DIGITISATION OF THE ENVIRONMENTAL ENGINEERING DEPARTMENT

Lillestrøm municipality

info tiles®

Microsoft

Lillestrøm kommune

When Lillestrøm municipality decided to digitise the environmental engineering department, it wasn't just the Municipality State Reporting (KOSTRA) that took considerably less time. Daily operations and maintenance have become more sustainable, aided by the InfoTiles solution that provides real-time information and analysis directly to a tablet in the field.

The project started in 2018 and the aim was to collect real-time data from various sources, such as IoT sensors, control systems and internal IT systems to be able to analyse environmental and operational relationship across multiple sources. The developed solution is flexible, fully scalable, and due to its SaaS nature, is easily reusable in other municipalities both in Norway and internationally.

Data from several systems combined into one solution

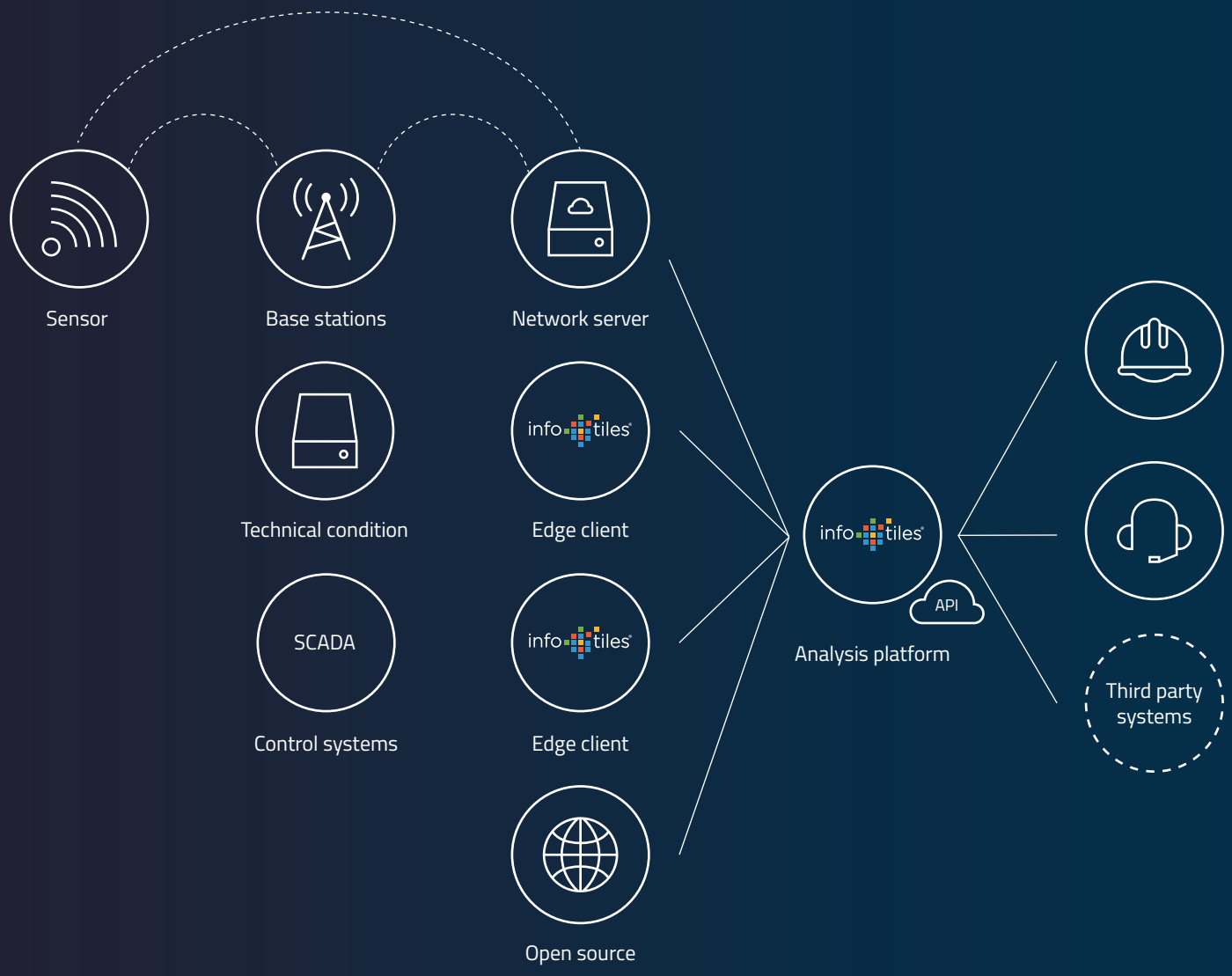
The common aim of the different goals was to optimise operations and maintenance, safety, and sustainability. By harvesting the huge volume of data from the various sources Lillestrøm municipality has today, they get new insights that were simply not available before. Deviations and malfunctions can be detected and corrected faster than before. Today, more than 600,000 message are streamed to the solution daily. Data collected comes from both Lillestrøm owned systems and sensors, and open sources such as the Norwegian Water Resources and Energy Directorate (NVE).

The project has several objectives

- Monitor the extent, location and cause of overflows from the wastewater grid to proactively plan countermeasures.
- Optimise emptying operating routines / rinsing / cleaning.
- Map the extent of any pollutants.
- Extended monitoring and volume estimate of all overflows.
- Continuous monitoring of gases in the sewer system.
- Monitoring of water pressure zones with a focus on consumption and deviations.
- Link the monitoring to laboratory water samples taken regularly.
- Link monitoring to maintenance, events and technical characteristics of piping in the ground.

A conceptual solution architecture

The InfoTiles solution is a complete 'single pane of glass' portal with the streaming platform and BI solution consuming and displaying data from IoT sensors, specialist systems, SCADA systems and files. Both 'smart' systems that can stream send data themselves, and legacy systems that do not have built-in functionality to stream data themselves can be integrated into the solution.



The solution is tailored to the need of the users.

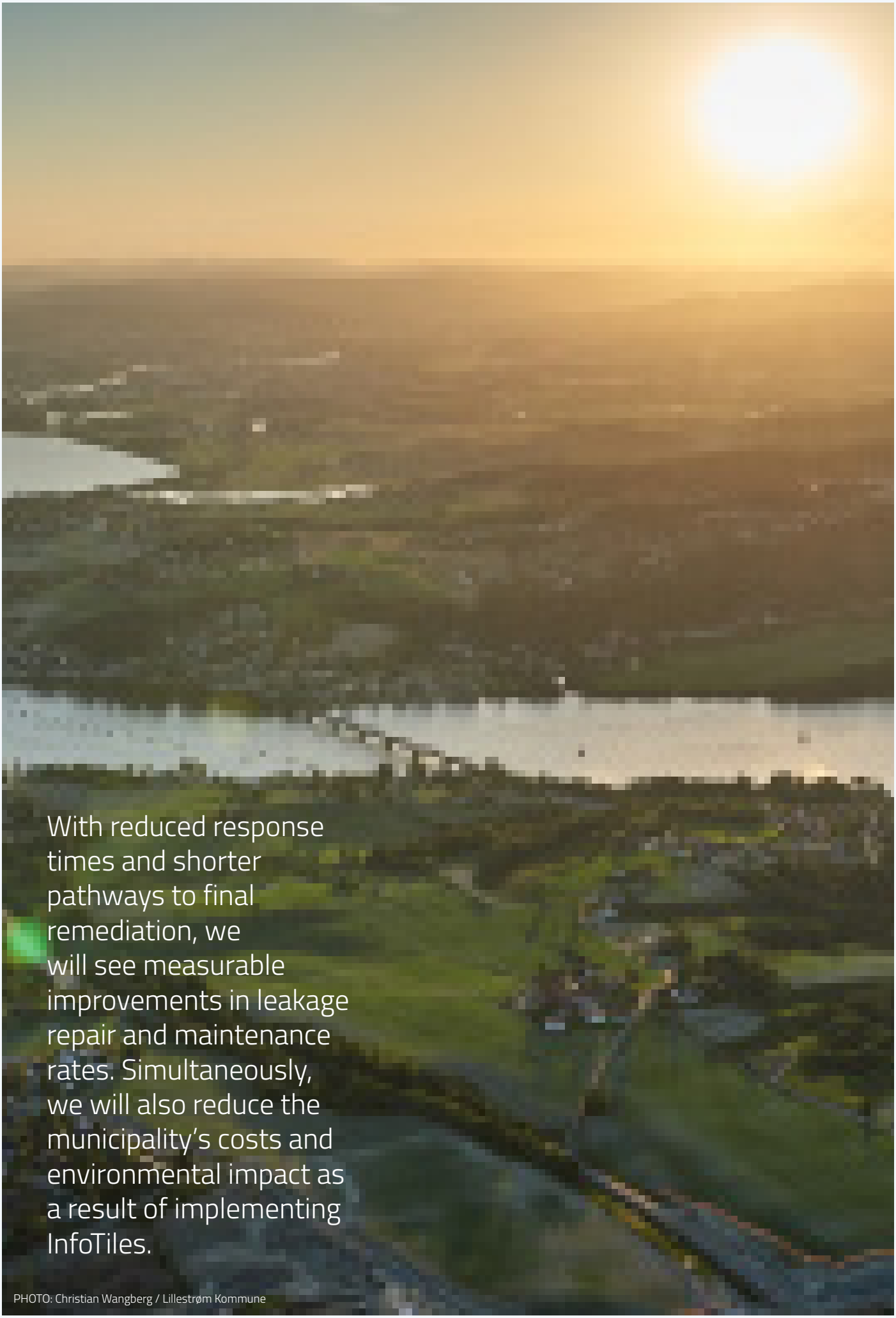
PHOTO: Christian Wangberg / Lillestrøm Kommune

Optimised user functionality

Several users can be set up in the solution with access to different data. This enables the different departments and users to easily access the information that is most relevant to them. In addition, the solution is available on iPad, so field technicians do not need to check information in the office before heading out to the field.

The implementation is tailored to the needs of the users, and for Lillestrøm it was configured with functionality including dashboard and analysis screens, CSV import, data export via API, Azure AD authentication and security architecture, device management, and automatic classification of equipment and sensors into zones, to name a few.

The solution is currently being used by Miljøteknikk, the technical department for water, in Lillestrøm municipality. Training in the solution for superusers, office users and operational users with an asset management focus across the entire value chain was included in the project to maximise adoption and create value.



With reduced response times and shorter pathways to final remediation, we will see measurable improvements in leakage repair and maintenance rates. Simultaneously, we will also reduce the municipality's costs and environmental impact as a result of implementing InfoTiles.

PHOTO: Christian Wangberg / Lillestrøm Kommune

A key advantage of being able to differentiate between users in InfoTiles is our ability to make the right information and insights available to the right person, at the right time, without overloading them with unnecessary data. For example, office users have access to real-time analysis in the solution and the option to set up dashboards. While users with VA operational positions have more focus on pre-prepared dashboards displaying data from SCADA, Gemini VA, and tasks previously performed in MapGraph. In addition, shortcuts have been set up on the iPad for easy access in the field to key metrics such as water levels, pumping station status and asset management analysis.

Expert users can retrieve data from new external and emerging sources, upon which they can build visualisations and analytics.

High value

Combining historical and real-time data from multiple sources and transforming the results means InfoTiles provides meaningful insights to customers at a point in time when it can be used to affect outcomes. Used well, this reduces the time from discovery that an issue exists, through to locating the issue, dispatching remediation teams and ultimately restoring service. Gone are the days when an engineer must extract data from multiple different systems and manually connect the dots to build a picture of what is happening on a remote site. This benefit extends to helping professionals predict the future course of flooding when combining analysis of precipitation and current water levels.

With InfoTiles helping to shorten response and repair times, municipalities can benefit from a measurable reduction to leakage volume and wasted resources. This has flow-on effects to reduce financial costs and environmental impact.

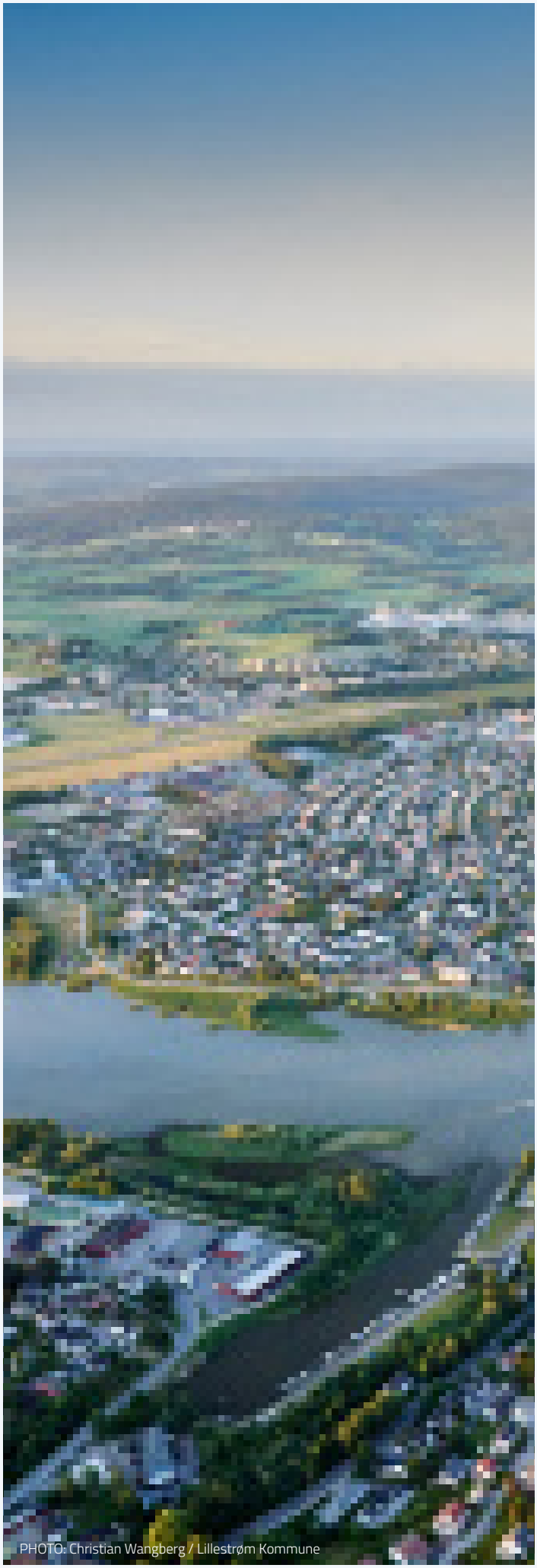


PHOTO: Christian Wangberg / Lillestrøm Kommune

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