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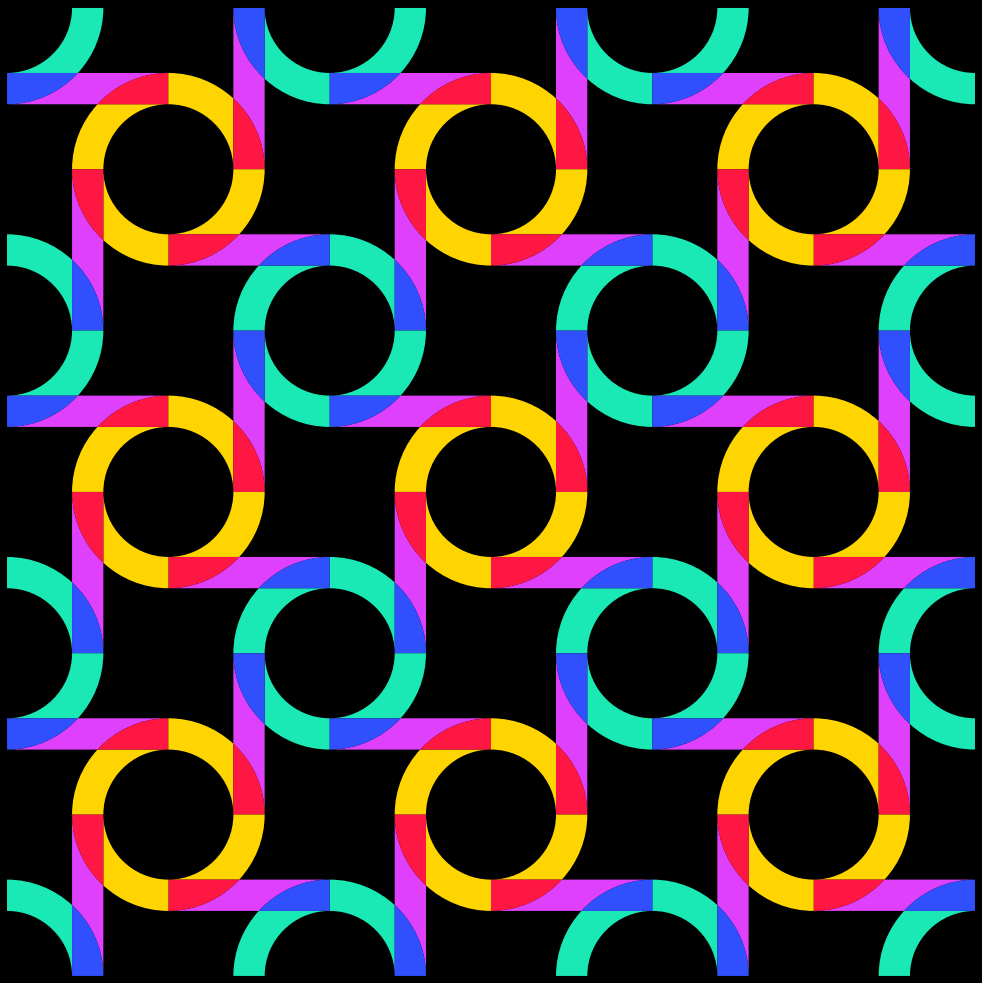


SLAM

Smart Lamppost Asset Marketplace

i4Trust – Data Spaces for effective and trusted data sharing

www.i4trust.org

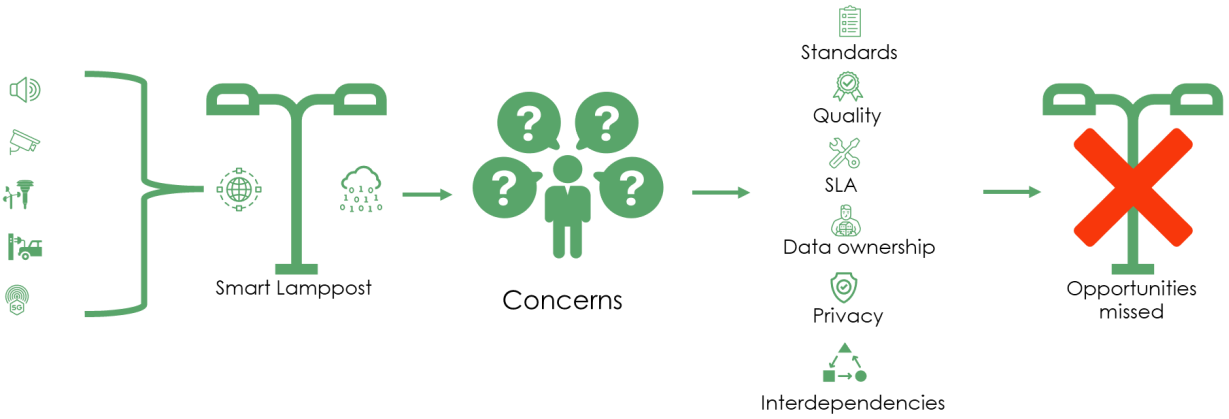
Smart Lamppost Asset Marketplace

Challenge & Context

Promises about the opportunities data offers for cities are countless. Data from IoT assets in public spaces can make processes more efficient, improve service delivery and contribute to livable, sustainable and inclusive cities. The reality is that there are legitimate concerns about privacy, ethics, ownership, standards, and interdependencies. So we have a chicken and egg situation. As a consequence, many smart city projects get stuck in good intentions.

These challenges are clearly visible when it comes to the smart lamppost. For years, a promising perspective has been painted of the lamppost as a multifunctional device, combining sensors, cameras, EV-charging, connectivity and other functions. However, between the many opportunities described and the current implementation practice, many barriers exist and there is a lack of insight.

To create a breakthrough, we need secure and trusted data-sharing regarding administrative data (such as SLA's and contracts), sensor data and process data about the roles and responsibilities of each party involved.

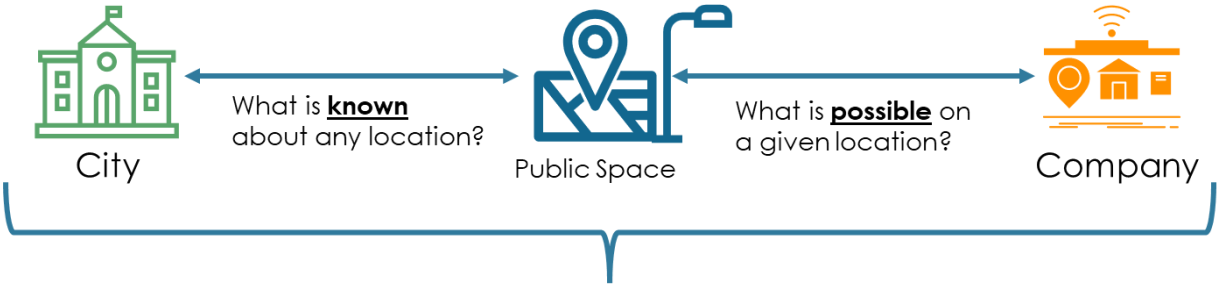


Current situation: Data from IoT assets in public space can make processes more efficient, improve service delivery and contribute to livable, sustainable, inclusive cities. Many solutions are available and a lamppost offers opportunities for smart assets. Government agencies have concerns about privacy, ethics, and data ownership and neglect these opportunities

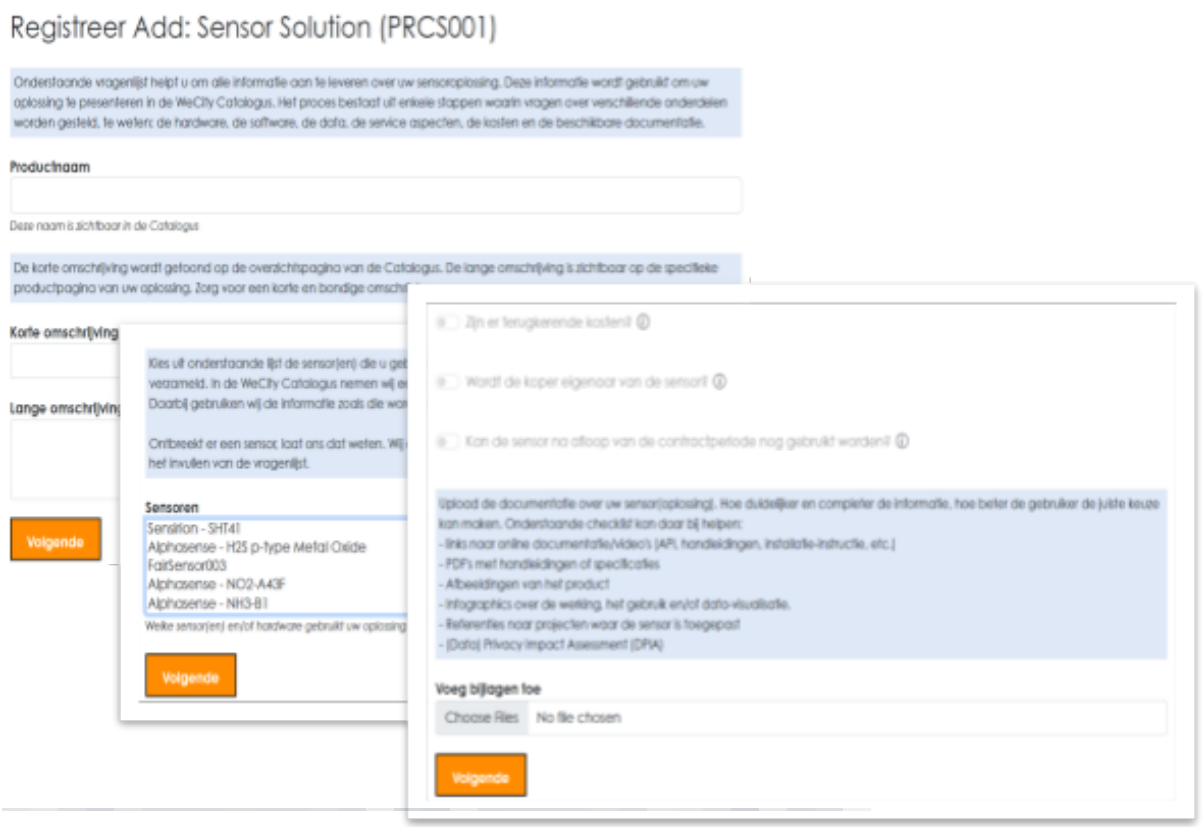
Solution and how it works

To remove the concerns, we need to create trust and insight. The Smart Lamppost Marketplace takes a two-step approach to this.

SLAM provides insight into requirements imposed on IoT devices in public spaces, such as Data Privacy Impact Assessments (DPIA), registration of sensors in a public registry, device certifications, openness and transparency and compliance with (spatial) legislation and use of open API's/standards/models. This information is combined with actual locations, functions and the data collection of IoT devices and sensors in public spaces.



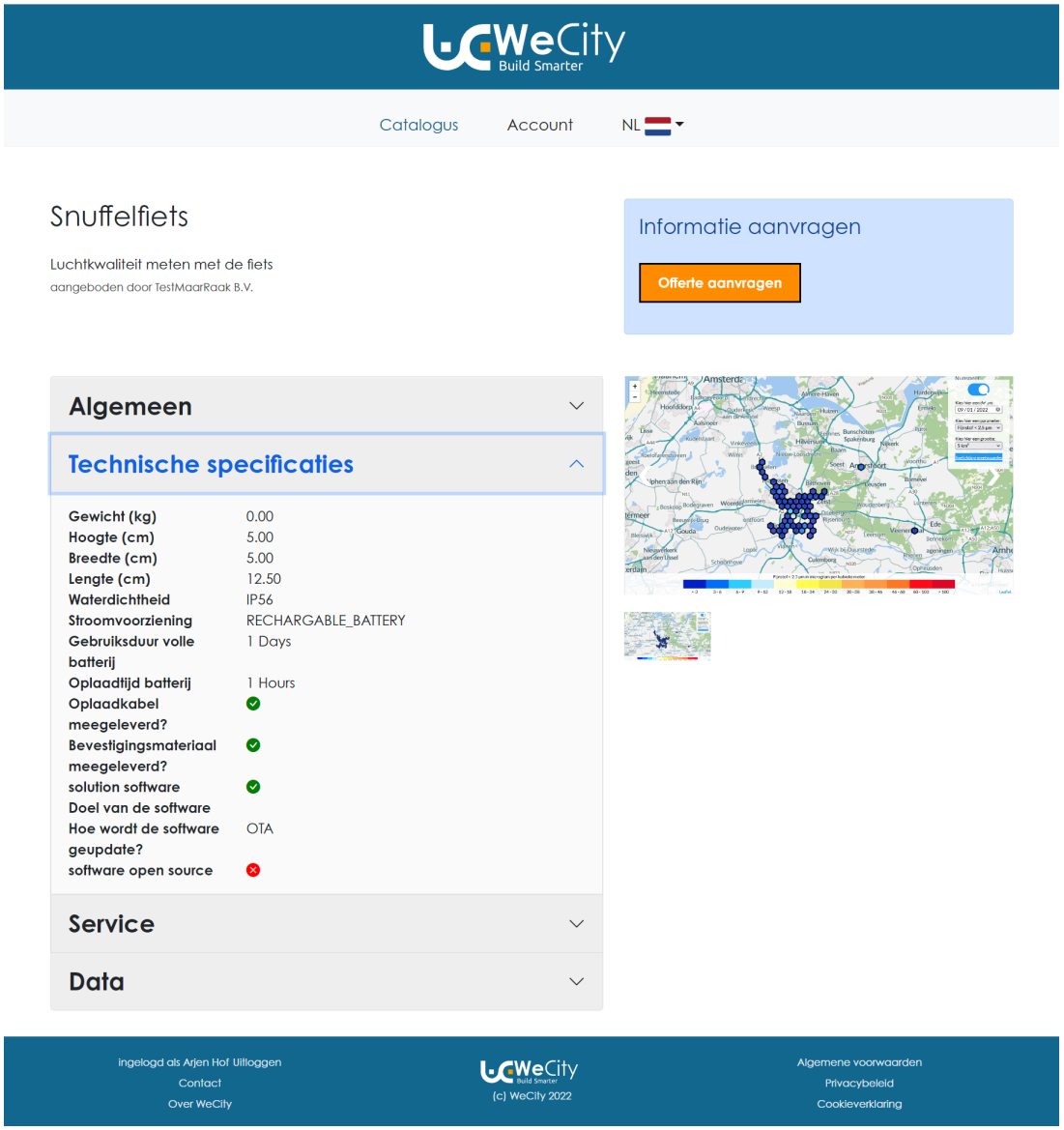
As part of the Smart Lamppost Asset Marketplace, an assessment framework has been developed to validate sensor/device suppliers. This framework consists of multiple questions regarding hardware, software, data collection and provisioning, service and support, and documentation.



The information that is collected with the assessment framework gives comfort to government agencies and provides companies with new business opportunities.

The second part of SLAM is about trust. There is a strong need for better monitoring and management of the whole smart city value chain and service process: from assessing an IoT device, to implementation, data management and maintenance. During all these steps data is collected and shared between stakeholders: sensor data, KPIs on performance and support, legal, financial and process data.

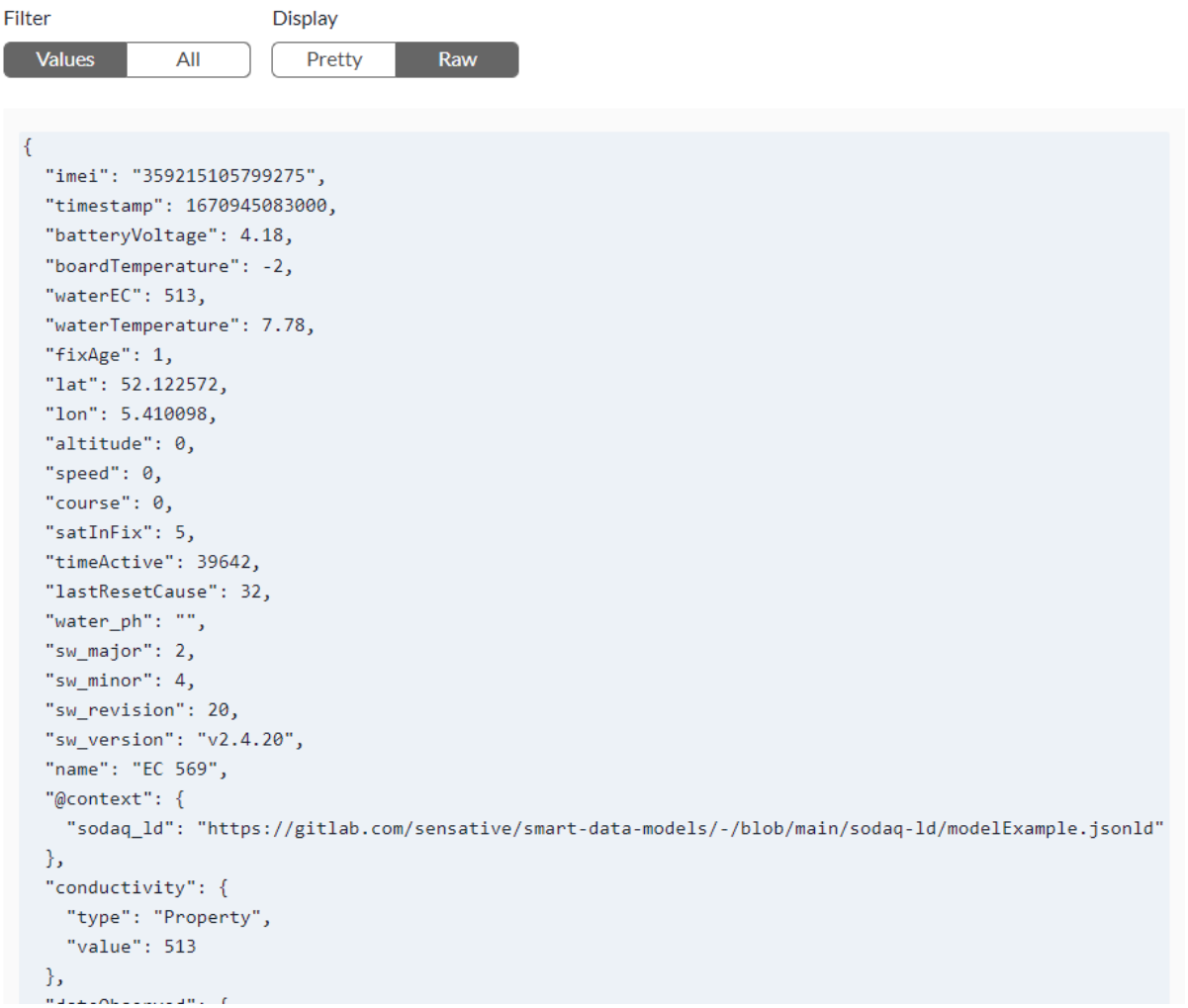
SLAM offers a trusted catalog of validated (sensor) suppliers. The Catalog shows all relevant information, enabling organizations to select the solution that fits their need and ask for a quote or more information.



The first iteration of Catalog provides all relevant information to make a choice

Once a solution has been bought and implemented, all information is made available in the “City Support Centre”. It allows users to manage all data and service-related aspects in one place. It provides access to contracts, SLAs, tickets, data sources, statistics, and other relevant information.

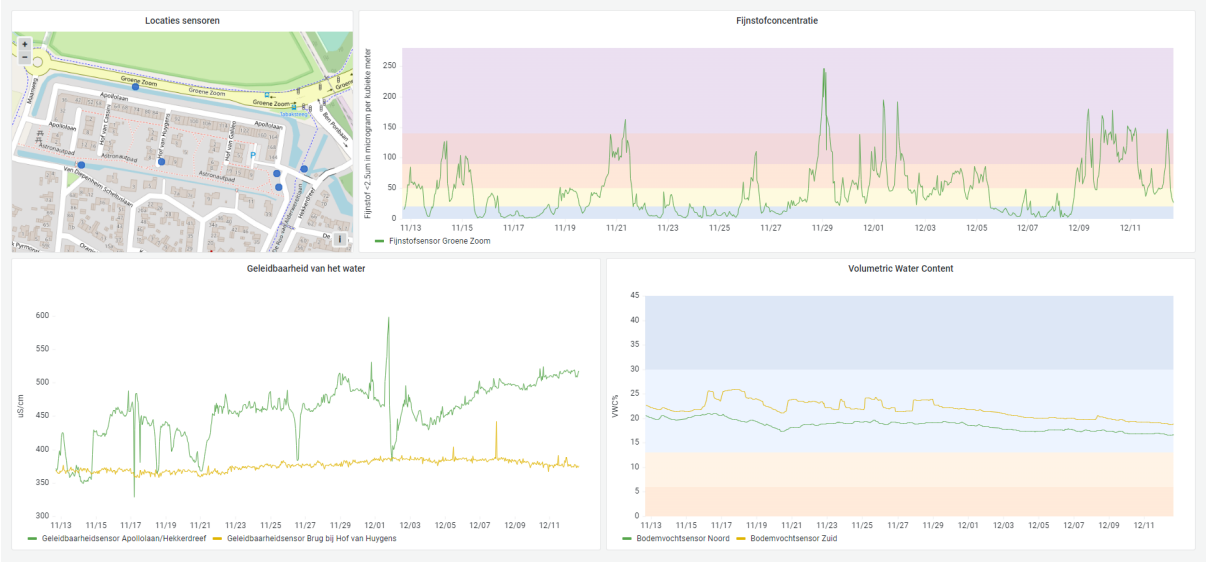
The sensor itself is connected to the FIWARE Context Broker within the platform and the appropriate smart data models are applied. By standardizing the data according to the smart data models and the NGSI-LD standard, data sharing is improved.

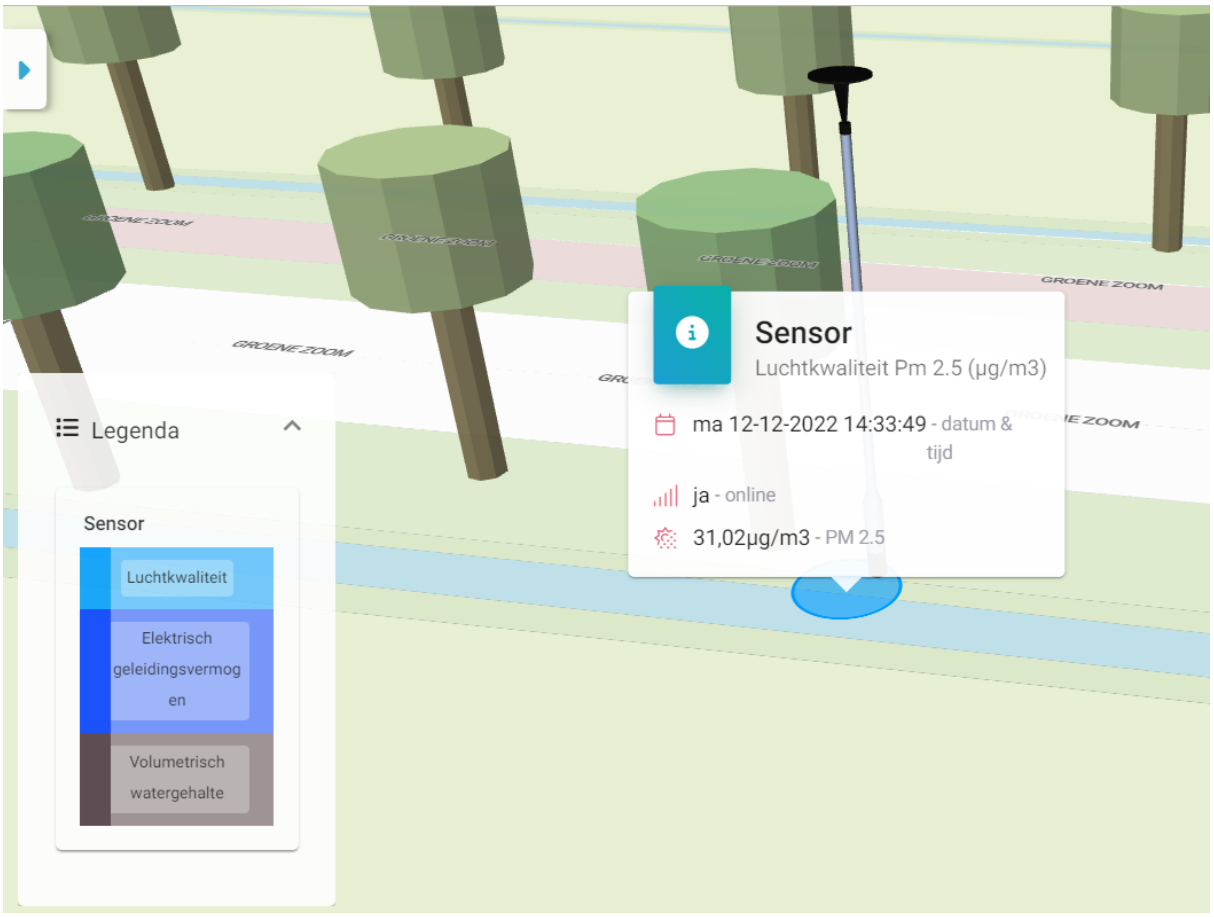


Example in SLAM of a water quality sensor connected to the Context Broker with the appropriate smart data model.

When needed, all data can be stored in a time series database to allow historical analysis of the data.

To allow trusted data sharing, the Smart Lamppost Asset Marketplace has implemented the iSHARE-scheme. With the partners in SLAM, two showcases have been developed. With the iSHARE-policies, a data owner can grant access to different consumers.





Two examples of trusted data sharing with data consumers

SLAM builds entirely upon proven standards, data models and APIs from FIWARE and iSHARE. It offers a trusted, secure framework and platform for data sharing between all stakeholders involved in smart lampposts.

Benefits & Impact

The Netherlands has approximately 3.5 million lampposts. Reuse of these existing assets, infrastructure, connectivity and electricity reduces implementation and maintenance costs, CO2-emissions and energy usage, and improves service delivery. It also facilitates more efficient data sharing. If a city with 7500 lampposts makes 2% of the lampposts really smart, it can save up to 2 million euros in 5 years.

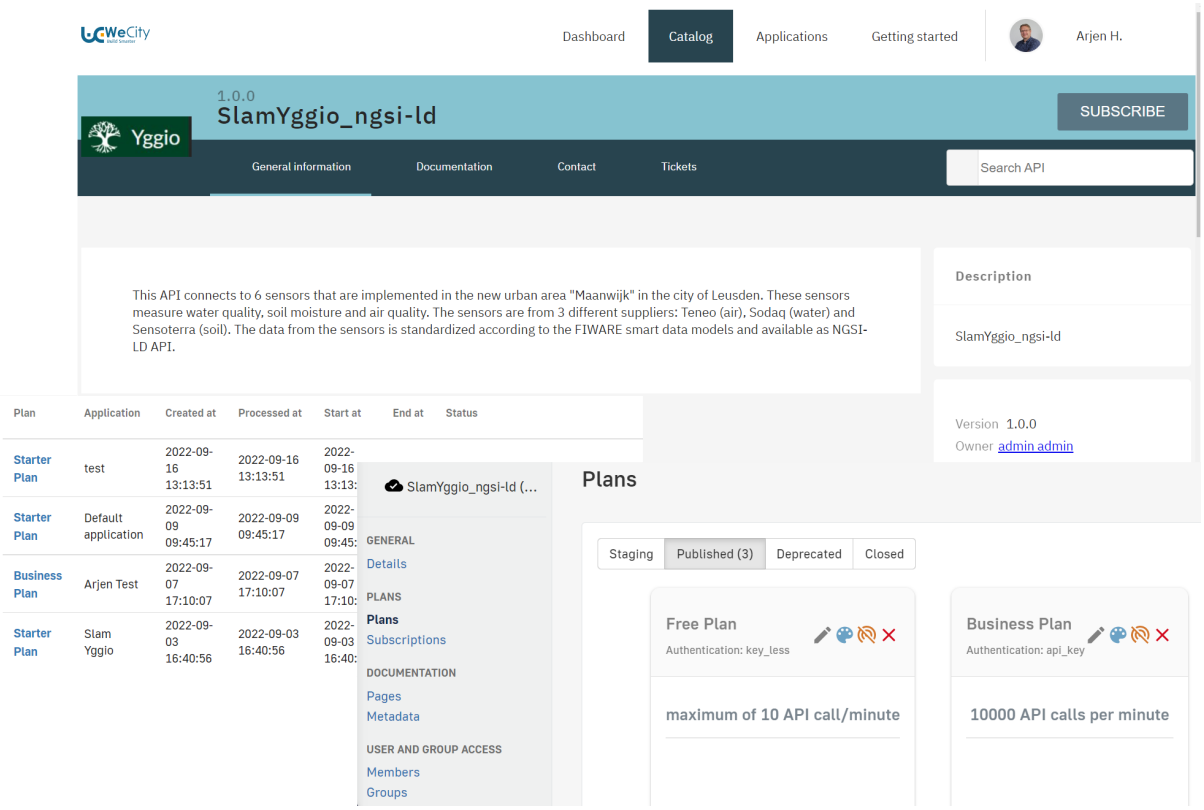
The Smart Lamppost Asset Marketplace, with the Catalog, Data Market and Service Portal generates more relevant data, enables better data sharing between stakeholders, creates more compliant solutions, and less clutter of assets on the street. Above all, it builds a healthy, open ecosystem that is beneficial for suppliers, (data)consumers, government agencies and citizens. It supports policymakers, urban planners and citizens to make transparent decisions based on data

All the principles that apply to Smart Lamppost, also apply to other smart city themes like mobility hubs, urban development and energy transition.

Added value through FIWARE and iSHARE

The Smart Lamppost Asset Marketplace uses several FIWARE components to collect, harmonize and provision data. The open IoT- and Device Management solution (Yggio) from SLAM-partner Sensative has the ability to connect any kind of sensor and harmonize all data sources. It uses the Orion-LD Context Broker (or Sensative's own Ratatosk Context Broker). Each data source is standardized according to the Smart Data Models and provisioned through the NGSI-LD API.

Data owners can monetize their data through the SLAM Marketplace. Different subscription models (plans and policies) can be applied to their APIs. In combination with the iSHARE-standard, it creates a trusted environment for data exchange.

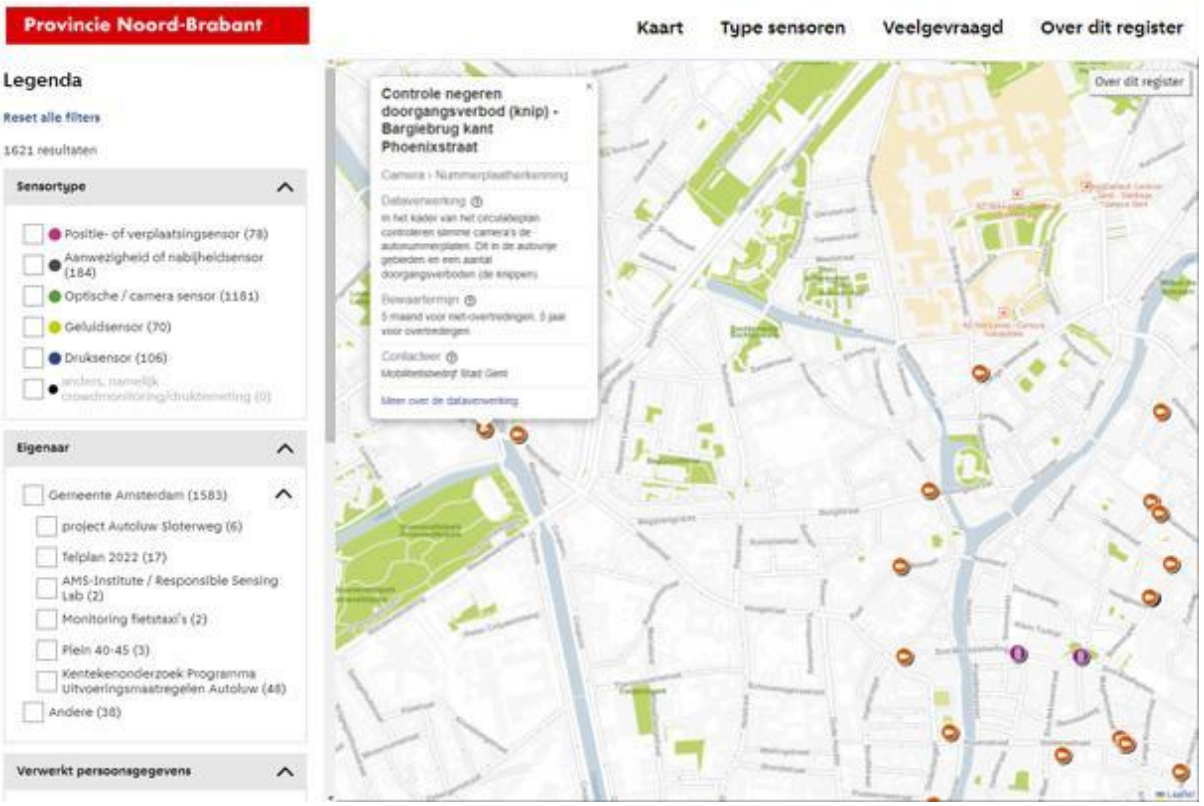


SLAM Data Market (Catalog) with API management for different plans and policies for data

Next Steps

SLAM is the reference case for an integrated smart city approach in which support is offered to cities from the selection of a solution through the implementation to the maintenance phase.

The “City Support Centre” shows all relevant information in one place and will be extended with more relevant modules, such as a sensor registry to provide the public with information about assets in public space, or DPIA templates to ensure compliance with GDPR requirements.



Public sensor registry module to inform citizens about devices in public space

The goal of SLAM is to enable both sides (suppliers and consumers) to benefit from validated smart city solutions to create more livable, sustainable and inclusive cities. By taking away the concerns and creating an open, scalable, trusted ecosystem.

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SLAM is a collaboration between Sensative, HubLogiq, Argaleo, Civity, Teneo IoT, SensoTerra, Mobility Sensing and WeCity.

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