REWRITING THE RULES FOR ENERGY AND DESALINATION

NEW RESEARCH AND NEW NUMBERS OPEN UP THE TECHNOLOGY WARS AGAIN. DO WE NEED A REThINK ON THE BUSINESS OF ENERGY AND WATER?

DROUGHT, DESAL, PRIVATE FINANCE AND DELHI

NARENDRA MODI’S ‘ELECTORAL EARTHQUAKE’ CAME ON THE BACK OF MASSIVE PLANS FOR WATER SPENDING. CAN INDIA FOLLOW THROUGH?

NEW HORIZONS FOR SAUDI INFRA INVESTORS

NEW OPPORTUNITIES ARRIVE AS TRANSMISSION AND STORAGE ASSETS PREPARE TO HIT THE MARKET FOR THE FIRST TIME
connections, private finance and sewage handling will all play a role (on the back of substantial promises for water investment. Desalination, water 

COVER STORY: The Modi-led NDA government roared to victory in India last month on the back of substantial promises for water investment. Desalination, water connections, private finance and sewage handling will all play a role (see page 10).

4 INTELLIGENCE

4 Need to Know: News, nuggets and information from the world of water this month

5 Chart of the Month: E. coli levels at point of use globally

6 The List: The top 20 US utility spending plans

7 Christopher Gasson: Can water match up to the exponential climate shift?

8 GWI Water Index: How to triple your money investing in water

10 ASIA PACIFIC

10 Project funding: PPP hopes in India renewed thanks to new post-election spending plans

11 Chennai water crisis: Drought reignites desal market

12 Vietnam: Can a new PPP law spark up sluggish water market?

13 RBC Water: First acquisition marks return to Vietnam

13 Kazakhstan: Country seeks private finance for wastewater

14 Maynilad: Operator doubles capex on back of beach clean-up

15 Willy Yeo: Asia’s water usage offers some food for thought

15 Asia Pacific: News in brief

16 AMERICAS

16 Black & Veatch: Hopes tech partners will boost resilience

18 WaterBridge: GIC buys 20% stake in the company

19 Colorado River: Arizona to bear brunt of drought contingency plan’s water reductions

20 Ovivo: Following the company’s acquisition trail

21 PFAS: Senate delays push state governments to set own regs

22 PUC Inc: NWI acquisition part of wider expansion plan

23 George Hawkins: Between a water tech and a hard place

23 Americas: News in brief

24 IADB: Colombia finds support for utility turnaround project

25 Daniel Nolasco: Don’t cry for Argentina’s water sector

25 Brazil: Will substitute bill open up wastewater market?

26 EUROPE

26 Suez WTS: Hopes record revenues will be reached

28 Operating costs: Rising expenditures putting UK water companies under pressure

29 Marlowe plc: Services group buys loss-making Clearwater

30 Ofwat: Regulator demands more development of non-household retail market

30 Kirov: RKS battles to remain in the Russian city

31 Siegfried Gendries: Bavaria needs cooperation to thrive

32 Saur: Group aiming to double international revenues

33 Aqualia: Spanish company steps into French water market

34 David Lloyd Owen: What India can teach European utilities

34 Europe: News in brief

36 MIDDLE EAST/AFRICA

36 Saudi Arabia: Private finance mobilises for new avenues

37 Project bids: Groups coalesce for Saudi management contracts

38 Iraq: Hyundai secures seawater treatment project

39 Tom Scotney: New PPP projects will need new rules

39 Middle East: News in brief

40 WATER LEADER

40 Mekorot CEO Eli Cohen discusses Israel’s new water infrastructure plan

43 CTO

43 Tom Pankratz: Brine concentration redux

44 Market map: RO systems and brine concentration applications

48 Desalination: New numbers reopen desal technology war

50 Smart water watch: BuntPlanet plugs leak for Siemens

51 Conference talk: North American utilities’ digital future

52 CTO Outlook: Fluence’s Ronen Shechter on taking decentralisation further

54 First report: Disrupting the water chemicals market

55 PROJECT TRACKER

55 GWI’s project tracker seeks out the most important desalination, reuse, utility, water & wastewater treatment contracts around the world

62 COMPANIES INDEX

An easy reference guide to all the companies appearing in this issue
SMART WATER WATCH

BuntPlanet plugs leak in Siemens’ digital water expertise

The German industrial giant’s latest collaboration in the water sector has added more global appeal to its loss reduction services. It may also bring its partner’s software solution into the mainstream.

After 20 years developing leak detection services inhouse, last month saw Siemens agree a partnership with Spanish software firm BuntPlanet in a bid to increase its share of the growing global non-revenue water solutions market.

The German firm’s own SIWA leak detection systems require users to operate tightly defined district metered areas (DMA), measuring the water flow between them to highlight and pinpoint physical losses (leaks). Though effective, DMA structures have a limited presence in global water networks, particularly in the USA, and alone do not enable network operators to monitor apparent water losses (revenue lost due to meter inaccuracies or data handling errors). With BuntPlanet’s BuntBrain software, Siemens can offer clients loss reduction services that account for both physical and apparent losses independent of DMA structuring, making the firm’s loss reduction offer more attractive to the global market.

“Cooperating with BuntPlanet enhances our water efficiency portfolio and fits our drive to digitise and automate operations,” Johannes Koch, Siemens’ head of business development for water and wastewater, explained. “The partnership strengthens our digital services in the water distribution segment and means we can offer customers access to a globally applicable, state-of-the-art loss reduction solution.”

“Most cities simply don’t use DMA,” explained Ainhoa Leite, BuntPlanet’s co-founder and CEO. “BuntBrain is suitable no matter the level of DMA deployment. It is input agnostic, works with any pipe material and diameter, and in any noise and water conditions. Many of the tools we compete with are noise sensors and aren’t suitable everywhere.”

Acoustic sensors are effective in the right conditions but can struggle if ambient noise levels are high and pipes are made from plastics or a mix of materials. Bunt...

### BIG DATA’S APPARENT ADVANTAGE

Data management platforms like BuntBrain are not the only solutions to offer live leak reporting. Next to other permanently installed loss monitoring technologies, however, their flexibility and potential to track both physical and apparent losses makes them stand out.

<table>
<thead>
<tr>
<th>Technology</th>
<th>Description</th>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Example providers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acoustic Leak Detection</td>
<td>Noise loggers record sounds in pipelines, identifying anomalies. Sensors can be mobile or installed permanently throughout distribution networks, transmitting readings for manual inspection or cloud-based analysis by technology providers.</td>
<td>Data gathering and analytics can be automated to report on network health and track leak development, generally on a day-to-day basis. Some systems can more accurately locate faults by correlating simultaneous readings from multiple sensors.</td>
<td>These solutions are limited by factors that interfere with sound transfer within water networks, particularly PVC, mixed material, or large diameter piping. High ambient noise levels can affect accuracy. Does not account for apparent losses.</td>
<td>Aquarius Spectrum, Gutermann, ABB, Halma Water Management</td>
</tr>
<tr>
<td>Flow Meters</td>
<td>Flow meters measure water inflow and outflow in a network. For maximum benefit, they are often structured in district metered areas (DMAs) - discrete portions of water distribution networks, created by installing regular boundary valves.</td>
<td>Metering the water flowing into and out of DMAs is an effective way of measuring physical losses from a network, and of narrowing the location of leaks to specific areas.</td>
<td>Installing flow meters and boundary valves for DMAs is costly and can reduce networks’ hydraulic efficiency. Follow-up by leak detection crews needed to pinpoint a suspected leak within DMAs. Does not account for apparent losses.</td>
<td>i2O, Kamstrup, Siemens, ABB</td>
</tr>
<tr>
<td>Pressure Sensors</td>
<td>Pressure sensors can be installed permanently throughout distribution networks, transmitting network pressure data to operators in real-time.</td>
<td>Water networks are pressurised to ensure consistent flows and drops in pressure can indicate leaks or bursts. The test is simple to conduct and sensitive, provided fluctuations due to changes in temperature are compensated for.</td>
<td>Pressure variations inherent in most water networks can affect accuracy. This method cannot locate leaks without additional flow metering. Does not account for apparent losses.</td>
<td>i2O, ABB, Kamstrup, Technolog</td>
</tr>
<tr>
<td>Data Management Platforms</td>
<td>Remote data platforms can automatically process and combine data from multiple inputs to generate loss reports. These often use artificial intelligence techniques to manage the large quantities of data smart networks generate.</td>
<td>Being data agnostic, software platforms work with operators’ extant infrastructure. With web-based data management services ranging from data visualisation to complete network monitoring, some platforms can address both physical and apparent losses. They do not require DMAs.</td>
<td>Being built around big data analysis, this type of leak detection depends on access to large volumes of data. Not all network monitoring solutions generate data with the necessary regularity to achieve optimum results.</td>
<td>BuntPlanet, Visenti, Royal HaskoningDHV, TaKaDu</td>
</tr>
</tbody>
</table>

Source: GWI
The partnership strengthens our water distribution segment and means we can offer customers a globally applicable, state-of-the-art loss reduction solution.

Johannes Koch, Siemens

Planet states BuntBrain suffers none of these drawbacks and by monitoring both conveyance networks and metering infrastructure, unlike most permanent loss detection solutions, the platform simultaneously describes both physical and apparent water losses (see table, facing page).

The cloud-based mathematical modelling platform has two modules. LeakFinder requires flow data inputs every 15 minutes to provide optimised physical loss reporting. WaterMeter needs water usage measurements from at least 25,000 meters every three months to monitor apparent losses effectively. Once its analytics are layered with hydraulic network models, generated using tools such as the US Environmental Protection Agency’s EPANET, the platform can pinpoint potential faults and describe leaks up to 33% smaller than alternative technologies, according to the company. This increased sensitivity allows BuntBrain to identify problems earlier than other methods, minimising water losses and network damage.

BuntPlanet has so far focused operations in Europe and Latin America, with references in nine countries. Having worked previously with Aqualia on several domestic projects, a partnership with Siemens allows the Spanish firm to grow its reach on a global scale. From Siemens’ perspective, adding a DMA independent leak detection solution to its technology portfolio strengthens its end-to-end service offer along with its own global presence.

“To date, our primary market has been Europe, followed by the Middle East and North Africa,” Markus Lade, Siemens’ head of water and wastewater, explained. “We’re increasing activities in India, China, and Australia, but we’re comparatively weak in the US. We’re expanding our offer to be as strong as possible in the Americas.”

The BuntPlanet partnership is far from the first to augment Siemens’ digital water capabilities. In 2004, Siemens began working with liquid analysts Hach Lange, developing automated wastewater monitoring in its wastewater treatment plants, and in 2016, the firm announced a strategic alliance with 3D modelling and infrastructure software specialists, Bentley Systems.

Maximising its digital solutions portfolio has made collaboration with Siemens an attractive prospect for project developers looking to bolster their digital capabilities. Lade believes Siemens’ integration of cutting-edge digital systems was central to their 2018 engineering, procurement, and construction partnership with water treatment specialists Acciona Agua. “They want to go deep with the technology, leveraging all its advantages,” he explained. “Our integrated digital engineering operations offer fits their operational and business models perfectly. Our work with partners is one of the reasons we can offer such a complete package.”

Collaboration allows Siemens a cost and time effective way to build an end-to-end service offer unrestricted by their inhouse development programmes, one potentially boasting global appeal and responsive to shifts in technological innovation and customer needs. “In all our interests, but especially in digital, collaboration is essential,” Lade concluded. “Going forward, it’s how we plan to really get things done.”

### CONFERENCE TALK

**North American utilities look to their digital future**

The SWAN Forum arrived in the USA for the first time last month. High attendance by North American utilities suggests a bright future for digital, but it was human factors that dominated the debate, writes Rory Weaver.

There is one term guaranteed to crop up when talking digital: ‘organisational resistance’. Adopting a digital technology affects stakeholders at all levels of a utility in a way that is rarely true of a new treatment technology. This means that digital technology needs buy-in across an organisation, from operators (“if it’s wrong once, I’ll never trust it again”) to board members (“I can’t justify this to ratepayers”), and even customers in the case of smart metering. If the success stories on the stage in Miami had one thing in common, it was a utility leader with a clear vision and an ability to bring people with them. There is plenty that vendors can do to make this process easier. A clear business case is key, but return on investment may appear in unexpected places: utilities with cheap water still need to think about the legal, social and reputational costs of a trunk main burst.

In a crowded marketplace with digital solutions proliferating on all sides, it seems that the challenge for vendors is in finding a client with the right problem. No two water networks are the same, and compatible vendors and clients can struggle to find each other. Add to this the challenge of locating and classifying underground assets in the first place, and the magnitude of this issue becomes clear. Finding and implementing the right solution requires real knowledge of a utility’s problems, which means that technology partners need to take the time to understand their clients on a case-by-case basis. Digital technology is forecast to be big money, and in a fragmented market the role of matchmakers is looking increasingly valuable.

Whatever the obstacles, the sheer number of small and mid-sized American utilities in attendance at SWAN is testament to the optimism and urgency surrounding digital technologies. With some 55,000 water sector workers eligible for retirement in the next 5-7 years in the state of Texas alone, a transformation is coming to American utilities whatever happens. Digital water presents an opportunity to make this happen on their own terms, by preserving knowledge accumulated in the past while streamlining operations for the future. With the choice of technology seemingly increasing by the month, the challenge will lie in finding the right fit, making a good business case, and doubling down on implementation. Fitting sensors and installing software is the easy part – it is the human factor that will make or break the move to digital.