

TOMRA Systems ASA 14 July 2023 © TOMRA







Creating sensor-based solutions for optimal resource productivity - transforming how we obtain, use, and reuse resources



Leading market position

TOMRA is uniquely positioned along powerful global megatrends

Best-in-class technology

50 years of know-how

ECYCY

TOMRA

TOMR/

Purpose-driven employees

# Our vision is to Lead the Resource Revolution

It is our belief that businesses have the power and responsibility to help manage our planet's precious resources – today and tomorrow.

TOMRA

# TOMRA's transformation journey

mergers and acquisitions

						4							States of the state of the stat
	2004 TITECH	2	006 Commodas		2011			2012 BEST		2	<b>2016</b> Compac		
TC th of so wa TC jo	DMRA acquires TITECH, e world's leading provider optical recognition and rting technology for the aste industries and DMRA's transformation urney starts.	TO - a the pro me	MRA acquires Commodas leading supplier within e field of sensor-based oducts for mining and tal recycling.		Sale of Californian material handling business. With the divestment the US operation became less exposed to movements in commodity prices.		TOMRA food so With th TOMRA reach w universe	acquires BEST, leading rting machine producer. e acquisition of BEST, has by far the widest ithin the food sorting e.		TOMR/ sorting based TOMR/ provide into th	A expands into lane , acquiring New Zealand Compac, confirming A's position as the leading er of sorting technology e food industry.	-	
	<b>2005</b> Orwak		2008 Ultraso	rt	2011 Odenber	rg	5	2014			2018 BBC Techno	logies	
	TOMRA acquires Orwak Group, a leading provider of compaction for a variety of materials.		TOMRA acquires Ultraso specialists in sensor-bas mining technology.	ort - ed	TOMRA acquires Odenberg, rounding ou the offering to include food optimization.	ut		Divestment of Orwak. Further portfolio focus sensor-base technolog	s on ;y.		TOMRA complements its sorting portfolio with the acquisition of BBC Techn a leading provider of pre- turnkey solutions for blueberries and other sm fruits.	food ologies, cision nall	
					and the second second						Succession in which the		

TOMRA Food



We have built a broad business platform...

... while keeping a strong entrepreneurial spirit

# Creating value through three divisions



~800

Employees

### **~2,600** Employees

#### Customers

Grocery retailers, bottlers, deposit scheme coordinators

#### Customers

Waste management, material recovery plants, recyclers

### **~1,600** Employees

#### Customers

Food growers, packers, processors & cooperatives 7

### TOMRA's global presence

#### Installed base ~105,000





Total	~82,000	~9,000	~13,800
Asia Pacific	~5,000	~1,300	~1,900
Americas	~14,000	~1,400	~6,300
EMEA	~63,000	~6,300	~5,600
	Collection	Recycling	Food

Each year, at least 8 million tons of plastics leak into the ocean.

That's the equivalent of one garbage truck every minute.

> The New Plastics Economy World Economic Forum (2016)

> > Location: Vacha Dam, Bulgaria

### But the tides are shifting. There's a desire for change...



**Consumer** demand for responsible plastic use options



**Legislative** push for new plastic waste strategies

		7
Every	BottleBac	k.org
001.Cota Cempany	Keurig DrPepper	PEPSI
	CAMERICAN .	

Market pull from large brand owners and companies

TOMRA



Our experience and technologically advanced solutions help create circular value chains that benefit business and society.

# TOMRA Collection



**TOMRA** Collection

Transforming society's habits to keep valuable resources in a continuous loop of use and reuse.

**~6.2** billion NOK in revenue





ANLO

FOYCLIN

**~82,000** machines in operation

Collecting 45+ billion containers a year

# Over 45 billion drink containers collected in 2022

This represents only 3% of all beverage containers.

Deposit return systems enable Clean Loop Recycling



Compiled from deposit System Operators and "PET Market in Europe: State of Play," Eunomia. 2020. Data available upon request. <sup>1</sup> Aluminum, Glass, Plastic.. "Beverage Market Data Analysis 2017," Container Recycling Institute. 2020. <sup>2</sup> Michigan and Oregon. Bottlebill.org. 2021

### An overview of current deposit markets





\* In addition, some markets have refillable deposit systems such as: Austria, Belgium, Chile, Czech Republic, France, Hungary, Poland and South Korea 17

## Upcoming deposit markets



for 2025

30% by 2030 in all plastic bottles

# High collection rates achieved in two years' time



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A meaningful deposit value is the strongest driver of results



Return rates compared to purchasing power parity-adjusted deposit values - € (2018)



High-performing systems are achieving good results with a deposit of €0.10 (PPP-adjusted)

We are driving the market momentum through global advocacy work aiming to achieve best practice deposit systems and generate demand through innovations





Collection targets for plastic beverage bottles

**77% 90%** 2025 2029

Targets for recycled content in plastic beverage bottles

**25% 30%** 2025 2030



Continued work with governments to implement best practice deposit legislation

Innovate solutions that trigger modernizations and increased demand

The four principles of high-performing deposit return systems

#### PERFORMANCE



A collection target for a broad scope of beverage packaging plus a meaningful deposit **delivers strong results**.

#### CONVENIENCE



The redemption system is easy, accessible and fair for everyone.

#### PRODUCER RESPONSIBILITY



Producers manage, finance and invest in the system with use of unredeemed deposits and commodity revenues.

#### SYSTEM INTEGRITY



Trust is built into the system's processes through transparent management, a data-driven clearinghouse, and reliable redemption technology.

Reinvestment of unredeemed deposits and material revenue within the system

> In Norway **over 80%** of the system's costs are covered by unredeemed deposits and material revenue

#### Profit and loss overview of Norway's Central System Administrator (2019)



Legislative outlook supports new and expanded Deposit Return Scheme (DRS) markets towards 2030



\* In addition, some markets have refillable deposit systems such as: Austria, Belgium, Chile, Czech Republic, France, Hungary, Poland and South Korea

Europe and the Single Use Plastic Directive (SUPD) will be the main driver of new deposit markets towards 2030



\* In addition, some markets have refillable deposit systems such as: Austria, Belgium, Czech Republic, France, Hungary and Poland

Strong local presence in existing and upcoming European deposit markets



Establishing local TOMRA entities and building local presence and partnerships early is key in our go to market strategy

**Existing DRS markets\*** 

\* In addition, some markets have refillable deposit systems such as: Austria, Belgium, Czech Republic, France, Hungary and Poland

**EU** countries

### Our offering







Reverse vending machines

Reverse vending centres



Reverse vending machine kiosks



Digital products and APIs



Equipment for automated depots

### Customer centricity is at the core of our innovation strategy

Strategic aspiration: Innovate **the most attractive** solutions and the best customer experience



### Preferred partner in reverse vending solutions





Source: TOMRA estimates and analysis

### Our reverse vending portfolio



**TOMRA** 

EI LASIPULLOJA TÄHÄN AUTOMAATTIIN, KIITOS

TOMRA



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## Business model expertise across deposit systems



# Cash flow profiles of the two business models

Illustrative cash flow profiles per machine





### Advanced digital platform leveraged across stakeholder groups



#### Current supply chain with country origin on purchased material



### Global Supply Chain

Optimize global sourcing and production set-up

### The goal

Support the market demands both on capacity and flexibility

Capable of annual delivery of up to 30.000 RVMs

Dual sourcing strategy in focus to reduce risk and exposure (increase European sourcing)

### Our Big Hairy Audacious Goal

KAN LOC

PECYCLIN

# B L ON

empty beverage containers handled by TOMRA equipment and collected for clean loop recycling
# TOMRA Recycling



## **TOMRA** Recycling

Transforming resource recovery through advanced waste and metals sorting that **turns waste into value**.

At least **33%** of waste is not managed in an environmentally safe manner

# The world generates 2.01 billion

tons of municipal solid waste annually.

TOMRA's smart sorting machines maximize resource recovery

TOMRA

# There is a legislative push and market pull towards a circular economy

Overview of legislation for packaging waste at global-level



Extended Producer Responsibility policy is a key element, complemented by quotas, taxes, bans, and mandatory recycled content targets. https://www.rolandberger.com/en/Insights/Publications/Packaging-sustainability-2030.html



brands are still far away from reaching them. https://ellenmacarthurfoundation.org/global-commitment/overview

EU member states need to meet PPWD<sup>1</sup> targets for plastic recycling

<sup>1</sup> Packaging and Packaging Waste Directive



Source: Utkast til høringsnotat med konsekvensutredning, Miljødirektoratet, February 27th 2020

Example: Norway

Target 2025=50% recycling

# Strong commitment from the industry to use recycled polymers

#### Selected global commitments (non-exhaustive)



"Our ambition is to use 1 million tons of plastic waste a year in our global chemical plants by 2025"



"Produce and market 2 million tons of recycled and renewable based polymers annually by 2030"



"Produce 2 million tons of sustainable (includes recycled and biobased) polyolefins by 2030"



"By 2030, Dow will enable 1 million tons of plastic to be collected, reused or recycled through its direct actions and partnerships"

#### **TREATMENT OF END-OF-LIFE PLASTICS IN EUROPE, 2020**

TREATMENT OF EUROPEAN END-OF-LIFE PLASTICS, 2020 MULLION TONNES

1

million

tons

2

million

tons

million

tons

million

tons



# Sorting is essential for a circular economy



#### Waste sorting segment

Recover materials for recycling from both source separated and mixed household waste

Segment share of installed base





#### Recycling segment

Upgrade material to pure fractions for high quality recycling

#### Segment share of installed base



#### Ore sorting segment

Recovery and ore sorting to reduce environmental impact

#### Segment share of installed base



#### NTOMRA

# How does sensor-based separation work?



High-speed processing of information (material, shape, size, color, defect, damage and location of objects)

# A broad sensor-based technology portfolio



	RECYCLING	FOOD
ELECTROMAGNETIC SENSOR (EM) Electro-magnetic properties like conductivity and permeability	x	х
<b>LED SPECTOMETRY (LED)</b> Color and spectral properties based on multiple LED light sources in very high optical resolution	x	x
NEAR-INFRARED SPECTROSCOPY (NIR) Specific and unique spectral properties of reflected light in the near-infrared spectrum	x	x
VISIBLE LIGHT SPECTROMETRY (VIS) Specific and unique spectral properties of reflected light in the visible spectrum	x	х
X-RAY TRANSMISSION (XRT) Atomic density irrespective of surface properties and thickness	x	x
LASER INDUCED BREAKDOWN SPECTROSCOPY (LIBS) Elemental composition	x	
X-RAY FLUORESCENCE (XRF) Elemental composition	x	
<b>INFRARED TRANSMISSION (IRT)</b> Density and shape properties by light absorption		х
IR CAMERA (IR) Heat conductivity and heat dissipation		х
<b>COLOR CAMERA (COLOR)</b> Color properties measured in very high optical resolution	х	х
LASER REFLECTION/FLUORESCENCE (LASER) Structural, elemental and biological properties by reflection, absorption and fluorescence of laser light	х	х

# Automation with TOMRA units





Sorting of Municipal Solid Waste, Cyprus

# Our solutions enable recovery of recyclables from different waste streams



A modern packaging sorting plant can contain up to 60 NIR sorters

Our solutions can also recover valuables from residual waste streams



The essential nature of mining means that the industry needs to make a leap towards a more sustainable future



- 15% to 50% of the ROM can be rejected in an early stage of the process (application dependent)
- low grade waste rocks don't need to be transported, crushed, grinded, or further treated



# Our ore sorting solutions enable the mining industry to reduce their footprint

#### Ore sorting is used to:

- Reduce operational footprint by splitting the "good" and the "bad" materials early in the process
- Extend the lifetime of a mine
- Reclaim valuables for stockpiles

VALUE-ADD:				
EFFECT OF SENSOR-BASED SORTING (SBS)	ENVIRONMENT	COST & PRODUCTIVITY	SAVINGS	
Decreased energy consumption (Transport, pumping & dewatering, disposals)	✓	✓	<ul> <li>15 kWh saved per ton of material</li> <li>2% to 3% of the world energy consumption is used for crushing, screening and milling</li> </ul>	
Decreased water consumption (Cooling, transportin the process)	$\checkmark$	✓	<ul> <li>3 to 4 m<sup>a</sup> water saved per ton of material</li> </ul>	
Reduced carbon footprint	√	✓	CO2/Green counter, 7.5 kg per ton of material sorted     TOMRA Sorters saved ~124,000 metric tons of CO2 in 2018	
Decreased Transport cost		✓	Costs down €0.30/ton/km	
Chemical usage decrease (Flotation reagents, acid for leaching and cyanide)	$\checkmark$	✓	A few grams up to a few kilos per ton	
Reduced tailings (fine particles)	√	✓	<ul> <li>3 m<sup>a</sup> tailings volume per ton (2 m<sup>a</sup> material plus 1 m<sup>a</sup> water)</li> </ul>	
Productivity increase (De-bottleneck conventional process)		✓	Per ton of waste 1 additional ton of ore production	
Lifetime of Mine increased	√	✓	<ul> <li>30-50% longer life of a mine</li> </ul>	
Waste into value (Create sellable product)	<ul><li>✓</li></ul>	✓	The coarse waste rejected can be sold (for a low price)	
Legislation		✓	Up to 3 years quicker approvals	
Reduced cut-off grade (Higher dilution in the mine, process marginal dumps)		<ul> <li>✓</li> </ul>	30-50% more reserves	

# Our technology and innovations continue to push the boundaries of the recycling sorting market



# Our solutions close the loop by enabling high quality recycling



#### **Plastics**

We are actively pushing the boundaries of plastics recycling by:

- Demonstrating advanced mechanical recycling
- Supporting chemical recyclers



#### Wood sorting Textile sorting Alloy sorting

We are investing into the development of solutions for new segments

# We have two strategic priority areas

# Accelerate growth

#### **Provide leading solutions and innovations**

Utilize cutting edge sensor technology

Exploit the power of deep learning

Deep market expertise and partnership

Develop digital solutions & services

We are here to enable closed loop recycling solutions material stream by material stream

### Our commitment towards plastic packaging by 2030



of post-consumer plastic packaging is recycled in a closed-loop



# TOMRA Food



## TOMRA Food

Transforming global food production to maximize food safety and minimize food loss by making sure **Every Resource Counts™**.

Currently, **33%** of all food produced is either lost or wasted By 2050, a global population of **9.8 billion** will need **70%** more food than is consumed today

We have ambitions to enable a post-harvest food loss reduction of 50% by 2030

TOMRA



Population growth and rise of the middle class



## Shift to automation and digital tools

Cyclical investments in different categories, regions and seasons

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# TOMRA Food with a strong value proposition



We are addressing approximately 60% of the total food sorting and grading market

## Market position and addressable market



## Our Technology...



## ...are detecting a wide range of parameters



Removal of foreign material in a material stream, e.g. insects, glass, metal, wood & plastics



Characteristics

Sort based on chemical composition such as water, protein content, sugar content (Brix) and dry matter



Broken, split and damaged objects are detected and removed



Objects with spots or other (small) blemishes are removed





Shape & Size



Grading by color or

removal of discolorations in mono- and mixed-color material

Color

Toxins

Removal of produce

contaminated with

aflatoxin



Removal of soft, molded or rotten food



Removal of visible and invisible small and substantial defects



Fluo

Based on the chlorophyll level present in produce defects are removed



**Detection of density** differences



# Working principles in Food sorting

**Chute or Channel sorter** 



#### Air inspection



Xray sorter



#### **Belt inspection**



#### Singulated grading



# Food technology platforms

Solutions for fresh and processed produce

TOMRA A P	roduct Line	TOMRA B Product Line	TOMRA C F	Product Line	TOMRA X Product Line	Peeling Lines
TOMRA 3A Series	TOMRA 5A Series	TOMRA 5B	TOMRA 3C	TOMRA 5C	TOMRA 5X	Peeling

#### Integrated sorting solutions for fresh produce



# Leading position globally



# Food Categories





# Leading technology



# Some of our customers







## Group financials development



**EBITA and margin** 





#### Gross contribution and margin











Our strategy is to accelerate growth in core business and develop adjacent opportunities



# Ideally positioned to develop adjacent opportunities

TOMRA's competitive edge, market position and technology can be applied in areas beyond our current operations

Strong macro trends and emerging business models within circular economy and resource efficiency Closing the gap in plastic recycling

Close the loop on textiles

## Positioned to develop adjacent opportunities

Systems for reusable packaging

# Legislative push to advance circularity

#### **Recycled content**

EU's Packaging & Packaging Waste Regulation (proposed)

#### % of post-consumer recycled content in packaging

	2030	2040
Single use plastic beverage bottles	30%	65%
Contact-sensitive packaging	30%*	50%
Other types of packaging	35%	65%

#### **Reuse and refill** EU's Packaging & Packaging Waste Regulation (proposed)

% of reusable Take-away packaging

	2030	2040
Cold & hot beverages	20%	80%
Ready prepared food	10%	40%

#### National legislation on take-away packaging

France 1 January 2023: Mandatory reusable tableware for dine-in



Germany 1 January 2023: Mandatory reusable take-away alternatives



Sweden 1 January 2024: Mandatory reusable take-away alternatives



Denmark 1 January 2025: Introduction of EPR packaging fees



Portugal 1 July 2022: Tax on single use take-away packaging
## The gap in plastics recycling

#### **Majority of plastics are lost today**



- In Europe alone, 24 million tons of plastics are lost to incineration and 14 million tons to landfill
- The volume of each waste plant and incinerator is too low for sophisticated sorting to ensure the quality and fractions required for recycling

GAP

#### **Demand for recycled plastics**



- Already a strong demand for recycled plastics will increase significantly in the next few years (more than 10 million tons from major plastic producers)
- Mechanical and chemical recyclers need an individual polymer fraction at sizeable volumes to justify investments





Mixed plastics fraction sourced from material recovery facilities





Advanced sorting

Dry washing

#### Output



High quality polymer fractions to be supplied to recyclers (PE, PE-LD, PP, PS, PET, film)



## **TOMRA Feedstock Plants**

TOMRA

BTOMRA

### Germany

- Announced 19 December 2022
- 100% TOMRA owned
- EUR ~ 50-60 million investment
- Capacity ~ 80.000 tons p.a.
- Input: mixed post-consumer plastic
- Output: >10 different polymer fractions for mechanical and chemical recycling
- Operational in 2024-2025 est.

## Norway

- Announced 31 May 2023
- Joint Venture 65% TOMRA / 35% Plastretur
- EUR ~ 32 million investment
- Capacity ~ 90.000 tons p.a.
- Input: mixed post-consumer plastic
- Output: 8 different polymer fractions for mechanical and chemical recycling
- Operational in the first quarter 2025 est.

# Circular re-use system for takeaway packaging





Collaboration with Aarhus Municipality in Denmark on a deposit system for takeaway packaging



Aarhus indfører pant på takeawayemballage

Vi bruger ca. 300 millioner engangskopper og 150 millioner engangsbokse til takeaway om året i Danmark. Som den første kommune i landet er Aarhus klar til at indføre pant på takeaway-emballage. Målet er at skabe et cirkulært system, hvor emballagen bliver indsamlet, vasket og genbrugt.



#### TOMRA is uniquely positioned along global megatrends

We have set bold ambitions to double our business in the next five years

Accelerate growth in coreDevelop adjacent business

WIIIII

## TOMRA Our ambitions 2022 – 2027



## Our ambition is to keep an investment grade status



Financial Risk Profile

Business Risk Profile BBB+



## TOMRA Green Bond Framework





Use of proceeds	
ICMA category: Pollution prevention and control	
Expenditures related to:	Examples of eligible assets:
Collection, sorting and processing of beverage containers	<ul> <li>Manufacturing, installation, maintenance, and operation of reverse vending machines (RVMs)</li> <li>Sorting and processing facilities</li> <li>R&amp;D related to the development and design of RVMs</li> <li>Collection systems for reusable packaging</li> <li>Outreach to raise awareness and support for deposit return schemes</li> </ul>
Recovery and upgrading of valuable materials from waste streams for recycling	<ul> <li>Software development for waste sorting machines</li> <li>Assembly lines for manufacturing of sorting machines</li> <li>R&amp;D to improve performance or enable sorting of new types of materials (e.g., textiles)</li> <li>Investments in the sorting and processing of post-consumer materials</li> </ul>
Minimizing the carbon footprint of operations	<ul><li>Renewable energy equipment</li><li>Clean transportation</li></ul>

#### R&D to increase the use of sustainable materials

#### **Highlights form Cicero Second Party Opinion**

"TOMRA's RVMs and waste sorting machines are **well-aligned with circular economy** solutions and a low-carbon future"

By improving material recovery for recycling and reuse, TOMRA's RVMs and waste sorting machines are an important contribution to the climate transition, a more circular economy, and improved waste management"

"RVM solutions have the potential to limit climate emissions, local pollution, and harmful biodiversity impacts"

"TOMRA has significantly strengthened its sustainability strategies"

"The overall assessment of TOMRA's **governance structure** and processes gives it a rating of **Good**."



°<mark>cicero</mark> Shades of Green **Dark Green** is allocated to projects and solutions that correspond to the long-term vision of a low-carbon and climate resilient future.

# Our sustainability commitment

Leading the Resource Revolution while becoming a fully circular business and being safe, fair and inclusive





Double the avoided emissions enabled by TOMRA products in use

Commitment to Net Zero emissions and setting Science Based Targets (to be externally verified by 2024)

100% renewable electricity

>80% reduction in operational transport emissions

>90% sustainable materials and components in all new products

>50% of our products are circular at their end of life

Strive for zero work-related injuries and illness in providing a safe place for people and the environment

Attract diverse talents from all facets of humanity, with a goal of 50% women and men joining annually

Grow female representation in senior management to >30%

Improve employee satisfaction and engagement with top quartile NPS Score

Supply Chain Sustainability targets will be announced in 2023







Climate Impact Sustainable Product Design





Supply Chain Sustainability

# For a sustainable planet for generations to come

## we have an obligation to grow

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