SWAN AMERICAS ALLIANCE
12TH FREE WEBINAR
REGULATION, PROCUREMENT, & A CULTURE OF INNOVATION
OCT 28 | 12 PM
AWWA | SWAN

INTERNATIONAL SMART WATER SYMPOSIUM

VIRTUAL EVENT | NOV. 10–11, 2020
The Link Between Regulation and Innovation

Webinar: Regulation, Procurement, and Culture of Innovation

Name: AMIR PELEG
Title: Founder & CEO
Organization: TaKaDu Ltd.
Central Event Management (CEM)

- 10 years in the market
- Operational in 13 countries
- Multiple awards and patents
- Reduce water loss
- Operational efficiency & customer service
- Digital transformation
- Comply with regulation
- Retain organizational knowledge
- Be proactive

One dashboard for detecting and managing all network events and incidents
Innovation is not about a “Eureka” moment.
It is about an innovation ecosystem.

Innovation ≠ Invention
The Innovation triangle

- **Necessity** is the mother of Innovation - droughts and water scarcity (e.g. Australia, Israel, Spain, California)
- The missing link is **Capital ($$$)** – the water sector is not attractive to most VCs
- Regulators can help:
  (a) Push utilities
  (b) Help investors
  (c) Invest government money
Plenty of ‘why not’

- Most utilities are public = slow, risk averse, ...
- Water is a non-competing sector – so why change?
- Lack of young generation
- Long sales & deployment cycle... unattractive for investors
Global Drivers in Water → All Related to Regulators

**Demand for Quality Service**
Consumers and regulators are demanding 24/7, high-quality, reasonably priced water.

**Steep Increase in Water Usage**
Today we consume $X_2$ water per capita vs. 100 years ago.

**Population Growth**
By 2050, the world's water supply will have to support, feed and create livelihoods for an additional 2.7 billion people (UN).

**Aging infrastructure**
Half of the pipes in the western world are 80+ years old.
The Link Between Regulation and Innovation

- Australia / Victoria (2018) – $100 off water bill to all VIC residents

- Israel (since 2008) – Israel NewTech is a national program aimed at promoting Israel’s water sector. The program was founded on the belief that the water sector have the potential to be strong growth industry for the country and play an important role in meeting the world’s rising needs.
The Link Between Regulation and Innovation

- Germany (2020) -
  The increasing risk of prolonged droughts in central Europe warrants a "paradigm shift" in Germany's water management in order to avoid supply bottlenecks, the German Federal

- Privatization:
  in Brazil, private concessions brings 24/7 service of good quality water at a regulated price
We still have enough water but we need to manage it properly.
Innovative Procurement & the Journey from Data to Knowledge

James Reyes
Vice President
Aquatic Informatics
As a Water Data Management Software solution working with over 1000 organizations, we’ve identified **four key milestones** our customers reach or strive for in their efforts to **derive knowledge from data.**
9x more data has been collected in the last 2 years than all history.  

<0.5% of data are ever analyzed & used.  

88% of utilities have not implemented a data management system.

DELOITTE, 2018  
COMPTIA, 2015
KEY CHALLENGE: IT, users, and procurement are entrenched in existing solutions. 
LEVER FOR SUCCESS: Alignment across key stakeholders.
Innovative Procurement

- Set Strategic Alignment
- Technology Vision
- Change Management
Data Analysis

Develop tools & processes to derive trends, signals, etc.

KEY CHALLENGE: Analysis paralysis sets in. With so much data, where do you start?
LEVER FOR SUCCESS: Focus on your organizational goals instead of the data to prioritize.
Internal Knowledge Sharing

Ensure all internal stakeholders can access information.

KEY CHALLENGE: Departmental silos often still remain, hampering freedom of information.
LEVER FOR SUCCESS: Use ‘wins’ from step 2 to make a business case to invest in internal sharing.
Consider organizations or constituents that could value from the information.

**KEY CHALLENGE:** Fear of making mistakes or missing the mark on what/how/when to share.

**LEVER FOR SUCCESS:** Embrace external stakeholders for third-party or citizen information sharing.
Challenge
Timely information communication & compliance

Solution
Better management decisions & distribution internally—and among citizens
Water data consolidation to break down data silos
Water data analysis to turn raw data into actionable insights
Internal knowledge sharing across organizations, government departments, and international bodies
External knowledge sharing with industry and the public to educate, inform, and encourage respect for our most important resource.
Thank You!

www.aquaticinformatics.com
Demystifying Intelligent Water: Realizing the Value of Change with Advanced Asset Management

Eric Bindler
Research Director, Digital Water
Bluefield Research

Celine Hyer
Senior Vice President
Arcadis
Today’s Agenda

• Why do we need a new approach to asset management?
• What is advanced asset management?
• What are the benefits of advanced asset management?
• How can I get started?
Drivers for Change in Asset Management

Drivers for Change

- Growing Investment Gap
  - U.S. capital investment gap has increased nearly **sevenfold** since 2000

- Affordability Concerns
  - U.S. water/sewer rates have **doubled** median household income growth

- Aging Workforce
  - Some utilities will lose as much as **half** of their staff in the next 5-10 years

- Changing Regulations
  - U.S. ranks **last** among major markets for AM policy, but things are changing

October 28, 2020
Enablers of Progress in Asset Management

Key Enablers

• Technological advances are redefining the traditional limits of data and analysis

• Utility leaders are embracing a workplace culture of innovation and creativity

• An intelligent water approach combines digital technology and skilled workers
What is Advanced Asset Management?

- An **enhancement** of the traditional asset management framework
- Adds **digital skillsets and technologies**
- Focuses on **total expenditures**, including assets other than physical infrastructure
- **Optimizes** spending decisions to reduce the infrastructure funding gap while maintaining assets at an acceptable **service level**

Traditional vs. Advanced Asset Management

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<th>Traditional Asset Management (limitations)</th>
<th>Advanced Asset Management (enablers)</th>
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<tr>
<td>• Focused on physical infrastructure</td>
<td>• Focused on total assets, incl. people</td>
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<td>• CAPEX for repair and replacement prioritization</td>
<td>• TOTEX optimization</td>
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<tr>
<td>• Historical data and snapshots</td>
<td>• Real-time data streams</td>
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<tr>
<td>• Relies heavily on industry standards</td>
<td>• Continuously learns - utility specific</td>
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1) Physical Infrastructure vs. Total Asset Focus

AAM takes a holistic view of an organization’s assets, incl. people & natural resources.

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Yorkshire Water’s Six Capitals framework

- Financial
- Intellectual
- Manufactured
- Human
- Natural
- Social

Sources: Yorkshire Water, Natural Capital Coalition, Bluefield Research
2) Historical Data vs. Real-Time Data

AAM prioritizes real-time cross-silo data over historical trends & industry standards.
3) CAPEX Prioritization vs. TOTEX Optimization

CAPEX Prioritization

\[
\text{CONDITION SCORE} \times \text{CONSEQUENCE SCORE} \times \text{REDUNDANCY FACTOR} = \text{ASSET RISK SCORE}
\]

- Consequence of Failure
  - Asset conditions and performance standards

TOTAL Asset Lifecycle Costs

Capital Improvement Planning

TOTEX Optimization

- Driven by individual issues with existing assets, service delivery and operational constraints (‘bottom up’), or by strategic vision and regulatory requirements (‘top down’)

Total Asset Investment Planning

AAM emphasizes total asset lifecycle costs over upfront capital investment alone.
Why Implement Advanced Asset Management? 
Potential Totex Savings from Advanced AM in US

Advanced asset management CAPEX savings forecast, 2019-2030

- Vertical assets
- Linear assets

Advanced asset management OPEX savings forecast, 2019-2030

- Labor
- Chemicals
- Energy
- Repairs & Maintenance

Over 17B in CAPEX alone

Source: Bluefield Research
Challenge – Proactively Plan for Replacement of Over 7,000 Miles of Water Mains in San Antonio

Over 7,300 Miles of 4 through 96 inch Pipe

Primarily AC, DI and PVC 6 to 12 Inches in Diameter
Solution: Leverage Advanced Software to Support Improved Decision Making

**Baseform:**
- Predicts pipeline likelihood of failure (LoF) for small diameter
- Statistical analysis of past failures and environmental factors and machine learning

**InfoAsset Planner:**
- Applies condition assessment data to develop decay curves that predict likelihood of failure (LoF) for large diameter mains
- Calculates risk and creates projects that can be prioritized against each other
Results - Optimized 5 Year CIP and Understanding of Long Term Needs

• Based on Utility specific data and predictions to pinpoint replacement areas
• Logical projects prioritized using risk of failure and coordination with other projects in the ROW
• Can be revised easily as available funding changes
• Model is continuously updated as new failures or condition data is available
How You Can Get Started on the Pathway to Advanced AM

• Know who you are and where you’re at
• Create or update your strategic plan
• Conduct a formal Maturity Assessment
• Understand your workforce and the role people play
• Foster a culture of innovation
• Employ change management best practices
## Improving the Journey

### Do’s

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<th>Don’ts</th>
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<tr>
<td>• <strong>DO</strong> recognize the value of your organization’s human assets and capital, and involve them in asset management and investment decisions</td>
<td>• <strong>DON’T</strong> base your organization’s asset management and investment on physical linear and vertical assets alone</td>
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<tr>
<td>• <strong>DO</strong> prioritize and optimize full lifecycle TOTEX costs (i.e., CAPEX + OPEX) when making asset management and investment decisions</td>
<td>• <strong>DON’T</strong> make asset management and investment decision on the basis of upfront CAPEX costs alone</td>
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<td>• <strong>DO</strong> incorporate real-time asset condition and performance data into maintenance programs, and leverage predictive analytics tools (e.g. AI, ML) to inform decisions</td>
<td>• <strong>DON’T</strong> wait for failures, or rely on industry standard assumptions or asset age alone, to determine which assets to prioritize for maintenance or replacement</td>
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<td>• <strong>DO</strong> supplement your organization’s workforce with trained data scientists and analysts to help you unlock the potential of advanced, digitally enabled asset management</td>
<td>• <strong>DON’T</strong> rely on traditional utility skillsets alone to confront the challenges of 21st century water and wastewater infrastructure operations and asset management</td>
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Thought Leaders – Contact Us

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