PRODUCT SHEET

A shortcut to effective environmental management

With real-time analysis of data from various sources, the complete picture is always up to date. This means that situations can be proactively resolved before problems arise.

info tiles®

Microsoft   Lillestrøm kommune

Our goal is to offer forward-looking services. We do so without side-lining existing solutions or reinventing the wheel. That is why we support and reuse a broad range of data sources that the municipality or the company have already established. The solution is ready for delivery and easy to use.

Support for hundreds of data sources

InfoTiles has extensive experience in water and wastewater, hydropower, floods and emergency preparedness across analysis, specialist systems, operations, monitoring, mapping, and modelling. Our employees also have extensive experience with measurement techniques and leak detection, from traditional ground acoustic analysis to correlator equipment for leakage mapping with satellite imagery. Through previous experience gained from within the municipal water and sewerage agency, we have good knowledge of the software used, both in terms of opportunities and limitations in functionality.

InfoTiles' solution already has support for hundreds of different data sources, including national datasets in Norway, SCADA systems and IoT sensors (Axioma and Aurora water meters, Libelum, Decentlab, Vicotee, Leapcraft and many more).

In continous development

The solution is continuously under development and is regularly expanded with new methods, sensors and data sources. Integration towards more data sources to improve precision and functionality can be arranged upon request. This can be data sources such as SCADA system, line mapping or zone water meters through third parties. It is also possible to integrate maps, population data and other municipal computer systems.

Functionality

- Automated user management through the customer's existing setup (Azure AD).

- Users can configure individual dashboards as needed.

- Consumption and leaks can be understood in real-time. Access can be granted to necessary data sources by different hierarchies such as meter, zone, zone supply from SCADA, house type and population information, anonymised in accordance with GDPR.

- All settlements are made in real-time, and historical analysis or with modified filters can be made as needed.

- Regular analysis can be stored and exported for further processing in other tools if desired, for example, Microsoft Excel.

- Alarms from water meters can be processed visually or automatically forwarded to third parties through webhook, SMS or e-mail.

- REST API support for automated delivery, or collection of data from the customer when needed.

- Encryption keys for API and access control is controlled by the customer.

- All data is the customer's property, and access to data at all levels is controlled by the customers Azure AD.

- The customer can delegate access to suppliers if desired.

– The solution gives us a new insight into data we already have, and we can see connections we have not seen before. For us, it saves a lot of resources.

Asgeir Hagen,
engineer in environmental engineering in Lillestrøm municipality

Maintain historical data from SCADA systems for future use.

Supervisory control and data acquisition (SCADA) is used for immediate monitoring and management but does not safeguard historical data over time. InfoTiles' solution enables learning from historical data and creates the opportunity to plan for the future. The solution reads data from SCADA without compromising security and stores the information with timestamps. This enables us to understand the present, and over time learn how to give automatic alerts. Data can be connected with other real-time information, such as sensors and weather information.

Support for Geographical Information system (GIS)

Geographic Information Systems are currently used actively in planning work, information services, management and subject-specific systems. InfoTiles supports the dominant systems in Norway, with advanced experience with software from Esri (ArcMap) and Gemini VA. This includes ready-made tools to link wiring information, SCADA, and sensors maps saving time and enabling better decisions.

Collect existing measurements

There are many different solutions for data capture already in use, but they exist in separate silos. Last Mile Communication, Scanmatic, ABB, Xepto and Rosim are some examples of suppliers who have solutions for measuring water-related information such as water flow, precipitation, temperature, overflow and foreign water. InfoTiles ingests all this data, regardless of the carrier such as radio, GPRS, 4G or modern Variations like LoRa, Zigbee and NB-IoT. All sources can be ingested and used within InfoTiles.

Use open data sources for weather integration

The solution uses locally sourced data, which includes detailed weather and weather information notification. InfoTiles retrieves local weather data and connects it to other data in real-time, for example, rainfall and load on overflows and pumping stations. Within the system, we can retrieve weather forecasts, water condition (drought, groundwater, water capacity in the ground) and warning (flood and landslide) for the coming days, and connect this to local events. By managing and preserving historical data, these methods become more accurate over time.

Extended monitoring provides good models

Modelling of floods, surface water and wiring is becoming more common. Dedicated people are using programs that require special competencies and delivering results that must be interpreted or reshaped before they can be used by others. Traditionally, these activities have been calibrated against limited data or temporary monitoring. By understanding the tools, methods, needs and software we can gather all data regardless of origin, and assist with the presentation of data for analysis and sharing. Extended monitoring improves the accuracy and quality of models over time.

# Sensors combined with weather data provide good forecasts

The information needed to get a holistic overview is usually spread over several systems. In SCADA you can find the condition of pumping stations and overflow. Professional systems for wiring explain the connection, and the weather forecast is available online or in third-party systems. When everything is compiled in real-time it becomes easier to act quickly and correctly.

By knowing the current state and the weather forecast one can forecast local effects. If necessary, measures to adjust capacity can be implemented such as flushing pipes, emptying sand traps, and raising pumping station throughput.

Today there are often large distances between measuring points, as it has traditionally been expensive and operationally intensive to place sensors in the field where there is no fixed power or communication. In new surface water solutions, either above or below ground, we recommend considering the measurement during design development. New facilities can be equipped with sensors, complete with power and communications, or use wireless devices (IoT). This provides a direct opportunity to follow up on the impact of measures taken over time, and notify key staff when deviations occur.

A status overview when using IoT in a pumping station.
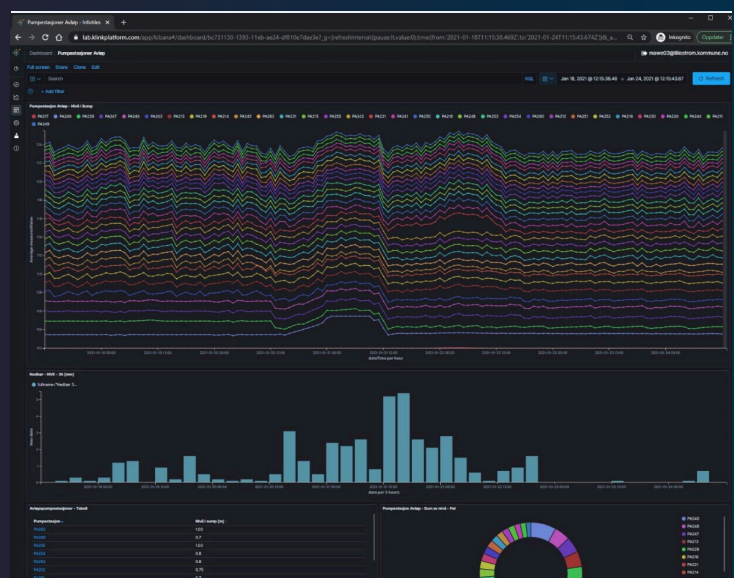
Monitoring of overflow and connection with precipitation.
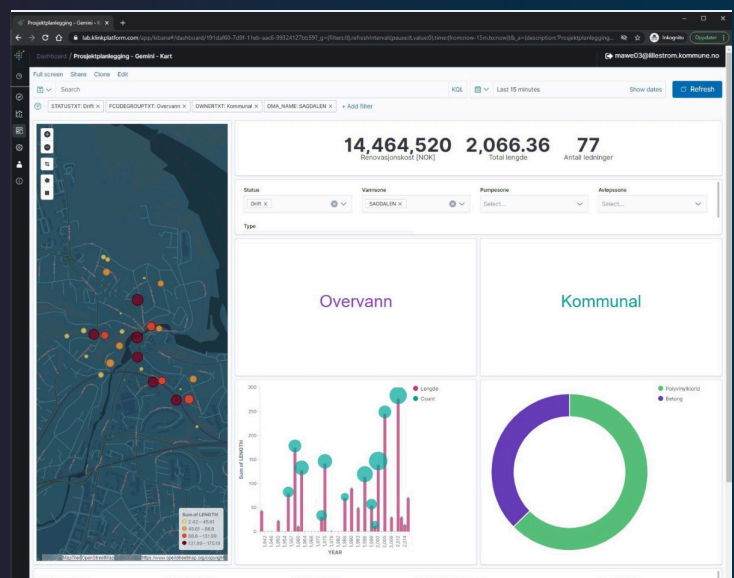
Project estimate for all surface water pipes in a water zone.

Modern sensors can also be retrofitted to existing installations. Parameters relevant to surface water can be water level in reservoirs (above and below ground), saturation in the ground, ground temperature (frozen ground will divert almost all water to the surface), humidity and pressure, or dedicated sensors for operational reasons.

Hydraulic models like SWMM and Mike Urban calculate the water level in pipes and troughs. By monitoring this you keep updated on the residual capacity of the network at all times. Historical data is retained to improve the accuracy of models over time. This includes planning work, area developments, and the effect of densification.
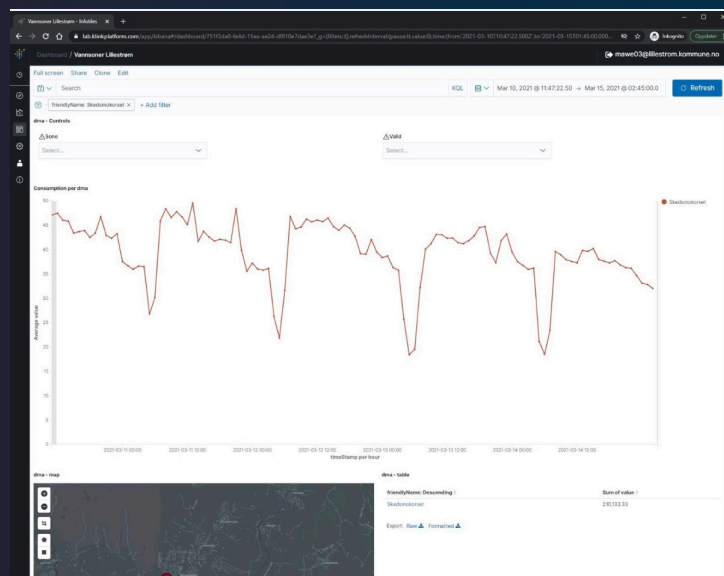
Analysis of water consumption in a water pressure zone, a reduction over time.
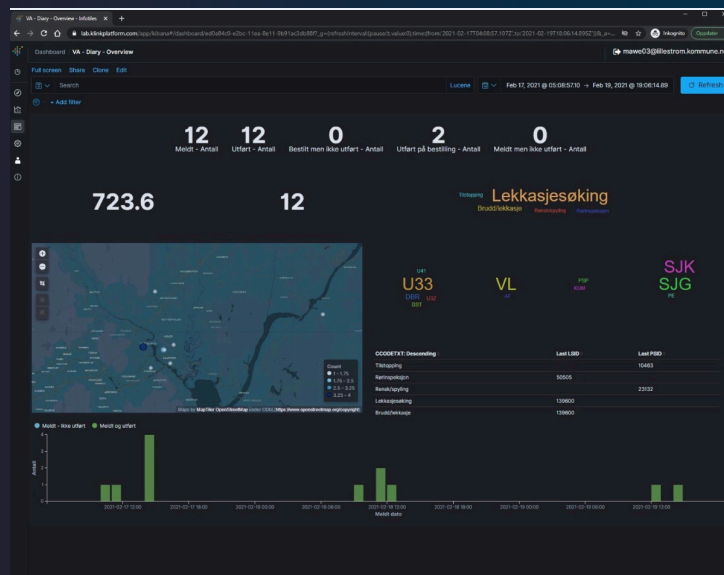
Analysis of operational reports and work performed.

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Call us: + 47 906 19 364 or send us an e-mail: contact@infotiles.no

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