



# CONSTANT TECHNOLOGICAL INNOVATION IN PAPER AND BOARD COLLECTION



## Background (REF: 1)

European legislation on waste sets clear targets for reduction of waste and establishes an ambitious and credible long-term path for waste management and recycling. The European waste targets (e.g. recycling 65% of municipal waste by 2030, recycling 75% of packaging waste by 2030, reduce landfill to maximum of 10% of municipal waste by 2030) are accompanied by concrete measures to address obstacles, such as innovation.

Innovation in key aspects of waste and recyclables management may help to achieve these targets: low-cost interventions, big data analysis and new regulations on landfills are key factors for the smart management of waste in cities.

Read more: *High Tech and Low Cost Solutions to Handle Urban Waste*



## ACTION

Implementation of a systematic process of continuous technological innovation through annual meetings to: analyse existing indicators in paper and board collection, identify problems and challenges, analyse arising technologies and decide technological changes to be done

## Examples of good practice implemented

### Big Data for PfR collection in Rotterdam (The Netherlands) (REF: 2)

This city is using big data to improve the logistics of paper and cardboard collection. In this project, digital sensors help ensure there is space inside collection containers and prevent obstructions. “We started in March 2015,” says Joost van Maaren, head of Collection and Reuse of Waste in Rotterdam. “At present, we check about 250 paper containers. Real-time analysis of data allows us to empty bins when they are about 80% full.”

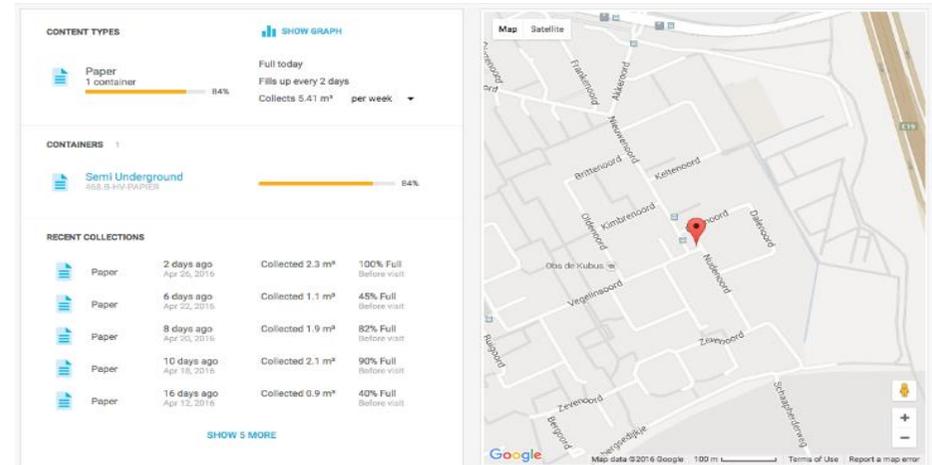


Figure-1. Software for waste and recyclables collection implemented in Rotterdam. Source: Cities Today

### Valladolid (Spain), Genoa (Italy) and Kartal (Turkey) (REF: 3)

These three municipalities have been involved in the European project R2Cities where researchers have drawn up a feasibility study to introduce low-cost innovations to enhance separate waste collection at a social housing estate in cities' suburbs. Project plans include increasing the percentage of door-to-door collections to 72%, compared with the present 30%, and stockpiling wastes at recycling plants to obtain revenue from it. A second phase of the project looks to allocate the organic portion of the waste to a local compost site to avoid transport costs and pollution, then use the organic material in green areas of the city.

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## Keep in mind that... (REF: 4)

- ▲ A specific municipal budget item should be reserved for this purpose.
- ▲ It is important to include members from different areas in the strategy definition (e.g. industry, politicians, experts, citizens) in order to have a holistic view of these issues.
- ▲ It is important to pay attention to private initiatives; European projects calls and Annual Congresses developed by local/national companies. This can be a good source of ideas since main barriers, future perspectives and challenges are usually exposed.

## How to start? (REF: 5)

- ✓ Prescribe innovation as an objective within the strategy and make it part of regular work.
- ✓ Define the KPIs related to collection and management of paper for recycling in the municipality and measure them.
- ✓ Develop a study of the initial situation of the municipality, taking into account previous KPIs, identifying key processes, bottlenecks, challenges and areas for improvement.
- ✓ Invest in developing a systematic process of technological innovation in order to improve the issues that have been found.
- ✓ Look for innovation projects, other partners looking to achieve the same objectives or that can complete a part of the recycling chain.
- ✓ Establish a set of objectives based on a SMART methodology
- ✓ Define specific measures (operational, legislative, economics, etc.) to achieve objectives, including information about: responsible to implement it, deadlines and expected impact.

- ✓ Schedule regular meetings (at least) with main stakeholders involved to review targets achievement, success of implemented measures and to plan the strategy for the next year.
- ✓ Communicate results to the whole working group (e.g. by creating an information channel so that during the rest of the year the information can be updated).

## Potential Benefits (REF: 4)

			
Improvement in paper and board collection and recycling rates due to the improvements in technology derived from innovation investment	●	●	●
Improvement in management structure, being able to monitor performance and allocate optimally resources	●	●	●
Innovation including different actors from the waste and recyclables management chain will enable decision makers to have a holistic view of the main problems and find solutions for the whole system		●	●
Increase the municipality status and reputation due to the investment in innovation		●	●



### References:

1. R2CITIES: Residential Renovation towards nearly zero energy CITIES
2. CITIES TODAY (2016): Rotterdam increases efficiency of waste collection
3. EU-SMARTCITIES: "NEARLY ZERO" RESIDENTIAL DISTRICT: Develop a replicability strategy to design, building and management.
4. AUSTRALIAN GOVERNMENT: Waste Technology and Innovation Study
5. GENG ET AL. (2010): Evaluation of innovative municipal solid waste management through urban symbiosis: a case study of Kawasaki