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Transmission Pipelines Monitoring

Solutions Overview

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The Need for Active Monitoring

Aiming for the low-hanging fruits

Water loss is an indicator of poor performance in water systems. Conventional operations are inefficient, and ad-hoc solutions fail to satisfy utilities' needs. The results are compromised feasibility and low quality of service. This should be the trigger for initiating an active leakage control program.

However, a leak-free network is not an achievable objective. So let's start solving the problem by looking at the low-hanging fruit.

In water networks the low-hanging fruit is leaks in transmission pipelines. Unlike water distribution networks, transmission pipelines are easier to monitor as their topology is not as complicated. Water losses through transmission pipes typically occur in large quantities. This means that utilities can easily monitor those pipelines and fix leaks while gaining huge savings by cutting down losses.

What Are Transmission Pipelines?

When trying to solve a problem, look for the root causes and start with the low-hanging fruit! For water utilities, the root causes of inefficiency and financial losses would be water leaks, and the low-hanging fruit is typically transmission pipelines!

Put simply: transmission pipelines are those BIG pipes conveying water from the source (e.g. water well or treatment plant) all the way to the main reservoir or the water distribution network.

Transmission pipelines are the backbone of the water supply system. Any failure or mismanagement can potentially cause drastic results on the infrastructure system and the quality of service. Take high water pressure for example - it deteriorates water pipes and causes damages to the network equipment, in addition to increased cracks and punctures in the pipe. These adverse effects can be avoided through proper operations and educated decisions.

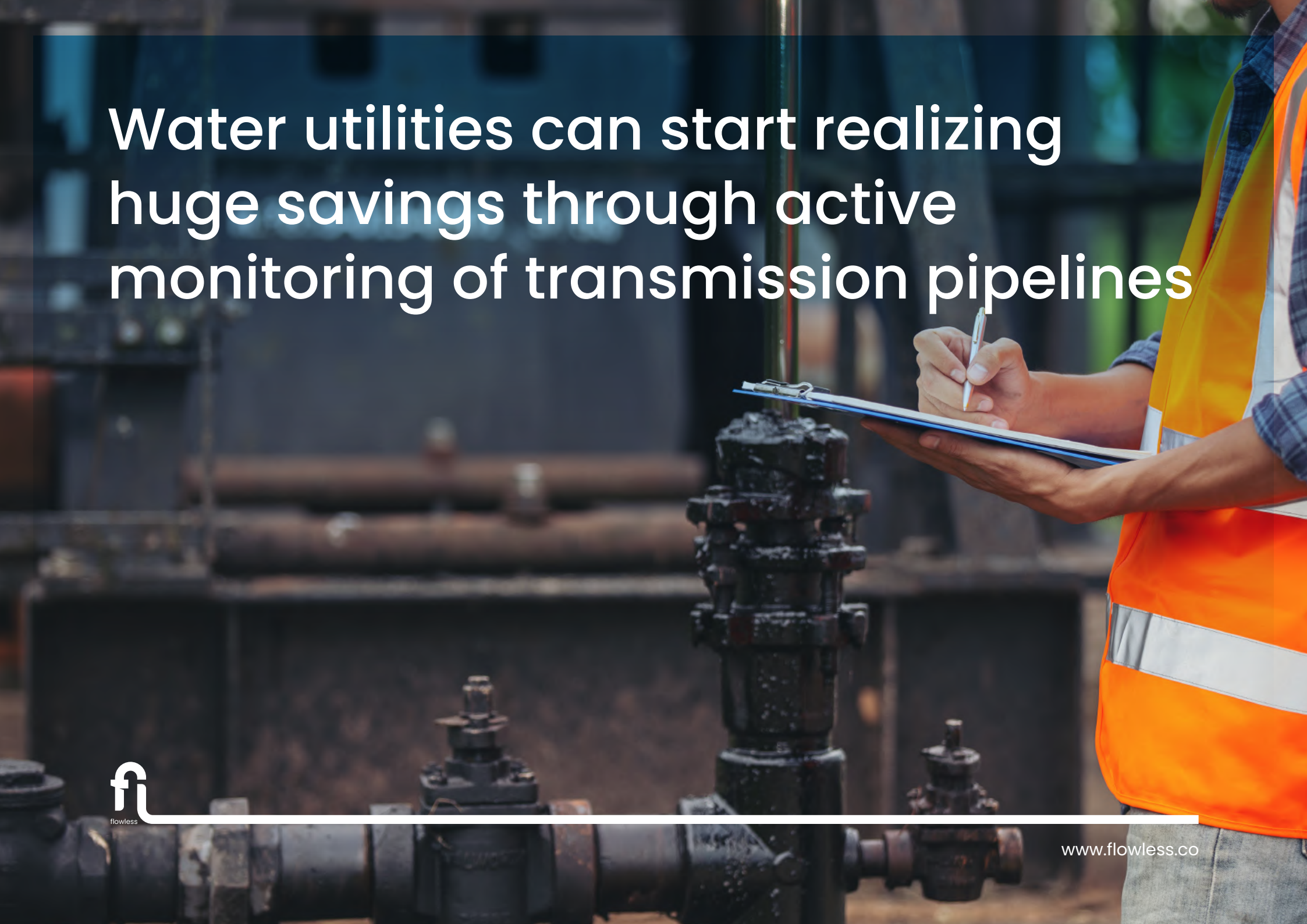
Why You Should Care About Water Losses?

Water system failures result in billions of liters of water losses, which wastes water, causes damage to the infrastructure, and disrupts adequate water supply.

The early detection of these failures helps in reducing water loss! Monitoring is the first step to start with. Problems and issues always emerge in the water system. The best practice is to deal with these issues as soon as they emerge. This cannot be achieved without active monitoring through a smart data collection system.

Water utilities invest considerable efforts in reducing water losses and improving services by detecting and fixing pipe failures. Manual handling and analysis of the collected data introduces additional load on human resources, which can be invested more wisely if the analysis is carried out automatically.

Water utilities can start realizing huge savings through active monitoring of transmission pipelines



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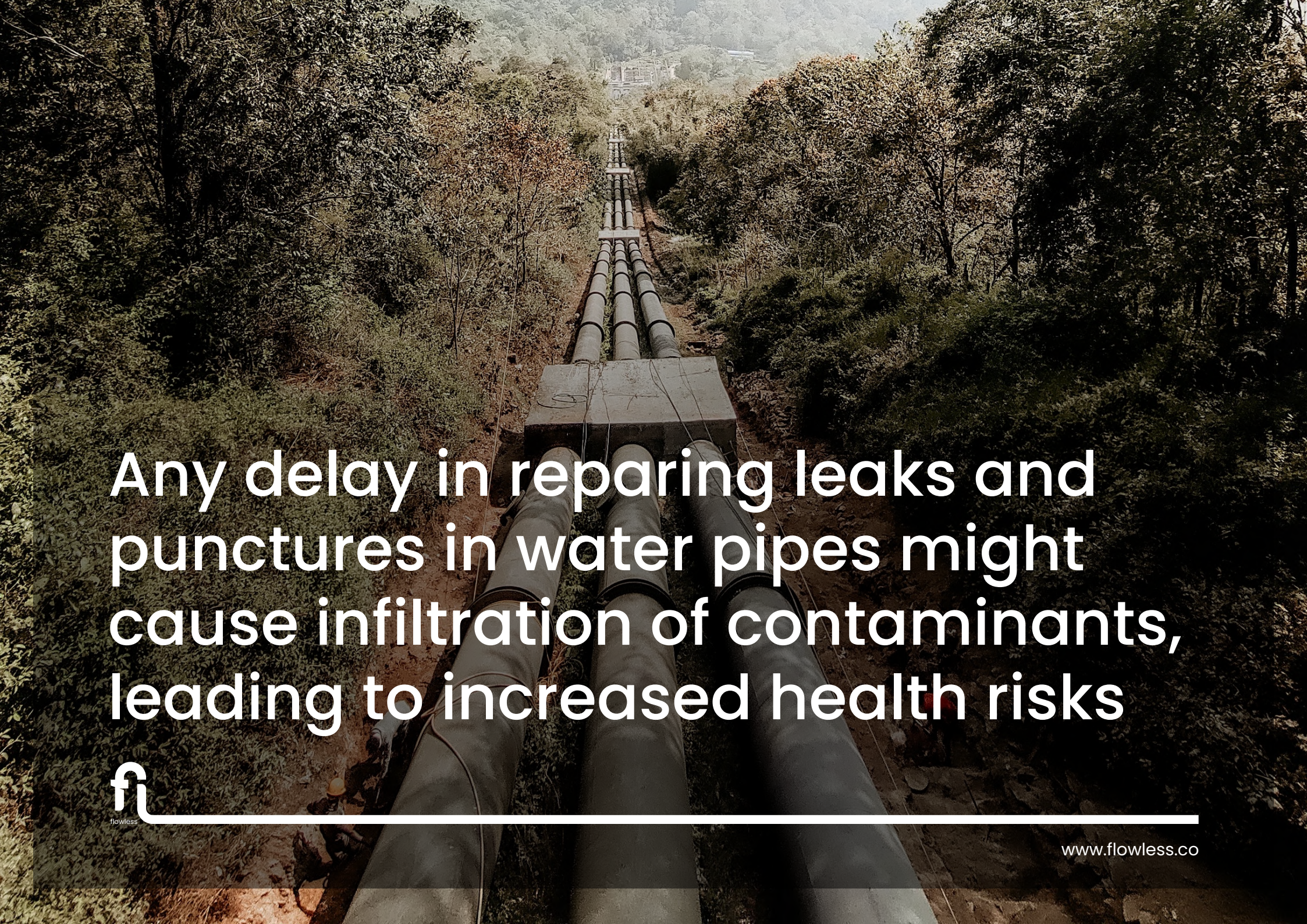
What Happens If You Don't Employ Active Management?

Active leakage control is vital for cost-effective and efficient operations management. Active management starts with monitoring transmission pipelines to proactively detect emerging issues like leaks, prioritize actions, and improve operations.

The quicker the operator can analyze the collected data, the quicker bursts or leaks can be located. This, together with fast repair, limits the total volume of water lost.

Continuous follow up is the basis for practical management approach to reduce water loss. Any delay in resolving emerging issues would lead to waste in water and energy resources.


Any delay in reparing leaks and punctures in water pipes might cause infiltration of contaminants, leading to increased health risks
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Spotting Water Leaks

Detecting leaks & rapairing faults!

Pipes are buried underground, which means it's impossible to visually determine the location of cracks in the pipelines unless water reaches the surface, and the exact location might still be unclear.

Leak detection requires special technologies that allow inspectors to precisely determine the location and severity of pipeline leaks. Emerging technology can help in making this process easier.

Flowless system helps in detecting leaks in water networks by monitoring sensitive parameters, including water flow, tank levels, pressure, and pumps statu. This contributes to reducing water losses, operational costs, and energy consumption.

Smart Monitoring is The Key

And monitoring can save loads of money

Active monitoring for transmission pipelines is an essential part of water supply management. Flowless system collects real-time data from measurement stations along the pipeline, including pressure & flow data. Flowless web platform provides automated interpretations on the status of water flow through the pipelines, including analytics for water losses detection, incidents prediction, & effective management.

A smart monitoring system helps water utilities in automating the process of data collection. Utilities can utilize this approach and start saving money and resources through simple yet powerful measures. Take pressure management as an example. Managing water pressure helps in increasining pipelines lifetime while improving the quality of service. Also, leak flow rates increase as pressure increases, which means that pressure management can potentially reduce water losses.

How Real-Time Analytics Help?

Water lost through leaks, overflows, or illegal water connections is referred to as "non-revenue water". Non-revenue water never reaches the consumer as it is lost on the way through the pipelines.

Water losses are amplified when leaks continue to run over long periods of time, resulting in significant financial losses even from minor leaks.

There are ways to spot faults and leaks as soon as they happen. It's done through a combination of remote monitoring & smart analytics using artificial intelligence. Utilizing smart technology helps utilities to:

- Detect problems as soon as they emerge and thus minimize water losses
- and get early alerts on faulty equipment to prevent unplanned downtime
- while minimizing labor costs and increasing equipment lifetime

Flowless system collects Real-time data from the field & provides analytics for improved operations

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Pumps Management

Flowless unique data-driven approach helps in optimizing water supply operations, including water pumping, leading to a significant decrease in energy consumption while still meeting water demands.

Flowless web platform enables network operators to automate water pumping to optimize operations and provide a more reliable water supply. Pump operations could be automated based on preset schedules, where the operator specifies working hours for each pump.

Even better, pumping could be fully automated to adapt to the demand. In this case, the speed & operations of pumps are based on field feedback from sensors & water meters. When water consumers demand more water, the system detects the change in water demand through data collected from flow meters distributed in the network. Flowless smart algorithms analyze the collected data and control pumps' speed to match the demand.

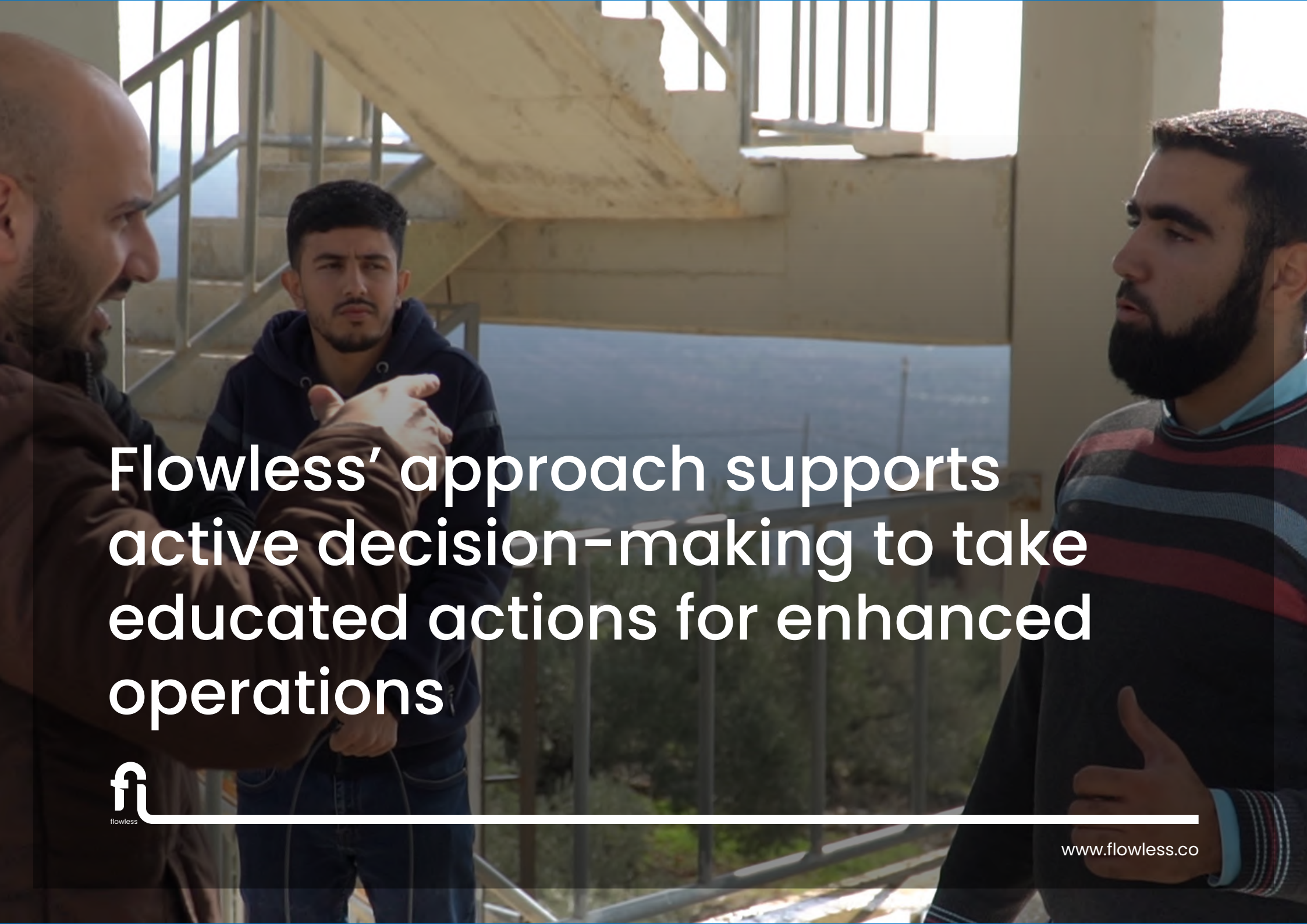
Shifting monitoring & operations to remote automated procedures helps in reducing operational costs

Flowless Approach

Smart tech for adaptable management!

Flowless helps water utilities in optimizing operations for transmission pipelines, utilizing advanced technology for improved service and resilient infrastructure. The advanced technology we utilize for continuous real-time data collection from water pipelines to improve performance, whilst data analytics methods provide mitigation plans for future incidents.

Flowless smart network management system helps water utilities in taking active decisions to enhance water network operations. Flowless web platform uses AI to analyze flow and pressure data collected from the field, then provides accurate insights on the location and quantities of leaks in the network. Network operators can use these analytics to pinpoint leaks and fix them, reducing water losses and saving energy.



Flowless' approach supports active decision-making to take educated actions for enhanced operations

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System Benefits

1. **Remote Monitoring & Control Automation:** leveraging remote operations, including pumps control.

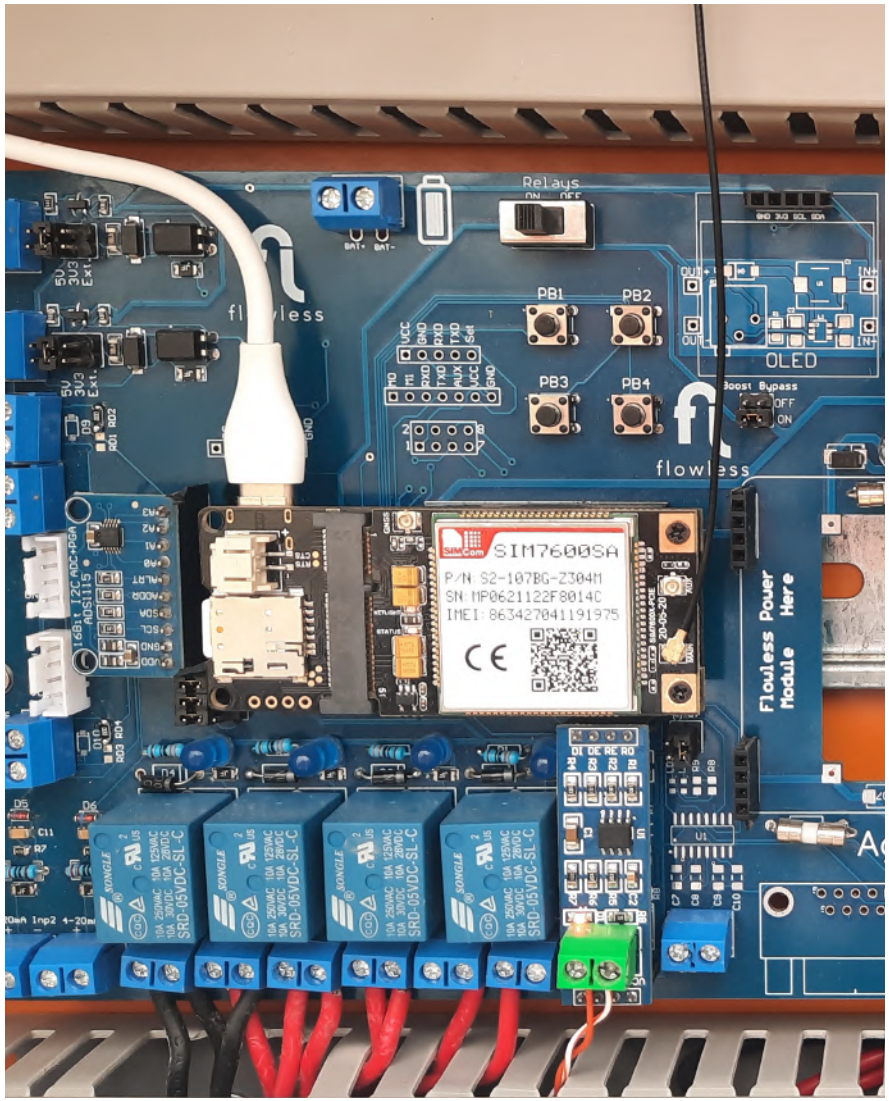
2. **Operation Optimization:** automatic optimization of water supply based on flow and consumption data.

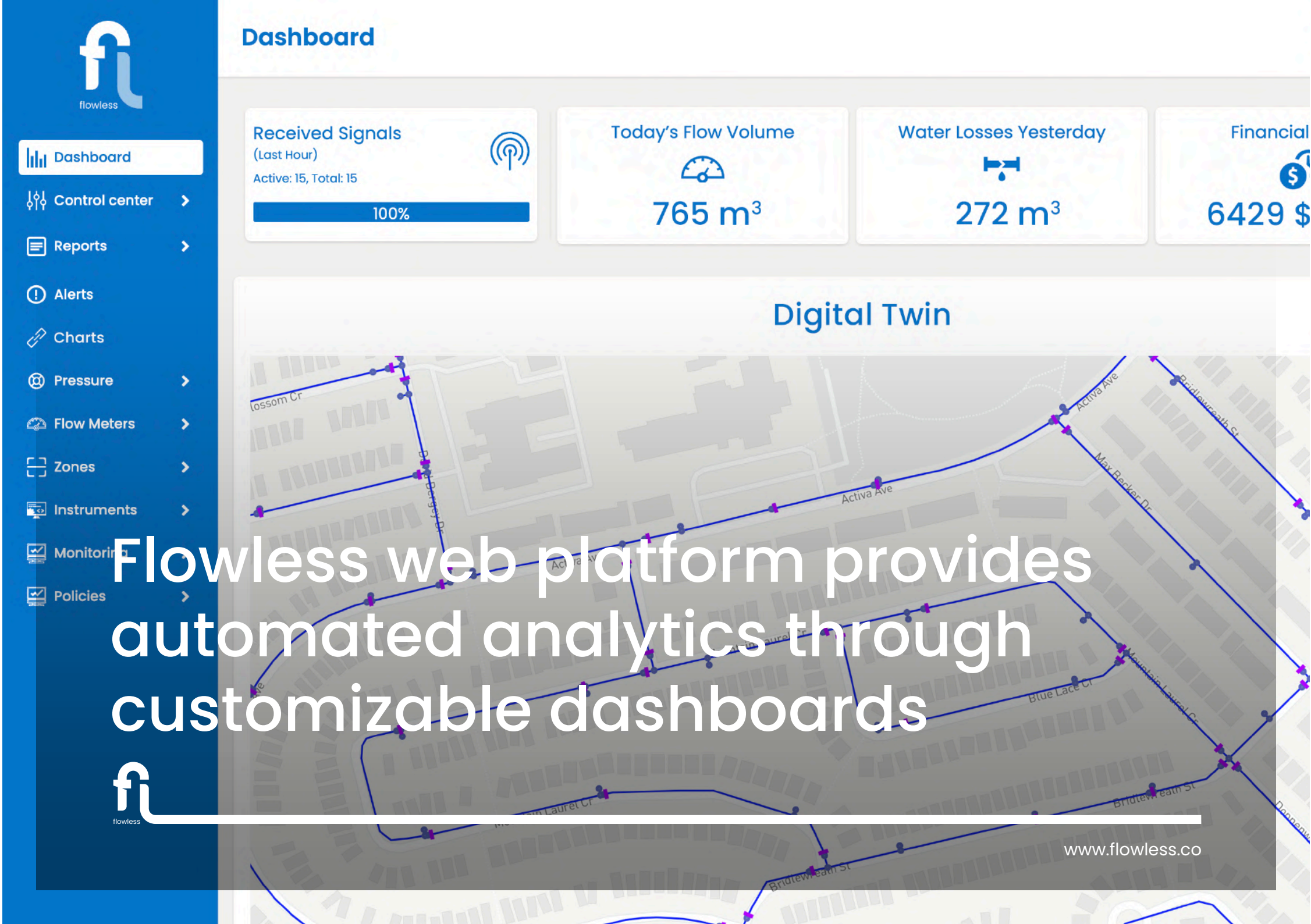
3. **Smart Analytics:** automated interpretations to keep track of any new incidents in the network.

4. **Accurate and Precise Leak Detection:** utilizing artificial intelligence to automatically pinpoint leaks.

5. **Automatic Reporting and Alarms System:** highly customizable reports are generated automatically with minimum human intervention to meet the user needs. Reports include daily and monthly flow tracking, leakage reports, etc.

6. **System Flexibility:** the system is highly flexible and could be upgraded to monitor more network variables like water quality.

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Dashboard
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Alerts
Charts
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Flow Meters
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100%
Today's Flow Volume
765 m³
Water Losses Yesterday
272 m³
Financial
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Digital Twin
Activa Ave
Blue Lace Cr
Bridlewreath St
Flowless web platform provides automated analytics through customizable dashboards
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Our Impact

Flowless system generates social & environmental impact through:

1. **Financial Feasibility**: Flowless system helps system operators automate processes, saving time & reducing human interventions needed in operations.

2. **Losses Reduction**: Flowless automatic leak detection helps in quantifying water losses and eventually saving water and energy.

3. **Enhanced Operations**: Improved water system operations through Flowless' data-driven analysis and automated control of pumps based on field data and actual measured demand.

4. **Improvements Insights**: The holistic analysis of the network and accurate reporting inspire future improvement and investment plans.

5. **Environmental Impact Reduction**: Flowless solutions aim at promoting water resources sustainability by contributing to reducing water depletion.

Want to get more details on Flowless offerings? Request a demo today!

info@flowless.co

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Thank you!

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