential technologies such as blockchain, machine learning, predictive analytics, Big Data, and IoT, and integrating it all into a cloud platform under the SAP Leonardo digital innovation system, energy utilities can fast-track their digital transformation to rapidly adopt new business models and capabilities.

With technology giants increasingly encroaching on the territory traditionally held by utility companies, and rapidly increasing customer expectations, the need to transform business models and processes has become urgent. It is critical that energy utilities prioritise their digital transformation, or they risk being left behind by an increasingly empowered and self-sufficient consumer market.