



Model of Common Waste Collection and Transportation Management in Norway

Terje Strom, CEO at BIR Nett, Norway (city of Bergen)



Waste in different language

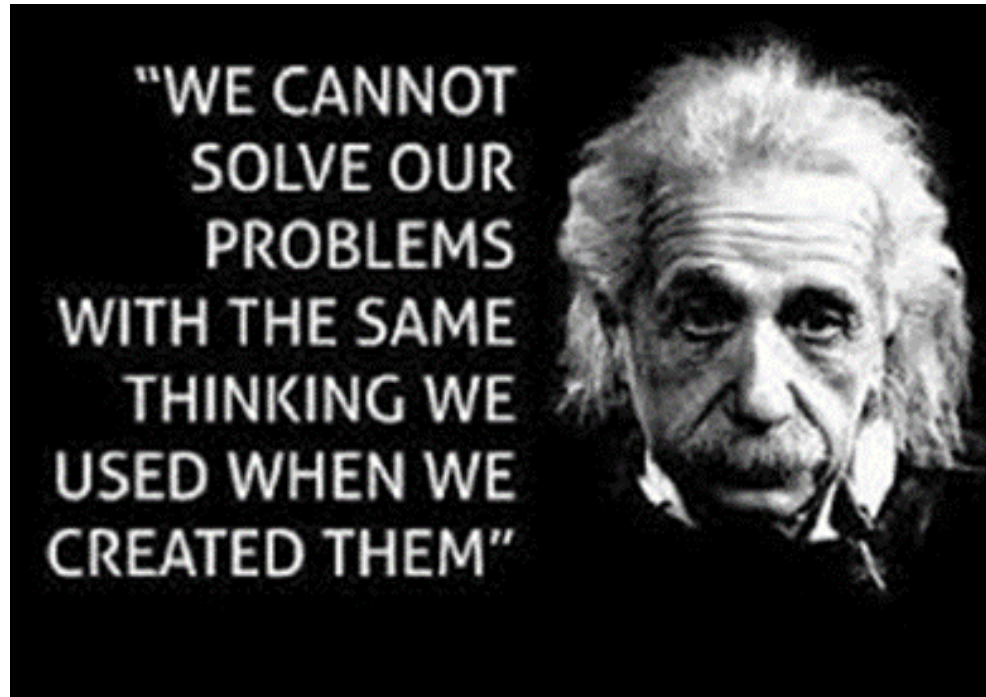
- Garbage
- Trash
- Déchets
- Afval
- Residuos
- 垃圾
- відходи

- Avfall
- Søppel

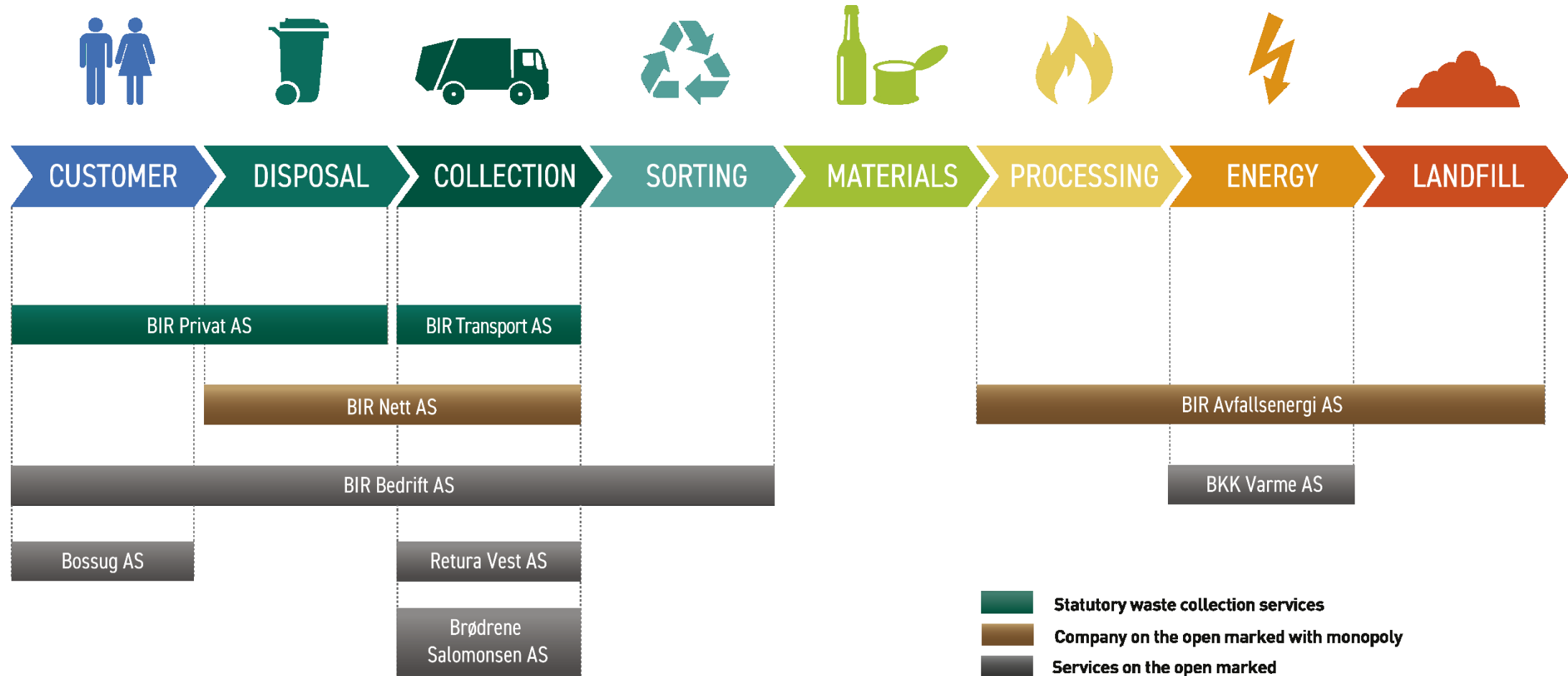
- Boss



Why am I talking about waste system?



The value chain of waste



Historical waste management

First it was picked up by horse and cart

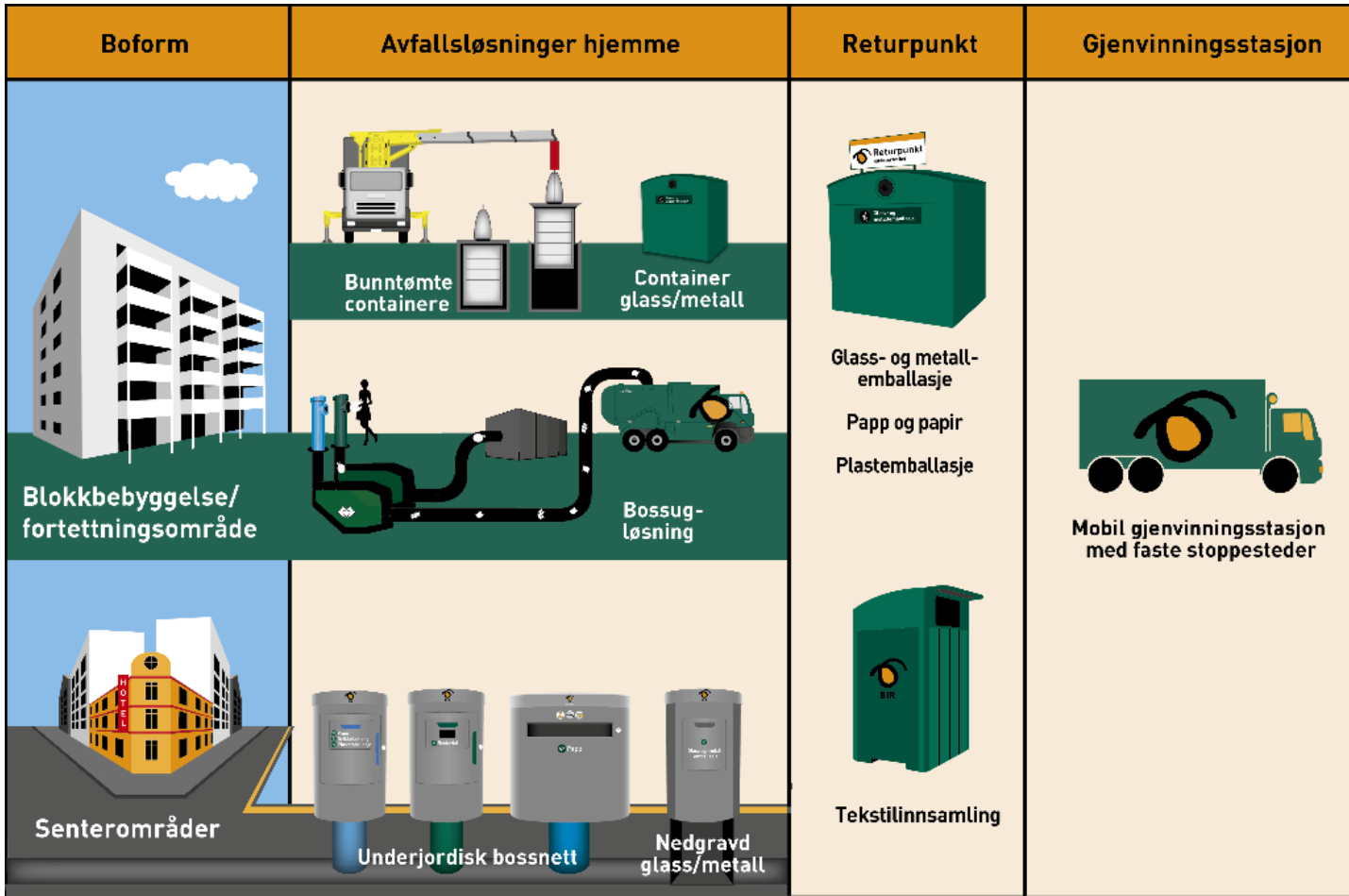
Then it was carried to cars

Now we are lolling it into cars

..or we lift it with cars



Modern waste solutions in cities and densification areas



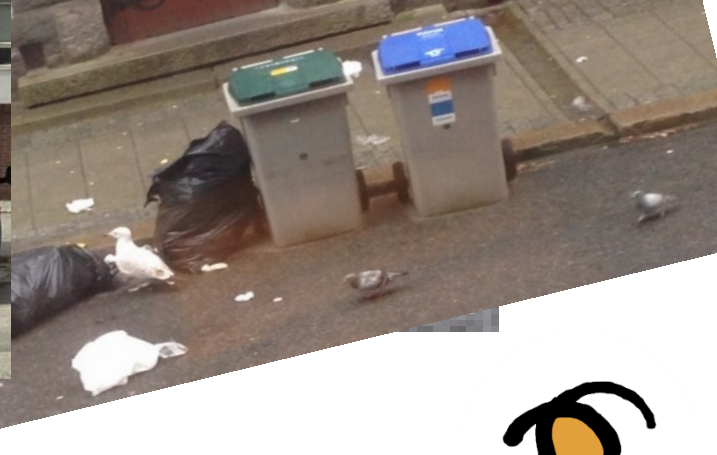
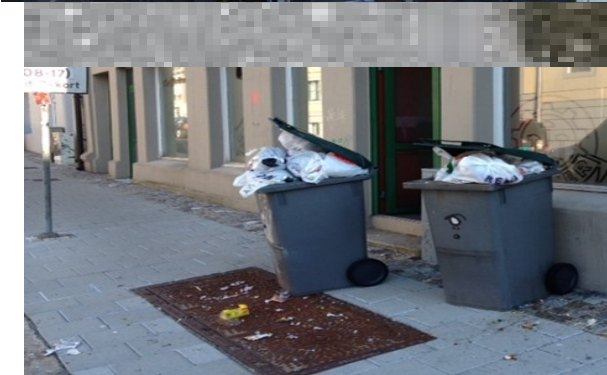
- Waste solutions are socially critical infrastructure
- With more densification and growth in the center areas, expectations and requirements for waste solutions increase
- We must ensure area-effective, aesthetic, well-functioning and hygienic solutions
- The solutions are standardized so that they become predictable and cost-effective

This is Bergen.....





BUT: Bergen may also look like this!!!



Does the City accept this?





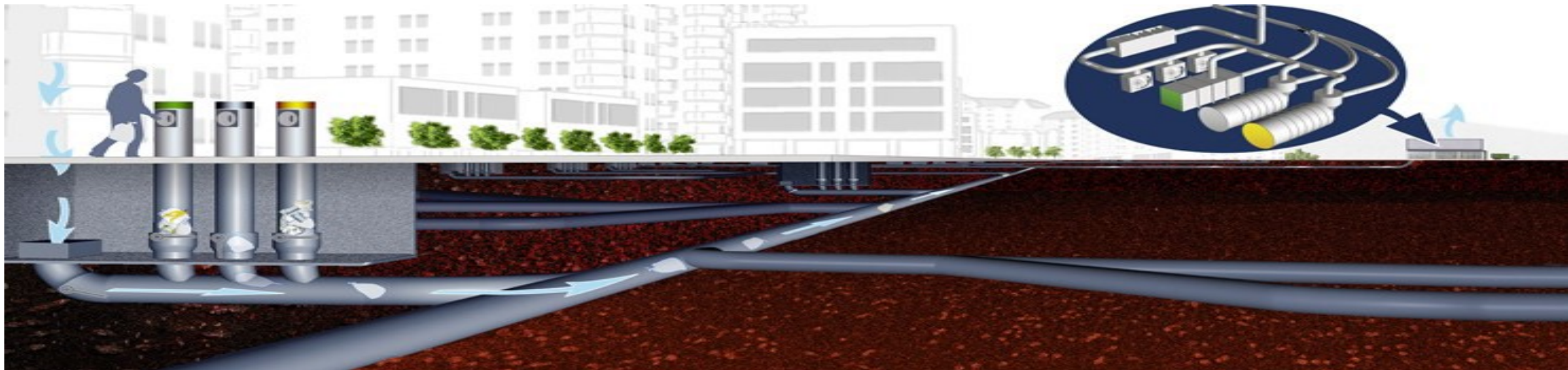
PWCS in Bergen



<https://vimeo.com/309978114>

What is a Pneumatic Waste Collection System?

- Underground pipes for collecting various fractions of household and commercial waste
- Operated by pneumatic pressure
- Waste is transported to a terminal on the outskirts of the city centre, where it is compressed in containers and collected by trucks



Benefits achieved.....

Considerable environmental benefits



Safe, clean and attractive city centre



Premium solution for wastecollection



Added value



Social economic benefits

Reduce climate emissions

Reduce transportation

No bins on the streets

Less vermins and pest

No overload

24/7 availability

Space for city transformation

Less pollution

Improved hygiene

Reduced fire hazard

Automatic collection

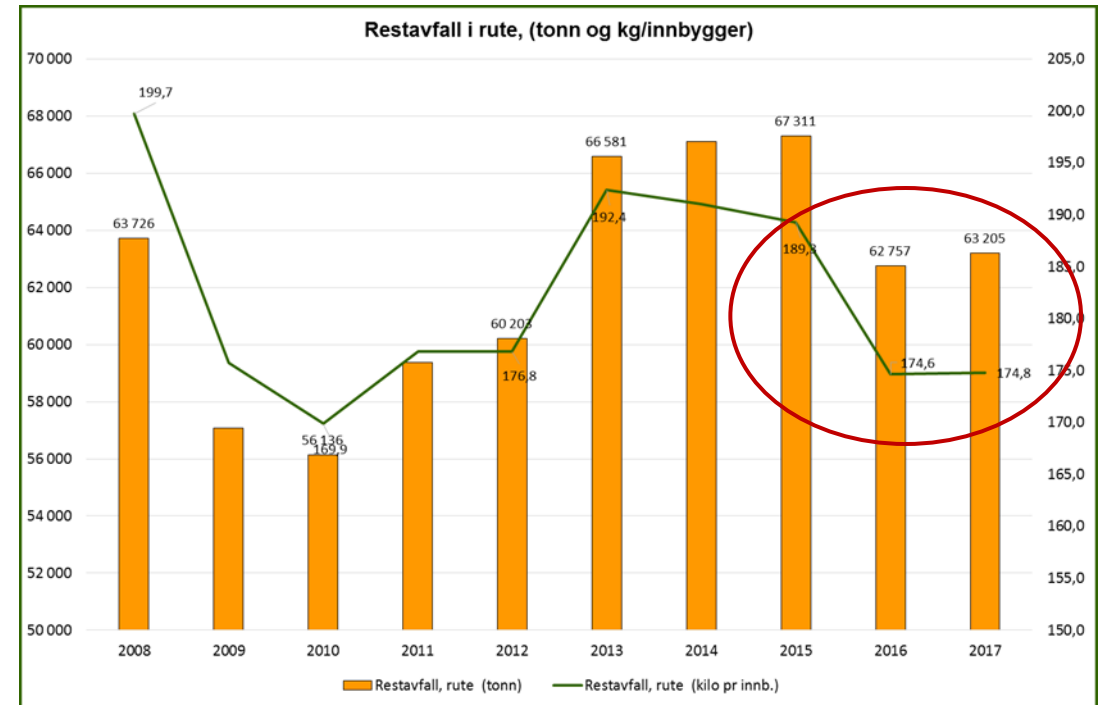
Less smell/odour

Value for money: premium solution for a minor, premium fee
Part of an attractive city centre for new residents

A major part in the upcoming green city of Bergen!

Source separation and effect of fee model (PaT)

- Three drivers for behavior: convenience, environmental awareness and economy
- Focus on facilitation, information and attitude-creating work, as well as ensuring the fee model's incentive at the residential level
- Today: sorting out cardboard / paper, plastic, and glass and metal packaging to save space in the residual waste (practically speaking)





This is to certify that

City of Bergen

has been awarded the

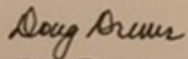
***International
Project of the Year 2018***

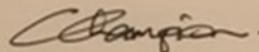
for their work on the

**Bosnett in Bergen Project
Vacuum Waste Collection System**

on

27 August 2018


Doug Drever
President


Chris Champion
Secretary General

Results so far

- High economical level of return for society
- Everybody is happy: citizens, businesses, tourists, politicians, insurance companies, fire department and media
- Streets are cleaner and nicer
- System is always up and running: 24/7
- Fewer wastetrucks and thus lower emissions
- Less rats observed
- No waste ignited fires in PWCS areas



PWCS is an important part of the Smart City development

In a rapidly urbanizing world cities need to become smarter to respond to citizen needs and to reduce their environmental footprint.



THE GLOBAL GOALS For Sustainable Development



THE GLOBAL GOALS
For Sustainable Development
#GLOBALGOALS



WasteIQ

The open waste transaction platform

In collaboration with



Structured data and shared standards are cornerstones for the circular economy.

WasteIQ tracks **individual data** across infrastructure solutions and enable **new business models** in waste management



Underground containers



Vacuum system



Container sensors



Chipped bins



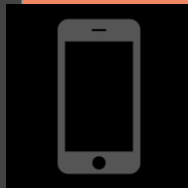
Recycling plants



Transaction & access management



Dynamic pricing



**User behavior,
mobile UX &
gamification**



**Predictive
planning**



**Maintenance &
surveillance**

Thank you for your attention!



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