The 21st Century Water Utility: How to boost operational performance of water utilities by up to 20%?
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Short Abstract
The 21st Century Water Utility Initiative is a powerful and innovative approach to help water utilities assess current operational performance, identify improvement actions and track impact year after year. A unique benchmarking methodology compares metrics which really drive value and adjusts for structural differences, such as size, between utilities. It is coupled with onsite diagnostics to understand root causes of under-performance and identify concrete improvement ideas. Finally, the transformation programme takes into consideration not only the technical aspects, but also the management infrastructure as well as mindsets and behaviours to ensure sustainable change. This highly structured, standardised approach addresses the needs of both small and large utilities. The 16 utilities which have already joined the effort have identified operating cost reductions ranging from 5 to 40 per cent while improving customer satisfaction.

Keywords: Operations; Change management; Transformation; Operational improvement; Water and wastewater utilities; Benchmarking

Introduction
Operational excellence is at the heart of how water and wastewater utilities create value and provide great service to customers. Water utilities face increased cost pressure: While water tariffs are increasingly under political scrutiny, water standards are tightening and raw materials, chemicals and energy costs are increasing.

Our 21st Century Water Utility Initiative helps multi-plant operators quickly assess performance and both design and manage a transformation programme, including answering the following questions:

- How does the performance of each plant and network compare with global peers, taking into account the specifics of my utility?
- How much can I realistically improve my operations by? What are the specific changes I can make to improve my operations?
- How should I set up my transformation programme and track the impact?

The initiative builds on McKinsey’s operational and water industry expertise and has been developed and tested in partnership with leading water utilities, like Veolia Water. To date, 16 leading water operators (see Fig. 1) have joined this effort, such as Aguas de Barcelona, Thames Water and New York City’s DEP. All in all, the benchmark includes more than 160 water and wastewater assets.

This section should provide a brief overview or introduction to the topic area or problem.

Methods
The 21st Century Water Utility Initiative is unique in 3 ways: An innovative
benchmarking, an onsite diagnostic, and a custom-made transformation programme.

First, the Benchmarking differentiates itself from existing approaches because:

- It focuses on what matters, with 150 metrics which drive economic performance and specific enough to identify improvement actions (see Fig. 2)
- It is granular: it compares assets site by site and network by network, unlike many regulatory benchmarks, which provide comparisons at utility level only
- It compares “apples to apples”: It accounts for currency and labour cost differences, normalizes for size effects and clusters by local conditions and technology (see Fig. 3)

Second, the benchmarking is supplemented with onsite visits and interviews to check the validity of the data provided, identify additional improvement opportunities and understand the root causes of underperformance. Together with the utility’s management team we agree concrete improvement ideas. It has resulted in a full library of best practices and improvement levers from around the world such as:

- Water production and distribution: condition-based treatment, portfolio optimization, optimization of leakage detection, repair and support processes
- Sewage networks and wastewater treatment: contractor incentivisation, avoidance of unnecessary visits, condition based management and shift to lower cost sludge processing, including energy recovery (See Fig. 4)
- Customer services: Efficiency gains in support services, contact centre cost reduction and increased revenue collection

Finally, McKinsey helps to prioritize improvement areas and to design a customized transformation programme. We have found that setting a plan to implement improvement actions is far from being sufficient to ensure a successful and sustainable transformation. Two additional components must be included:

- A management infrastructure that supports the effective implementation of the changes, with for example tracking of key performance indicators, visual tools to manage performance and incentive systems that encourage and reward desired behaviours and results
- Adequate mindsets and behaviours: Transformation needs to be a top priority for the organization and communicated as such, top management and shareholders are required to take necessary decisions to enable transformation, and change must be lived "top-down" with management leading by example

Results, Discussion and Conclusions
Interestingly, the benchmark shows no single utility is a consistent top performer across all steps of the value chain and every utility can benefit from best practices in one area or another. Also, there are often bigger differences within one technology cluster than between different technology clusters, which means that the way the utility operates has potentially more impact than a technology choice. Finally, the study shows
improvement potential is huge: typically cost reduction opportunities range from 5 to 40 per cent along the various steps of the water value chain (See Fig. 5).

Over the past 3 years, the approach has proven extremely successful with more than 15 utilities. For example, a major European water utility has reduced its cost by over 20% over the last 4 years (cumulative savings of $185m/ year), while at the same time improving its regulatory performance score by 7% p.a. over the same period, which is witnessed by a 30% decline in customer complaints or reduction in leakage by 30% (See Fig. 6).
Disclosures
The authors have nothing to disclose.