The impact of adopting a Water Information Platform on a utilities business model

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Introduction

Waternomics is an EU funded research project to reduce water consumption of corporate and domestic users by providing water managers and consumers with timely and actionable information about water usage and water availability. These decision support services are enabled by an underlying Water Information Platform which involves the use of sophisticated ICT systems. The deployment and use of such ICT systems has a large impact on the business model of a water utility. It not only effects the relationship with the customer and the channels through which utilities communicate with customers, but also requires new skills of personnel, a new cost structure and new business partners. Today, the introduction of smart water technology is often driven by water conversation plans under 'efficiency' programs. Since efficiency has many folded meanings for utilities, research is done on the drivers for adopting smart water technology and the impact on operational efficiency of water utilities.

Research approach

To gain understanding about the current water utility business models a market consultation and desk research have been executed in multiple European countries. Through interviews with practitioners and policy makers, two roundtable sessions and the study of publications and reports, business models and value networks have been investigated. Drivers for saving water, business aspects of water management and technical capabilities have been analysed. For a better understanding of the impact of our findings, Osterwalders Business Model Canvas is used for displaying the elements of the utilities business model who are most affected by a Water Information Platform.

Results/Discussion

The basic function of a Water Information Platform is to collect and link data from different data sources and use this linked data to create and present actionable information to the various end-users. With the use of connected sensors and smart water meters, (near) real-time water usage and status information becomes available. More detailed and real-time information about water consumption and status of the water distribution network could potentially increase the efficiency of a water utility in terms of operational efficiency. Programs yielding for increased operational efficiency are:

- Early leakage detection
- Fraud detection
- Energy efficiency

Understanding the drivers and implications of adopting smart water technologies on the utilities business model, guides the definition of technology selection criteria, implementation strategy and build or buy decisions for a Water Information Platform. The following table shows the possible impact of implementing a Water Information Platform on the individual components of the water utilities business model:

Business Model Component	Impact
Customer Segments	None. Due to the physical infrastructure, customers are not able to switch from water provider.
Value Proposition	• Additional consultancy services on water management can be offered to corporate customers. • With the combined usage information of all their customers, water utilities can start providing personalised recommendations on water spending and usage to their customers. • Larger water utilities can offer water data analysis as a service to smaller water utilities.
Customer Relationship	• A Water Information Platform enables an increase in customer touch points, providing ways to influence consumer behaviour. • Water utilities can provide more detailed water consumption information to their customers.
Channels	None. Water will still be delivered through the water network.
Revenue Streams	• A Water Information System enables flexible pricing mechanisms. • Field trials show that an increased water awareness results in a decrease in water consumption from households, thus less income from the sales of water. • Consultancy services on water management can be offered to corporate customers on time/material basis, generating a new revenue stream. • Water utilities could offer water management as an outsourcing service to corporate customers, generating a new revenue stream. • Smart water technology contributes to the innovative image of a water utility.
Key Activities	• The collection and analysis of detailed water consumption data becomes a key activity.
Key Resources	• The water distribution network will be expanded with the Water Information Platform, connecting the various data sources and creating information services • Smart meters, smart pipes, embedded sensors and valves enable a more fine-grained monitoring of the water distribution network • The water distribution network can be managed more efficiently through the detailed status information. Leakages and other abnormalities are detected in an earlier stage. • Lower energy usage of the water distribution network. • Staff with IT skills is required to operate and maintain the Water Information Platform
Key Partners	• Utilities need to partner with Technology Providers, who deliver the IT-systems necessary for the Water Information Platform • Utilities could partner with other utilities for exchange of information or for providing outsourced water information services.
Cost Structure	• The installation and maintenance of connected sensors and meters will result in higher operational costs. • A Water Information Platform has to be purchased , installed and maintained, either owned or as a service. Service contracts with

> technology providers need to be arranged, increasing the costs of operation.
> - The need for higher skilled personnel will result in higher costs for personnel and training.
> - More efficient water network management results in lower energy costs and a decrease of non-revenue water.
> - A more efficient use of the source (water delivered/water produced) might reduce the need for future investment in intake and production capacity expansion

Conclusions

With the uptake of smart water grids, water utilities are faced with the question if and how these new technology driven services can be deployed within their organisations. Today, adoption of smart water technologies is mainly driven by water conservation programs. Our research shows that having a Water Information Platform could lead to an increased operational efficiency and enables utilities to expand their service portfolio with new, water information related services. However, due to the need for utilities to invest in ICT systems, staff and business processes, each utility has to consider the impact on its business model to determine the right implementation strategy and technology selection in order to maximise return on investment.

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