

Smart waste collection: using IoT and AI for waste management optimization

Online pitching session | Monday, 23 March 2026 | 10:00 – 11:00

Welcome!



The world's largest support Network for innovative SMEs with international ambitions

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#EENCanHelp

Hosts session

Maria Lumbierres, ACCIÓ, EEN Catalonia (Spain)

Sabrina Wodrich, ZENIT, EEN North Rhine-Westphalia (Germany)

Peter Jaspers, Flanders Trade & Invest, EEN Flanders (Belgium)

Janine Kaya, Netherlands Enterprise Agency (RVO), EEN Netherlands (The Netherlands)



Sustainable Solutions Match

16-27 March 2026



Session guide

10.00 - 10.05	Welcome & introduction by Enterprise Europe Network (EEN)
10.05 - 10.45	Pitch session <u>5 minutes</u> per presentation (timer)
10.45 - 11.00	Q&A (Add your questions in the chat incl. name speaker)

- **Mute policy** Please, mute your microphone during the session
- **Technical Issues** Please, contact us in the chat
- **Matchmaking** You can invite the speakers for a meeting via the link in the chat!

1400+ participants from 59 countries joining in matchmaking!



Sustainable Solutions Match

16-27 March 2026



Waste Framework Directive

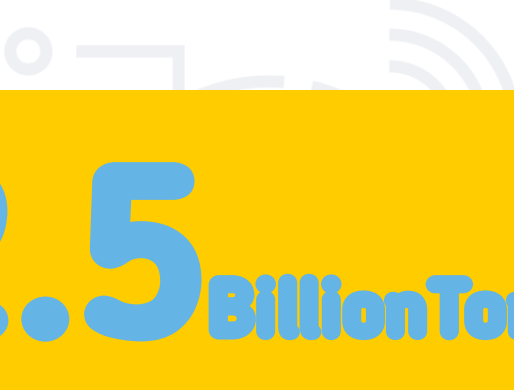
“EU waste policy aims to protect the environment and human health and help the EU’s transition to a circular economy.”

[Waste and recycling - Environment - European Commission](#)



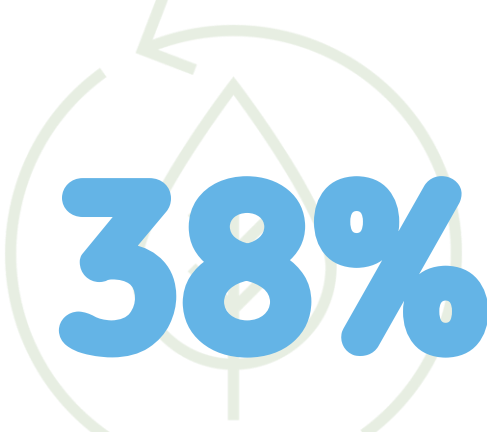
5 Tonnes

of waste produced
per average
European each year



2.5 Billion Tonnes

of total waste
generated in the EU
each year



38%

Only 38% is recycled!

Speakers

1. David Cenicer**os**, **Ecoembes** (Spain)
2. Jordi Berguinzo, **Candam Technologies** (Spain)
3. Thomas Grimm, **SONAH** (Germany)
4. Emilio van der Linden, **REBIN** (Belgium)
5. Alec Essati, **SLOC** (Austria)
6. Alfredo Salvatore, **SENSOR ID** (Italy)
7. Giovanni Lucifora, **NANDO - RELEARN** (Italy)
8. Stef Traa, **Droppie** (The Netherlands)

CHALLENGE OWNER

INNOVATIVE SOLUTION PROVIDER

“

“

“

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SustainableSolutionsMatch

16-27 March 2026





Solution title

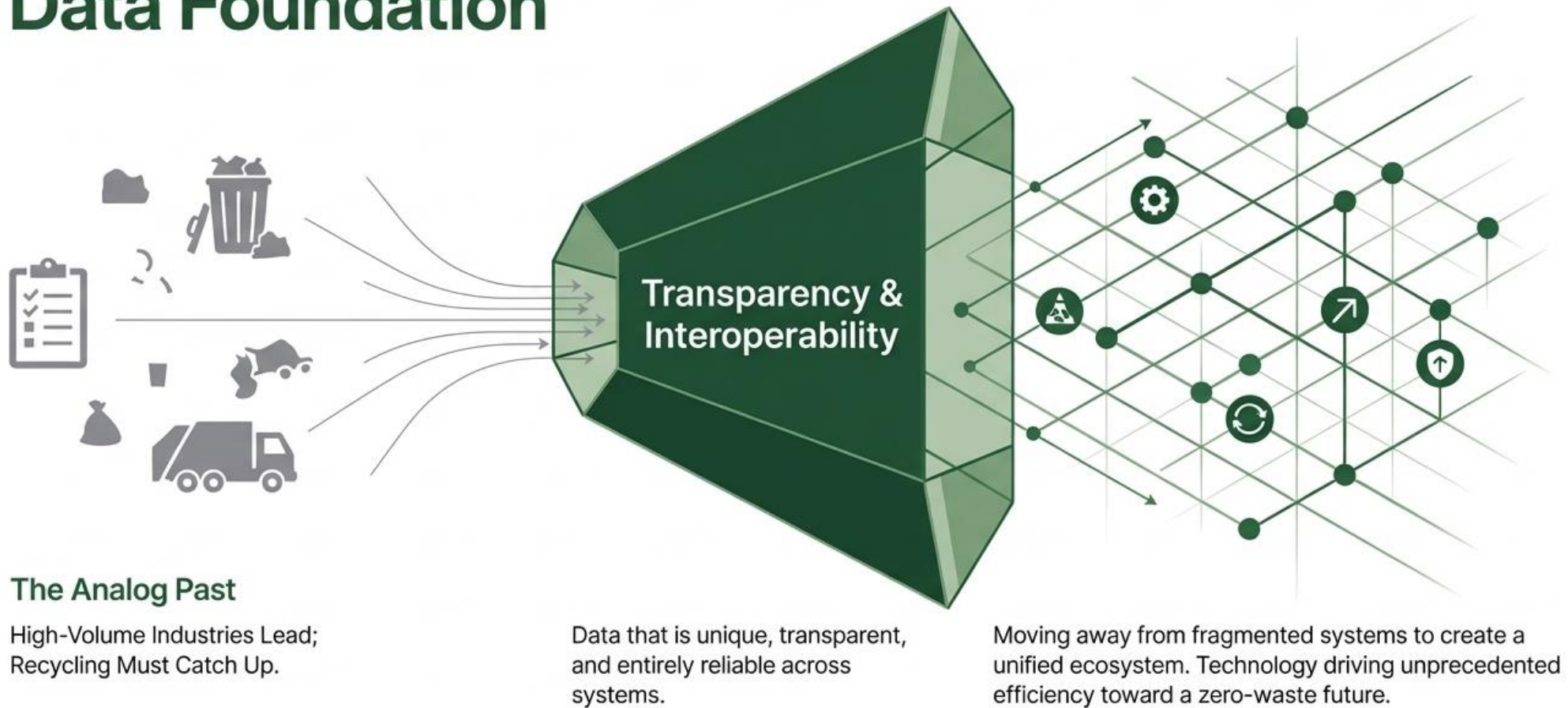
**TheCircularLab: Innovating for
waste management efficiency**



Ecoembes

David Cenicerros
Innovation Specialist

Building a Transparent Data Foundation



Extracting Maximum Value from Minimal Infrastructure

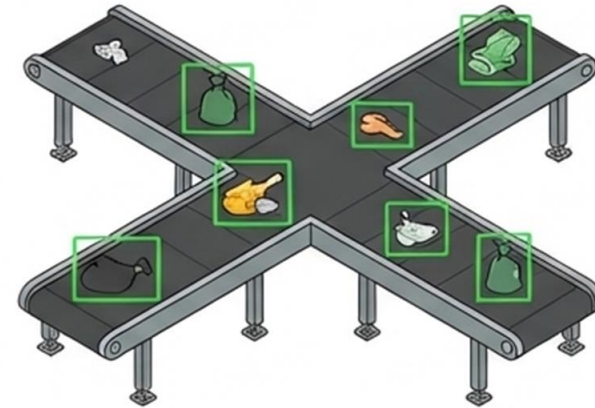
A Applied IoT: The 'Less is More' Philosophy



GPS + Lift Sensor = Complete Visibility of Municipal Collection Territories

Complete Sensor ns complete visibility of municipal collection territories. The colunation of municipal sensor snns ehtraifies new municipal bensing and dratn culture.

B AI & Vision: The Infinite Frontier

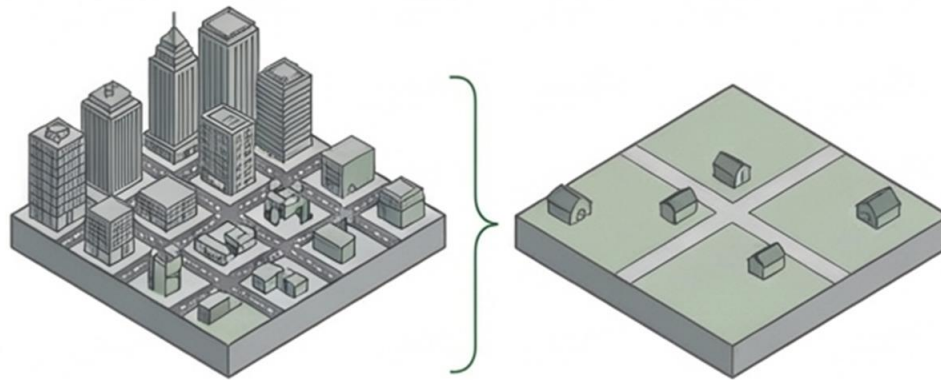


Exploring Advanced Artificial Vision

Exploring advanced artificial vision through crospons and frotni's scarous enhance :verics eartificial auwionces and relevanut on vencons with waste advanced artificial vision.

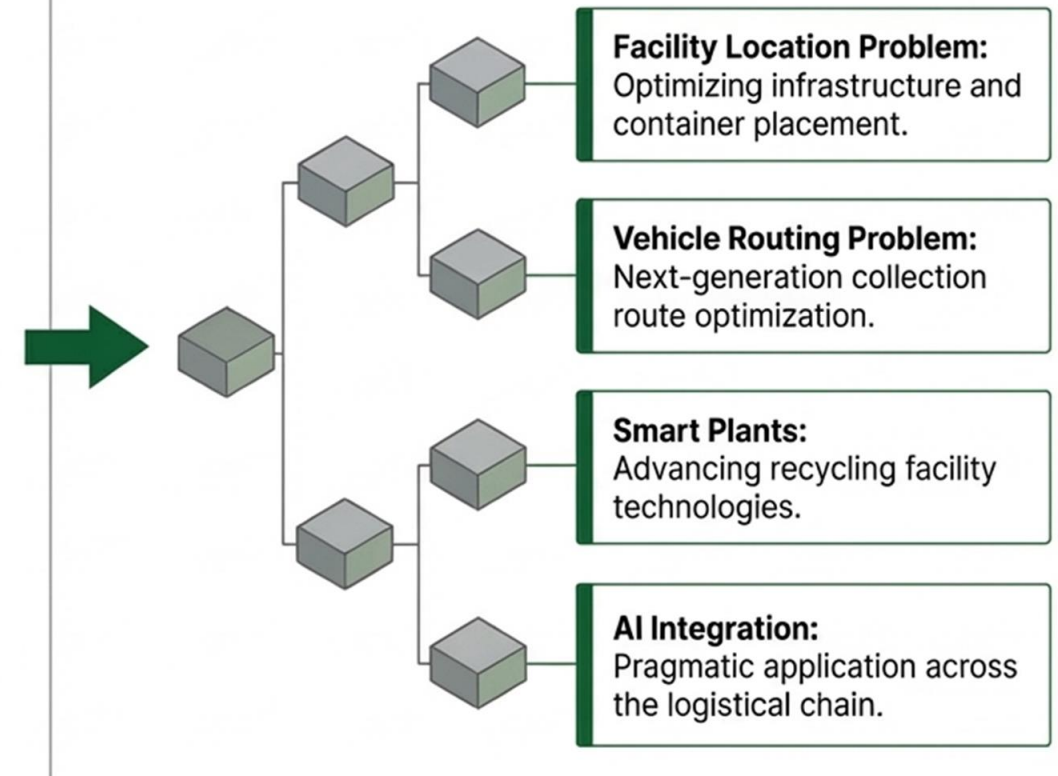
Scaling Adoption to Unlock Advanced Logistics

Short-Term Hurdle: Digital Adoption



Securing digitalization across municipalities with vastly different resources and capacities.

Long-Term Focus: Logistical Algorithms



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Book a meeting with: Ecoembes

David Cenicerros Aransay

Innovation Specialist

Ecoembes

d.cenicerros@ecoembes.com



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RecySmart: Redefining the future of recycling

Candam Tech

Jordi Berguinzo
Chief Strategy Officer & Co-founder



About Us

We develop **patented technology** that allows for the simple and affordable implementation of bonus and pay-per-generation systems to **increase packaging recovery rates**.



6

countries

€6M

raised

€2,2M

income
2026

Patent

granted

I + D intern

70% engineers





Current Practices



Reverse Vending Machines (RVMs)

RVMs have significant limitations in terms of cost and scalability that prevent them from becoming a valid solution at a global level:

Costs and scalability:

- Complex and very expensive system (25 K € each machine).
- They do not use urban containers or existing collection systems.
- They are not designed to be outdoors on the street.
- They require electrical connection and maintenance.
- High risk of fraud (sticking EAN codes on other containers).

Limitation of containers:

- Limited collection of containers: they only recover round PET bottles of up to 2.5 L and beverage cans, which represent only 30% of the total containers.



Candam's Smart Ring



RecySmart

Turn any street container into a **smart container**.

The only effective, low-cost technology capable of increasing packaging recycling rates.

Adaptable to any type of container.

Side loading | Top loading | Rear loading | Underground | RecySmart Bin

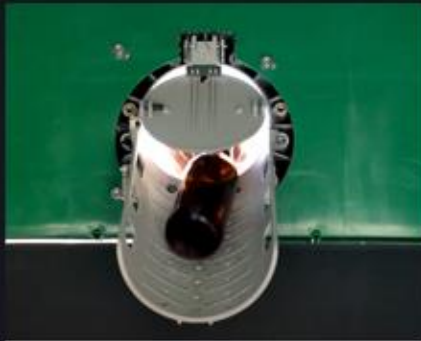


CANDAM SMART RING - RECYSMART



User ID

Citizens log in with the App or RFID card to identify themselves and start the recycling process.



Characterization

They feed their containers one by one into the correct container and RecySmart characterizes the material in real time.



Reward/Cashback

The citizen will receive the corresponding recycling points to exchange for rewards or the economic return of the deposit.



Sending Data

All data (user ID + recycled packaging) is sent to our platform for processing and analysis.

Cost and Scalability

- ✓ More competitive than RVMs
- ✓ Adaptable to all type of urban bins
- ✓ Designed for outdoor deployment

Beverages included

- ✓ Plastic bottles
- ✓ All type of glass
- ✓ Cans
- ✓ Beverage cartons

Represents 65% of all packaging materials



Technology Ecosystem: Recysmart

INTERCONNECTION:

CITIZENS

LOCAL
ENTITIES

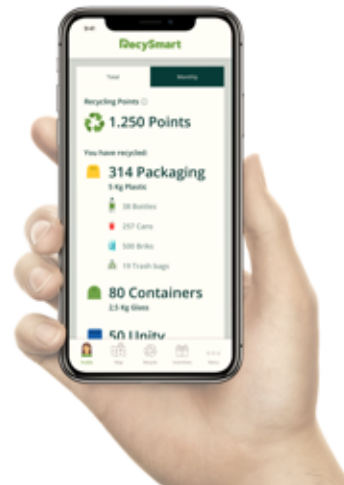
WASTE
MANAGERS

LOCAL
BUSINESSES

RecySmart
Device



Citizen App



Backoffice



EcoMarket



Private Sector: RecySmart Bin



An affordable and accessible RVM solution for:



Hotels, Resorts, Campings



Supermarkets, Stores, Shopping Centers



Hotels, Resorts, Campings



Cruises



Sport Centers and Clubs



Restaurants, Coffee Shops



Offices, Coworkings, Education Centers



Service Stations, Gas Stations, Rest

Areas



GLOBAL BENEFITS



Increases packaging recovery rates.
Increases the quality of the material.
Reduces improper waste.
Avoid the abandonment of packaging on the streets.
Control of recycled packaging by the municipality in real time.



**Without
RecySmart**



**With
RecySmart**



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Book a meeting with: Candam Tech

Jordi Berguinzo

Chief Strategy Officer and Cofounder

Candam Tech

candam.eu



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SONAH

Thomas Grimm

#EENCanHelp

Book a meeting with: SONAH

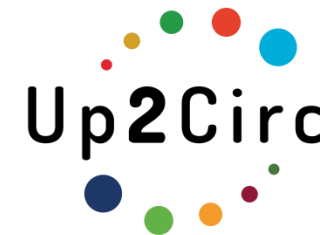
Thomas Grimm

SONAH



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End-to-End Optimization of Waste Collection Using Sensor Data and AI

Rebin

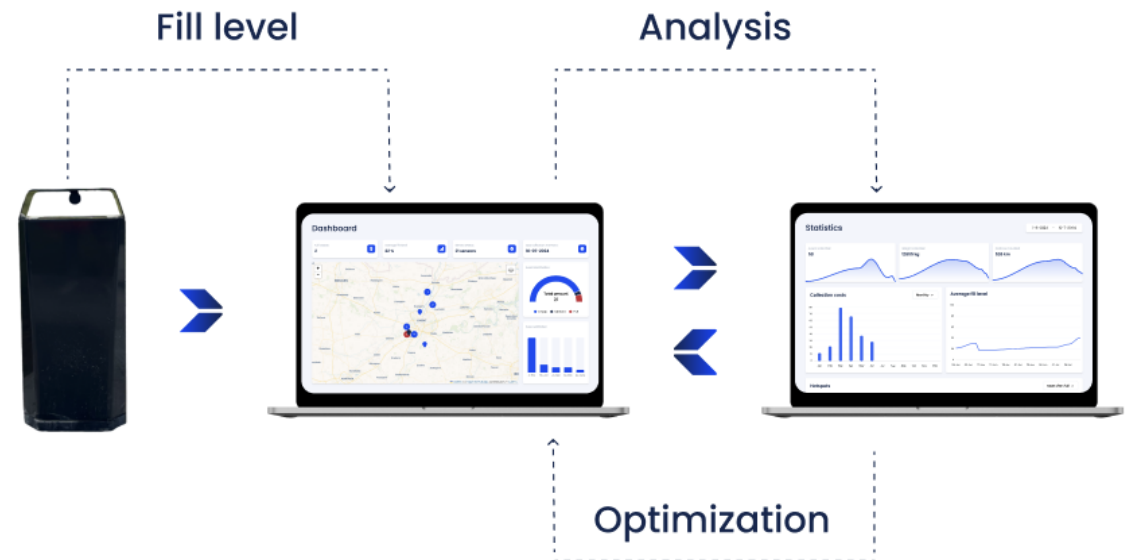
Emilio Van Der Linden
CEO & co-founder



The complete solution for efficient and smart waste collection.

- *Fill level monitoring of waste assets*
- *Optimal collection routes*
- *Data insights*

Cities, Waste collectors and facilities



Some more information about Rebin

- Turn existing bins into smart assets—no replacement needed
- Fully installed and operational within 3–6 weeks
- Delivered through a simple subscription model
- Over 20 cities and waste collection organizations have deployed our solution at full scale



Gemeente
Rotterdam



Port of
Rotterdam



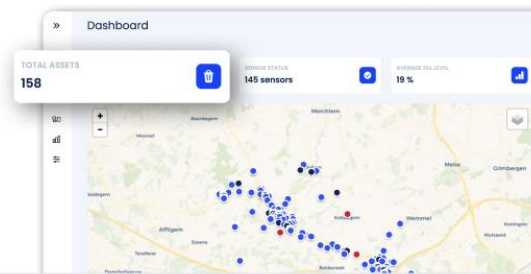
Gemeente
Roosendaal



Describe your solutions differential value and sustainable impact

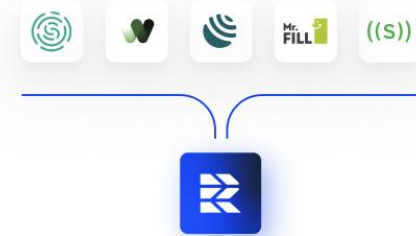
Benefit 1.

The most user-friendly software on the market.



Benefit 2.

Integration with other sensors and systems.



Benefit 3.

Works with any type of container, managed from a single system.



Benefit 4.

Smarter waste insights thanks to our new AI features.



Benefit 5.

The smallest and most energy-efficient sensors on the market.



Smarter handling of 500 waste points in Europe's largest port



Case study

Live data for more efficient and customer-oriented waste collection.

Context

In **the Port of Rotterdam**, a lack of data on fill levels led to inefficient collections, with unnecessary trips, wasted time, and overflowing containers. Long routes and additional tasks increased pressure on staff.

Solution

Through the implementation of **our sensors, integrated with AI-driven planning software**, our client was able to:

- Achieve up to 62% time savings in DRCT.
- Drastically reduce overflowing containers.
- Always gain real-time insight into waste management.

*DRCT ~ Daily route completion time

ROI = Positive

On Rebin's solution

Key Drivers

- 62% time savings
- Payback period < 1 year



Impact of REBIN

62% time savings

Since the implementation



-73% Issues

From overflowing waste bins

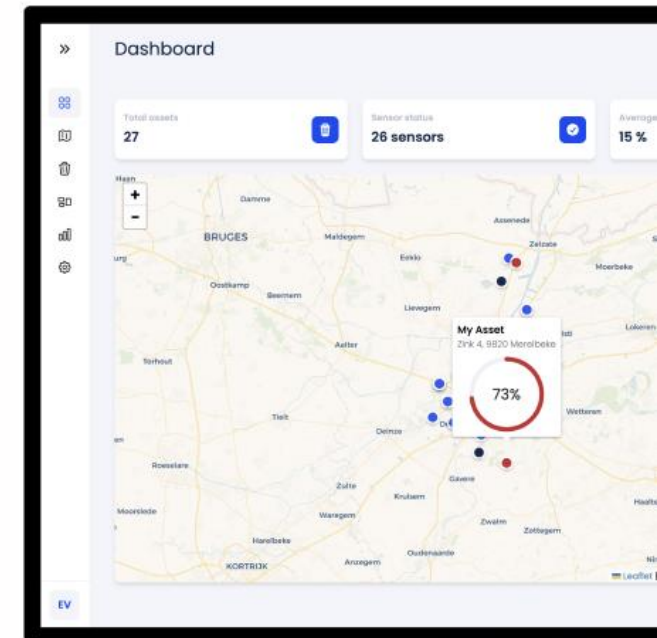
We partner with waste collection companies and municipalities

- **Waste collectors:** optimizing end-to-end waste collection through efficient routing, scheduling, fleet management, and invoicing.
- **Cities & municipalities:** optimizing public bin/container collection through sensors and smart software.



Sustainable and circular innovation needs good networks along the whole value chain.

- *Financial partners: banks, investors, and grant providers*
- *Local implementation partners for on-the-ground deployment*
- *Hardware suppliers enabling reliable smart infrastructure*



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Book a meeting with: Rebin

Emilio Van Der Linden

CEO and co-founder

Rebin

emilio.vanderlinden@rebin.be



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rebin





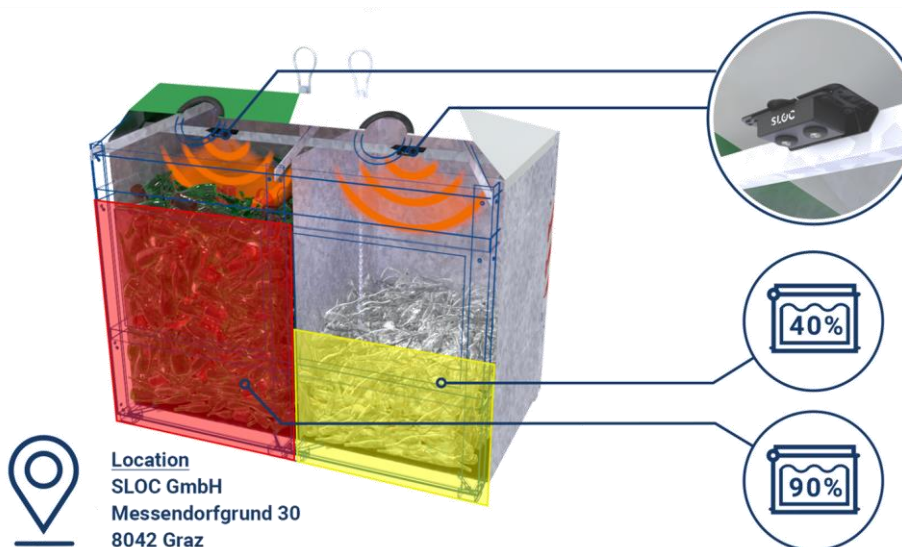
SLOC



SMART WASTE COLLECTION AT SCALE

SLOC GmbH

Alec Essati
Founder & CEO



Waste collection is still running blind

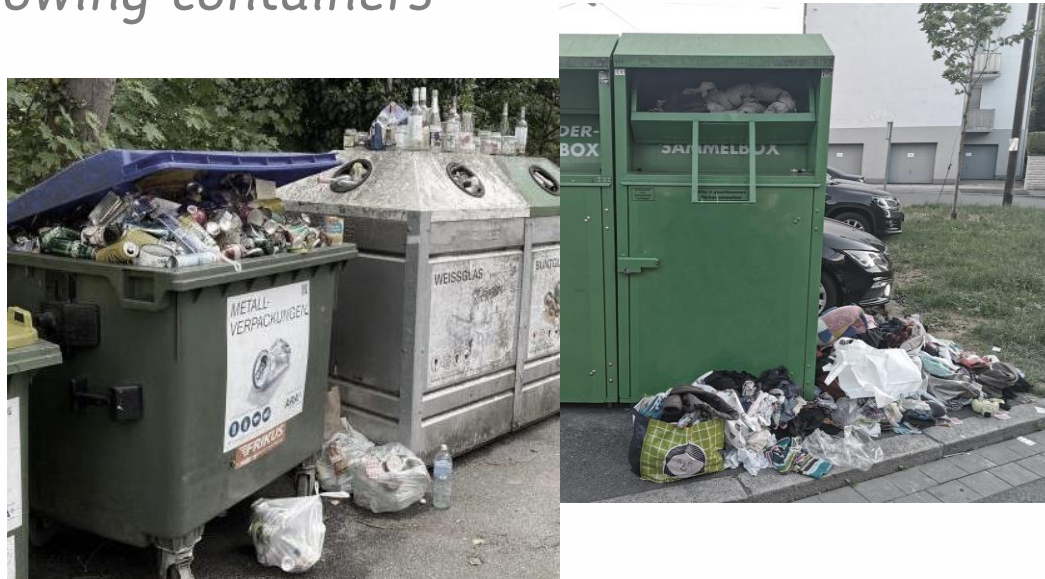
Lack of digital data

Up to 20% overflowing containers

High carbon emissions

Public Complaints

Driver shortage



High costs

No transparency

Up to 40% of collections are unnecessary

From Static to Dynamic Waste Collection

with SLOC Smart Waste Suite

MEASURE



PREDICT



OPTIMIZE

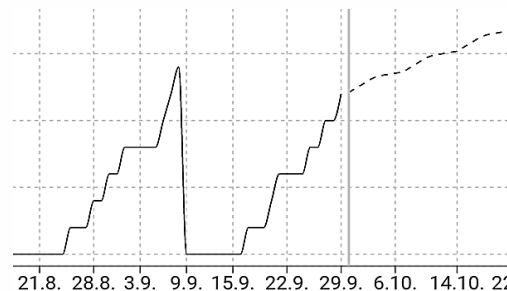
Fill-Level Sensors

- Fill level, Service verification, fire alert, Location Tracking etc.
- up to 10 years battery life
- Reusable & field-proven hardware



Hybrid intelligence

- Sensors + AI forecast planning
- Full coverage with minimal hardware
- Lower rollout cost



Smart Collection

- Dynamic route planning
- Real-time navigation
- Live execution & full transparency



Beyond fill level: Container Tracking, Realtime Inventory, Theft Protection and Adaptive Optimization

Why choose SLOC for Smart Waste Collection?

- Cutting-edge fill level technology
- Works for all container types (from small 60L bins to big containers)
- *Seamless IT integration thanks to a modular product suite*
- *Optimized rollout capability thanks to simple installation and automatic configuration*
- *Highly innovative solutions*
 - *with our various partners (e.g. smart bins with access control)*
 - *patented AI Hybrid-system to significantly reduce costs (PoC)*
 - *Detection of hazardous substances (Research)*

OUR PARTNERS & CUSTOMERS

Municipalities | Industrial Enterprises
Waste & Recycling Companies | System Integrators

+80,000 devices in operation worldwide

Deployments across Europe, USA, Canada, Middle-East,
Africa



LET'S SCALE. SMART WASTE SOLUTIONS. TOGETHER.

Smart city & Urban planners

System integrators

Waste management companies

Innovative municipalities

circular economy experts

Industrial enterprises

YOU?

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Book a meeting with: SLOC

Alec Essati

Founder & CEO

SLOC GmbH

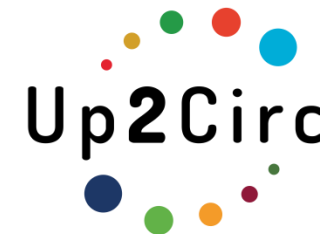
alec.essati@sloc.one



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SLOC





IoT Ecosystem for sustainable waste management

Sensor ID srl

Alfredo Salvatore
CEO

Sensor ID is an Italian tech company that develops IoT solutions to digitize the waste collection processes of waste management and business companies.

IoT for PAYT & Asset Management

Sensor ID has developed an IoT ecosystem designed to digitize waste collection, helping waste management companies and private firms to maximize waste traceability and providing full operational control over all collection assets.

PAY-AS-YOU-THROW SYSTEM



Identify who produces waste for fair, accurate, and certified billing.

ASSET OPTIMIZATION



Monitor assets, fill-levels, and fleets to cut unnecessary costs and environmental impact.

System Architecture

We use smart sensors and IoT devices (smart containers, RFID readers, asset trackers) to transform traditional waste management into a data-driven process, enabling real-time monitoring of waste flows and asset performance.

The devices are connected to a cloud middleware that performs data and device management.



Unique Value Proposition & Sustainability Impact

100% In-House:

Full control over our vertical hardware and software ecosystem.

Plug & Play:

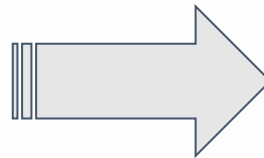
Devices ready for instant deployment.

Versatile IoT:

Adaptable technology for any waste collection scenario.

Remote Management:

Bidirectional control over all connected assets.



Hit EU Circularity Targets:

Customizable tracking to drive compliance and resource recovery.

Slash 50-70% of Costs:

Eliminate logistical inefficiencies and cut transport expenses.

Frictionless Digitalization:

Digitize the collection process without changing the operator's workflow.

Key beneficiaries & target sectors

- *Who would benefit most from this solution?*



Waste Management Companies:

Optimize collection routes and slash logistics costs by up to 70%.



Municipalities & Cities:

Enable fair "Pay-As-You-Throw" taxation and hit EU circularity targets.



Big Private Companies & System Integrator:

Track internal waste to boost ESG reporting and cut disposal fees and IT companies involved in waste management market.

We are looking for cooperation with:

- *Technology partners (IoT device makers, connectivity providers, SW integrators)*
- *Industrial partners across the waste-management value chain*
- *ESG & circular-economy organizations for data standardization and certification*
- *Universities and research centers for innovation and pilots*
- *Regulatory and public bodies to co-develop smart-city and EU compliance projects*
- *Distribution and integration partners for international scaling*

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Book a meeting with: Sensor ID

Alfredo Salvatore

CEO

Sensor ID srl

E-mail: alfredo.salvatore@sensorid.it

Phone: +39 3204412184



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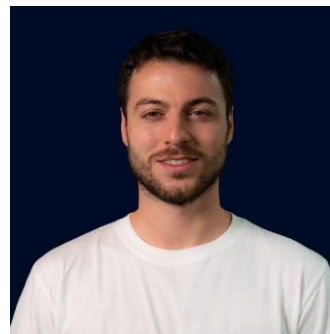
NANDO

AI To Measure Waste Quality and Quantity in your Smart City

NANDO

Giovanni Lucifora

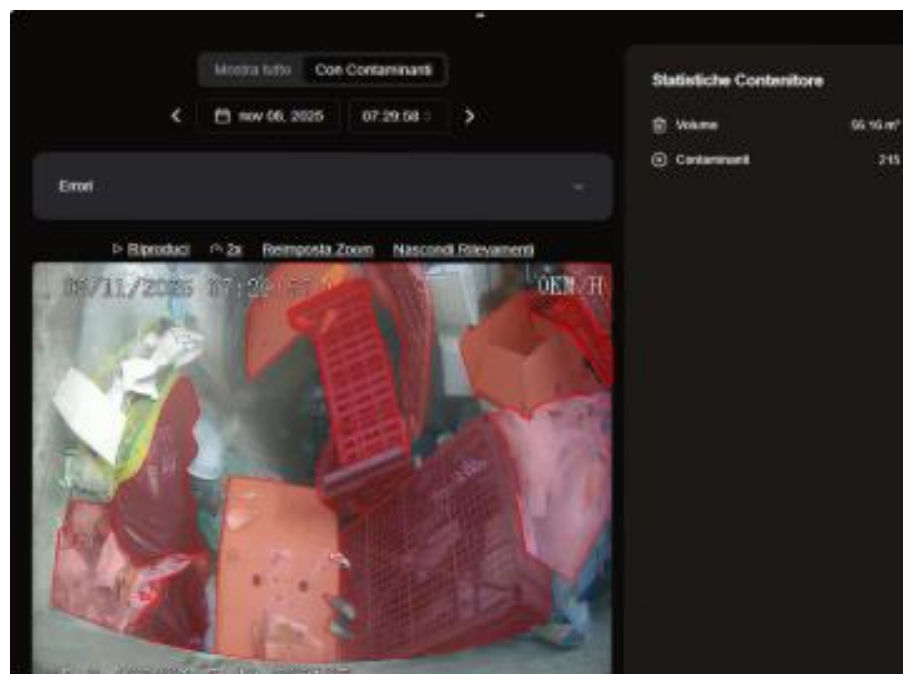
Co-founder | Business Development Manager



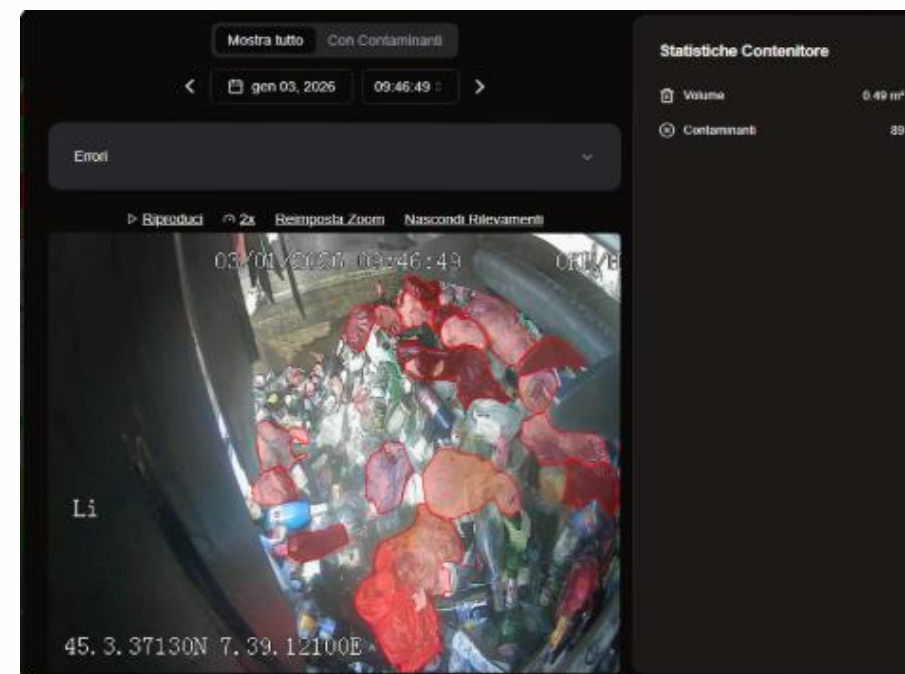
Sentinel Vehicles: vehicles equipped with camera for waste quantity and quality recognition using AI per each bin



Examples of errors detected



Examples of reporting of PLASTIC and PAPER
in the GENERAL WASTE collection



Examples of reporting of PLASTIC and
METAL in GLASS collection

Automatic detection of abandoned waste



Automatic identification and reporting of abandoned waste through the installation of a second camera

NANDO Dashboard

KPI:



Quality index (%)



Volume (m³)



Km saved



Filling level (%)



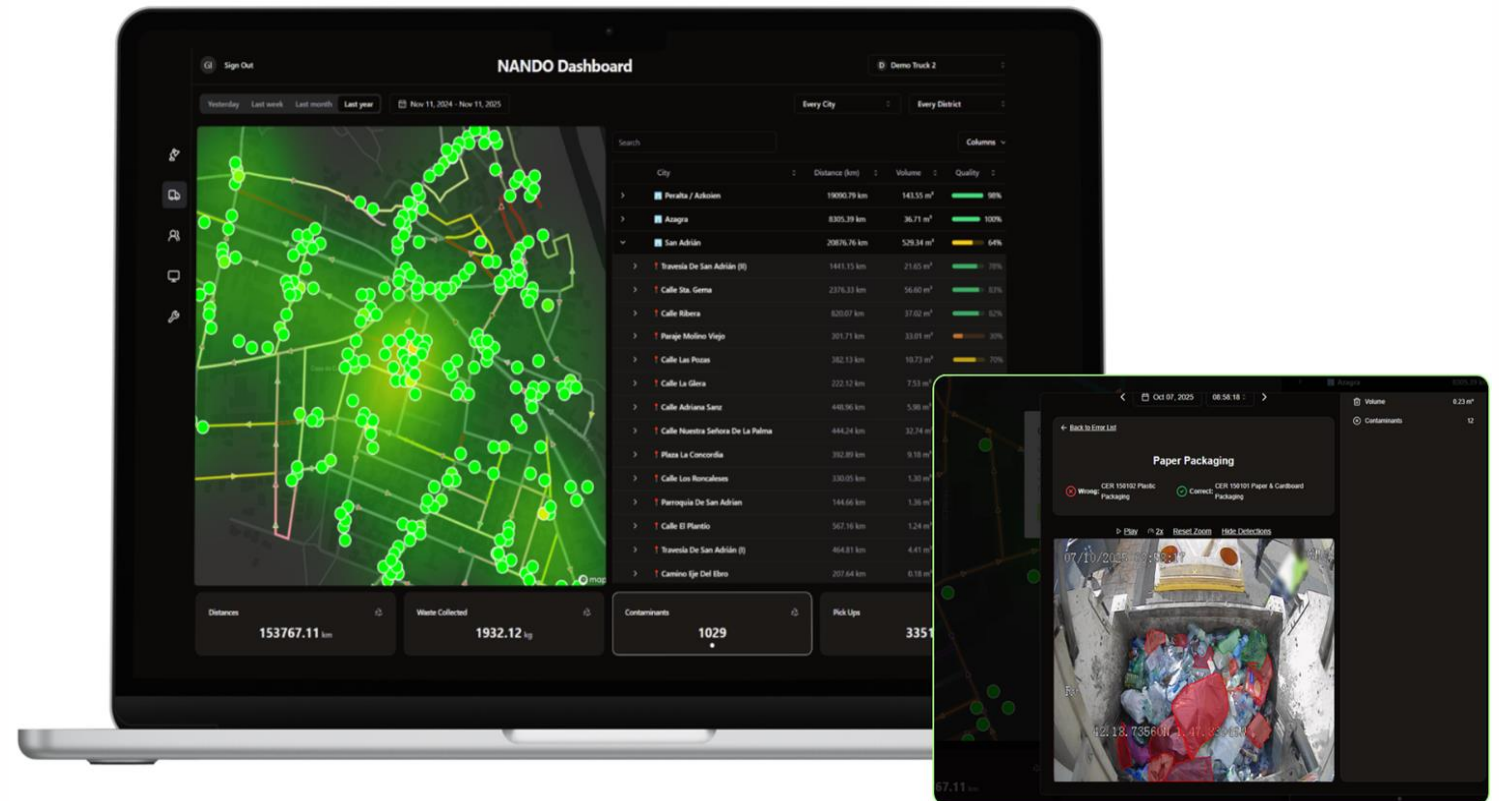
Quantities (kg)



N° of collected bins



GPS data



Sustainable Solutions Match

INCREASE QUALITY



Monitor the quality of waste sorted by each container and adopt data-driven measures to create effective communication with citizens to increase waste quality and recycling rates.

IDENTIFY ABANDONMENTS



Automatically identify waste abandoned near street recycling centers, promptly reporting it to avoid complaints from citizens.

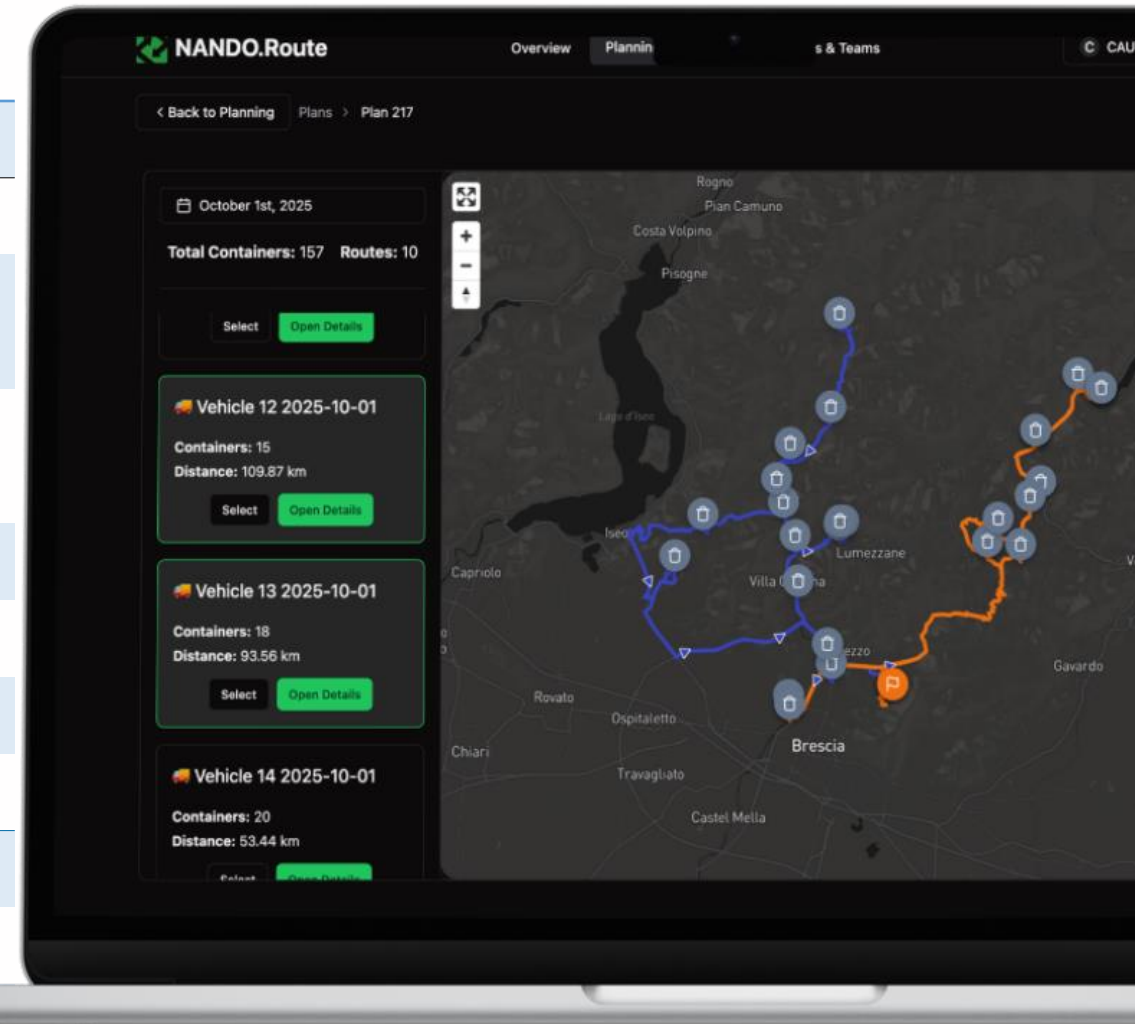
REDUCE THE KM



Optimize truck routing in terms of roads, number of bins, truck size, operating hours, and pickup frequency based on historical measured volume data.

Sustainable Solutions Match

	NO NANDO	NANDO
No. of vehicles	10	10
No. of containers	700	700
Fill level @emptying	63 %	82 %
Distances (km)	144.000	108.000
CO2eq	21.6 t	16.2 t
Fuel costs	€ 620.400	€ 490.000
NANDO	/	€ 25.000
Cost Saving (€)	/	€ 105.400
Cost Saving (%)	/	17 %
CO2eq Saving	/	5.4 t
Saving CO2eq	/	25 %



The main beneficiaries are waste collection companies and municipalities.

Target Audience:



Countries we will be focusing on:



We are looking to collaborate with three key partners:

- **Environmental and ecological transition policymakers**, to align the solution with public sustainability strategies.
- **Waste collection vehicle equipment providers**, to integrate the solution directly into collection vehicles.
- **Waste management consulting firms**, which design and optimize municipal waste collection systems.

These partnerships would help us scale the solution and integrate it effectively into real waste management infrastructures.

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Book a meeting with: NANDO

Giovanni Lucifora

Co-founder | Business Development Manager

NANDO

giovanni.lucifora@nandoai.com



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Droppie – Recyclestore

DrOPPIe

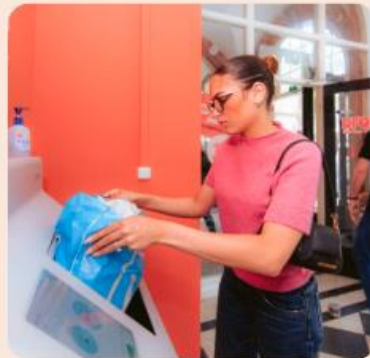
Droppie

Stef Traa

www.godroppie.com

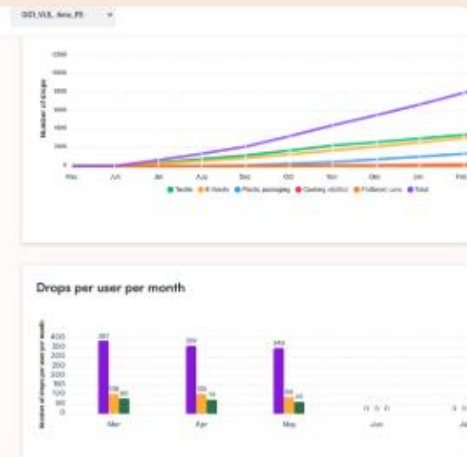
Introduce your sustainable solution

A USER-FRIENDLY AND PLEASURABLE EXPERIENCE



We provide a positive recycling experience that effortlessly links our inviting drop-off locations with our user-friendly application.

DROPPIE – A TECHNOLOGY FOR AN OPTIMIZED BACKEND



Our intelligent backend emphasizes automation and data acquisition. For instance, our DropBot employs image recognition to detect waste and efficiently process materials.

Describe your solutions differential value and sustainable impact

KEY METRICS – 18 MONTHS

58.183

**Active
Households**

29.789

recurring users

600

**Daily Visitors Per
Store**

283.851

Drops

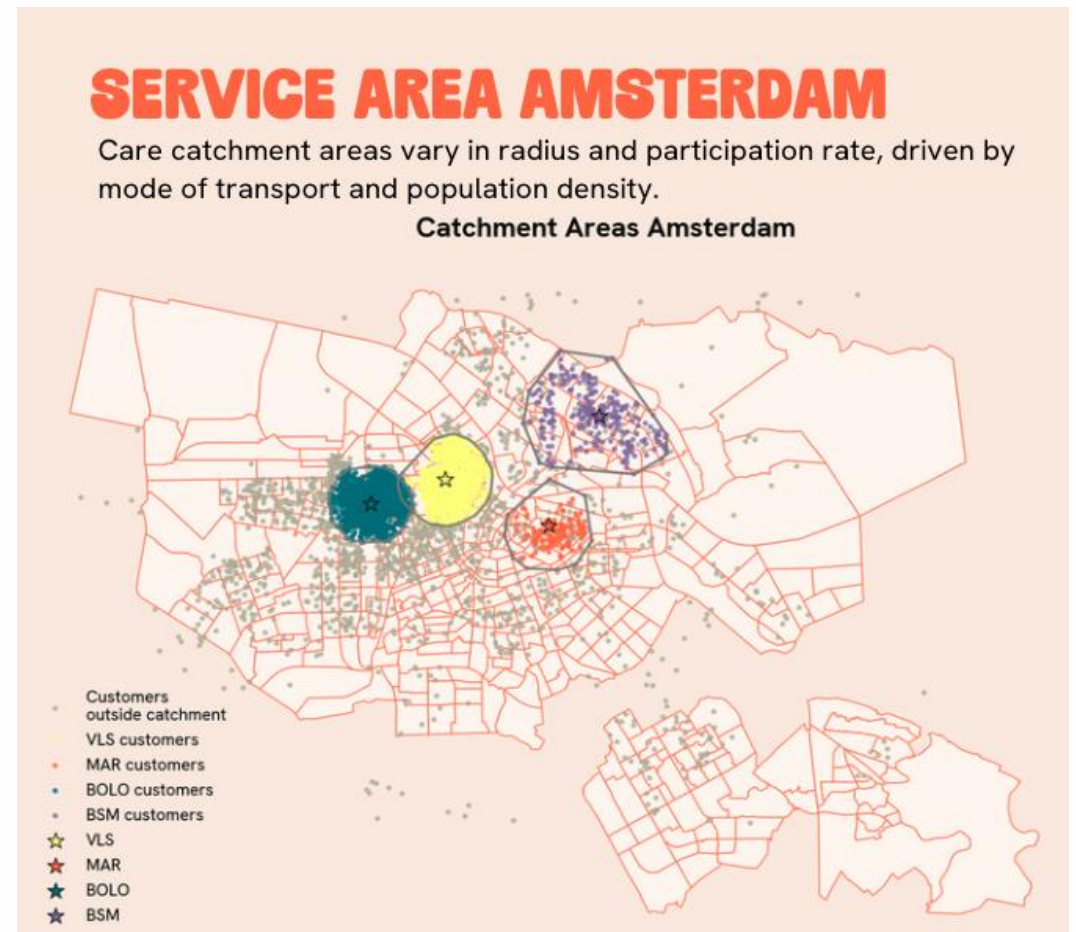
360.895 KG*

TOTAAL ingezameld

*EXCLUSIEF DPR

Market/Target audience – Who can apply your solution?

- ***Producers & brand owners that are interested to take back:***
 - Packaging (plastics etc)
 - End of life product (Electronics)



Cooperation partners you would like to connect to beyond finding new customers?

- *European producers & Brand owners that want to bring back their packaging or end of life products!*
- *EPR – Extended Producer Responsibility*
- *Anyone keen to connect!*

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Book a meeting with: Droppie

Stef Traa
Droppie

www.godroppie.com



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droppie



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Maria Lumbierres, ACCIO
Sabrina Wodrich, ZENIT
Peter Jaspers, Flanders Investment & Trade
Janine Kaya, Netherlands Enterprise Agency (RVO)

mlumbierres@gencat.cat
sw@zenit.de
peter.jaspers@fitagency.be
janine.kaya@rvo.nl



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ZENIT



FLANDERS
INVESTMENT &
TRADE



Netherlands Enterprise Agency

