



CUSTOMER CASE

# Waste Vision: Improved Waste Separation and Optimized Logistics

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Waste Vision – a global leader in smart waste solutions – is enabling cities and businesses to cost-efficiently manage the waste lifecycle, while also improving the environment and well-being of citizens, using IoT.

telenor IoT



3D fill level sensor to measure big volume containers and tanks.

## Background

Waste Vision provides smart waste solutions for cities and businesses to cost-efficiently manage the waste lifecycle and improve the environment and well-being of people.

It provides connected, sensor-equipped waste stations that communicate real-time status using managed connectivity provided by Telenor IoT. As a result, trash collection can be prioritized by monitoring the level of waste in connected trashcans rather than relying exclusively on a rigid schedule which is inefficient and often leads to overflows and litter.

Waste Vision is based in The Netherlands where it conducts the majority of its business. It is also present in France, Belgium, Norway, Sweden, Switzerland, and Lithuania. The company is currently expanding its operations through partners in Europe, North America, and the Middle East.

42.000 (semi) underground containers and above ground containers are equipped with a fill level sensor.



## Challenge

For most of human history, people lived in small communities. But over the past few centuries – and particularly in recent decades – there has been a mass shift from rural to urban areas. Today more than 4 billion people, or around 50% of the world's population, live in urban areas and the [UN forecasts this number to rise by 2.5 billion by 2050](#).

This migration has transformed and continues to change the way we live, work and travel. While this shift to cities has generated many new opportunities and advantages for its citizens, it also creates new problems and challenges, particularly when existing services become strained.

From collection to processing and disposal, waste management is one of the most important services for any local council or authority and yet it remains a major challenge affecting many cities and towns around the world.

The Waste Vision access control system is a flexible system for selective electronic access control, data registration and communication with (underground) waste containers.

Beyond the economic challenges associated with cleaning-up litter, inadequate waste management in urban cities can also represent a vast annoyance for its citizens. Business owners, for example, often complain that overfilled and smelly trashcans are not only unpleasant, but also bad for business. Mismanaged waste and litter is also unhygienic, unsightly and costly to clean-up.

A well-managed waste management system ensures the prevention of disease, pests and helps mitigate property value degradation. The most effective solutions utilize a combination of new technology and connectivity.

# Solution

Waste Vision's solution consist mainly of access control systems for waste containers and fill level sensors for waste containers and public trashcans. They have an installed base of 35,000 access control systems and 42,000 fill level sensors. These systems are connected to a software platform, using managed connectivity provided by Telenor IoT, which relays insights on status, performance etc.

Waste Vision selected Telenor IoT as its connectivity partner because they require reliable global connectivity and secure data transmitting - crucial for access control systems and handling household data.

Telenor IoT's solution to Waste Vision offers roaming connectivity on all networks and technologies (2G/3G/4G), providing maximum reliability and visibility of Waste Vision's connected trashcans.

The solution also enables wide-scale deployment of Waste Vision's services which often span across large cities as well as rural locations. Telenor's roaming SIM technology is designed to provide the best available connection, even in some of the most remote locations, where a secure Wi-Fi or PSTN source is unavailable.

Pictured below is a Fill Level light which is attached to a fill level sensor to show which container is available.



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Using smart sensors Waste Vision can offer autonomous features that include:

- Fill level sensors that measure how full a container is to help ensure timely but also efficient waste collection
- Drum sensors that measure whether there is a blockage in a container
- Radar sensors that detect if there is litter next to a connected trashcan
- Alarms if a service door is being used for unauthorized access
- Fill level lighting to encourage citizens to use the connected trashcans correctly and reduce overflows.



Radar Level Sensor used for smaller bins & tanks



3D Waste Level sensor used in big volume (semi)underground & above ground waste containers & Silo's



Asset Tracker to manage assets

# Benefits:

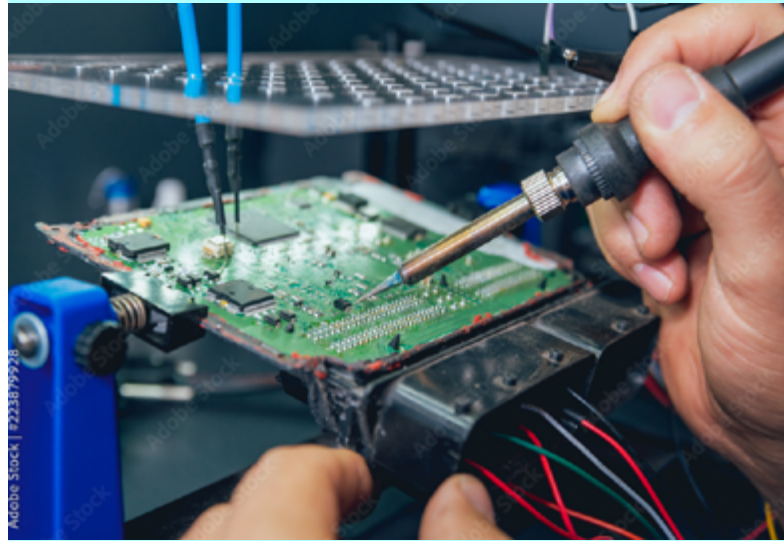
## Streamlined Operations and Collection Efficiency

- Less collections, lowered labor and operational costs, reduced vehicle wear, and lowered fuel consumption.
- More informed decision-making and operational planning with access to real-time data and analytics in Waste Vision's management software platform.
- Increased productivity and efficiency with optimized route planning and collections.
- Reduce instances of windblown litter, overflows, and pest access.

## Sustainable Infrastructure and Reduced Carbon Footprint

- Reduced carbon footprint and CO2 emissions with fewer collections and lower fuel consumption.
- Less littered public spaces for an overall cleaner, more sustainable environment due to smarter collection processes.
- Citizens are encouraged to separate and recycle waste materials.
- Reduced truck traffic, noise and congestion.

Waste Vision develops and manufactures all its electronic systems by themselves.



### Waste Vision quote:

***"Our mission is to stimulate cities, individuals and businesses to separate waste and to collect these materials in an environmentally and economically-efficient manner. Creating, step-by step, a society in which waste is not the end but the beginning of something new. We selected Telenor IoT as a partner because robust, reliable global connectivity is essential for Waste Vision's customers."***

**Frank Mokveld Director  
SMART Solutions,  
Waste Vision.**



Access control system



3D fill level sensor



Asset Tracker



Radar level sensor



## Results

Waste Vision's access control systems make a positive contribution to better recycling, which due to new legislations, needs to be at a level of 55% for all European countries by 2025. Fill level sensors lead to a cost reduction of around 25% due to less truck collections, less fuel consumption and lowered operational costs. Pay-as-you-throw systems are leading to a huge reduction - up to 25% - of residual waste and better recycling results.

The World Economic Forum has named the circular economy as the top business opportunity of our time. That's good news for smart city players, particularly smart waste vendors such as Waste Vision whose solutions are enabling cities and their partners to reduce waste and drive more recycling.



## TELENOR CONNEXION

Telenor IoT is the portfolio of IoT solutions from Telenor Group, one of the world's major mobile operators. With more than 20 years' experience of providing global IoT connectivity, cloud services and expert support to companies of all sizes, Telenor is one of the world's most advanced IoT solution providers. Telenor IoT manages international IoT deployments for global customers in some 200 countries and today operates more than 20 million connected devices to enterprises such as Volvo, Scania, Hitachi, Verisure Securitas Direct and Husqvarna. The IoT solutions are offered to national customers in the Nordics through the local Telenor operations in each country, and on a global level through Telenor Connexion, Telenor's specialized unit that provides IoT solutions for large, international enterprises who need a customized offer with advanced support.

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