

# Aarhus' open deposit return scheme for takeaway-packaging

**NU KAN DU PANTE  
DIN TO GO-KOP  
I AARHUS**



**NYD DEN**



**VÆLG DEN**



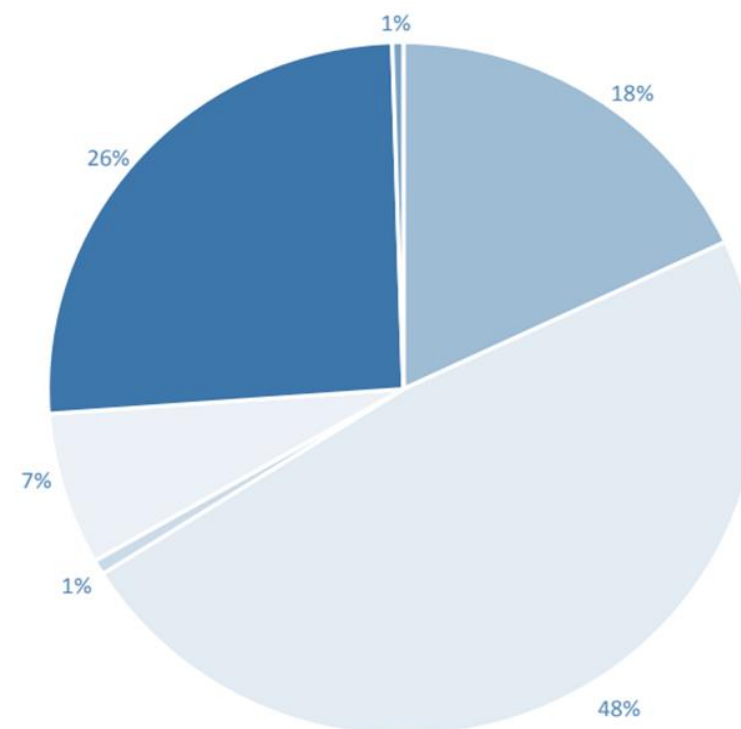
**PANT DEN**

# The call to action

**500 million disposable takeaway/to-go packaging products pr. annum in DK.**

- Implementation of a city-wide reuse deposit system for takeaway packaging was prompted by:
  - Local Engagement
  - Data providing insight into the scale of the problem
    - Littering and general waste
  - Growing public awareness on issues of single-use packaging
  - An innovative agenda in Aarhus

**48%** of public waste in Aarhus originates from food and beverage packaging. Litter of this fraction is a growing issue.



## Public/Private partnership

- A 3-year **partnership** with TOMRA Systems
- Concession contract/tender process
  - 11 'offers' on the tender
- Based on criterias of convinience/market analysis
  - Central washing
  - Central logistics
  - Public points of return
  - Cashless



# The basics



1

Customers are offered a reusable cup when purchasing takeaway drinks. They pay a 5 DKK deposit for the cup.

2

Customers are required to return the cup to a reversed vending machine in the city, as indicated by the map/QR code on the packaging.

3

Customers initiate the cup return process by scanning their payment card at the machine. The deposit is automatically refunded.

4

Cups are collected and transported via bike or electric vehicle to a washing facility near Aarhus city center.

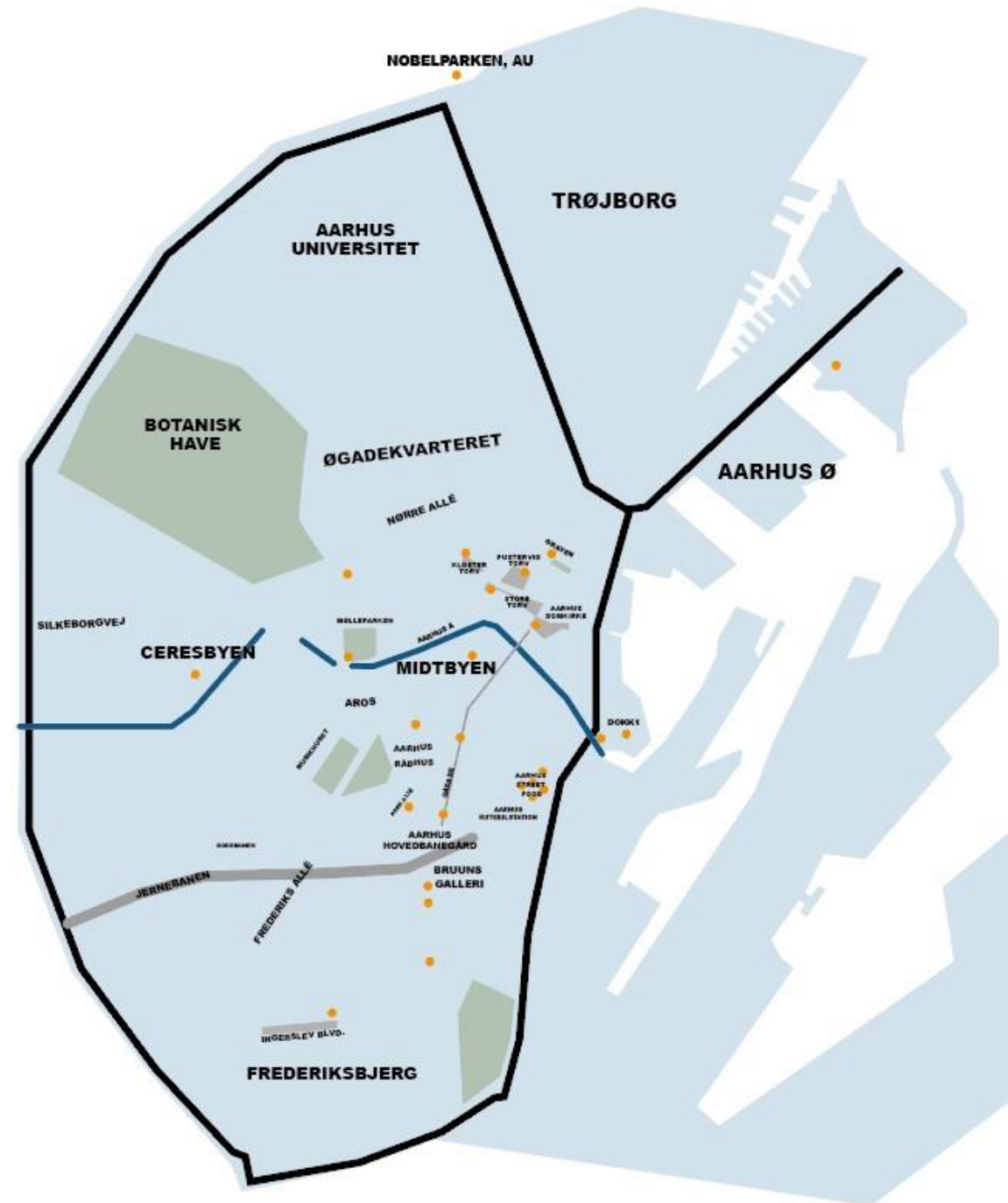
5

Cups are washed and inspected to ensure they are ready for reuse.



# The basics pt. 2

- 25 RVM's have been placed in the city center, based on a set of criterias:
  - Near citizens and visitors – heatmaps and observation
  - Easy to reach
  - Near partners/cafés.
  - Near energy supply.
- Machines are to be replaced with 2nd generation this year:
  - Utilize energy form solar panels/batteries.
  - Can handle food packaging.
- The project sets the stage for future events.
  - Aarhus Festuge, at Musikhuset, Aarhus Pride etc.



# Strong engagement

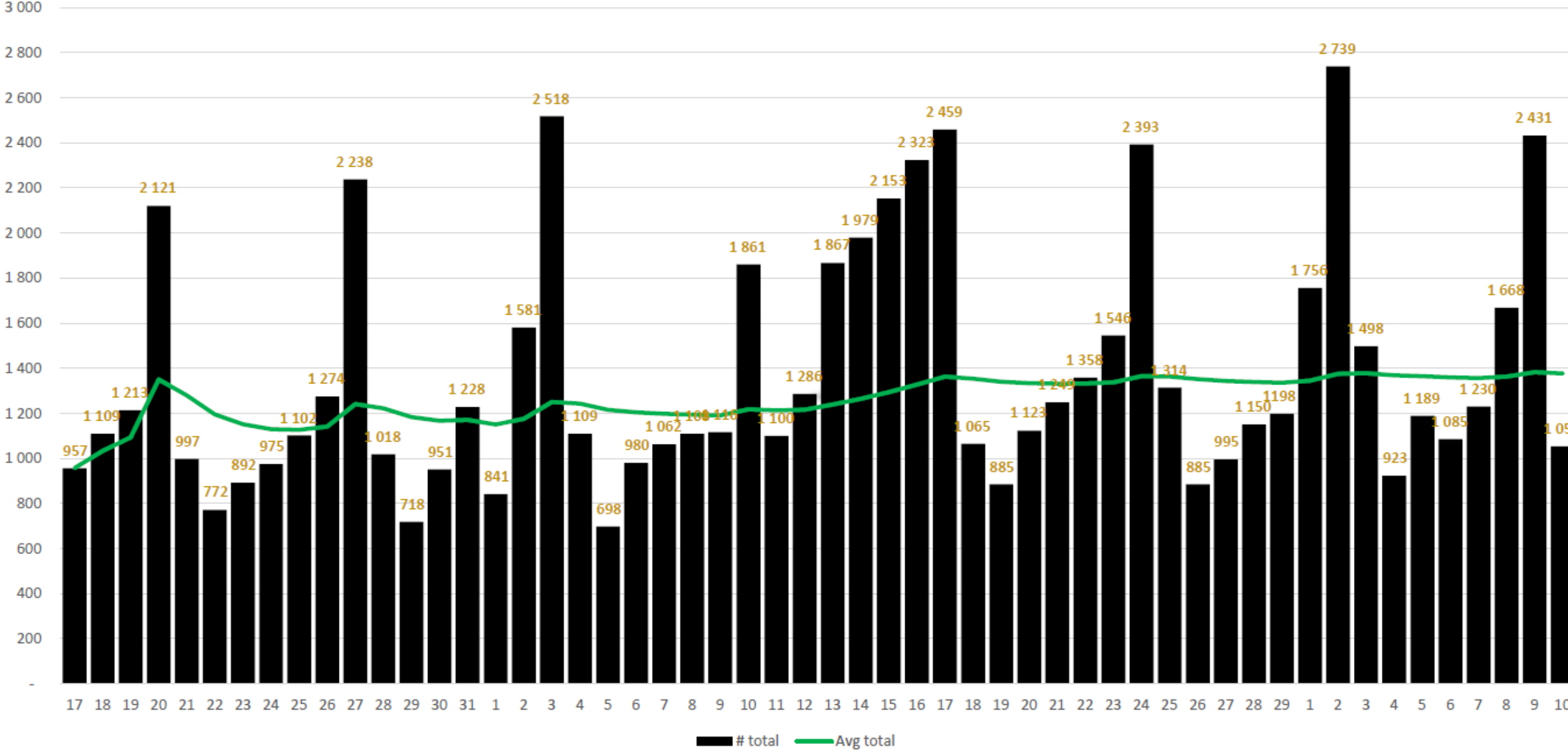
- So far, more than 50 coffee shops and cafés is onboarded and more are coming weekly. Participation is voluntary for all retailers in the city.

## Based on

- Proactive outreach
  - Dialogue with potential partners
- Establishment of work-groups
  - Involvement and collaboration with local businesses from the start
- Collaboration with stakeholders
  - Companies, organizations, NGOs



# Total cups returned (per day)



# Preliminary data

Main takeaway-point is....

We have proved that reuse is a viable option today

- The technology is here
- The engagement is present from all stakeholders

But we need ...

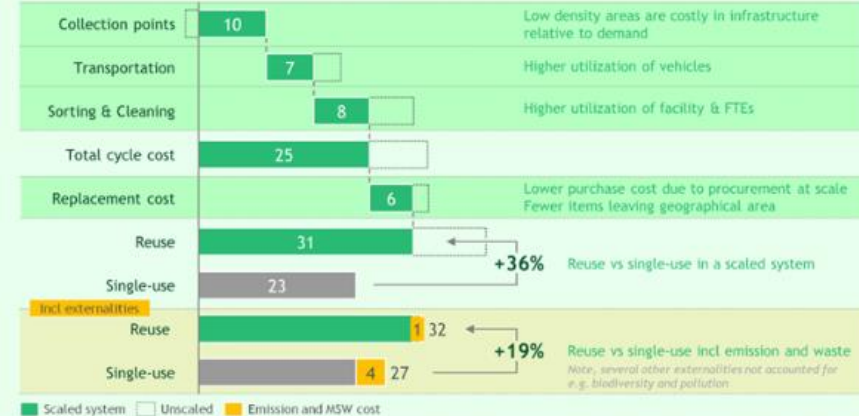
- Scale (of economics)
- National and European strategies and harmonisation



## Business case for reusable takeaway packaging improves with scale; small gap to single use remains

### Total cost of reuse system<sup>1</sup>

Ct (EUR) per use (weighted avg. of products incl. margin)



1. Sum of all stakeholder cost, Denmark wide, covering 72M hot cups (return rate 93%), 48M cold cups (return rate 90%), 45M boxes & bowls (return rate 95%) 2. Municipal Solid Waste cost, proxy for EPR  
Source: BCG analysis

Business case of switching to reuse (per stakeholder)

- Vendor: Limited impact or additional cost
- End-customer: Limited impact
- Reverse logistics: Requires additional incentives, pays majority of cost but needs to compete with single use cost
- Government: Better off due to lower waste mgmt. cost and cleaner city



## A shared system for reusable takeaway packaging can reduce waste by ~75% and CO2 emissions by ~45%



~75%

Waste reduction vs single use (7200 tonnes/y for the system<sup>1</sup>)

~45%

GHG reduction vs single-use (1800 tonnes/y for the system<sup>1</sup>)

+other benefits

E.g., cleaner cities, more jobs, reduction in waste exports...

1. Denmark wide, covering 72M hot cups, 48M cold cups, 45M boxes & bowls  
Source: BCG analysis



A close-up photograph of a barista in a dark uniform operating a Fracino espresso machine. The machine is stainless steel with a black control panel featuring several buttons and a pressure gauge. The barista's hands are visible, adjusting the machine's controls. A large plume of white steam is rising from the group head, partially obscuring the lower part of the machine. A white cup with the text "RE USE AB LE" is placed on the drip tray. The background is slightly blurred, showing a typical coffee shop environment.

**Questions?**