

Vast amounts of resources are wasted in water networks, even with infrastructure spending budget constraints



8.5 billion gallons of water are lost annually in water networks around the world, further stressing water scarce regions



>20% of all clean water treated and pumped into the distribution system is lost via leakage before reaching the end consumer, leading to ~\$10B in wasted opex



A reduction of 5% in leakage plus 10% reduction in bursts could save the industry \$4.5 billion/yr



Employing Dynamic Asset Management tools could save a further \$5.2 billion/yr

Introduction to Sensus

- **Supplier of intelligent solutions for water, gas and electricity utilities**
- **80 million endpoints working today worldwide**
- **>12 million Smart Endpoints already deployed**
- **Active in 45 countries**



Independent Global Survey

- **During the summer Sensus commissioned an independent global survey of 300 water utilities.**
- **Carried out by a 3rd party with no incentives for respondents to reply.**
- **Replies were screened for level and role**
- **182 responses (60%) means this is a real area of concern and interest to the industry.**
- **We will be publishing the findings of this survey shortly along with analysis in a white paper.**

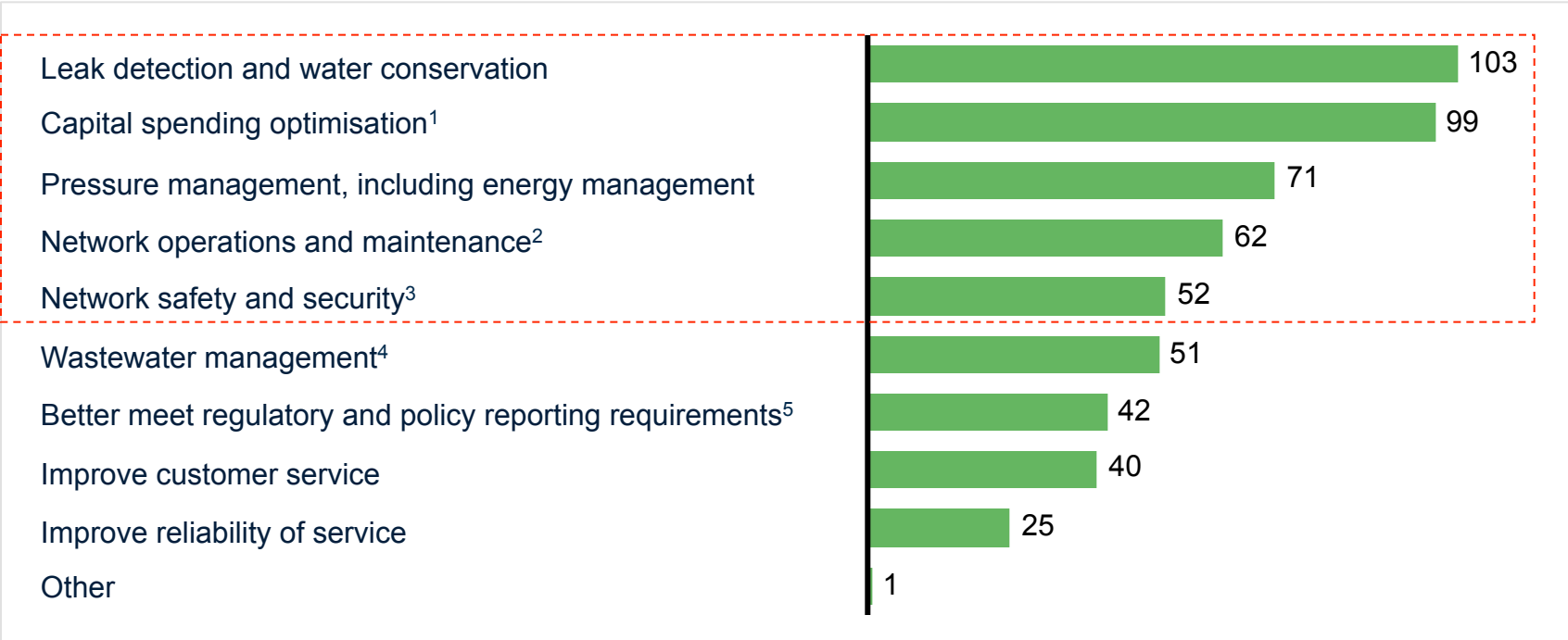
Leakage & pressure management and capital spending optimisation emerged as the biggest opportunities to improve utility performance

Percent of respondents

Total N=182

Q11. Where do you think the biggest opportunity to improve the performance of your utility is?

Number of times selected as the first, second or third most important opportunity



1 E.g., using information to prioritize underground large scale capital investments such as pipe replacement or repairs or expanding and building sewers

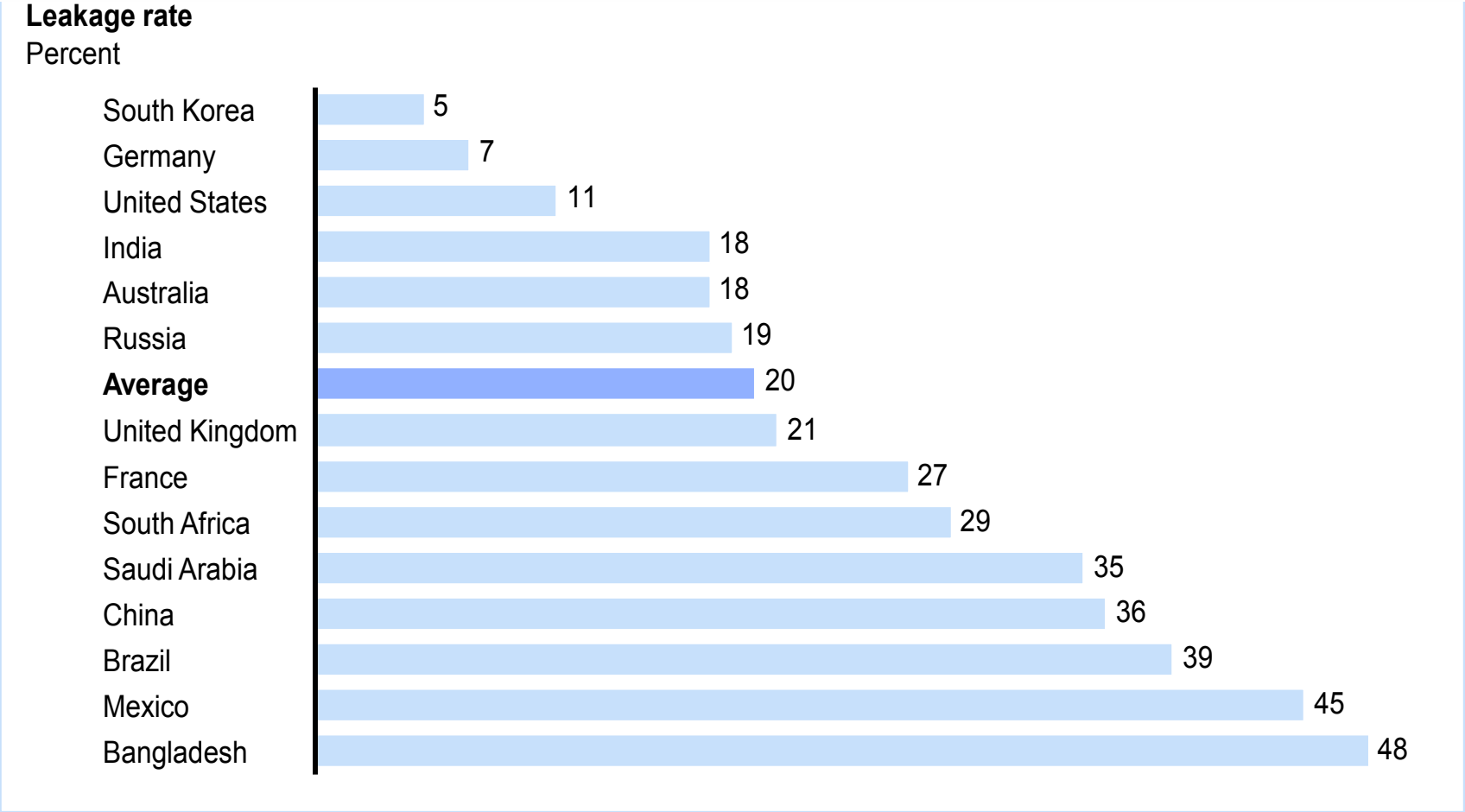
2 E.g., real-time monitoring of pumps to optimize maintenance, better work order management

3 E.g., automated water quality sampling in the network

4 E.g., better information on wastewater networks and direct discharge to the environment

5 E.g., water quality, water economics and pricing, as well as water volume/ wastage/scarcity

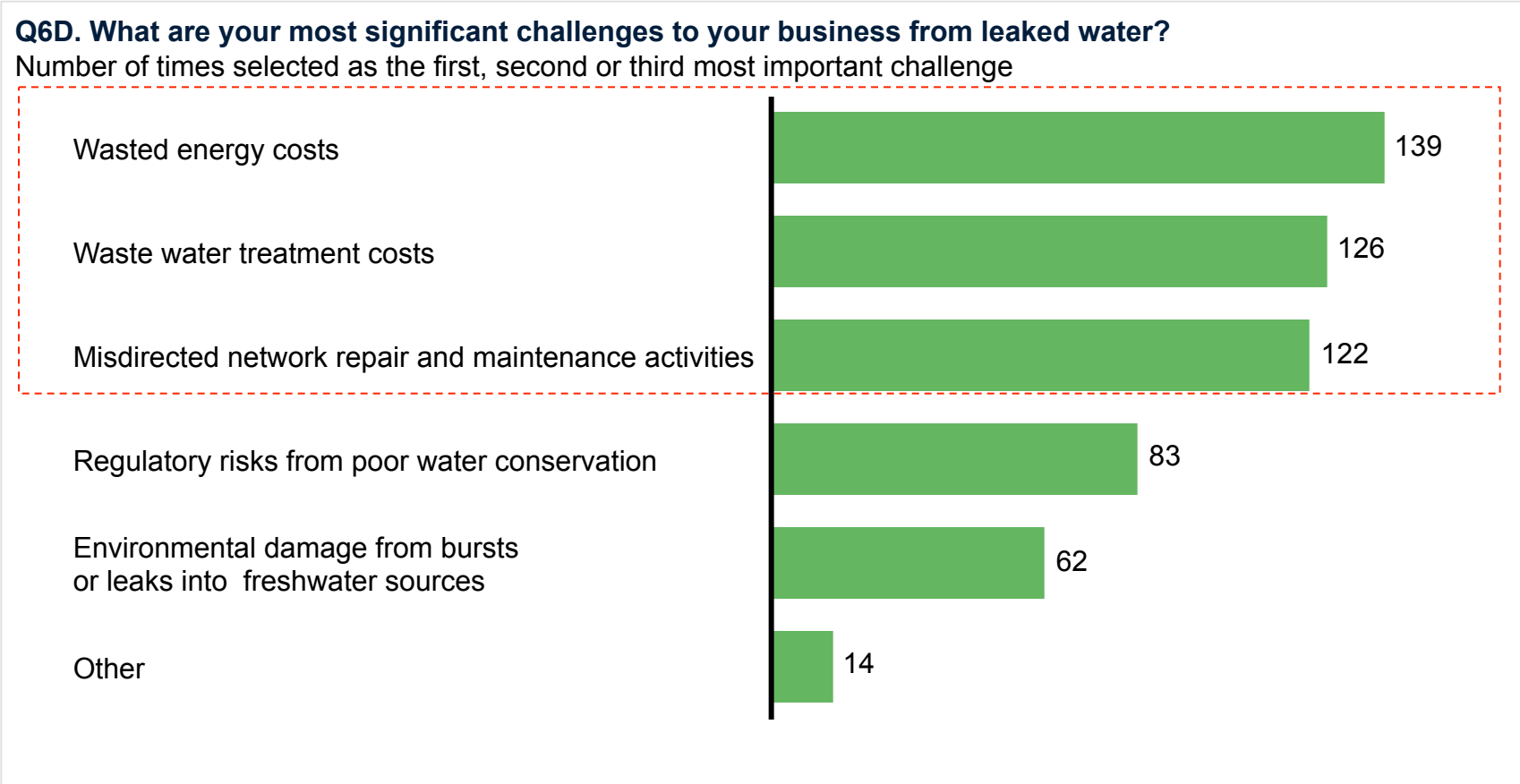
Leakage is an industry and global-wide issue.



Source: GrowingBlue, "Water. Economics. Life." pp. 22-30, available at <http://growingblue.com/wp-content/uploads/2011/04/Growing-Blue.pdf>. Average based on country-level leakage percentage estimates weighted by water opex spending by country.

Economic drivers – wasted energy, waste water treatment and misdirected repair costs – picked as most significant challenge for network leakage

Total N=182



What is a Smart Water Network

A smart water network is a fully integrated set of products, solutions and systems that enable water utilities to:

- Remotely and continuously monitor and diagnose problems, preemptively prioritise and manage maintenance issues and remotely control and optimise all aspects of the water distribution network using data-driven insights
- Comply transparently and confidently with regulatory and policy requirements on water quality and conservation
- Provide water customers with the information and tools they need to make informed choices about their behaviours and water usage patterns

Smart Water – generating insights from data – can enable utilities to address these challenges

Smart network management

Leakage & pressure mgmt.

- Reduction in leakage levels by precise detection of leaks, predictive modeling to estimate potential future leaks, proactive network maintenance (e.g., pressure management to minimize bursts)

Capital allocation optimisation

- Improved dynamic assessment, maintenance, replacement, planning, and design of network to optimize spending on infrastructure needs

Automated water quality monitoring

- Automatic water sampling, testing, and quality monitoring; reduction in costs from labor and truck rolls for manual sample collection

Network repairs and maintenance

- Real-time, automated valve / pump shutoff to facilitate repairs, installation, flow redirection, and shutoffs for delinquent customers
- Better data-driven workflow planning



Smart metering : Enabling better revenue protection (by identifying undercounting, theft), better cash flow management, reducing customer service costs, and improving customer satisfaction

Utilities expressed a strong desire to move toward near real-time data

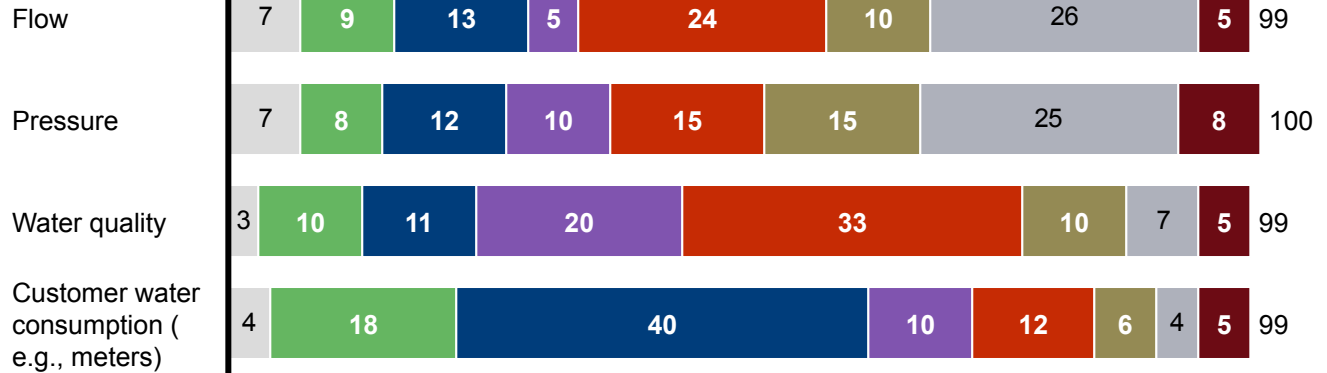
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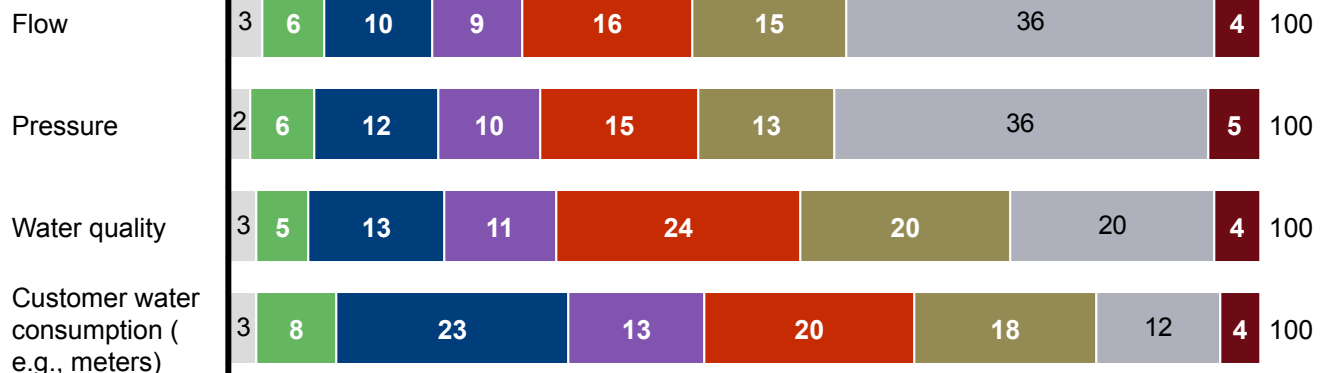
Current state

Q14A. How frequently do you measure the following factors in the distribution part of your network?

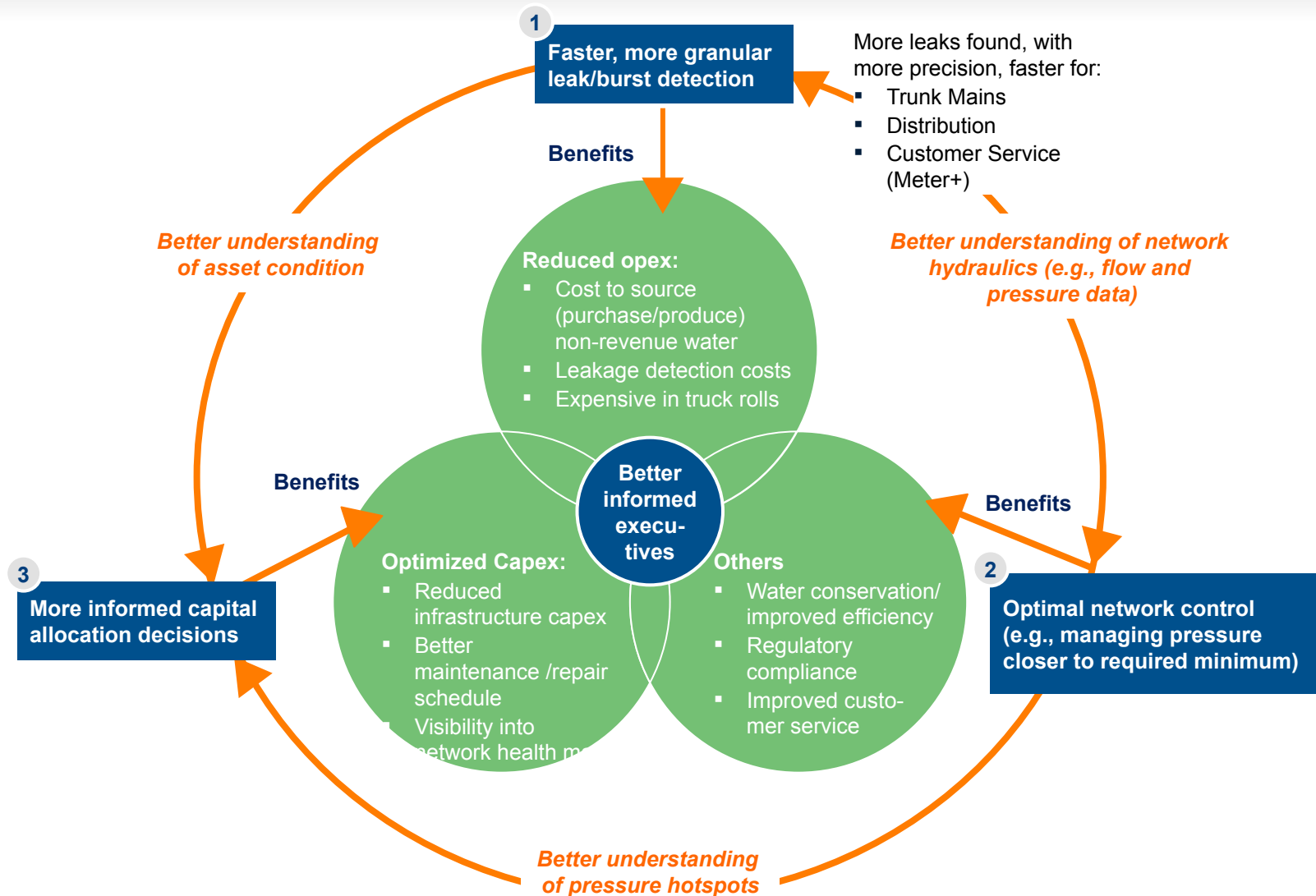


Future state

Q14B. How frequently would you like to measure the following factors in the distribution part of your network in the future?



To realise full savings, Smart Water must address the three key areas identified by utilities with an integrated end-to-end solution



An integrated end-to-end Smart Water solution knits together many pieces

Physical infrastructure (e.g., pumps, pipes, valves)

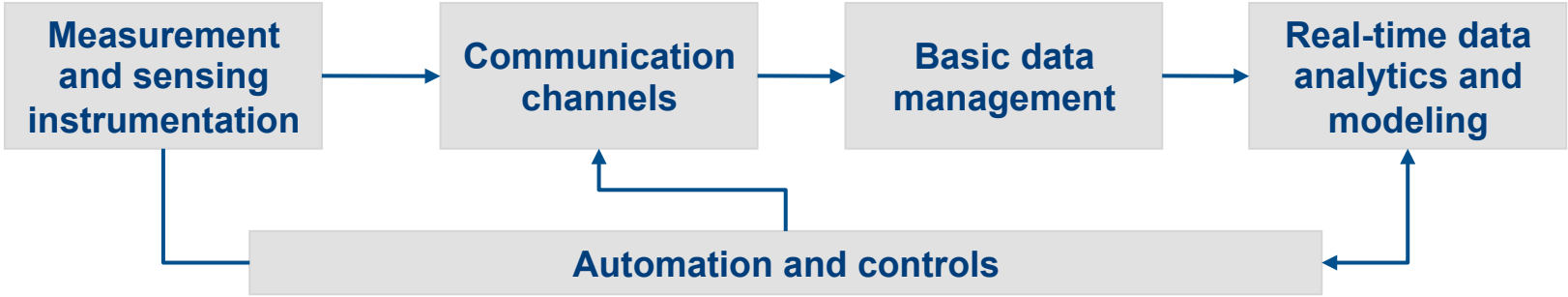
Monitoring of flow (volume, pressure, temperature), quality (effluent, chemicals and contaminants, chlorine, pH), acoustics (leak detection), supply (reservoir water level)

Software and services (e.g., data infrastructure and hardware, software, professional and managed services)

Data communication infrastructure (e.g. two-way radios, cellular networks)

Data hosting and storage, basic data accessibility and display (e.g. interface to access consumption data), network visualisation and GIS/schematic tools, cyber security

Senior management dashboard; tools for pattern detection, predictive modeling, and data-driven decision support (e.g. energy, leakage, assets, water supply and pricing, capex, labour)



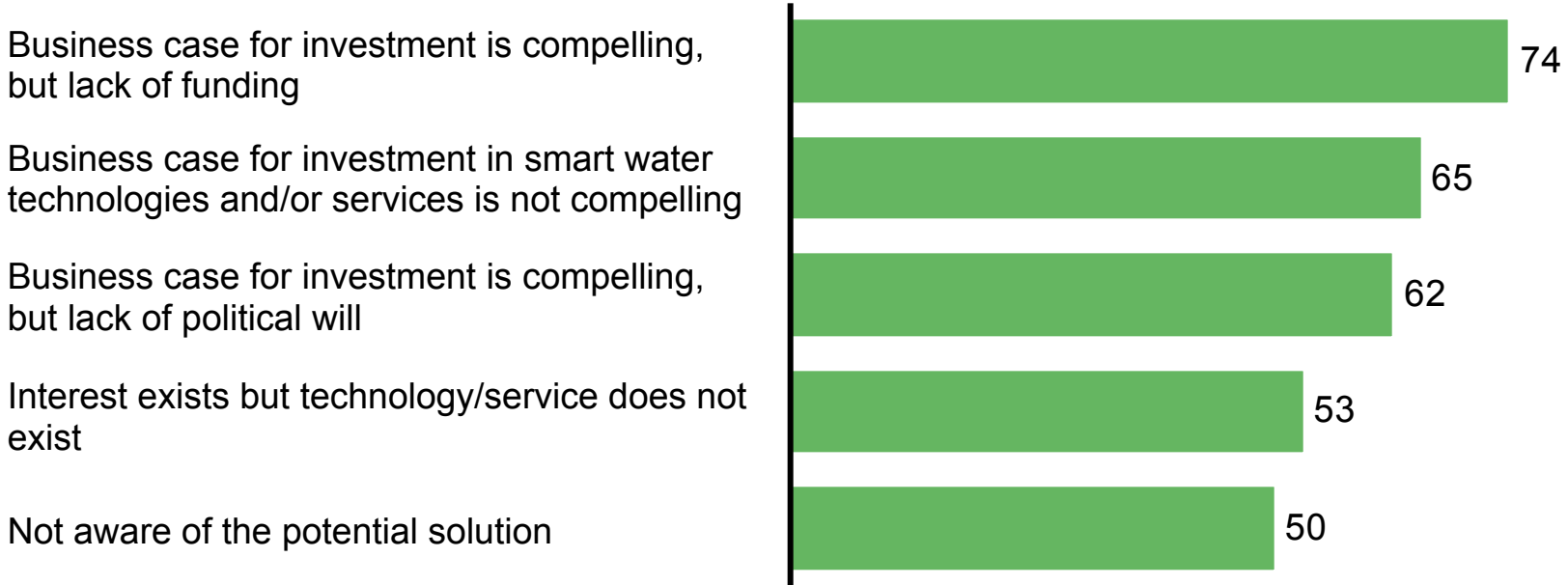
Automated physical network infrastructure (e.g. pumps and valves) and software to manage pressure, quality, flow, shutoff, etc.

Lack of business case, funding, and political will are three major reasons for lack of Smart Water adoption

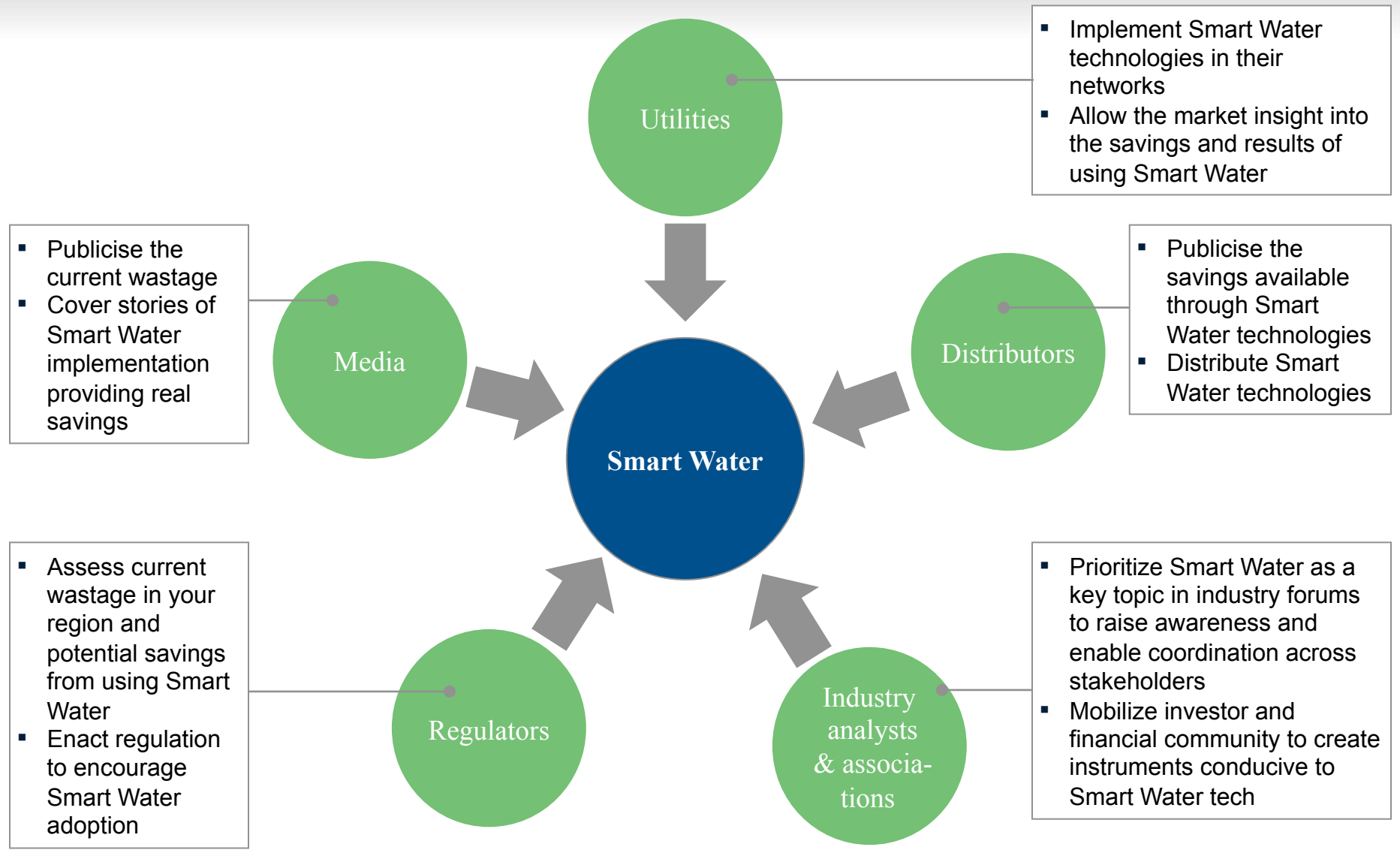
What are the major factors that prevent you from adopting these smart water technologies and/or services?

Percent of respondents who answered 'very significant' or 'significant'

Total N=182



All stakeholders need to act in tandem to fulfill a Smart Water vision





Thank You

