Opportunities for Digital Transformation in Water Utilities

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Digital Transformation: Why Now?

Who led the digital transformation of your company?

A) The CEO
B) The CTO
C) COVID-19

Digital transformation is **years** away. I don’t see our company having to change anytime soon.

Source: Marketoonist.com
What is Digital Transformation?

Are we all aligned that our top priority is digital transformation?

Of course absolutely 100%.

So what exactly do we mean by digital transformation?

Sorry, I'm late for another meeting.

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So it is not about Technology!
It needs right mindset ....Digital Mindset

Provide Vision **YET** Empower Others
Give Up Control **YET** “Architect” the Choices
Sustain **YET** Disrupt
Rely on Data **YET** Trust Your Intuition
Be Skeptical **YET** Open-Minded

www.forbes.com/sites/iese/2014/03/11/the-5-keys-to-a-digital-mindset/#62b647ab2ee0
Digital Transformation Journey

Phases of Adoption

<table>
<thead>
<tr>
<th>Not started</th>
<th>Basic</th>
<th>Opportunistic</th>
<th>Systematic</th>
<th>Transformational</th>
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Example Characteristics

- Traditional, legacy analog infrastructure
- No digital strategies or technologies
- Begin incorporating digital technologies into operations
- Develop online monitoring capabilities, i.e., IoT, SCADA
- Most operations have been redesigned with digital automation and control
- Analytics tools utilised for process optimisation
- Digital technologies are well established
- Inter-process automation/control
- Internal resources and platforms developed for working with digital infrastructure
- Digital technologies incorporated across business and operations processes
- Advanced analytics used for decision making

Source: *Digital Water: Industry leaders chart the transformation journey*, IWA and Xylem Inc
Organizations can get stuck in the digital transformation journey

DON'T GET STUCK HERE
Many organizations swirl in an endless loop of “doing” digital things—an illusion of being digital—rather than making changes to business, operating, and customer models.

BEING
Business, operating, and customer models are optimized for digital and profoundly different from prior business, operating, and customer models.

BECOMING
Leverage digital technologies—becoming more synchronized and less siloed—with more advanced changes to current business, operating, and customer models.

DOING
Leverage digital technologies to extend capabilities, but still largely focused around the same business, operating, and customer models.

EXPLORING
Leveraging traditional technologies to automate existing capabilities. Dabbling with digital. No change to the organization.

Source: Digital Innovation: Creating the Utility of the Future, Deloitte Insights
• Balanced operations of multi-purpose dams in Taiwan
  - Artificial Neural Network based models, real-time river gauging and weather forecast
Digital Innovation for Asset Management

- Codifying tacit knowledge and data for decision making
  - Fuzzy Logic based models to determine pipe failure

Customer Experience: Digital Payments

FIGURE 1. Share of adults who made or received a digital payment in the last 12 months (2017 Findex)

Filipinos make an estimated 65–75 million utility payments every month. However, less than 5% of these payments are made digitally. As with remittances, most utility payments are made OTC in cash, and thus are inconvenient and expensive. In fact, it is reported that the average utility bill payment (USD 10–30) is so small that the cost of conveyance is often higher than the bill amount. The opportunity cost of transacting in cash combined with the regularity of utility payments builds a compelling case for prioritizing this use-case.

Potential savings due to digital solutions in drinking water distribution

Return on Investment

Percentage (%)

0 10 20 30 40 50

AMI 32.0%
SCADA 34.0%
Customer services 15.0%
Automated standard operations 10.0%
Specialist staffing 10.0%
Real-time network/plant monitoring 14.0%
GIS 7.0%
Automated data analytics 5.0%
In-pipe inspection 18.0%

Potential savings due to digital solutions in drinking water treatment

Source: Global Water Institute, 2019
Seosan City Smart Water Management

- Total project cost approximately USD 464,600,
  - Purchase of smart meters costing USD 82,000,
  - Remote monitoring Center costing USD 144,000,
  - Sub-DMA creation USD 65,000
- Results from the project show a 20% improvement in the revenue water ratio
  - 190,000 m³ of water per year decrease in leakage.
  - A benefit of USD 590,000 over 8 years

Paju Smart City Project (pilot for healthy tap water supply)

- Total Project cost USD 6.7 million,
- Net.Operations a network operation management program comprising real-time pipe network analysis, water quantity, water quality, crisis and energy management based on GIS and real time data, water pressure, and real-time leakage monitoring and leakage estimation.
- Leakage reduction is estimated to be USD 448,000 per year improving the revenue water rate by 13.38% on average.
- Direct drinking rate of tap water in Paju City was only 1% before the project, and rose to 36.3% after the project

Source: Smart Water Management Case Study Report, K-Water and IWRA
Take home message

• Fix leadership skills first.
  ◆ Most utilities are led by leaders who are not ‘digital natives’, and it
critical they understand the challenges and opportunities of digital
transformation.
  ◆ UTS is finalising short course for Senior Executives focussed on
Smart Cities including systems thinking to sharpen digital mindset

• Leaders need to build innovation culture open to rapidly
evolving digital solutions.
  ◆ Promote Data Driven Conversations. Data is the new Oil!
  ◆ Promote pilot projects

• Digital Transformation provides real opportunity to improve
water services to the cities of the future and meeting
SDGs.