

# Background for the development of the smart container market

01

Earth population growth and high rates of urbanization

04

Development of environmental initiatives

02

70% increase in solid waste production by 2050

05

The need to comply with regulatory standards and implement government waste recycling programs

03

Growing scarcity of land for landfill in urban agglomerations

06

Digital Transformation of the Economy

# Solution: Binology Smart Bin



# Separate waste collection as a tool for the development of recycling

Separate collection is an important tool for involving secondary raw materials in recycling, and the use of digital technology can significantly reduce operating costs.

Separate collection using Binology technologies:

1. Reduces landfill growth
2. Returns resources to the production cycle
3. Reduces waste due to use of the recycled materials
4. Improves the environmental situation and preserves the health of the population.
5. Creates cost savings on waste management at the city, region, country level

~90%

MSW in public places are secondary raw materials

>70%

MSW can be recycled

In Europe  
is sorted  
in public places

60%

In Russia  
is sorted  
in public places

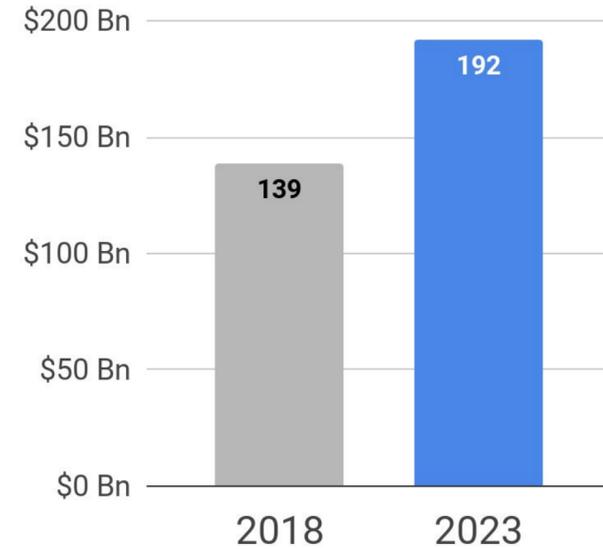
3%



# Market trends

The company's developments are directly related to the smart solid municipal waste management sector - "Smart Solid Waste Management", by application are in the Smart Infrastructure sector of the Smart City market, and technology related to the Internet of Things (IoT) solutions market, in particular in the housing and communal sector.

## IoT in Utilities



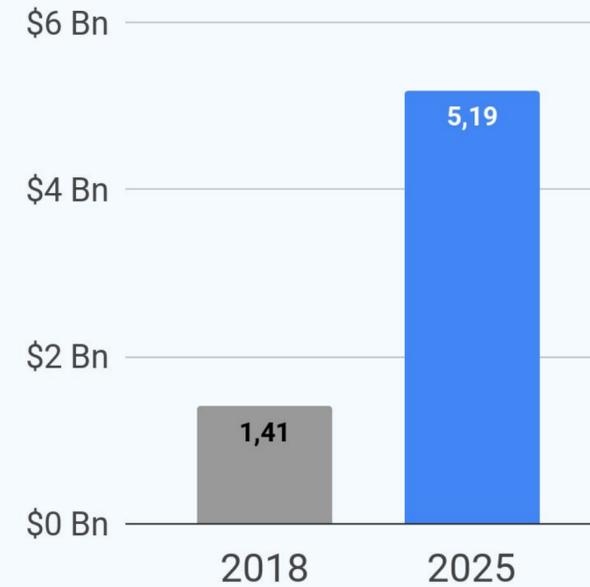
**CAGR - 8,45%**

Total market IoT by 2023:

**\$1,200 billion**

Source: IDC, BSG

## Smart Solid Waste Management



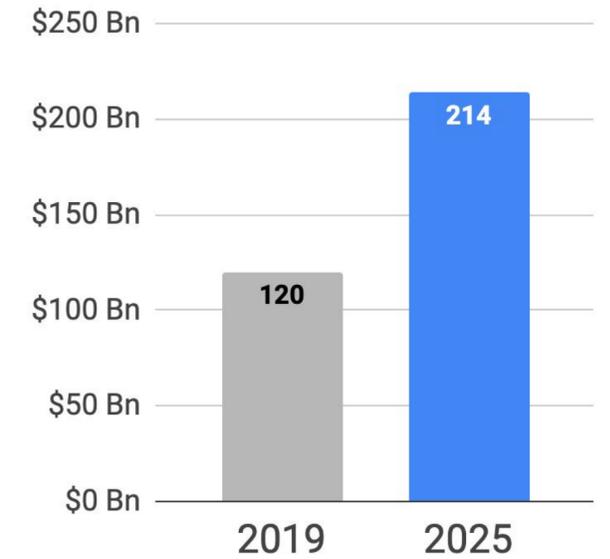
**CAGR - 25,68%**

Total market Waste Management by 2025. :

**\$530 billion**

Source: Industry Research, Global Market Insights

## Smart Infrastructure



**CAGR - 10,16%**

Total market Smart City by 2025.

**\$1,560 billion**

Source: Frost & Sullivan

# Formation of a new sphere - the Internet of bins

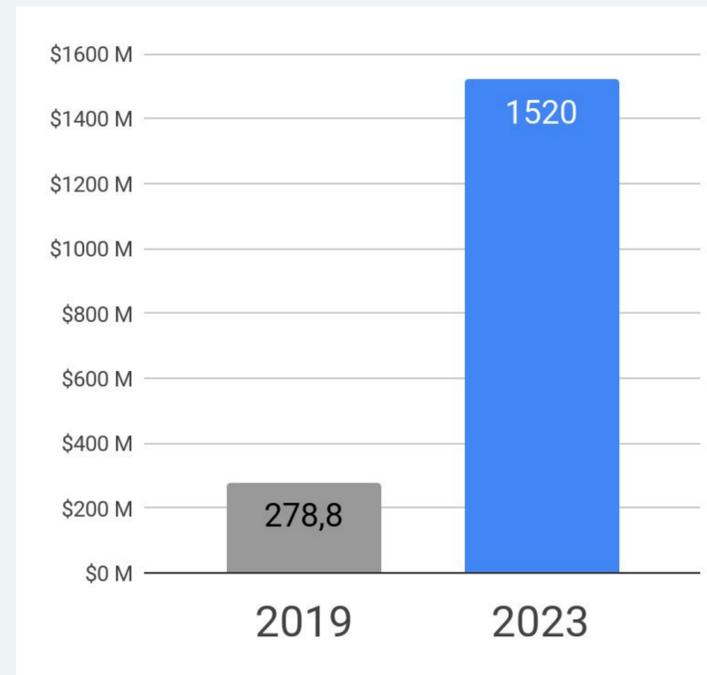
**More than 2 billion tons of MSW are generated annually in the world**, while only a third of them are processed in an environmentally friendly manner. The share of Russia in this stream is more than 70 million tons, of which only 5% goes for processing, and the rest is sent to landfills or burned.

**The annual global volume of MSW will increase by 70% by 2050**, but the cities where more than half of humanity live and account for more than 80% of world GDP, mainly still do not have adequate systems for managing the waste disposal of citizens.

**Currently, there is no global brand, technology or company offering a full cycle of digital solutions for managing the collection and disposal of municipal waste, this sector is developing and is still far from consolidation.**

**This has become one of the prerequisites for independent developers to form a separate niche for the technologies and systems for the intellectual collection and management of containers for MSW - The Internet of Bins.**

## Internet of bins



**CAGR - 52,8%**

Source: Frost & Sullivan

The market for solutions in the field of intelligent monitoring and management systems for MSW containers is showing high growth, as developments in this area are becoming more popular and at the same time receive active support in the media and among the population.

Therefore, solution developers have the opportunity to successfully promote their products not only among commercial enterprises, but also at the city and state levels.

**Smart MSW management enables to reduce:**

**financial costs of waste collection, removal and disposal**

**natural resource management costs and energy consumption**

**harmful emissions**

**territories allocated for landfills**

# Lineup of Containers



**Binology  
SmartCity Bin 120**

Container with a press compactor for unsorted waste



**Binology SmartCity  
Separation Station 2/3**

Separate collection station with a press compactor for unsorted waste and one / two additional containers for recycled materials



**Binology SmartCity  
Bin 120 / Separation Station 2/3  
Lightbox**

Container (s) with a press compactor for unsorted waste and secondary raw materials, equipped with (e) lightboxes for advertising posters with LED-backlight



**Binology SmartCity  
Bin 120  
Indoor TV**

Container with a press compactor for unsorted waste, equipped with two Full HD advertising video panels with remote content management

# Target segments and placements

Residential complexes and areas



Recreational areas - parks, squares, public gardens



Public transport stops, metro stations



Business centers and shopping malls



Transport hubs, airports, railway stations



HORECA



Streets with large pedestrian traffic



Industrial enterprises and gas stations



Educational institutions, schools, universities and campuses



Medical facilities, hospitals



# Smart container as street format advertising medium

Smart containers are installed in public places with increased pedestrian traffic and solve the problem of shortage of advertising surfaces.

The annual income from advertising on one container can be up to 30% of the cost of the container (depending on the price of advertising in the region of installation).

Authorities and owners of territories are interested in the economically feasible implementation of technologies to optimize the processes associated with MSW. Therefore, containers, in addition to their main function, justifiably become new and profitable advertising carriers, due to which it is possible not only to reduce the payback period of projects, but also to receive constant additional income in the future.

annual  
income  
**up to 30%**  
from the  
container cost



- Painting in any RAL color
- Pasting with street vinyl film on four sides

- Built-in Lightboxes
- Built-in professional video panels and sound speakers

## Effect of the implementation

The payback period of projects on Binology solutions

from **2** to **5** years

depending on the country / region

### Ecology

**50-90%**

the share of recovered secondary raw materials in the MSW stream

**to 80%**

reduction of waste to be disposed of at landfills



use of solar energy as a power source



CO2 reduction



separate collection and formation of environmental culture, improving the sanitary and environmental conditions of facilities and improving the quality of life of people

### Smart city

**70-90%**

reduction of MSW disposal costs



Earnings from the sale of recycled materials and advertising



transparent system for monitoring and managing primary collection of MSW



Big Data, including collecting data on environmental parameters, air quality, pedestrian traffic, etc.



modern appearance of the bin and hermetic waste storage



Lower total cost of ownership



Intelligent Press Compactor Management System



Easy integration into existing waste collection processes through the use of a standard wheelie bin



Increased structural strength, more wear-resistant pressing technology



Preventing trash placing solar panel



The garbage collector holds more overall household waste



Unique non-contact and secure waste disposal mechanism

# Binology Technologies on state level

(on the example of the creation of the Operator of an intelligent waste collection system together with the Russian Ecological Operator)

### Direct economic benefits for the State:

- Reduced waste collection and disposal costs
- Reducing the amount of waste disposed in landfills
- Decreasing number of trips of garbage collecting vehicles
- Additional income from taxes on profits, property and advertising
- The possibility of selling recycled materials
- Increasing the effectiveness of the mechanism of extended responsibility of manufacturers
- Implementation of the key parameters set by the government
- The development of the digital economy and smart cities





## Contacts

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