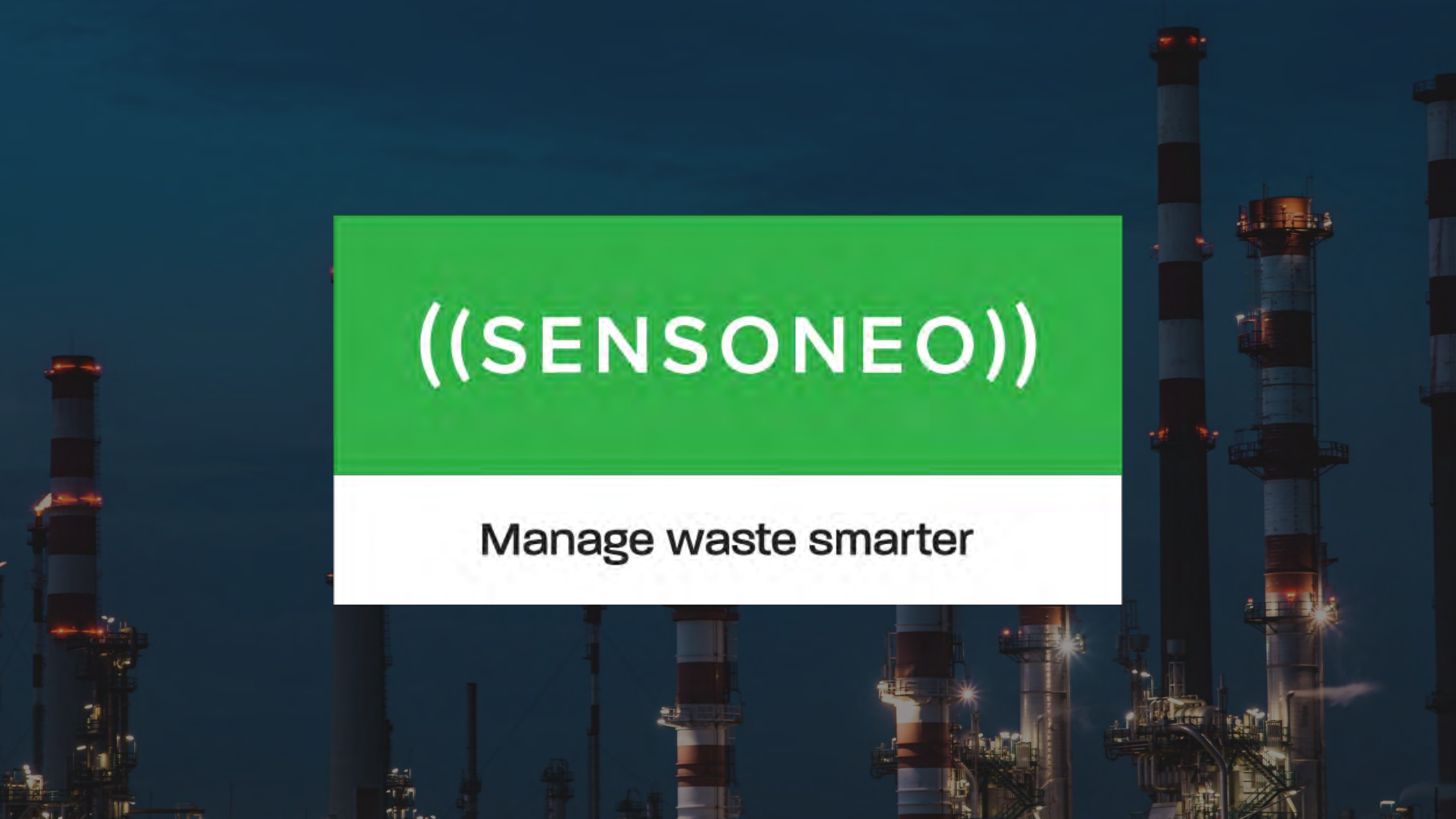
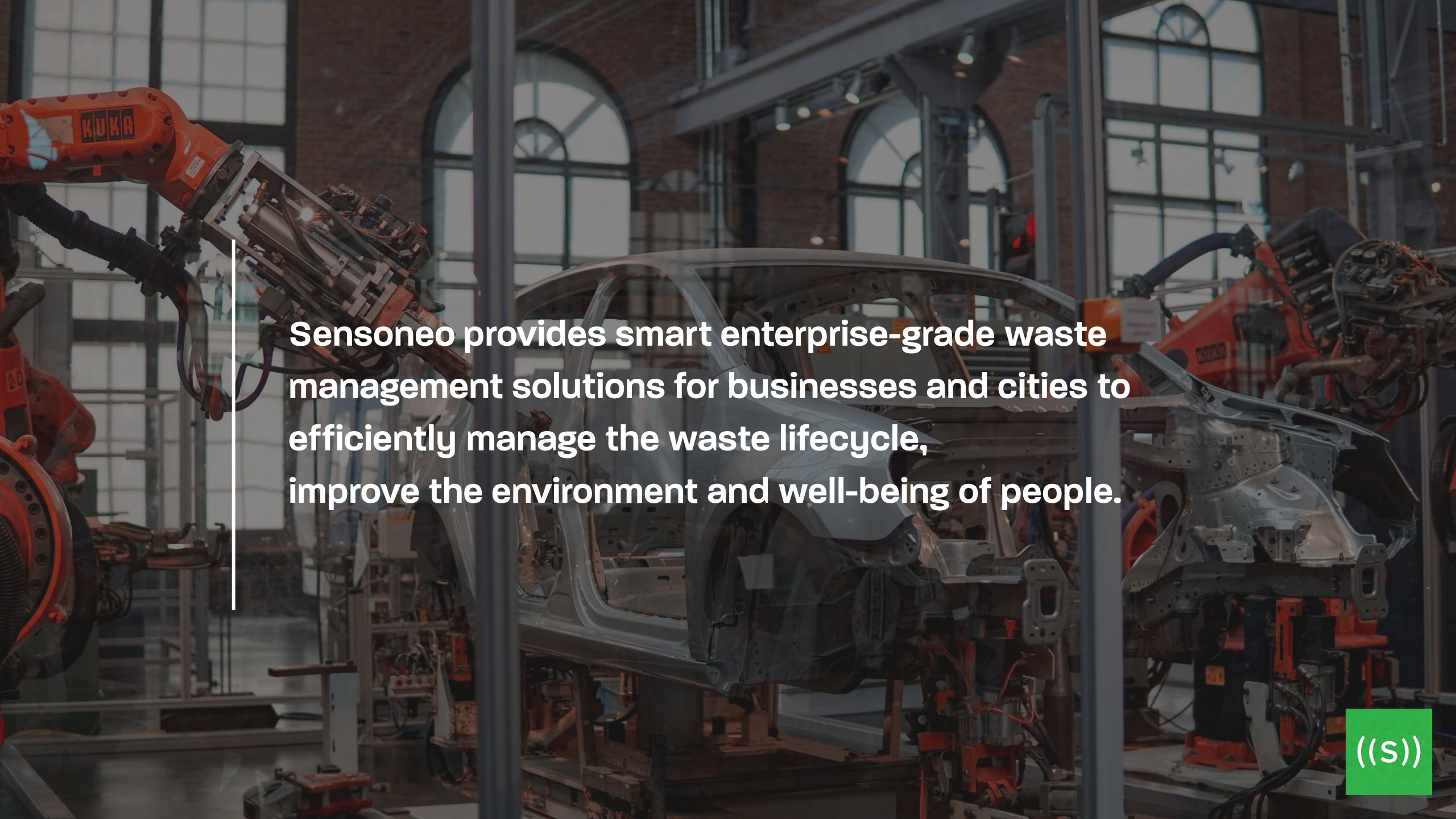
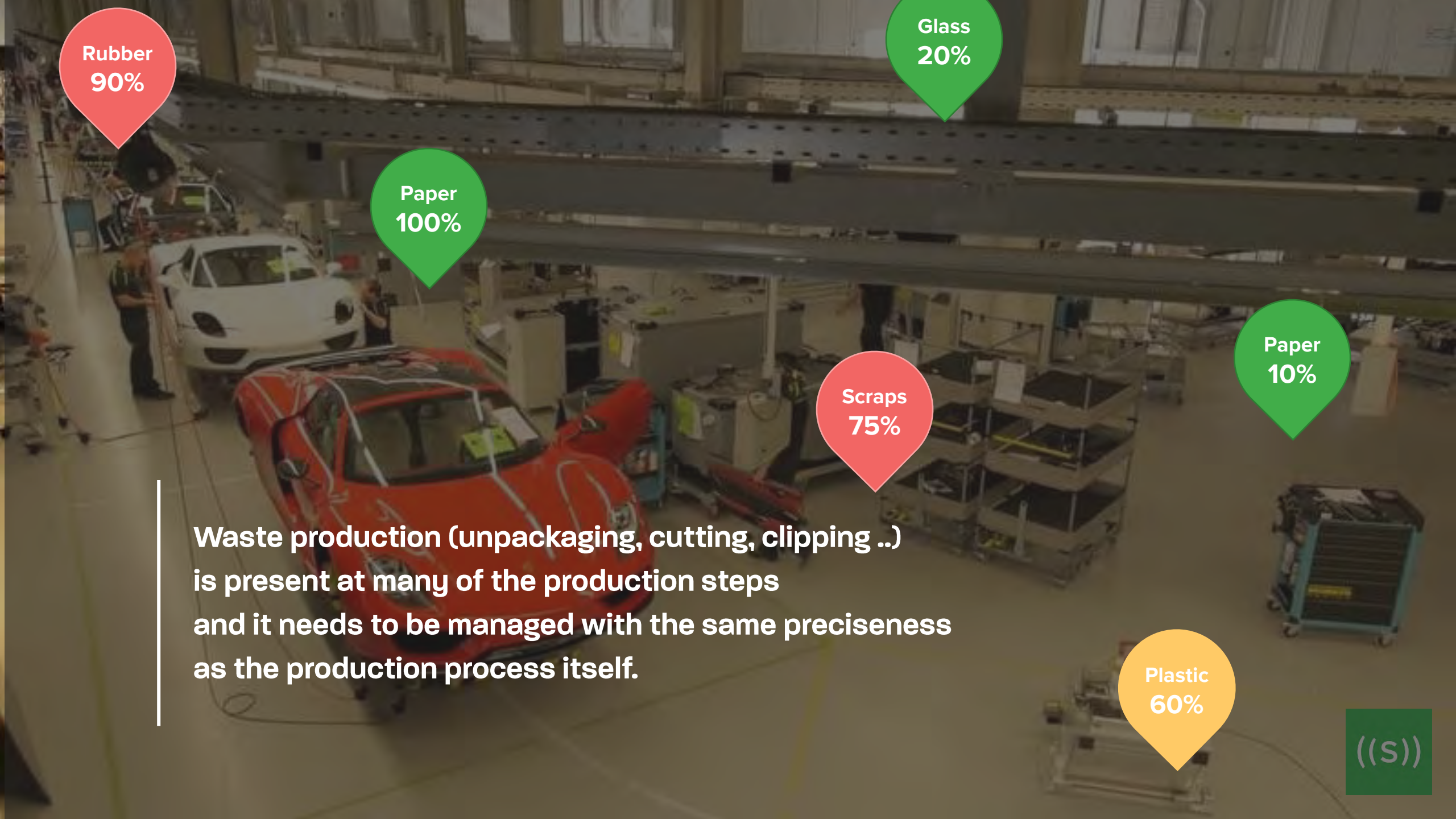

((SENSONEO))
Manage waste smarter



Sensoneo provides smart enterprise-grade waste management solutions for businesses and cities to efficiently manage the waste lifecycle, improve the environment and well-being of people.



Waste production (unpackaging, cutting, clipping ..)
is present at many of the production steps
and it needs to be managed with the same preciseness
as the production process itself.

CHALLENGES

for Waste Managers in Factories

1 **DELAYED COLLECTION OF OVERFLOWING BINS** DISRUPTS YOUR WELL-MANAGER & OPTIMIZED PRODUCTION FLOW

2 **UNNECESSARY COLLECTION OF HALF-EMPTY BINS** DISRUPTS YOUR PRODUCTION LINE WORKFORCE

3 **UNNECESSARY ROUTES** ARE WASTING YOUR RESOURCES

4 **LACK OF DATA** ABOUT THE VOLUME OF THE WASTE PRODUCED AT EACH PRODUCTION STEP

Waste Management solution designed for Factories

- Enabling Just-in-Time waste collection
- Automating route scheduling to eliminate human tasks
- Calculating fastest routes on factory floor plan to collected only reported bins
- Reporting fullness twice – request for emptying and when emptying
- Gathering feedback while on the route
- Analyzing data per bin, per route, per driver in management reports
- Feeding live updates and notification on unexpected events to Operators
- Helping with 5S implementation
- Up and running in just 7 working days

Factory Waste Management Solution

Fullness Notification

Automated Route Planning

Just-in -ime Collection by Driver

EMPTY BINS

1

OR

2

3

Smart Button & Smart Sensor

Smart Button allows assigned personnel **to indicate that the bin is full.** Upon pressing, it sends notifications to the Sensoneo Platform.

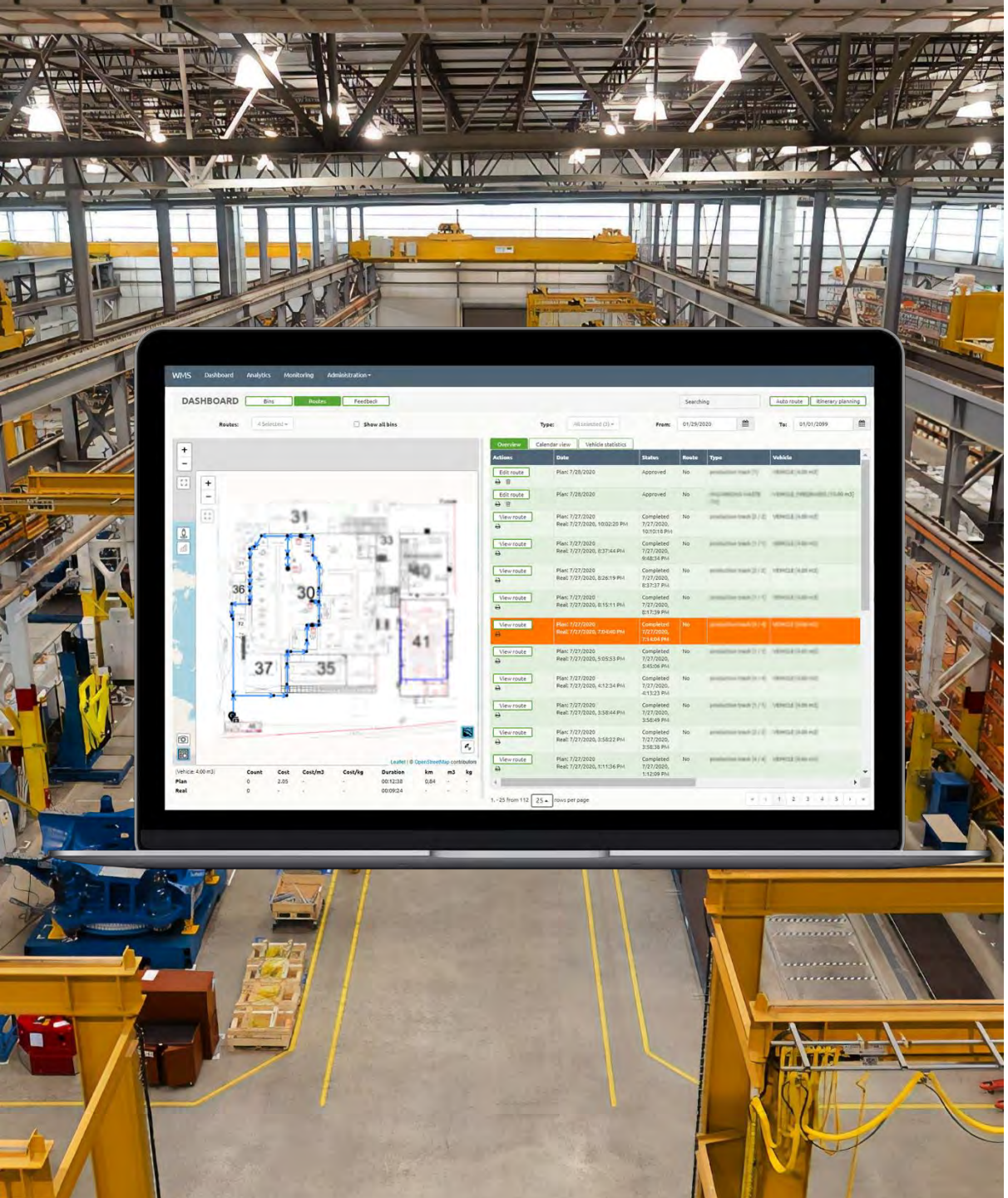
Smart Sensors feed Sensoneo Platform with **live measurements on bin fullness** several times a day.

The Operator immediately sees all the **full bins in Dashboard** and Route Planning Engine is **automatically recalculating the routes** to accommodate the new full bin.

Both Button and Sensor can be placed on **bins and containers of various types and sizes** and send notification from both **indoor and outdoor locations.**

Smart Button is a **simple and cost-efficient tool for manual fullness notification**.

Smart Sensor is **reliable and effortless tool for automatic fullness notification.**



Platform for Operators

Smart Waste Management System is a powerful, cloud-based platform designed by Sensoneo.

You create a **detailed database of all the bins** including trash types, capacities, bin locations, and bin pickup points. The **Platform consolidates all the data** from Smart Buttons, Smart Sensors and Collection App.

The Operator manages the **bin database, rules for route planning, and the fleet.** The Dashboard provides quick access to all the bins, planned/ongoing/ executed routes, pickups and reported fill levels.

Operator has full control over waste collection operation remotely.

Collection Planning Engine

Collection Planning Engine can accommodate multiple rules and count in different variables. The Engine is recalculating routes every minute to accommodate new “full bin” notifications.

Example of variables

Vehicle capacity, bin capacity, trash type, bin type, work schedule

Example of rules

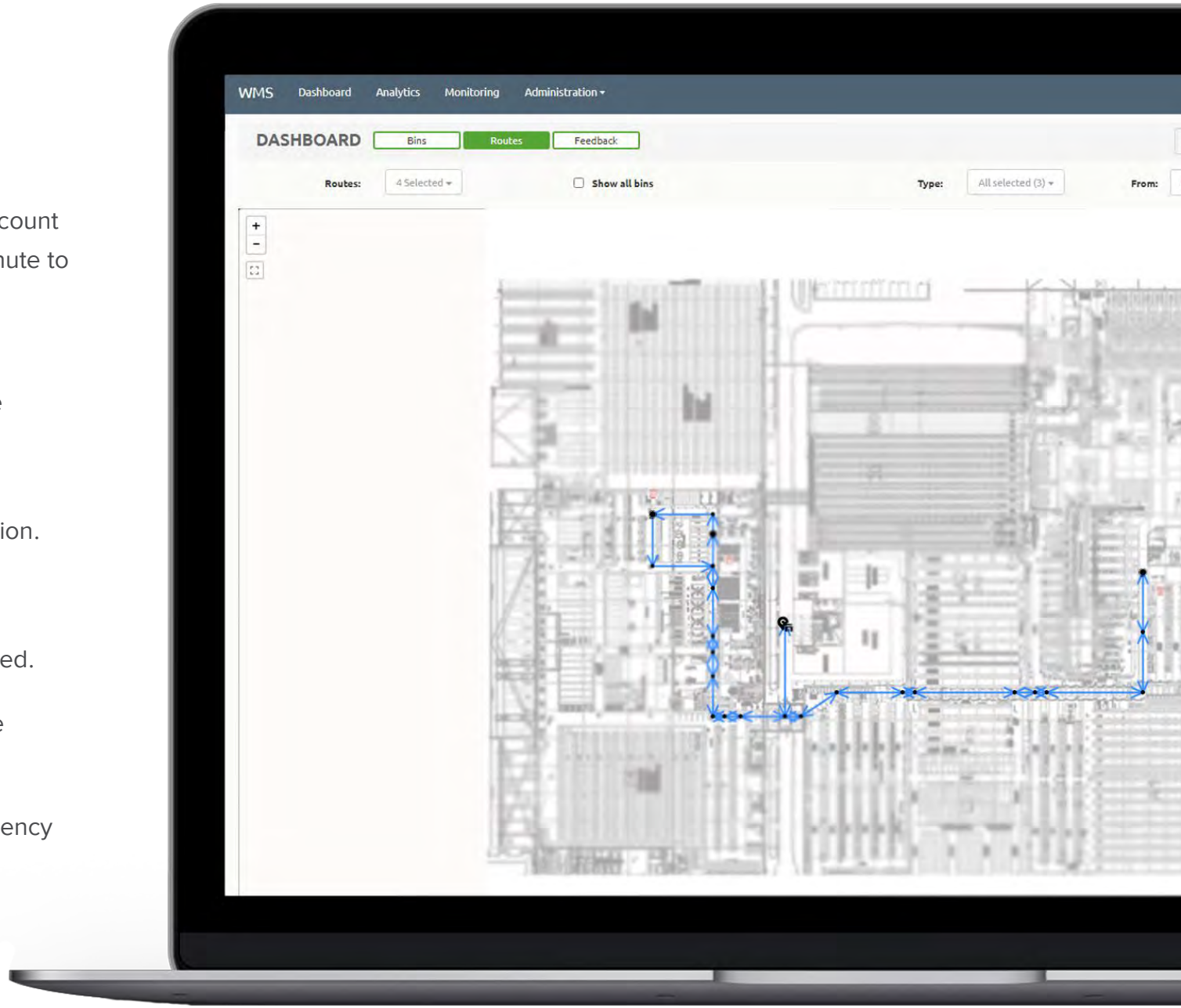
The bin must be emptied within 60 minutes from fullness notification.

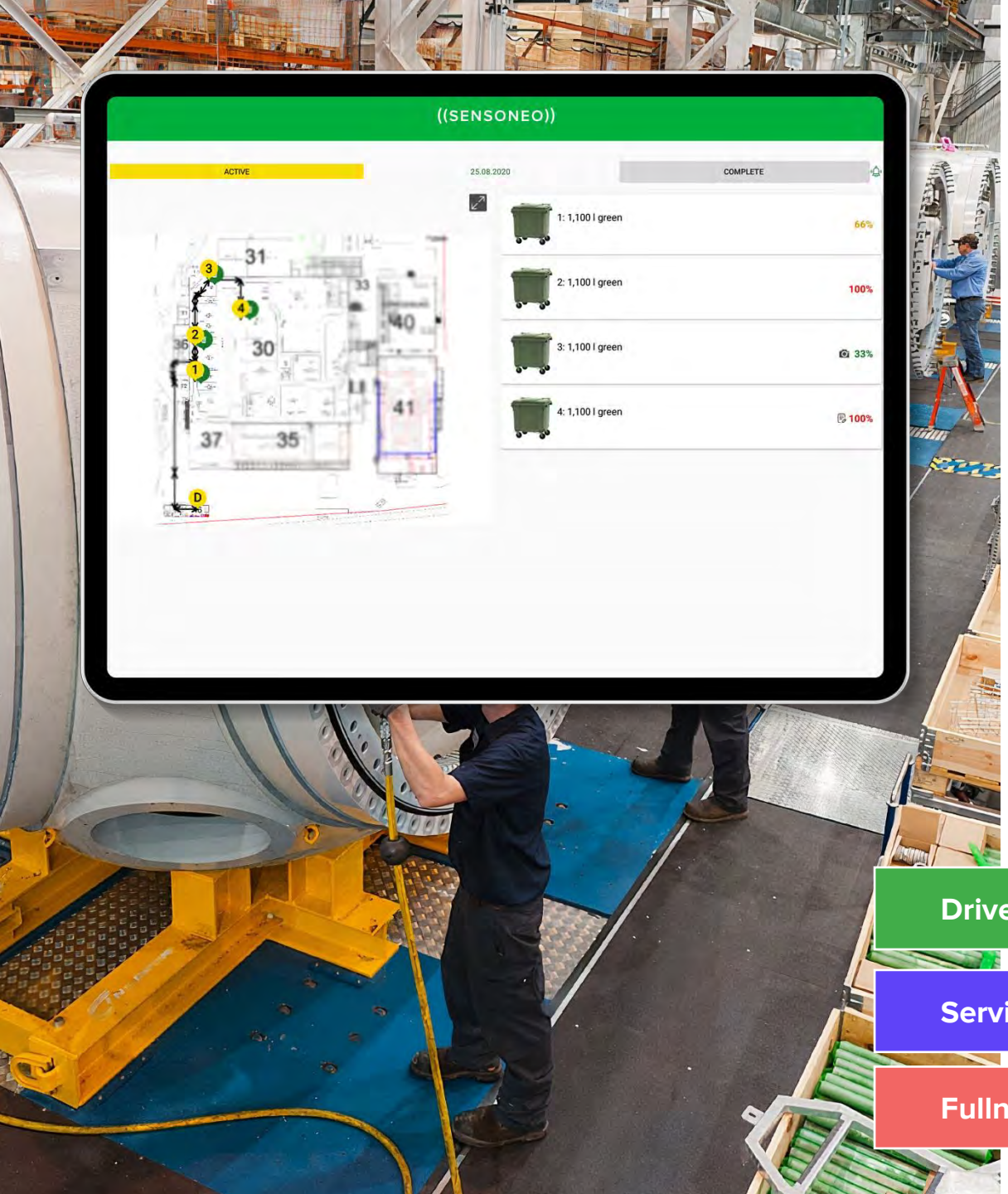
The driver always has to take the oldest route available.

The driver can accept new route only if the previous was completed.

Trash type A and B can be collected at once, but type C has to be collected separately.

Trash type D is collected on-demand and type F has a fixed frequency 1x day.





Collection App for Drivers

Collection App is a mobile app available for Android devices. We designed the **Sensoneo Platform for Operators** and **Collection App for drivers.** Collection App helps drivers **navigate the premises and identify bins for collection**.

Drivers can share feedback with Operator via the app – manual service verification that bin was emptied including fullness indication (traffic light system).

Collection App **sends all the data to the Sensoneo Platform** and Operator has **remote control over the operations.**

Driver Navigation

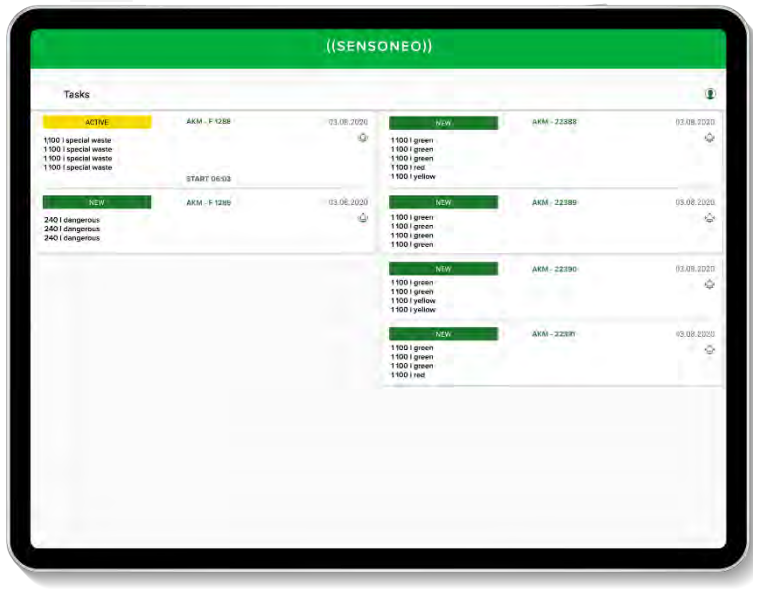
Service Verification

Fullness Status

Collection App for Driver

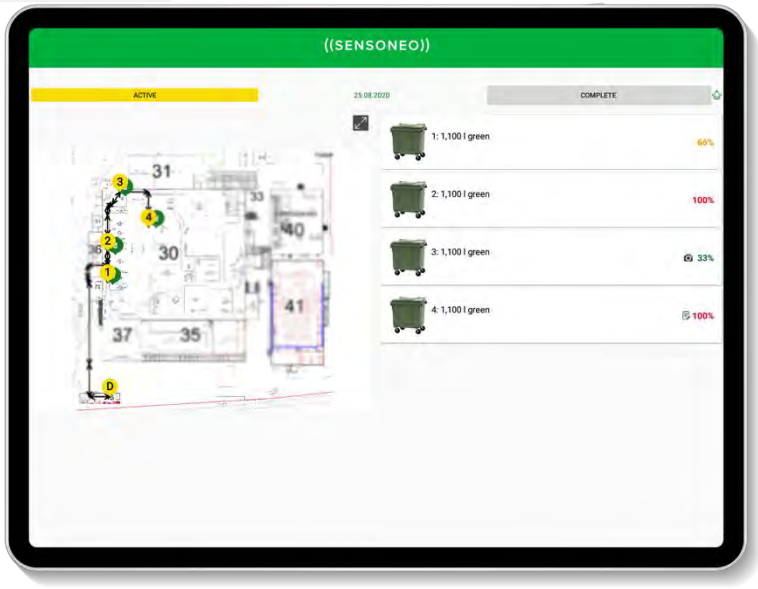
1

Collection
To-do List



2

Floorplan Navigation
& Bin Identification



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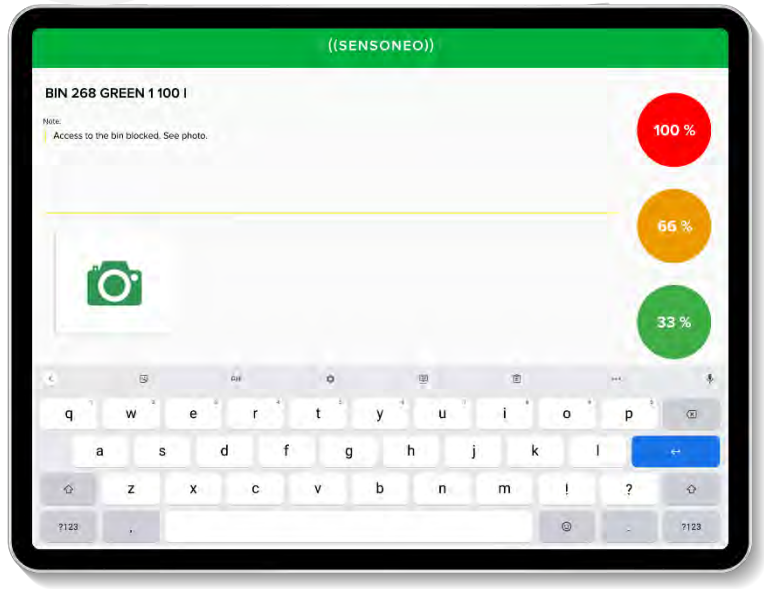
Feedback
& Service Verification



Insights for more efficient waste management

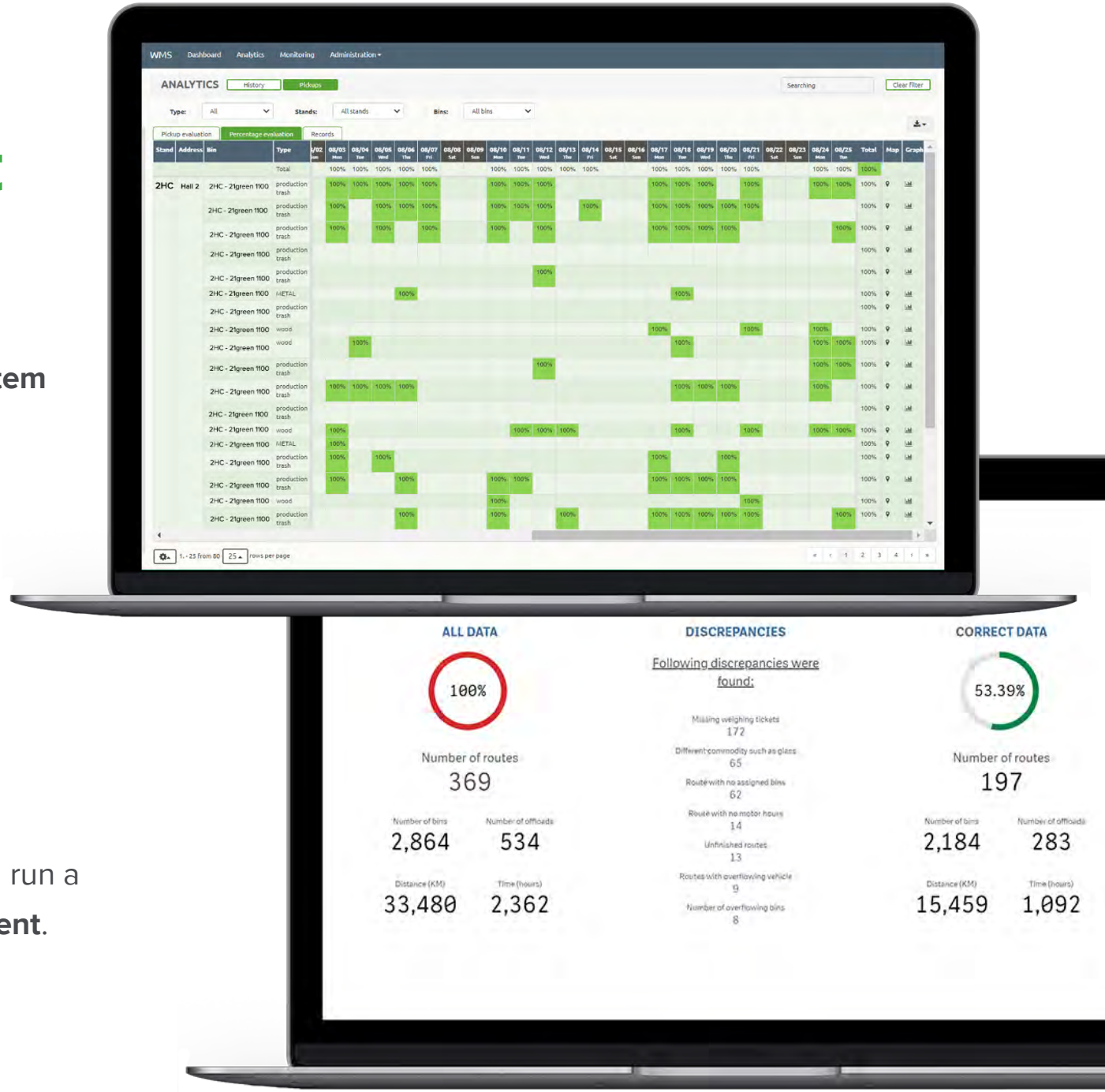
Analytics Dashboard in Smart Waste Management System

The operator follows everyday operations via

- Analytics on every single **bin**/pickups, fill level
- Analytics on executed **routes**/length, bins, costs

Tailor-made reports in Smart Analytics

We are happy to source our data to **fully customizable dashboards** in Smart Analytics (Qlik platform) to help you run a **more efficient operation and report easily to management**.



Express solution deployment

Inputs we need for implementation:

Blank factory layout in PNG format

Factory layout with marked

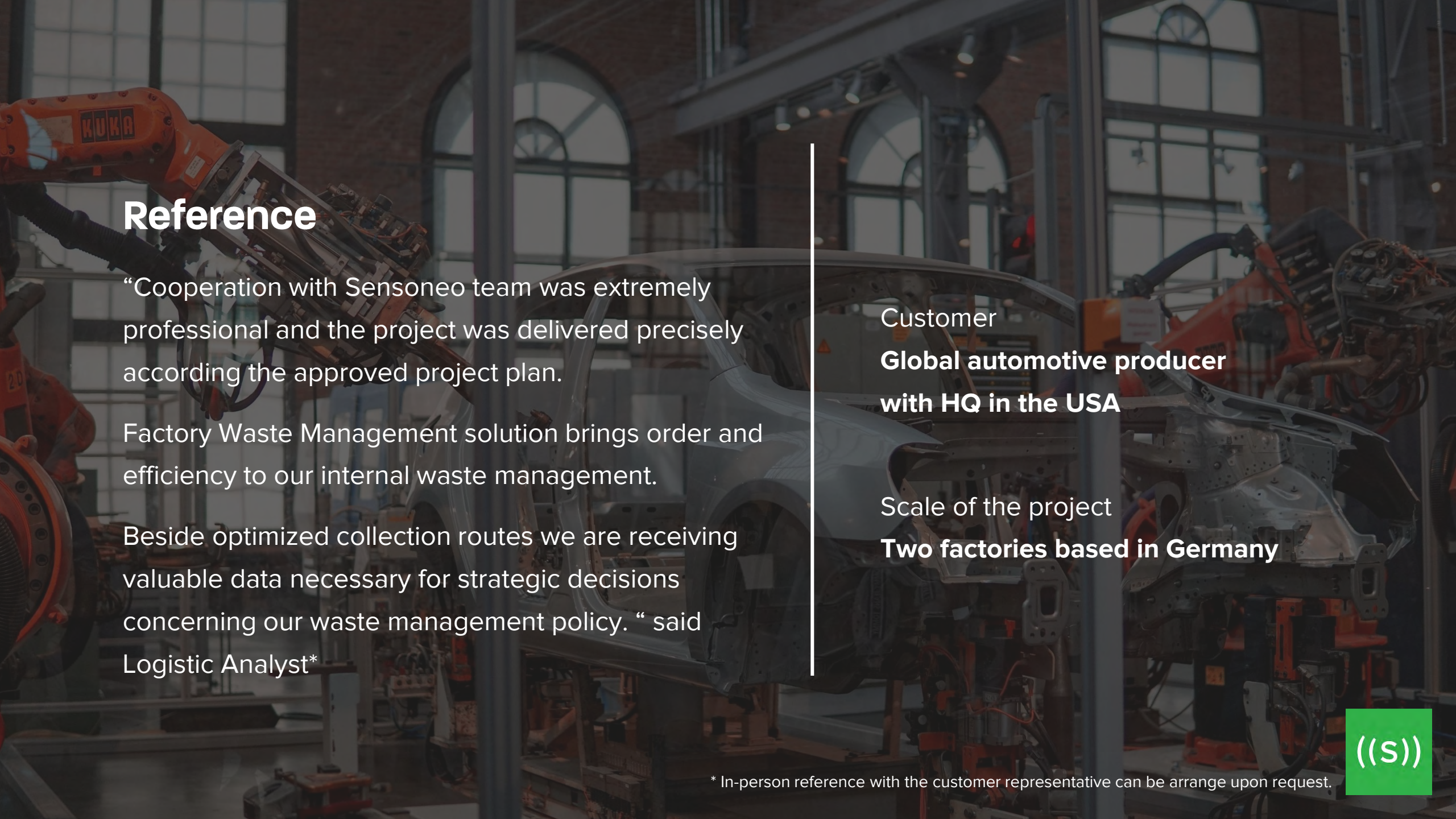
- Bin positions
- Collection point positions
  (place where the collection vehicle can park to collect the bins)
- Crossroads

Bin Details

- Bin ID, volume/capacity, trash type, bin type

Other requirements

- Average collection vehicle speed or speed limits on the floor
- Any schedule limitation on access to bins (emptying)



Reference

“Cooperation with Sensoneo team was extremely professional and the project was delivered precisely according the approved project plan.

Factory Waste Management solution brings order and efficiency to our internal waste management.

Beside optimized collection routes we are receiving valuable data necessary for strategic decisions concerning our waste management policy. “ said Logistic Analyst*

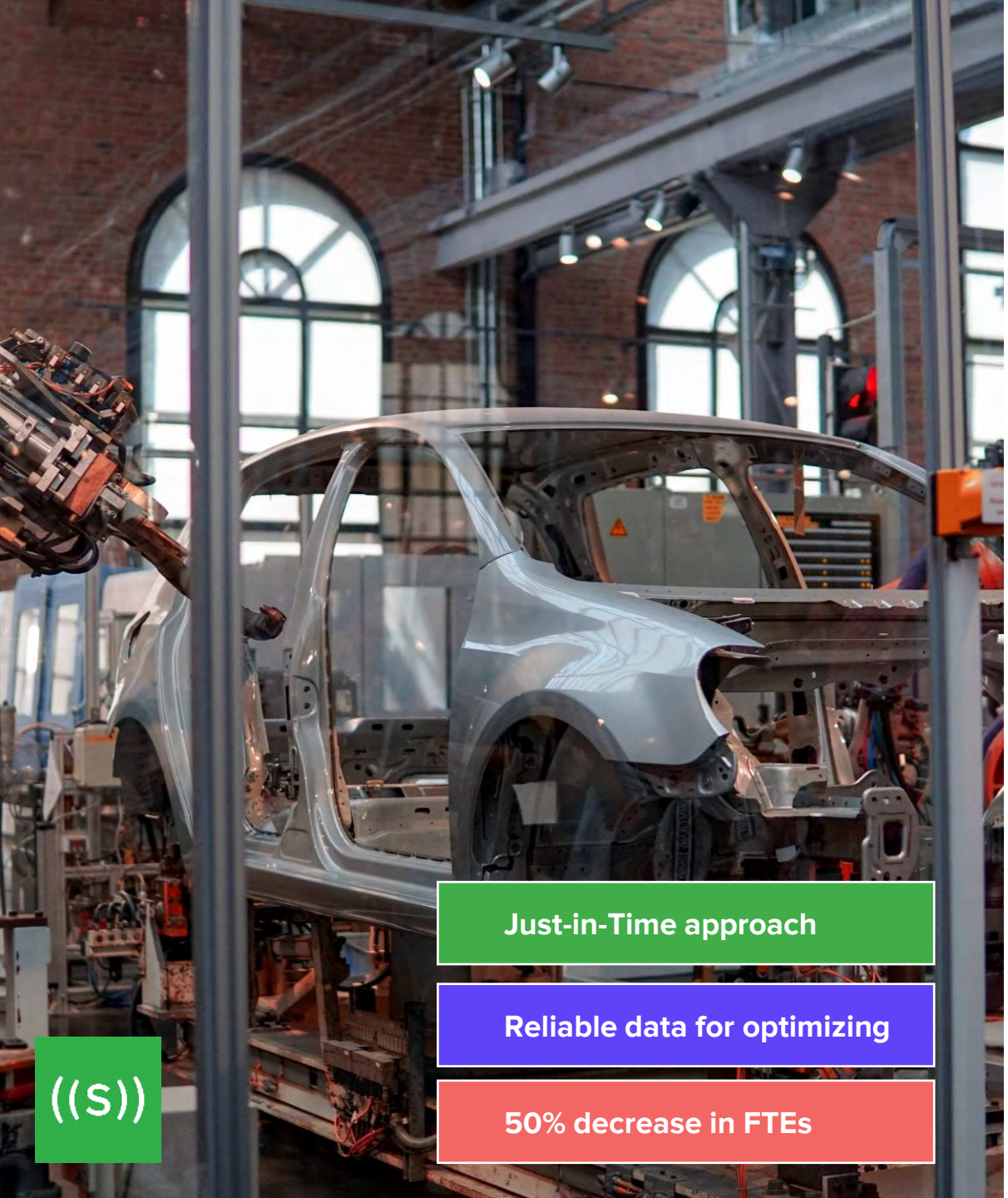
Customer

Global automotive producer with HQ in the USA

Scale of the project

Two factories based in Germany

* In-person reference with the customer representative can be arrange upon request.



Reference:
Just-in-time Waste Collection

ThePartner

Global automotive producer with HQ in the USA. The company decided for a pilot project in two factories based in Germany.

The Scope

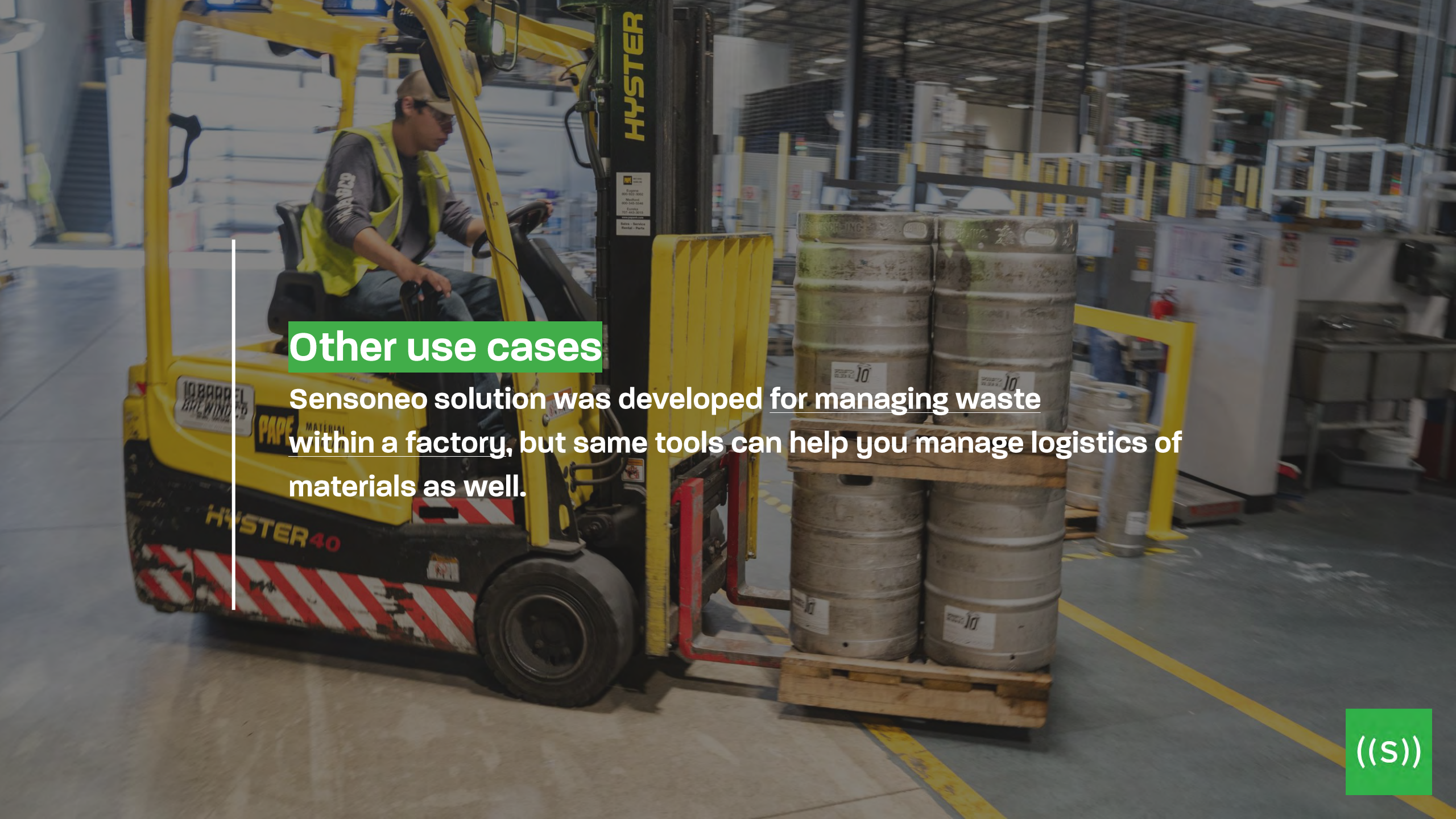
Organize waste collection based on on-demand requests (Smart Button) or based on fixed schedule. Provide service verification and statistics on waste production.

Expectations

- Minimize disruptions of the production
- Eliminate overflowing bins and ensure sufficient bin capacity
- Automate logistic planning to streamline whole process
- Provide service verification and driver navigation within the floorplan

Implementation

In May 2020, the customer was looking for a new supplier to solve the waste logistics within their premises. Sensoneo solution was deployed and piloted during summer 2020. Now, **the whole waste collection in the factories is run by Sensoneo solution.** It is automated. Management has full remote control. Service quality improve significantly.



Other use cases

Sensoneo solution was developed for managing waste within a factory, but same tools can help you manage logistics of materials as well.

Better
quality of service

More bins
on right places

Cleaner & safer
workspace

Less disruptions
to production

Sensoneo keeps waste under control

Optimized
collection frequencies

Decrease in pickup
frequencies

All processes deserve
to be optimized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