



# INVESTOR PRESENTATION

# DID YOU KNOW?

- By 2025 **solid waste generation** will **increase by 70%** compared to 2010 levels
- **32%** of all plastic packaging made **ends up in nature** every year
- **20%** of plastic packaging could be **profitably re-used** and **50%** could be **profitably recycled** if designed for after use systems
- Continuing current practices there will be **more plastic than fish** in the ocean by 2050





## DID YOU KNOW?

- By 2050, a global population of **9.8 billion** will require **70%** more food than is consumed today
- We are currently **wasting 33%** of global food production
- The food industry is worth more than **USD 5 trillion** annually
- Agriculture accounts for **20%** of **global greenhouse gas emissions**



# OUR BIGGEST GLOBAL CHALLENGES = OUR BUSINESS OPPORTUNITIES



## SUSTAINABLE DEVELOPMENT GOALS

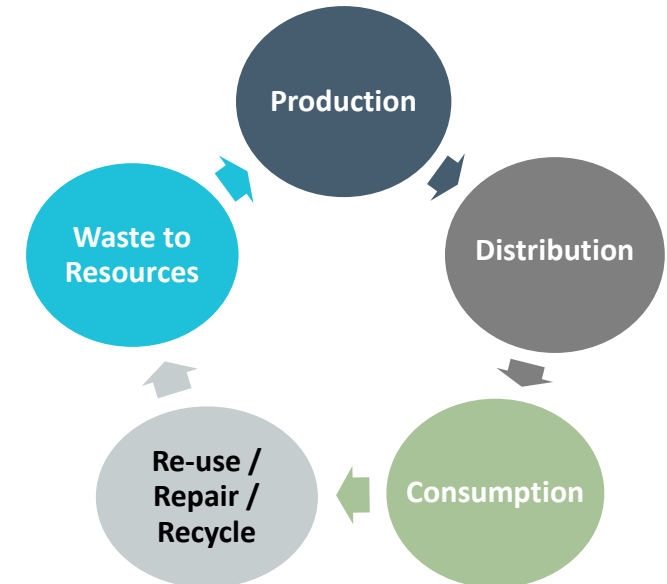
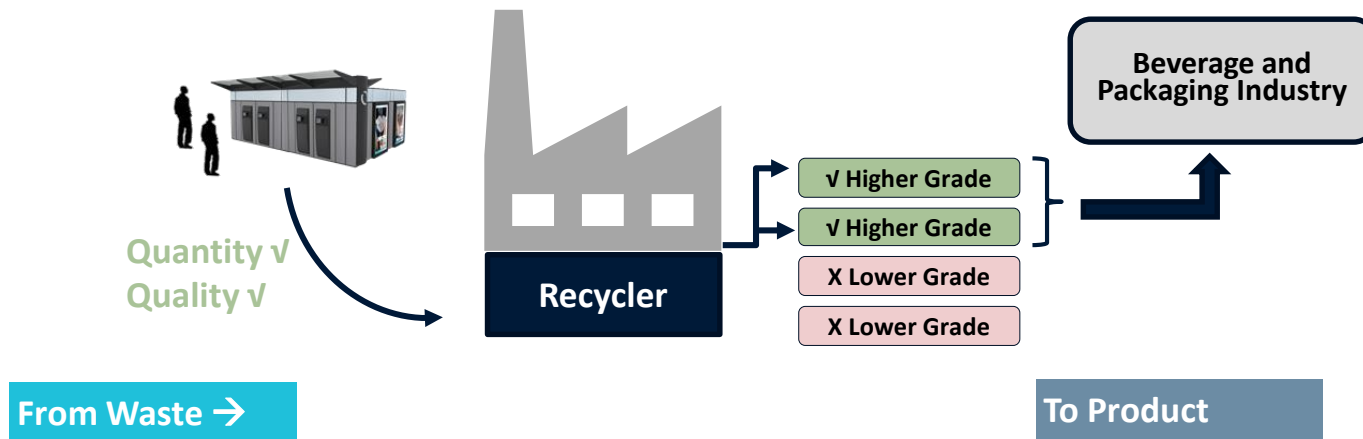


# AS THE CIRCULAR ECONOMY MINDSET EVOLVES THE NEED FOR SUSTAINABLE SOLUTIONS IS ACCELERATING

## Moving from a Linear Economy...

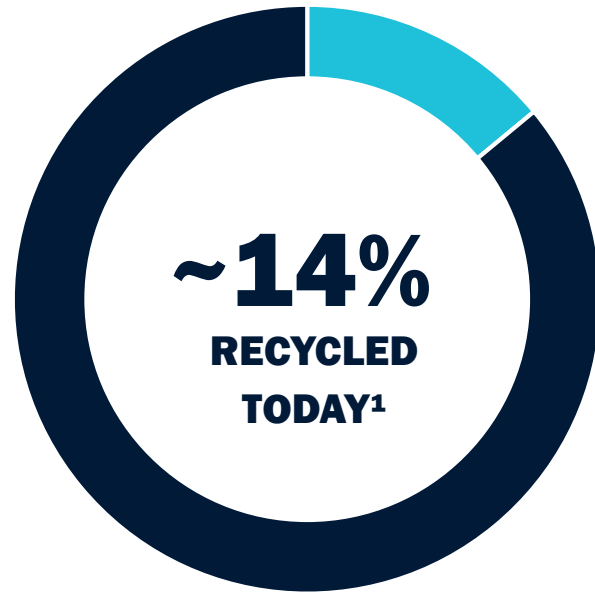


## To a Circular Economy...



# SIGNIFICANT UNTAPPED POTENTIAL TO REUSE GOOD MATERIALS

## PLASTIC PACKAGING



**VALUE  
PROPOSITION\***  
**\$ 50–80 BN**

Total volume of plastic packaging is 78 mln tonne annually whereof ~14% is currently recycled, meaning ~67 mln tonne lost. With a volume yield of 72% and a weighted average price of 1,100–1,600 USD/t, the total value proposition is in the range of USD 50-80 bn. Please note that this is a conservative estimate based on a narrow definition of total annual plastic packaging volume. Applying a wider definition can increase the value proposition up to USD 170-190 bn.

## STEEL



**VALUE  
PROPOSITION\***  
**\$ 70–150 BN**

Worldwide steel production is currently about 1,600 mln tonne annually. 70-90% recycling means ~1,100-1,450 mln tonne recycled and 160-480 mln tonne lost. Assuming ~90% yield in process with market price of ~500 USD/t equals USD 70-220 bn, so conservative range USD 70-150 bn

## PAPER

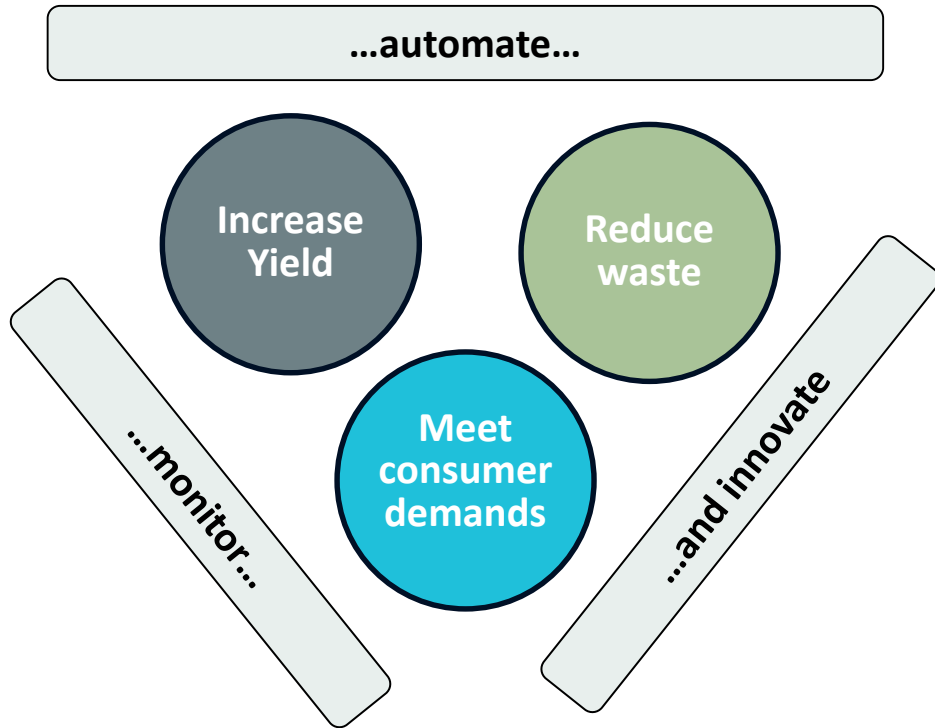


**VALUE  
PROPOSITION\***  
**\$ 30–40 BN**

~80 % of produced paper is potentially recyclable, ~400 mln tonne annually x 80% = 320 mln t/a potentially recyclable paper in the market. Today, ~58 % or 230 mln t/a are recycled, means 90 mln tonnes are lost. If this is recovered and goes into the paper recycling process there will be between 10-30% fibre loss, assuming on average 20%. The value of newsprint paper is ~400-600 USD/t, let's assume 500 USD/t = ~90 mln t/a x 80% x 500 USD/t = USD36 bn

# NEW WAYS OF FEEDING A FAST GROWING DEMANDING POPULATION

To ensure an efficient food production there is an increased need to...

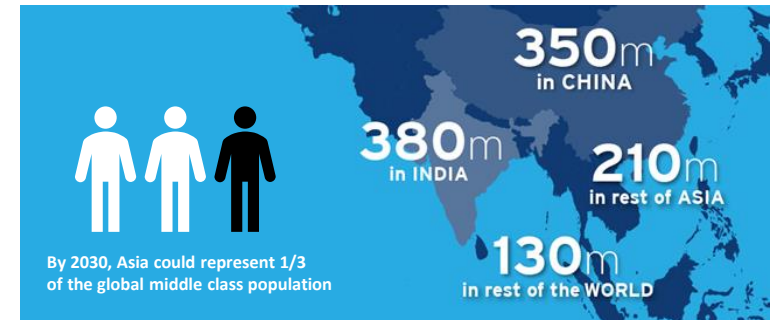


*Feeding a demanding, rapidly growing urbanized population brings opportunities for TOMRA*



The digital consumer...

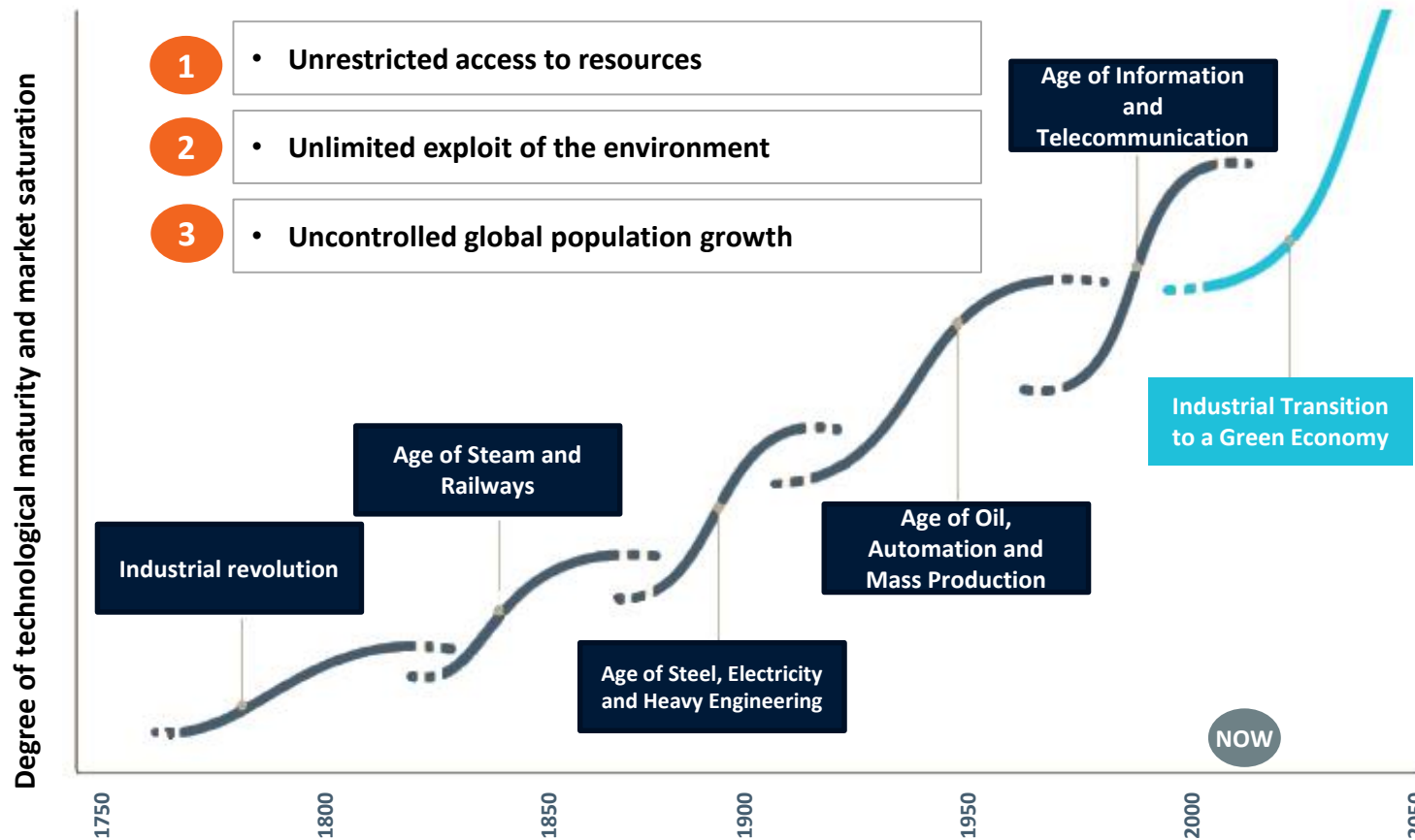
88% of the next billion entering the middle class will come from Asia



Increased buying power from a growing and wealthier middle-class...

# TOMRA: POSITIONED TOWARDS MEGATRENDS

The world has undergone 5 major industrial cycles...



...creating challenges and opportunities

*Strong megatrends: Opportunities for TOMRA*

|  |     |     |
|--|-----|-----|
| Climate Change and Resource Scarcity                   | TCS | TSS |
| Rapid Urbanization                                     | TCS | TSS |
| Digital Economy and emergence of eCommerce             | TCS | TSS |
| Smart Cities   | TCS | TSS |
| Agricultural automatization and better use of farmland |     | TSS |
| Increased wealth for all and enlarged middle class     | TCS | TSS |



FROM PURPOSE INTO PROFITS AND  
PROFITS INTO PROGRESS, TOMRA IS  
**TRANSFORMING** WHAT IT MEANS  
TO BE RESOURCEFUL.



- Our solutions, in use around the globe, helped keep **~25 millions of tons of CO<sub>2</sub>** from being released into the atmosphere in 2017
- **~35 bn used beverage containers are captured every year** through our reverse vending machines
- Our steam peelers process **~15 million tons of potatoes per year with a 1% yield improvement** over other alternatives
- **~715,000 tons of metal are recovered** every year by our metal-recycling machines

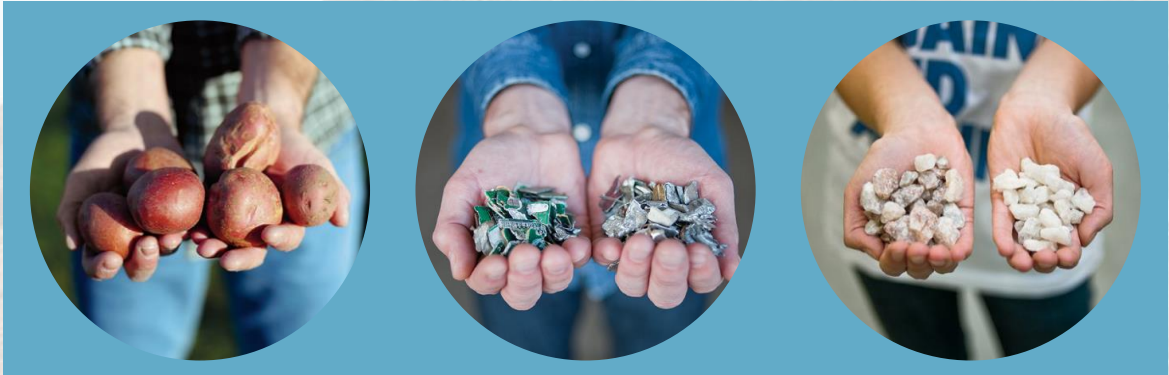


# TOMRA AT A GLANCE



**3550**  
EMPLOYEES  
GLOBALLY

**7.4**  
BILLION NOK  
REVENUES 2017



FOOD/TOBACCO

RECYCLING

MINING

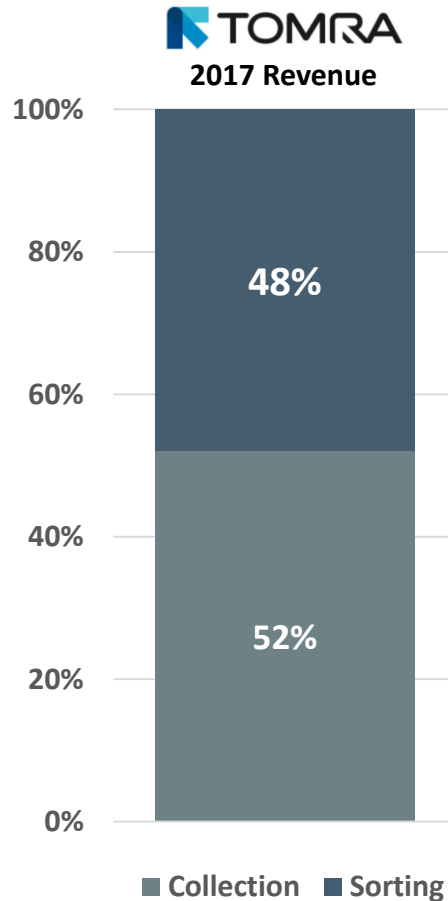
REVERSE VENDING

MATERIAL RECOVERY



Publicly listed on Oslo Stock Exchange (OSEBX: TOM)

# CREATING VALUE THROUGH TWO STRONG BUSINESS AREAS\*

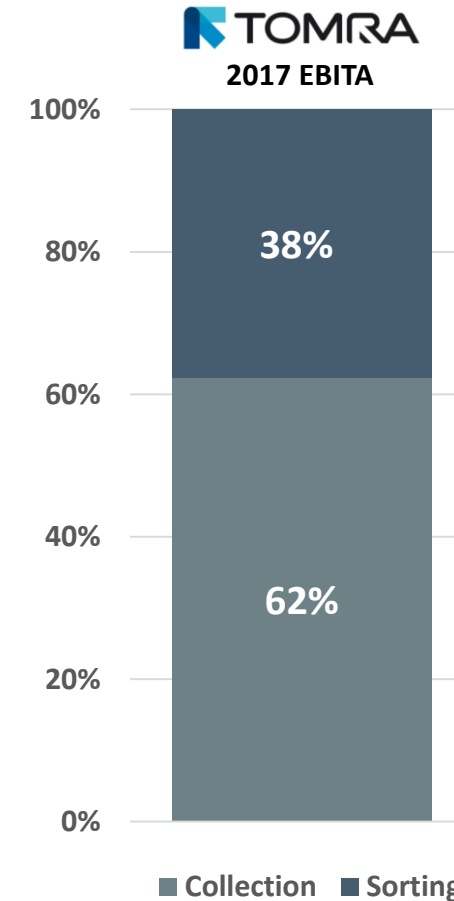


- High growth
- High margins
- Medium cyclical



- Stable
- High margins
- Low cyclical


High technology - sustainable business



# THE TOMRA TRANSFORMATION JOURNEY


**2004** TOMRA SORTING SOLUTIONS

TOMRA acquires TITECH, the world's leading provider of optical recognition and sorting technology for the waste industry and TOMRA's transformation journey starts.




**2005** TOMRA COLLECTION SOLUTIONS

TOMRA acquires Orwak Group, a leading provider of compaction for a variety of materials.



**2006** TOMRA SORTING SOLUTIONS

TOMRA acquires Commodas - a leading supplier within the field of sensor-based products for mining and metal recycling.



**2008** TOMRA SORTING SOLUTIONS

TOMRA acquires Ultrasort - specialists in sensor-based mining technology.




**2011** TOMRA COLLECTION SOLUTIONS

Sale of Californian material handling business. With the divestment the US operation became less exposed to movements in commodity prices.




**2011** TOMRA SORTING SOLUTIONS

TOMRA acquires Odenberg, rounding out the offering to include food optimization.




**2012** TOMRA SORTING SOLUTIONS

TOMRA acquires BEST, leading food sorting machine producer. With the acquisition of BEST, TOMRA has by far the widest reach within the food sorting universe.




**2014** TOMRA COLLECTION SOLUTIONS

Divestment of Orwak. Further portfolio focus on sensor-based technology.



**2016** TOMRA SORTING SOLUTIONS

TOMRA expands into lane sorting, acquiring New Zealand based Compac, confirming TOMRA's position as the leading provider of sorting technology into the food industry.



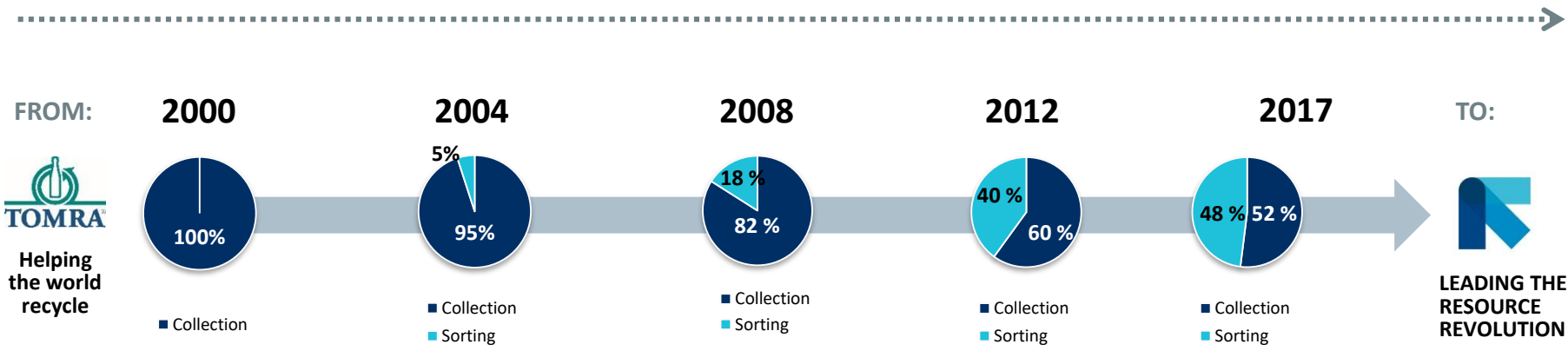
**2016**

Through its transformation journey TOMRA has moved from a business of many brands to one brand with many areas of expertise. We are one TOMRA.

**2018** TOMRA SORTING SOLUTIONS

TOMRA complements its food sorting portfolio with the acquisition of BBC Technologies, a leading provider of precision grading systems for blueberries and other small fruits.





# TOMRA'S TWO BUSINESS AREAS



## FOOD

|                    |                                      |
|--------------------|--------------------------------------|
| Share of '17 sales | ~33%                                 |
| Employees          | 1,110                                |
| Customers          | Food growers, packers and processors |
| Market share       | <b>Bulk: ~25%    Lane: ~25%</b>      |

## RECYCLING

|                    |   |
|--------------------|---|
| Share of '17 sales | ~12%  |
| Employees          | 185   |
| Customers          | Material recovery facilities, scrap dealers, metal shredder operators |
| Market share       | <b>~55-65%</b>  |

## MINING

|                    |                  |
|--------------------|------------------|
| Share of '17 sales | ~3%              |
| Employees          | 60               |
| Customers          | Mining companies |
| Market share       | <b>~40-60%</b>   |

## TOMRA SORTING GROUP FUNCTIONS & SHARED STAFF

|           |     |
|-----------|-----|
| Employees | 140 |
|-----------|-----|



## REVERSE VENDING

|                    |                   |
|--------------------|-------------------|
| Share of '17 sales | ~38%              |
| Employees          | 1,375             |
| Customers          | Grocery retailers |
| Market share       | <b>~75%</b>       |

## MATERIAL RECOVERY

|                    |  |
|--------------------|--|
| Share of '17 sales | ~15%   |
| Employees          | 500  |
| Customers          | Grocery retailers and beverage manufacturers |
| Market share       | <b>~60% in USA (markets served)</b>          |



# INSTALLED BASE WORLDWIDE



## REVERSE VENDING

|                   |         |
|-------------------|---------|
| Nordic            | ~15,100 |
| Germany           | ~30,000 |
| Other Europe      | ~14,600 |
| North America     | ~16,000 |
| Rest of the world | ~6,300  |

**TOTAL ~82,000**

Not including machines sold on OEM agreements



## RECYCLING

|          |        |
|----------|--------|
| EMEA     | ~3,850 |
| Americas | ~800   |
| Asia     | ~700   |
| Other    | ~20    |

**TOTAL ~5,370**

## MINING

|              |     |
|--------------|-----|
| Europe       | ~20 |
| US / Canada  | ~35 |
| Australia    | ~5  |
| South Africa | ~40 |
| Other        | ~40 |

**TOTAL ~140**

## FOOD BULK

|          |        |
|----------|--------|
| EMEA     | ~3,100 |
| Americas | ~2,850 |
| Asia     | ~600   |

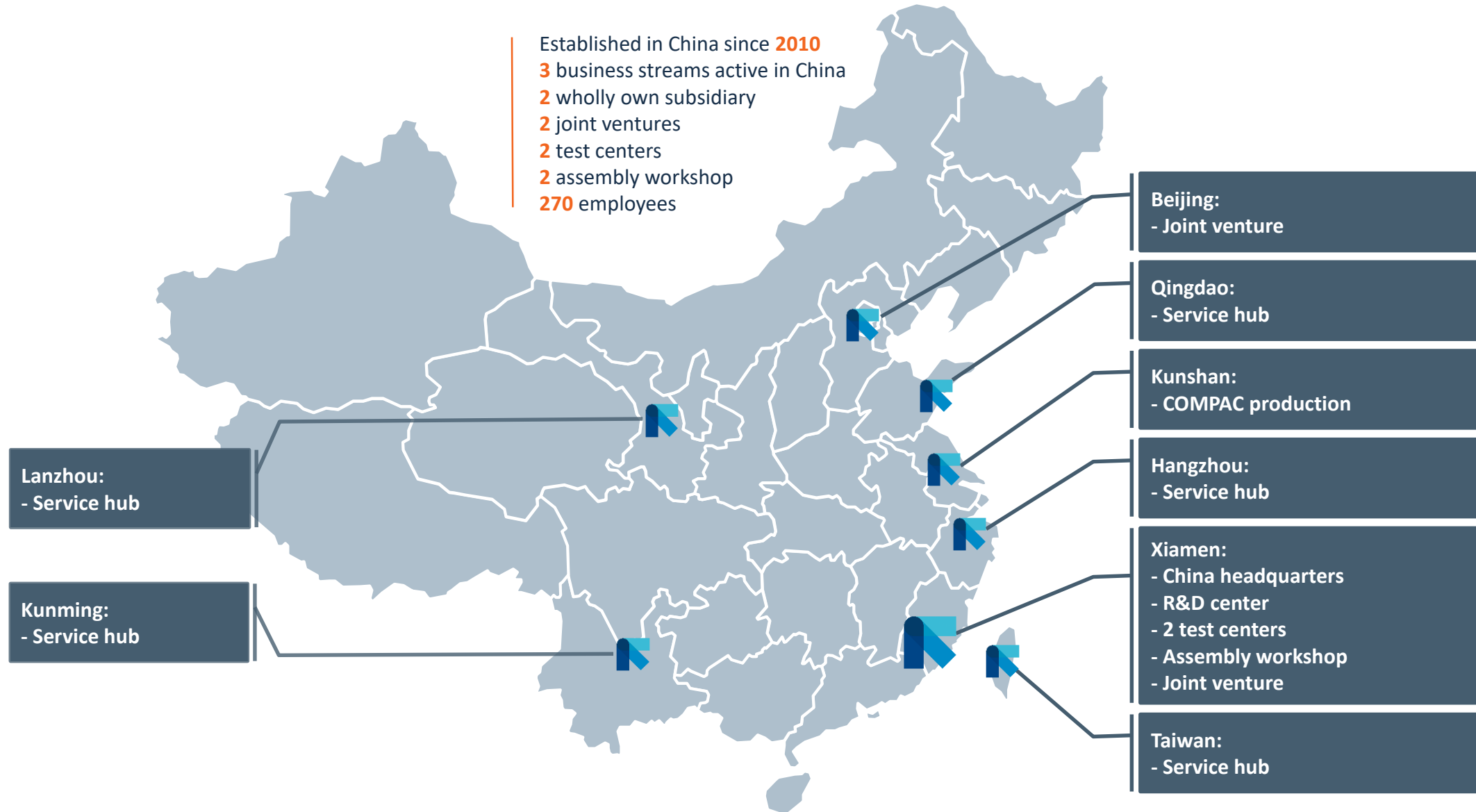
**TOTAL ~6,550**

## FOOD LANE

|          |      |
|----------|------|
| EMEA     | ~435 |
| Americas | ~690 |
| APAC     | ~555 |

**TOTAL ~1,680**

# STRENGTHEN PRESENCE IN CHINA





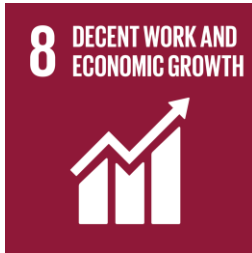
# MAKING MEANINGFUL CONTRIBUTION ALONG THE WAY

## Thematic Support: Future of Food & Circular Economy



**TOMRA's mission is to create sensor-based solutions for optimal resource productivity,**  
*making sustainability profitable*  
*– with increased relevance and meaning*

## The TOMRA Operations



**TOMRA's Corporate Responsibility Program will support the vision of leading the resource revolution,**  
*through the impact of our people, products & services*

Tangible actions to demonstrate our purpose of business

The image features a futuristic, blue-toned industrial interior. The background shows a long, narrow corridor with multiple parallel metal tracks or rails on both sides, receding into the distance. In the foreground, centered, is a large, circular, blue lens or sensor component. The overall aesthetic is clean, modern, and high-tech.

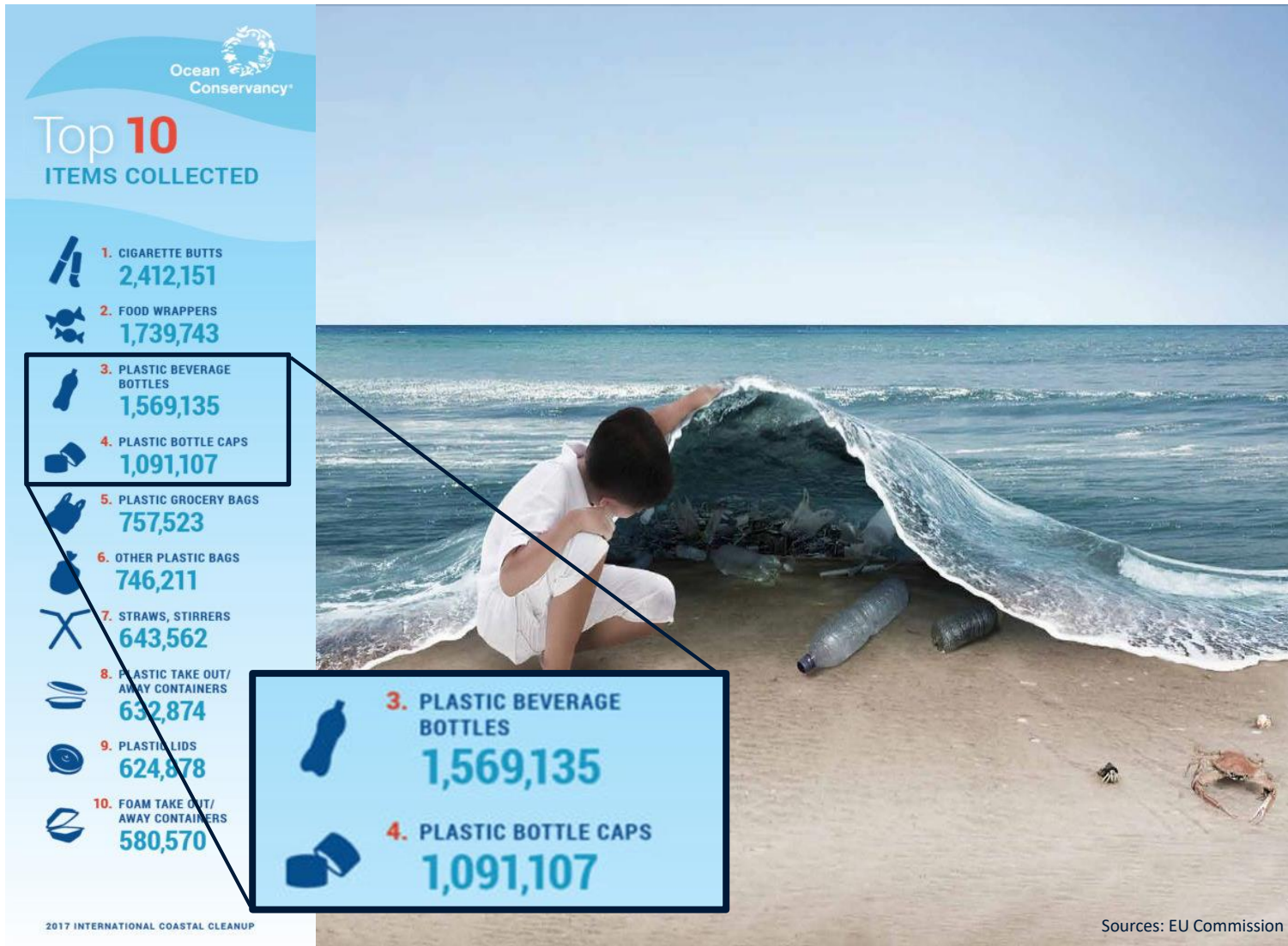
# TOMRA COLLECTION SOLUTIONS

# RETURNS INTO VALUE

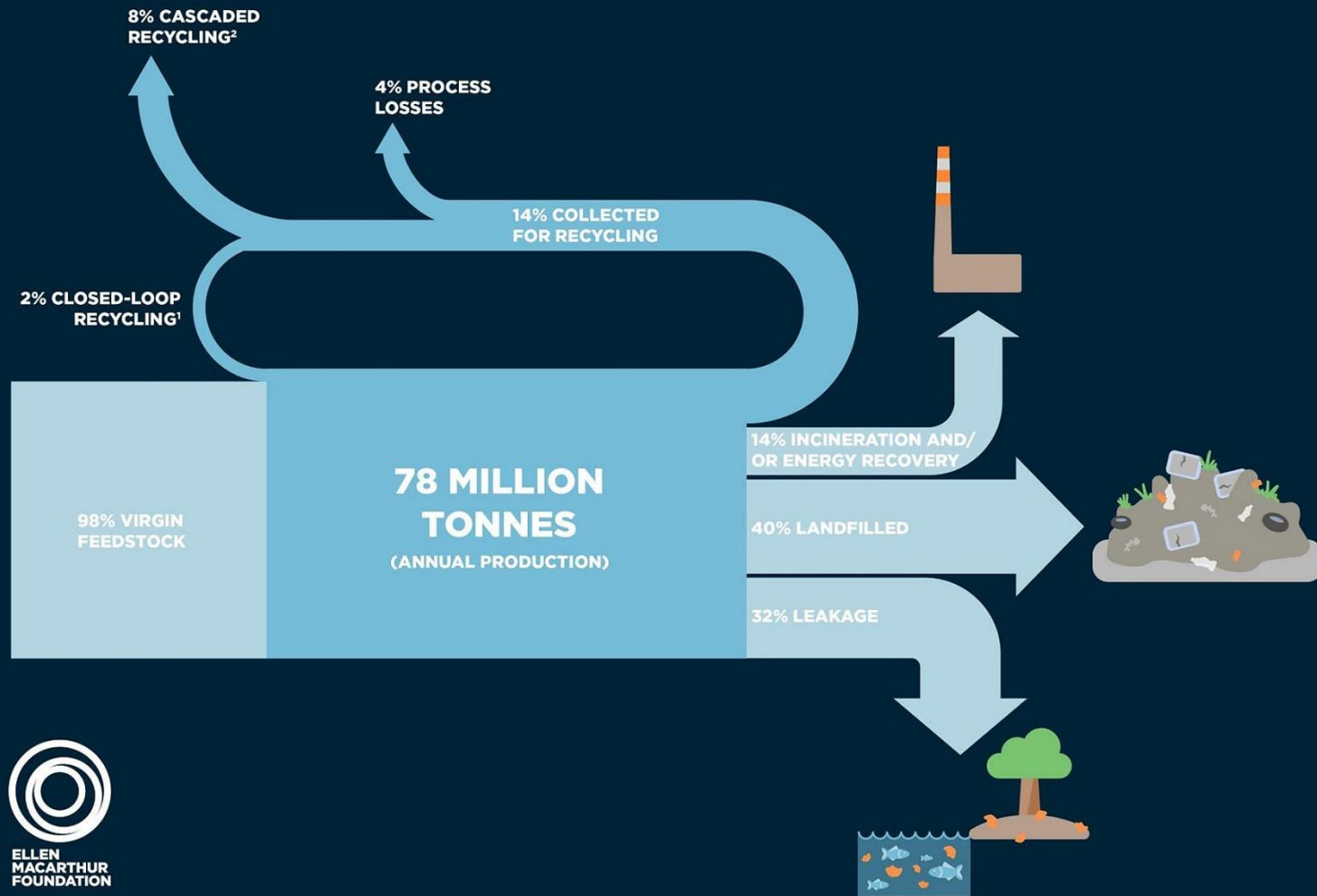
## DID YOU KNOW?

- **1 million** plastic bottles are bought around the world every minute
- **Less than half** of all purchased plastic bottles are collected for recycling
- **~ 35bn** beverage containers are captured by **TOMRA** every year...
- ...representing only **2.5%** of all beverage containers sold in 2017

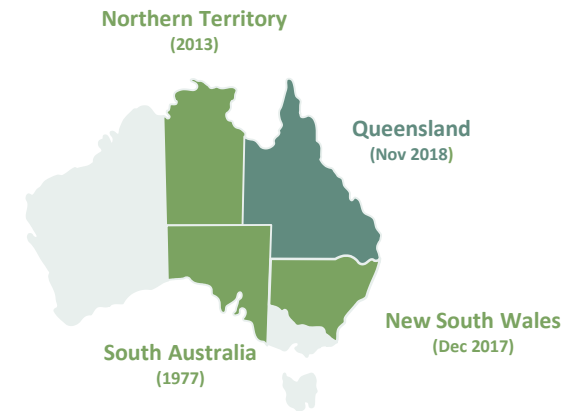
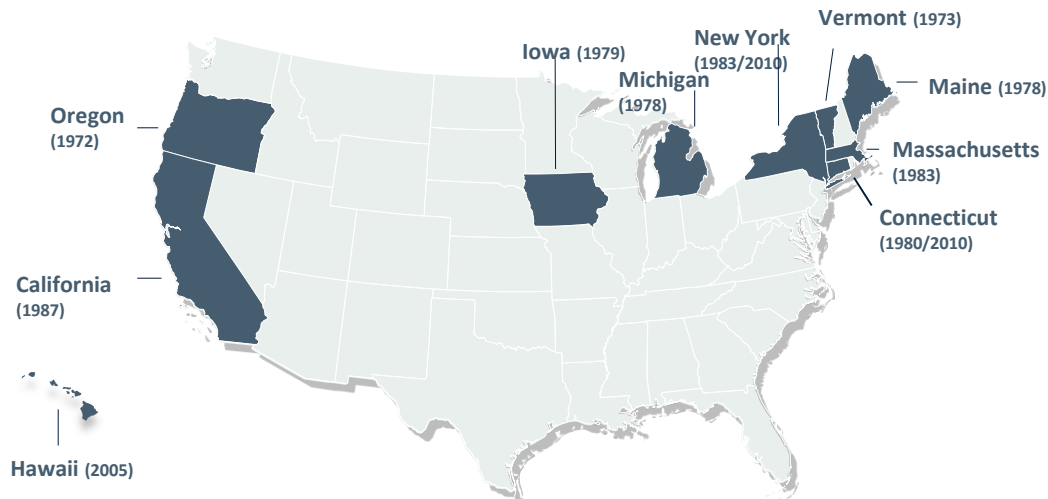
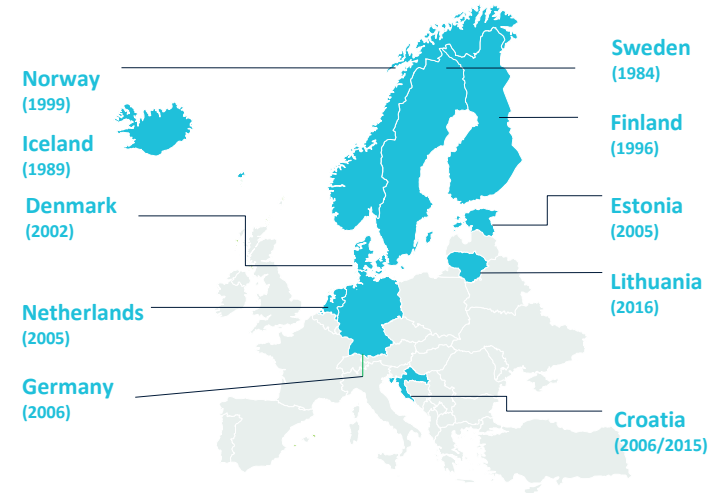
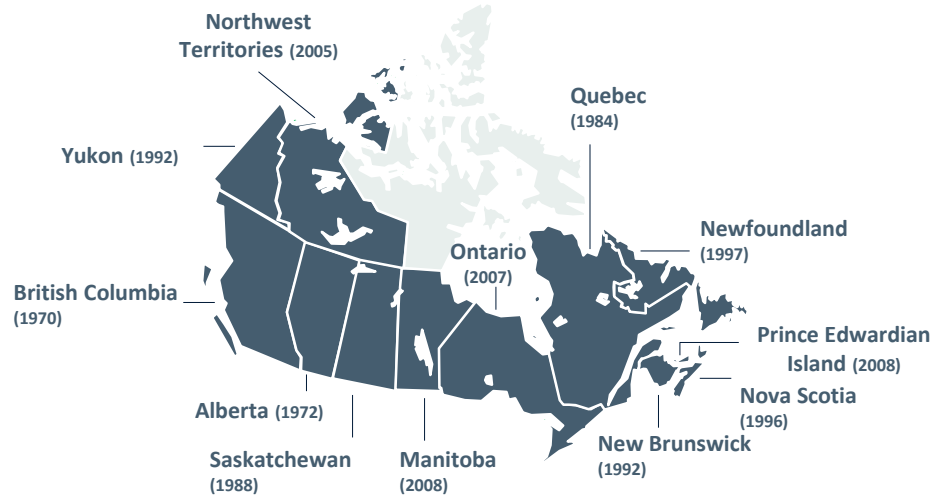
# INCREASING PUBLIC PRESSURE TO REDUCE WASTE AND LITTERING



# CLOSING THE PLASTIC PACKAGING LOOP REPRESENTS VAST POTENTIAL



# AN OVERVIEW OF CURRENT DEPOSIT MARKETS\*



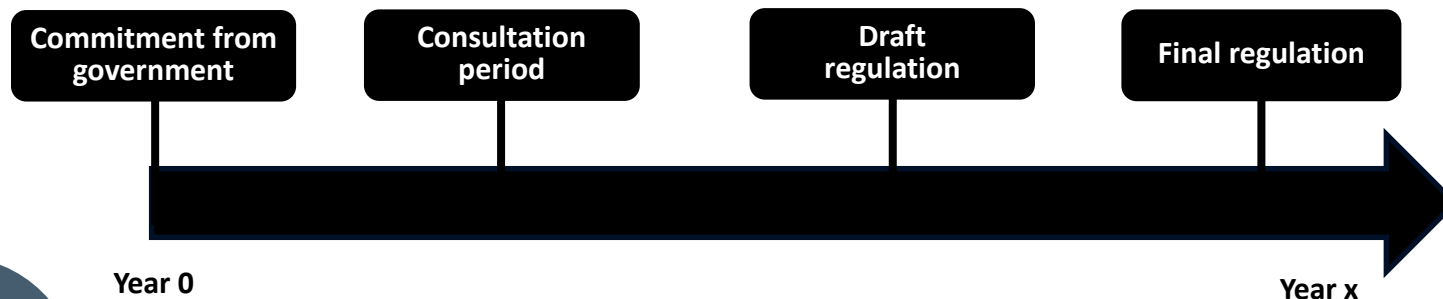
\* In addition, some markets have refillable deposit systems such as: Austria, Belgium, Chile, Czech Republic, France, Hungary, Poland and South Korea

# DESIGNING A DEPOSIT SCHEME – LENGTHY PROCESS FROM IDEA TO LAW

## Many stakeholders around the table



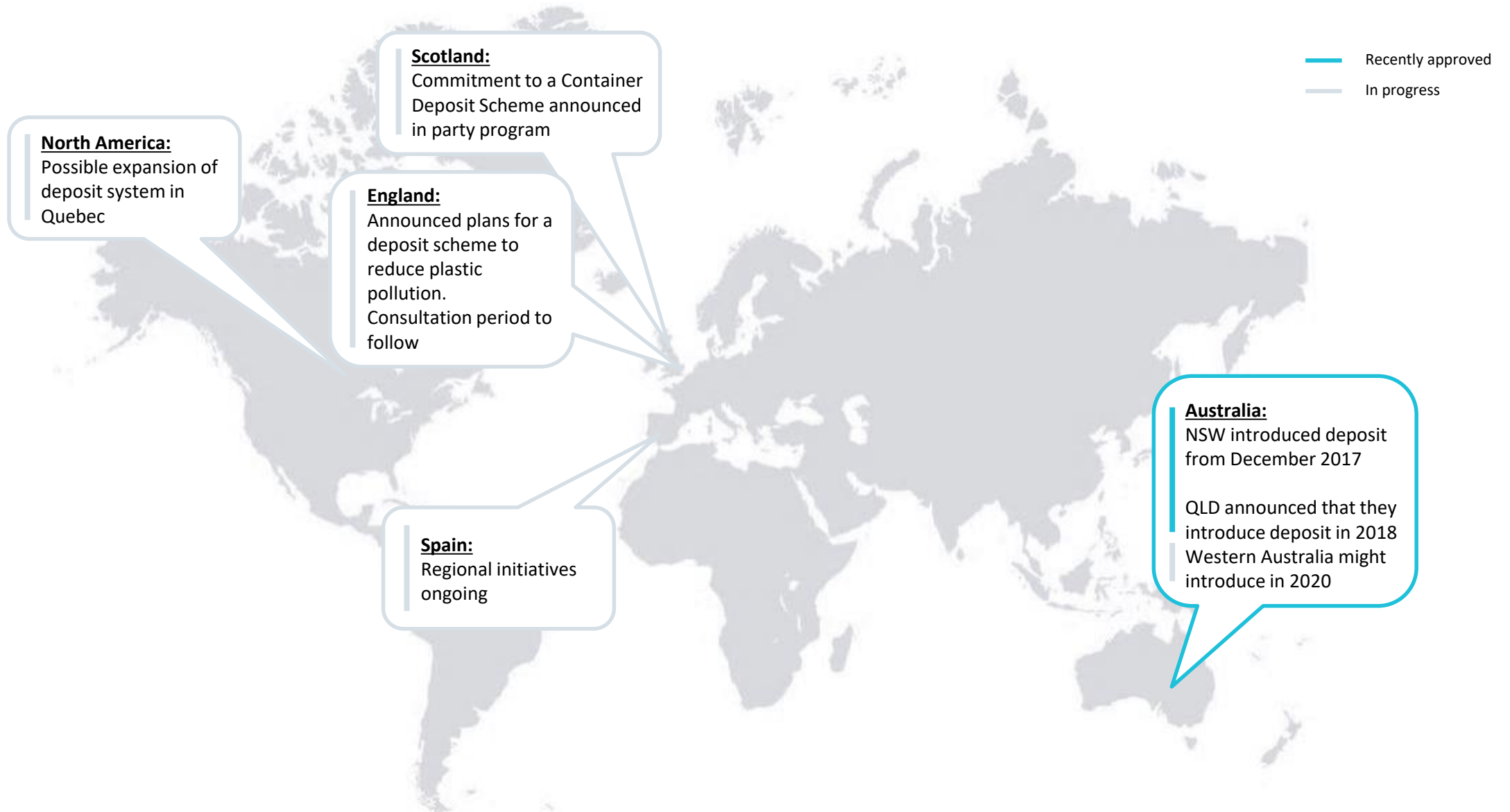
## Illustrative legislation process



## Many questions to address:

- Types of material and product included
- Measurement of success and effectiveness
- Deposit value
- Participants and their role
- Financing of the scheme
- Deployment of infrastructure and logistics
- Fraud prevention
- System regulation and monitoring

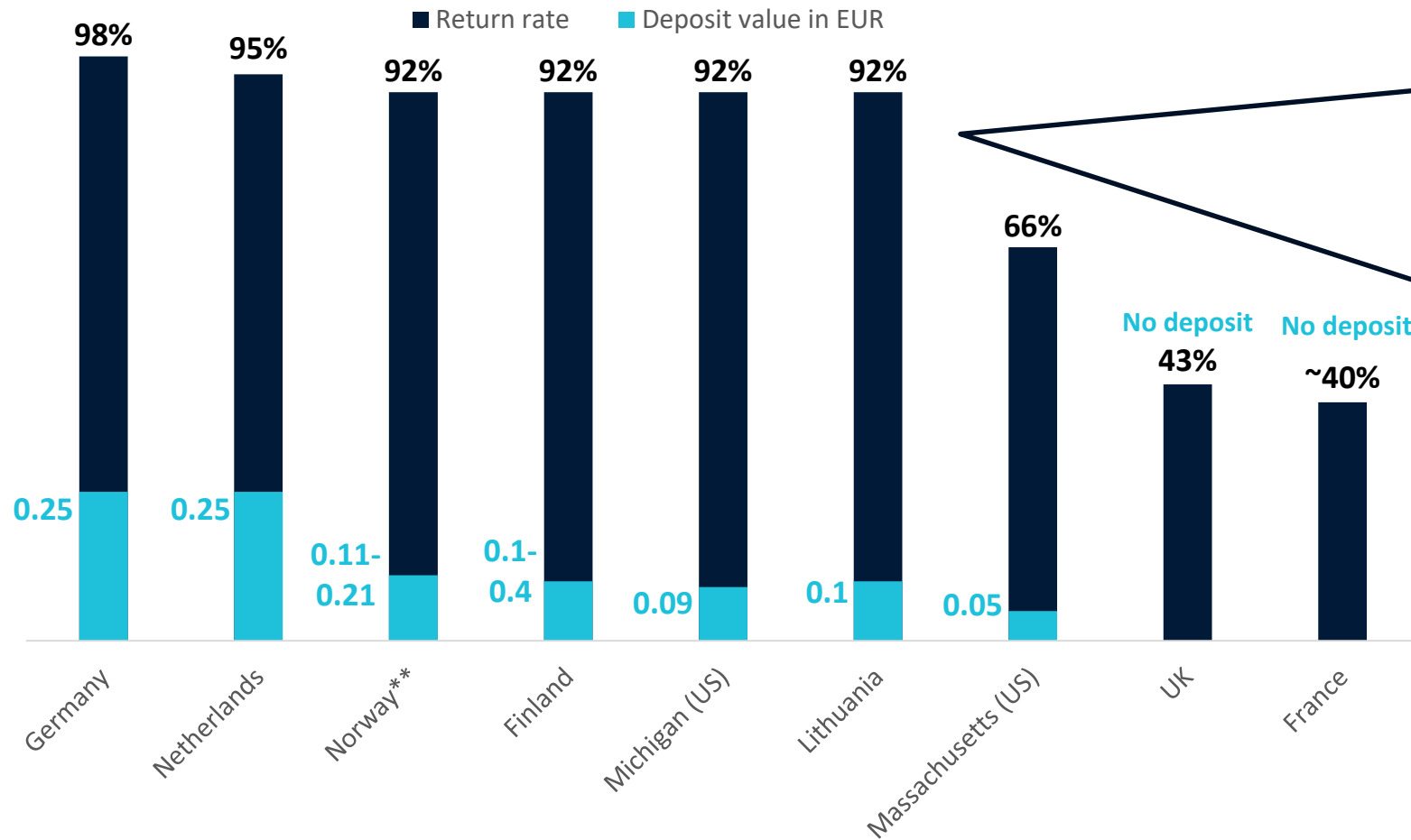
# UPCOMING DEPOSIT MARKETS ON THE MOVE





# CONTAINER DEPOSIT SCHEME – REAFFIRMED AS A PROVEN SOLUTION

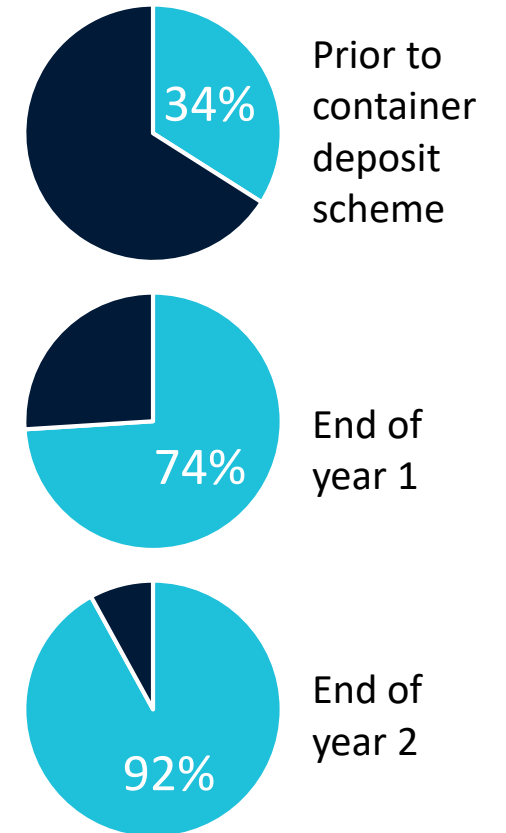
## Return rate and deposit value\* for various container deposit schemes



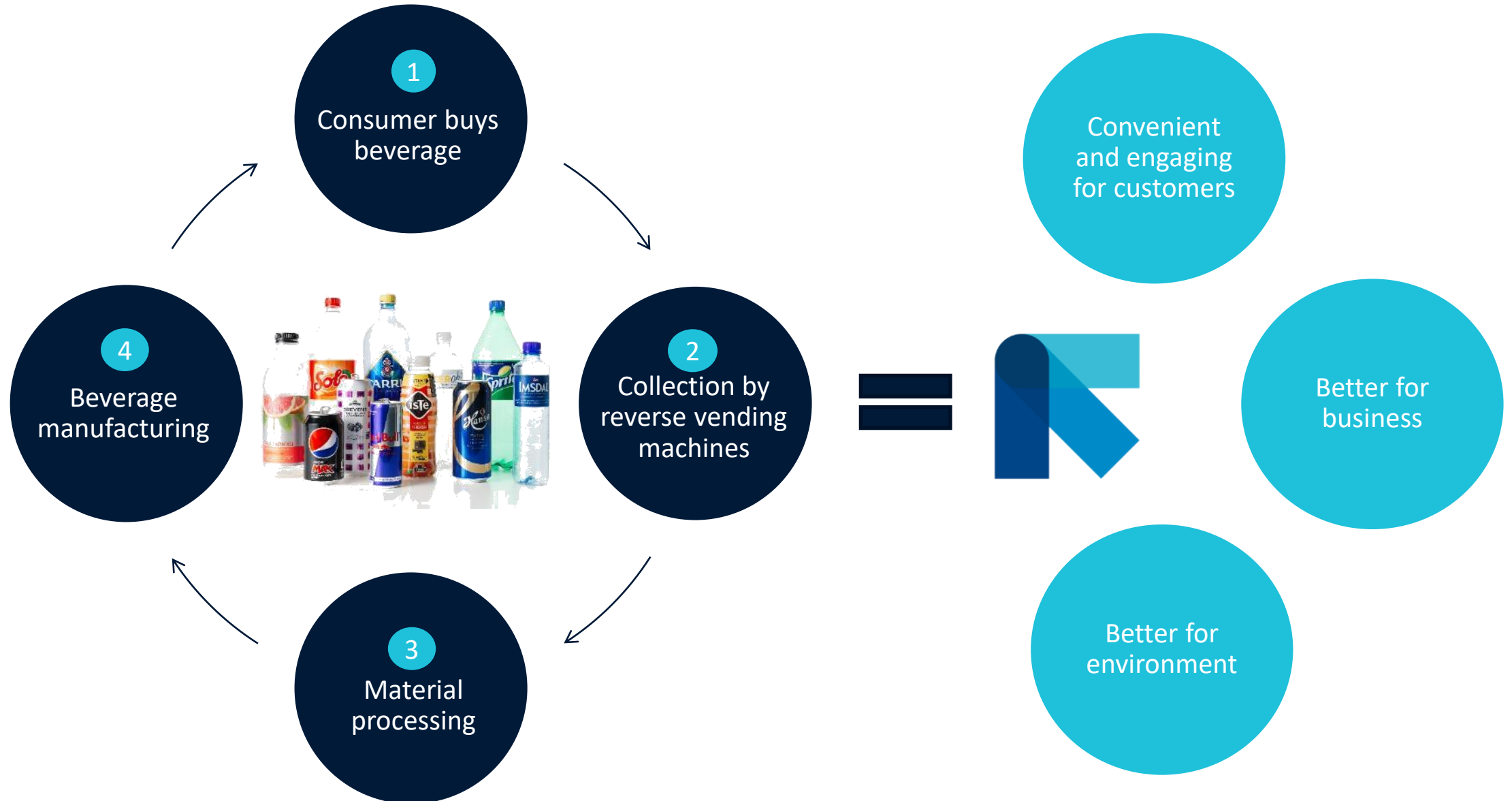
\*Deposit values converted to EUR for comparison purpose

\*\*Norway increased its deposit value to 0.21-0.31EUR since 01.09.2018

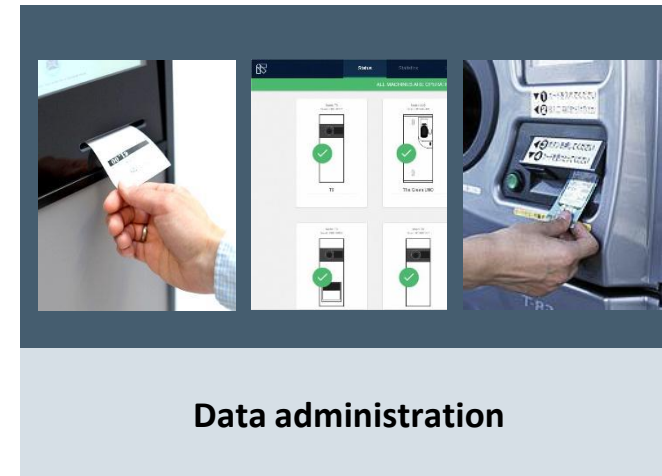
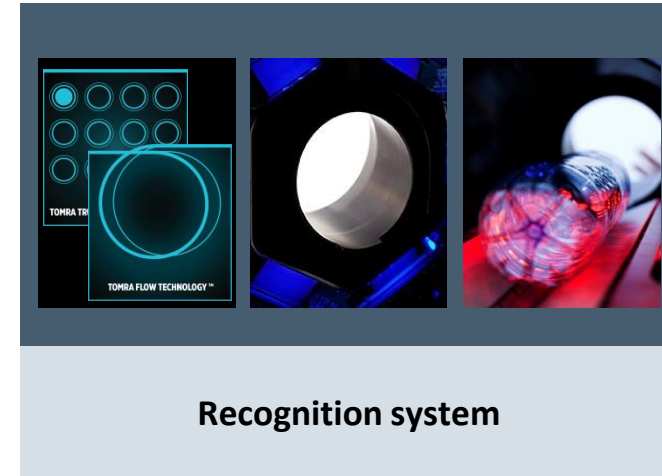
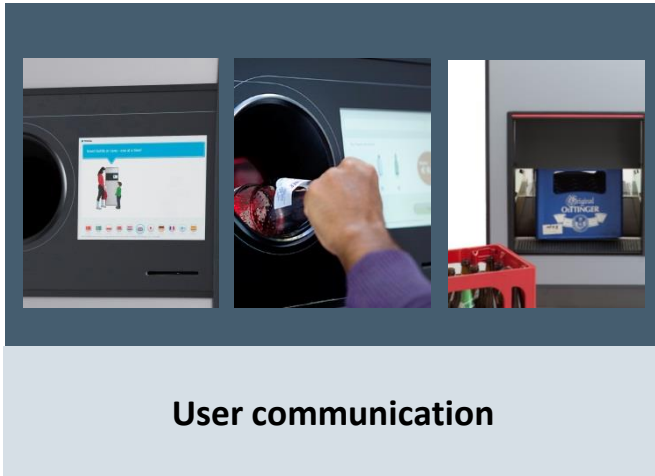
### Return rates in Lithuania



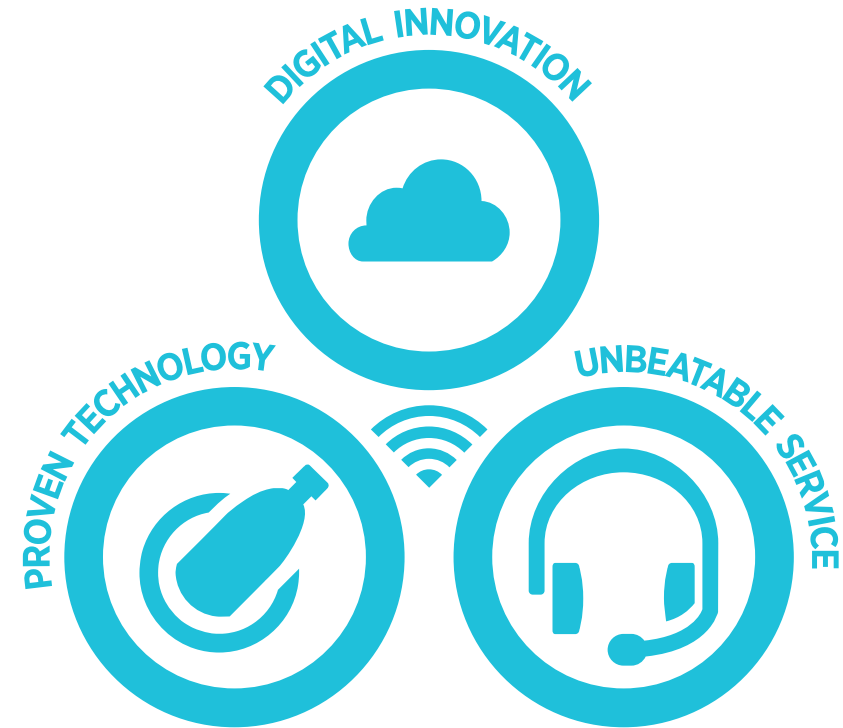
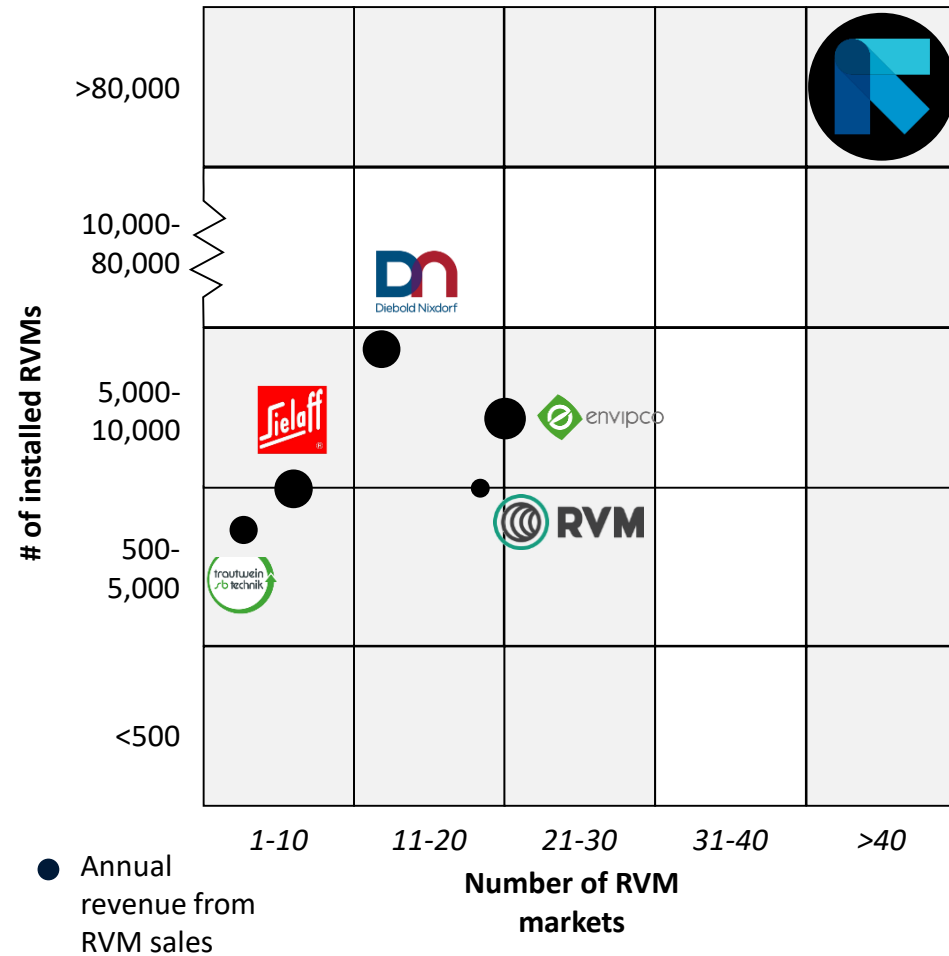
# THE BENEFITS OF REVERSE VENDING IN A CONTAINER DEPOSIT SCHEME



# ELEMENTS OF A MODERN REVERSE VENDING SYSTEM

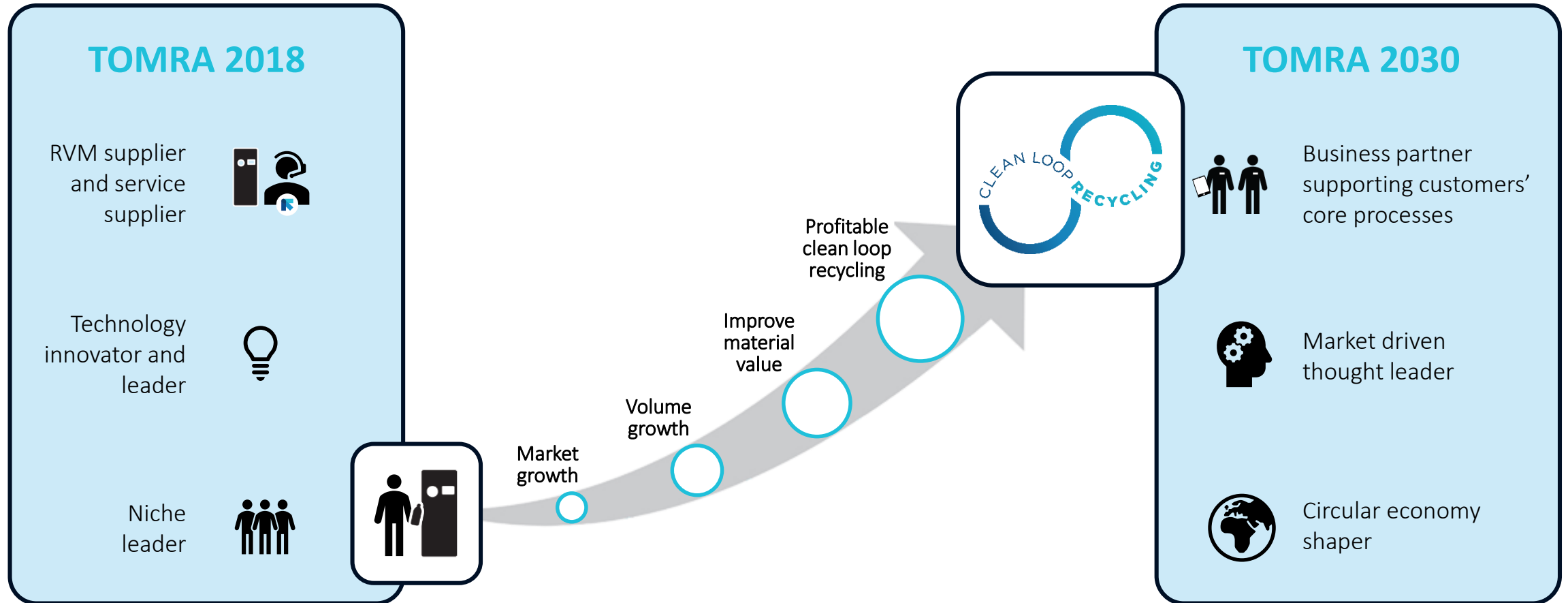


# UNDISPUTED MARKET LEADER WITHIN REVERSE VENDING TECHNOLOGY



**The smarter TOMRA system.**

# MOVING FROM A RVM SUPPLIER TO GLOBAL FRONTRUNNER AND THOUGHT LEADER WITHIN CIRCULAR ECONOMY



# UTILIZE OUR COMPETITIVE ADVANTAGES TO GENERATE GREATER CUSTOMER VALUE

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## KEY STRENGTHS



Product and service leadership



Production capacity and supply chain



Efficient new market entry



Financial strength to support throughput business models



Human resources to support the growth



Strengthen brand awareness

## PLAYING FIELD

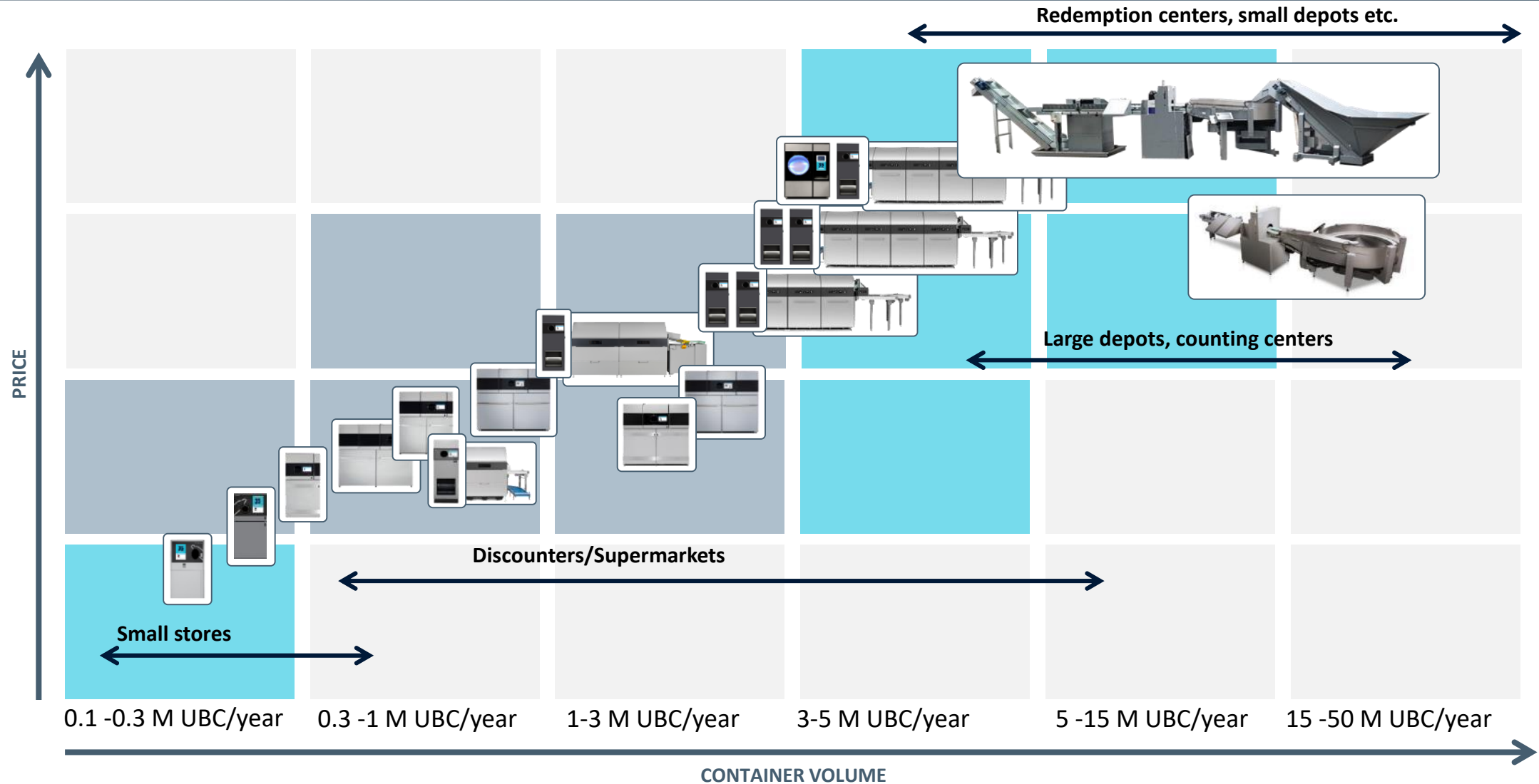


BASE MARKETS AND PRODUCT EXPANSION



GEOGRAPHICAL EXPANSION

# FLEXIBILITY AND SCALABILITY TO ENABLE NEW BUSINESS MODELS AND NEW MARKET ENTRY



# A COMPLETE DIGITAL PORTFOLIO DESIGNED TO WIN

1. Win in new markets

2. Drive solutions for volume and throughput growth initiatives

3. Support growth and increase TOMRA's relevance in base markets

4. Industry leading fleet service & operations

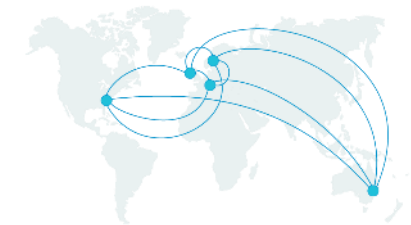
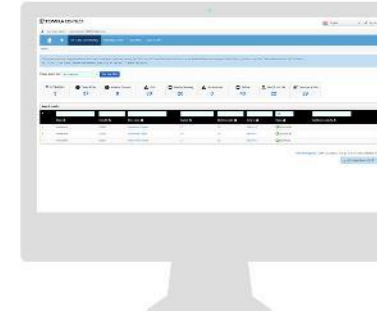
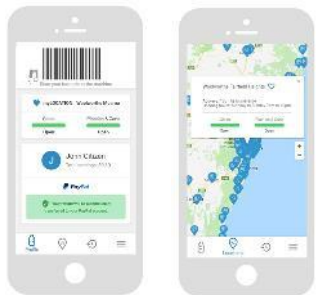
▲  
Consumer Services

▲  
Applications and SaaS

▲  
Data Solutions

▲  
Service and Operational Tools

▲  
IoT Platform





# Engage consumers to drive volume in throughput markets

Deliver a convenient and engaging recycling experience for consumers that increase the participation and drive volume through our installations.



Partner with relevant players



Facilitate and educate



Modernize and enhance the consumer journey



Share stories and inspire change



Drive community engagement



Keep track of your recycling rewards with the myTOMRA app.

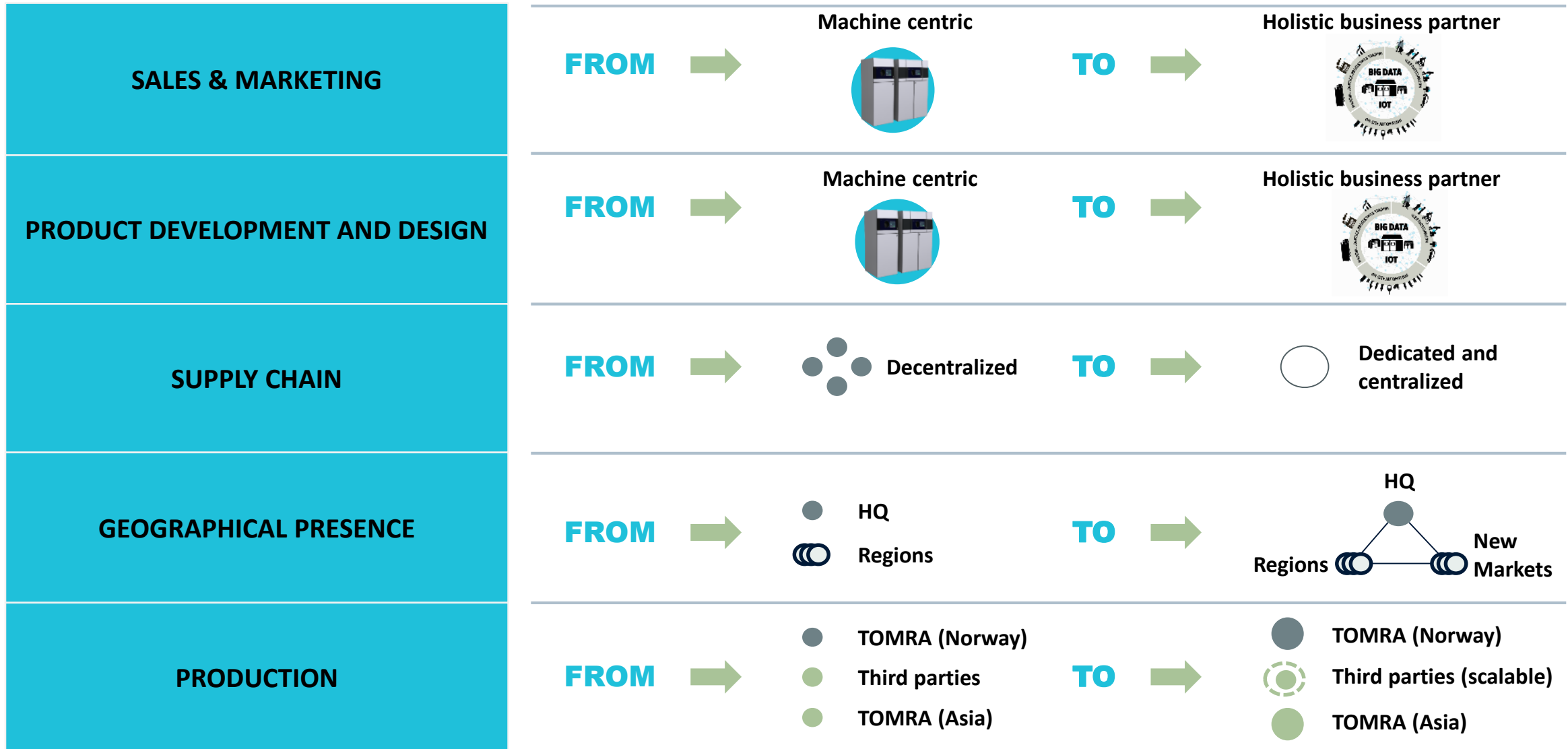
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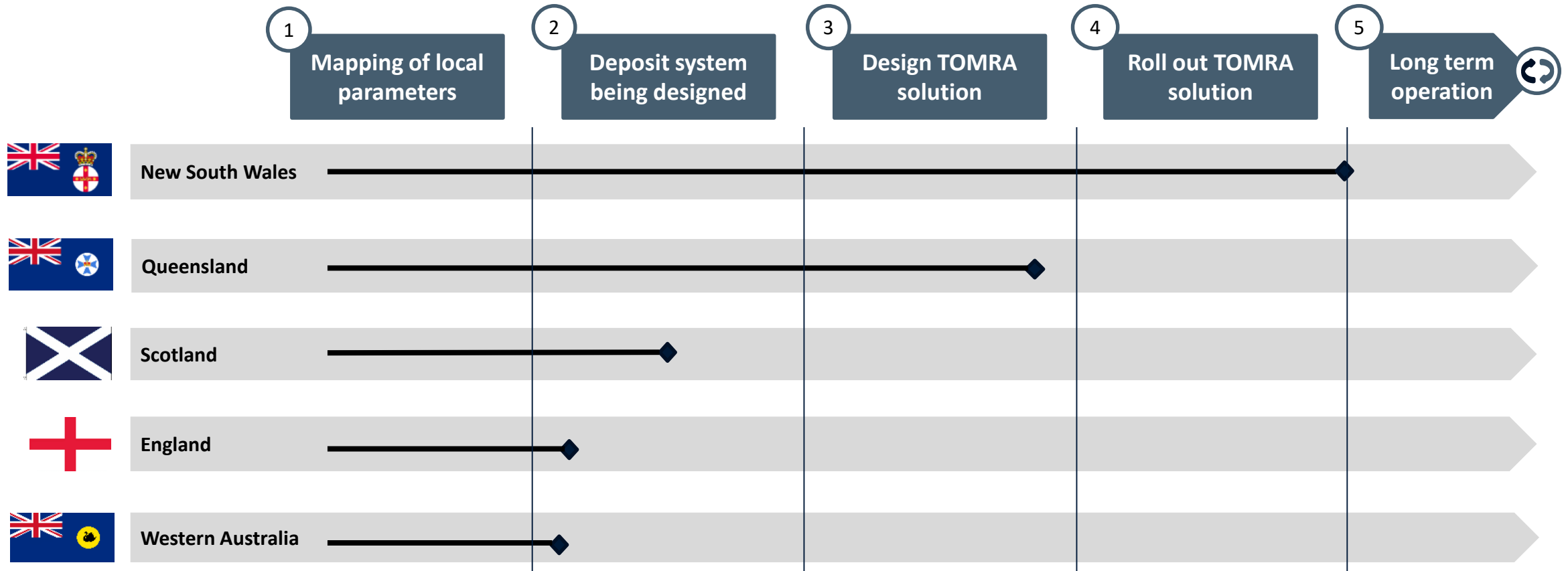
follow us to stay in the Loop



# A DYNAMIC ORGANIZATION CATERED FOR GROWTH



# LEVERAGE EXISTING CAPABILITIES FOR SUCCESS INTO NEW MARKETS



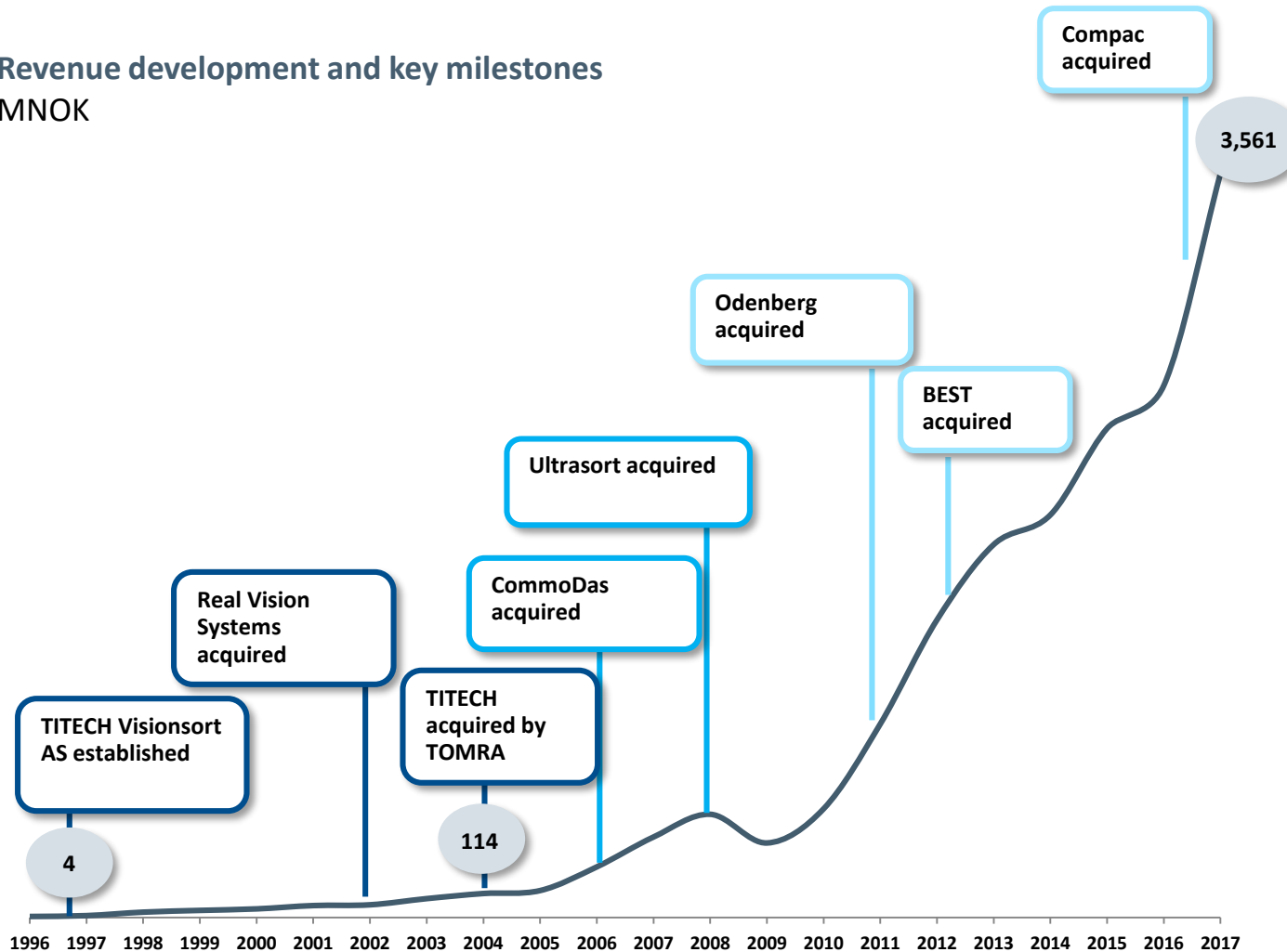
Utilize existing resources and knowledge base and add on local business unit to ensure optimal roll-out



# TOMRA SORTING SOLUTIONS

# STRONG REVENUE GROWTH SINCE INCEPTION IN 1996

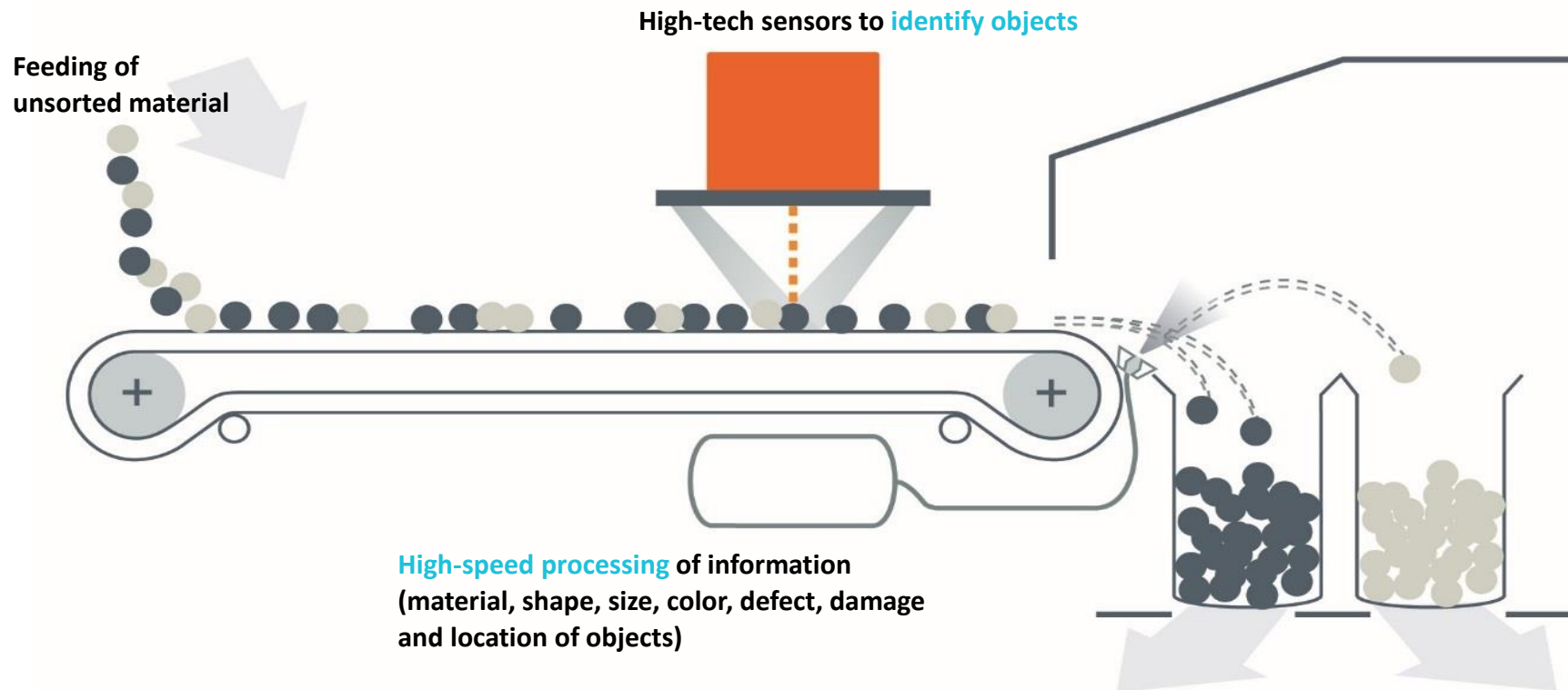
## Revenue development and key milestones MNOK



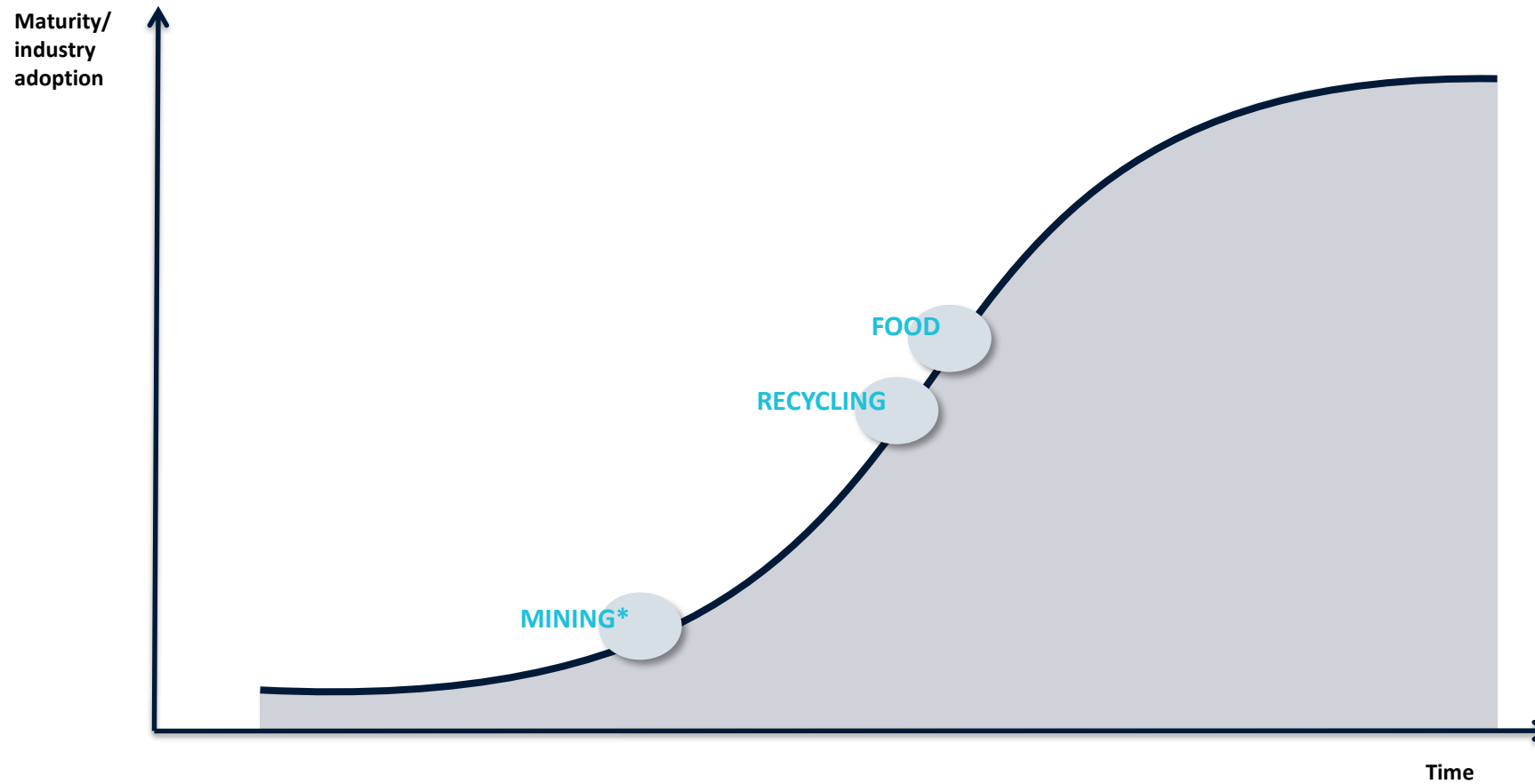
- Total revenue growth (organic plus inorganic) CAGR of ~30% per year from 2004-2017
  - Average annual organic growth for the same period was ~17%
- Technology base and segment/application knowledge expanded both through acquisitions and in-house ventures

# HOW DOES SENSOR BASED SEPARATION WORK?

- High-tech sensors to **identify objects**
- **High speed processing** of information (material, shape, size, color, defect, damage and location of objects)
- **Precise sorting** by air jets or mechanical fingers
- Product **specific equipment design** often including multiple technologies to maximize sorting efficiency

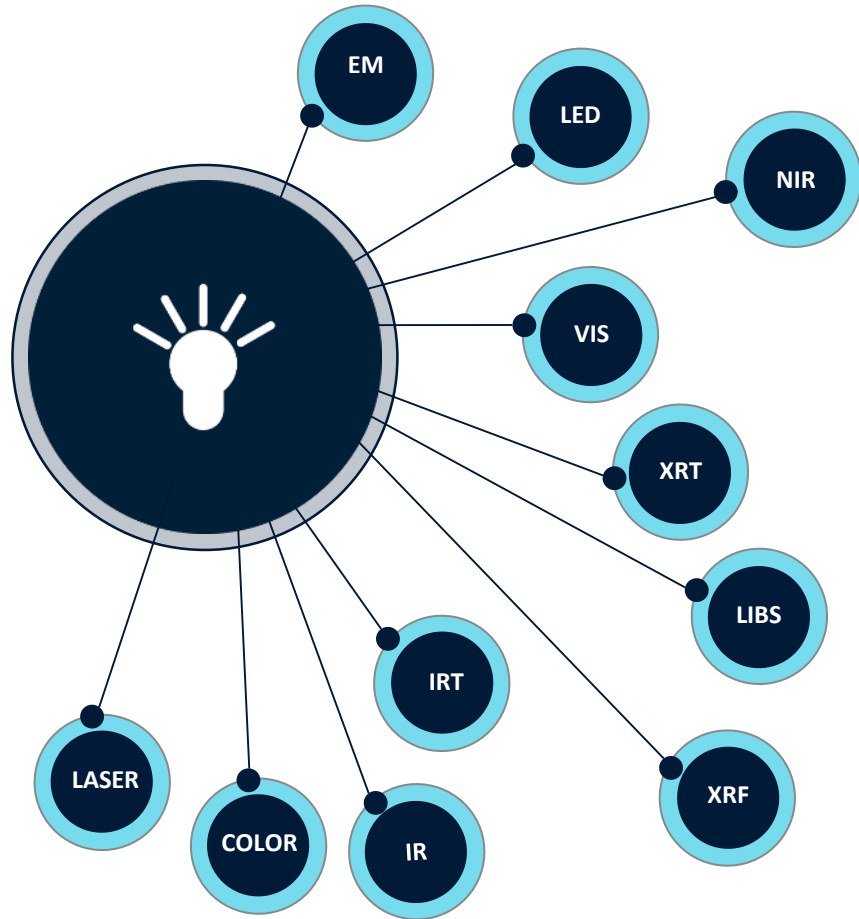


# ADOPTION OF SENSOR-BASED SORTING AT DIFFERENT MATURITY LEVELS



\* In certain mining sub-segments, such as industrial minerals and diamonds, sensor-based sorting is a more mature technology

# A COMMON SENSOR BASED TECHNOLOGY PORTFOLIO



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

|   | RECYCLING | MINING | FOOD |
|---|-----------|--------|------|
| ELECTROMAGNETIC SENSOR (EM)                 | X         | X      | X    |
| LED SPECTOMETRY (LED)                       | X         | X      | X    |
| NEAR-INFRARED SPECTROSCOPY (NIR)            | X         | X      | X    |
| VISIBLE LIGHT SPECTROMETRY (VIS)            | X         | X      | X    |
| X-RAY TRANSMISSION (XRT)                    | X         | X      | X    |
| LASER INDUCED BREAKDOWN SPECTROSCOPY (LIBS) | X         |        |      |
| X-RAY FLUORESCENCE (XRF)                    | X         | X      |      |
| INFRARED TRANSMISSION (IRT)                 |           |        | X    |
| IR CAMERA (IR)                              |           |        | X    |
| COLOR CAMERA (COLOR)                        | X         | X      | X    |
| LASER REFLECTION/FLUORESCENCE (LASER)       | X         | X      | X    |



# OUR PRODUCTS ARE DETECTING A WIDE RANGE OF PARAMETERS



## Color

Removal of discolorations in mono- and mixed-color material



## Blemishes

Objects with spots or other (small) blemishes are removed



## Defects

Removal of visible and invisible small and substantial defects



## Structure

Removal of soft, molded or rotten food



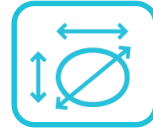
## Density

Detection of density differences



## Damage

Broken, split and damaged objects are detected and removed



## Shape & Size

Sort on length, width, diameter, area, broken-piece recognition, ...



## Biometric Characteristics

Sort based on water content and removal of micotoxyn contaminations



## Foreign Material

Removal of foreign material in a material stream, e.g. insects, worms, snails or plastics in food applications



## Fluo

Based on the chlorophyll level present in produce defects are removed



## X-RAY

Analysis of objects based on their density and shape



## Detox

Removal of produce contaminated with aflatoxin

 Visible

 Invisible

 Both

# EXAMPLES OF CROSS UTILIZATION OF OUR SENSOR TECHNOLOGIES



## TITECH NIR + ODENBERG platform

### Field Potato Sorter

- The NIR technology allows efficient removal of rocks, dirt and rotten potatoes before the potatoes are stored
- The solution opens up sorting of unwashed potatoes in a way that previously was not possible



## BEST LASER + TOMRA mining platform

### PRO Laser Duo

- The LASER technology allows detection of quartz of all colors. This opens for sorting of quartz itself, and gold bearing quartz mineralization
- The solution is unique in the market and further underlines our technological leadership



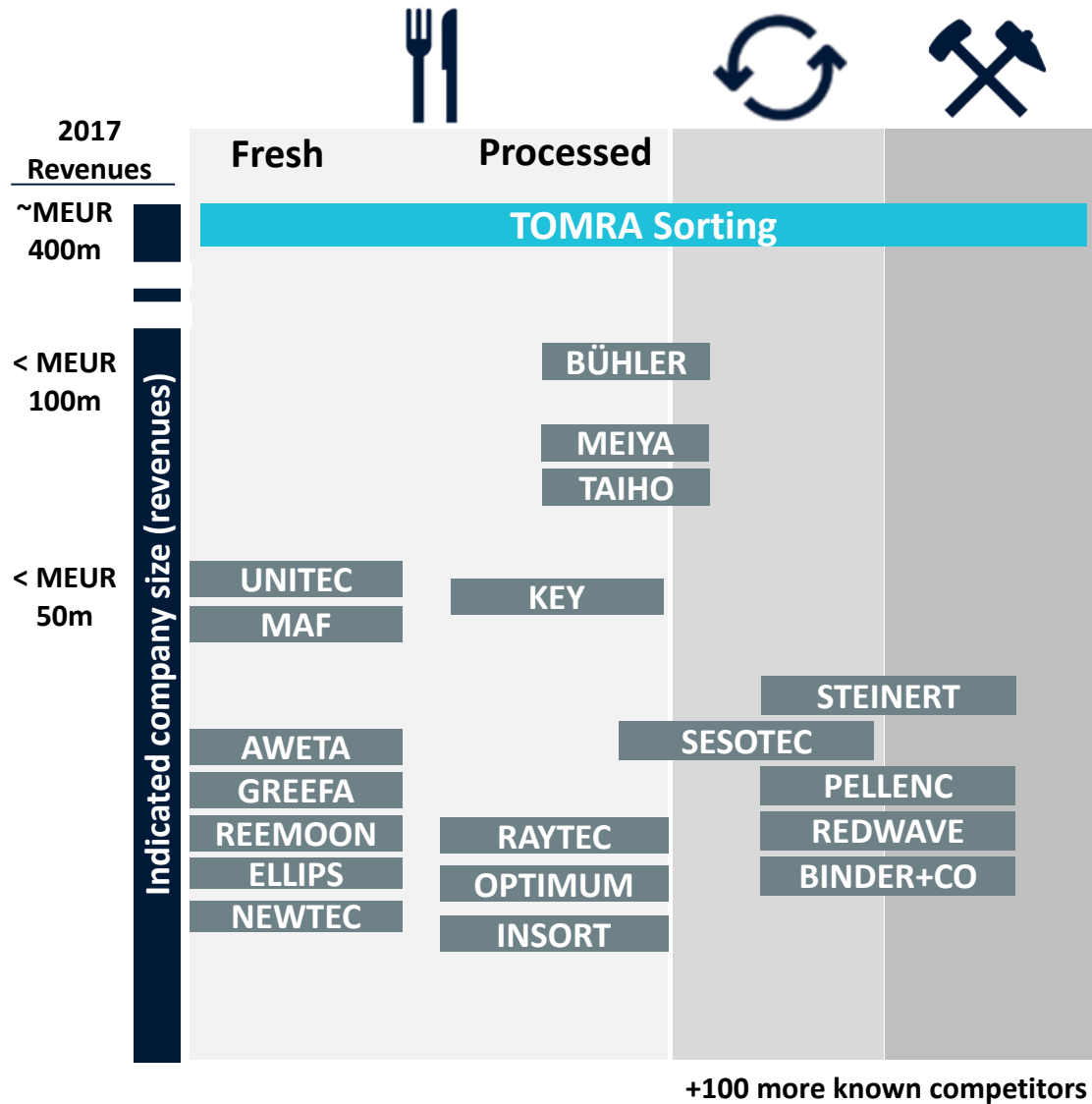
## TITECH NIR + BEST LASER

### Nimbus BSI

- An NIR sensor has been added to the NIMBUS machine platform
- The new machine increases our competitiveness in the nuts segment

Several more projects on combining technologies into new products in the pipeline

# THE BENEFITS OF BEING TOMRA SORTING

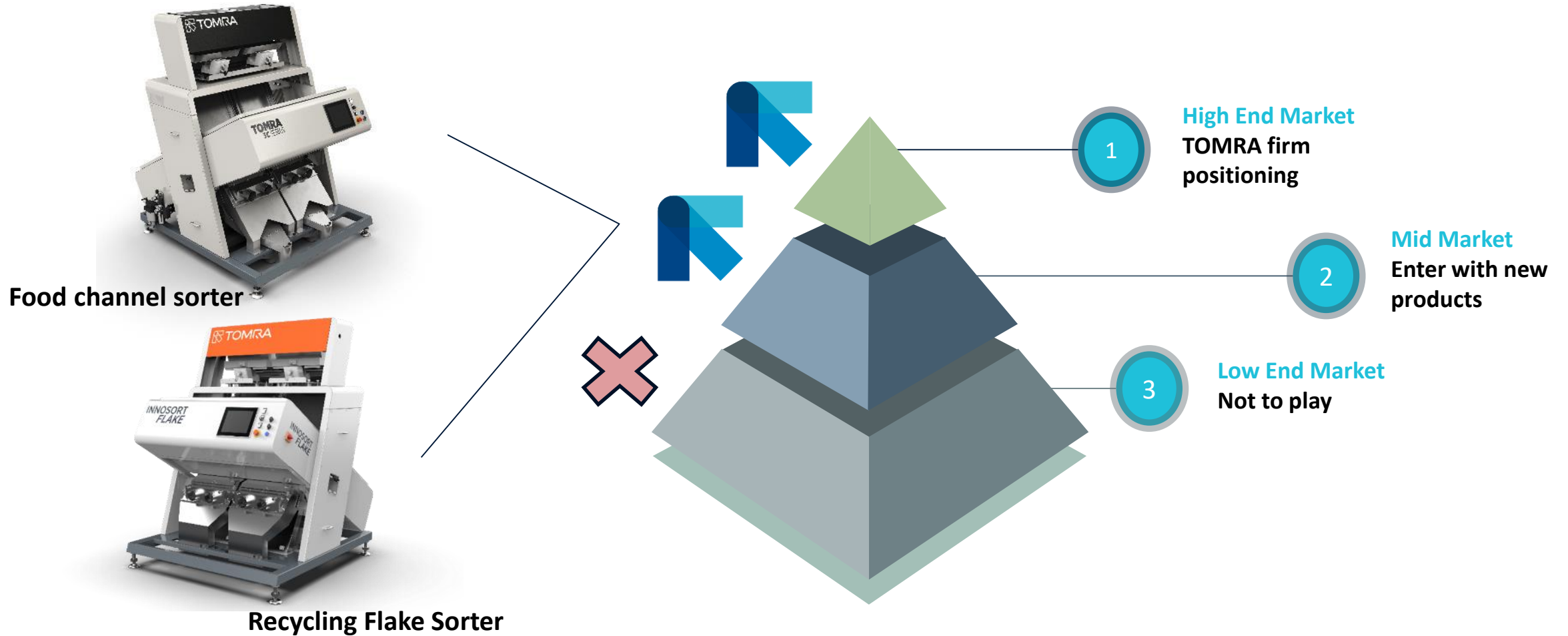


Our position: A solid platform for further growth



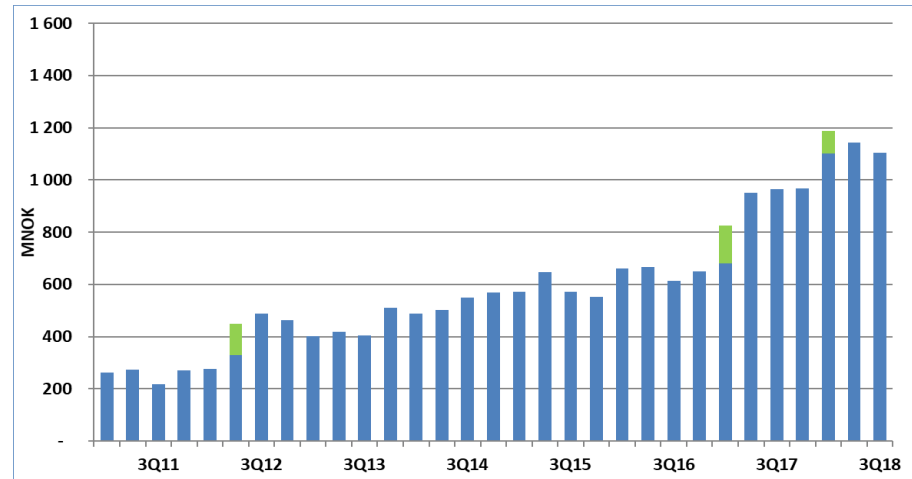
# ENTERING NEW MARKETS THROUGH MID-MARKET STRATEGY

Creating competitive offering to fast growing mid-market

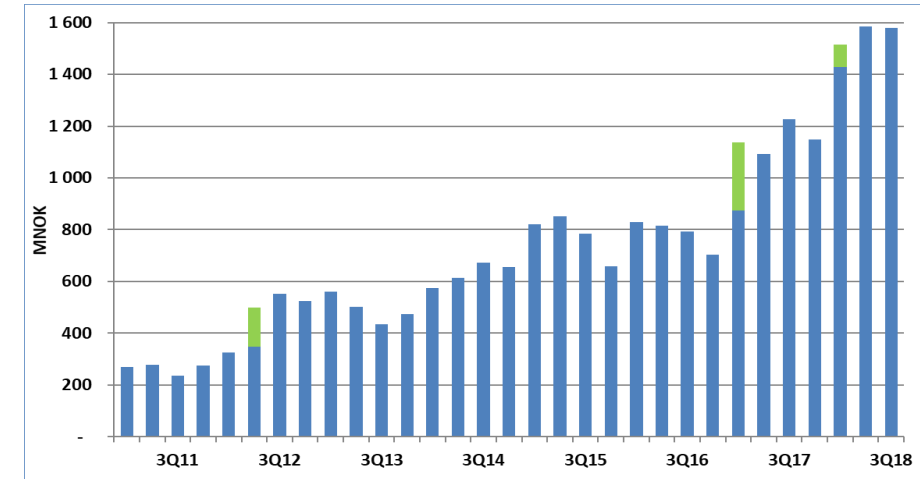


# DEVELOPMENT IN ORDER INTAKE AND ORDER BACKLOG

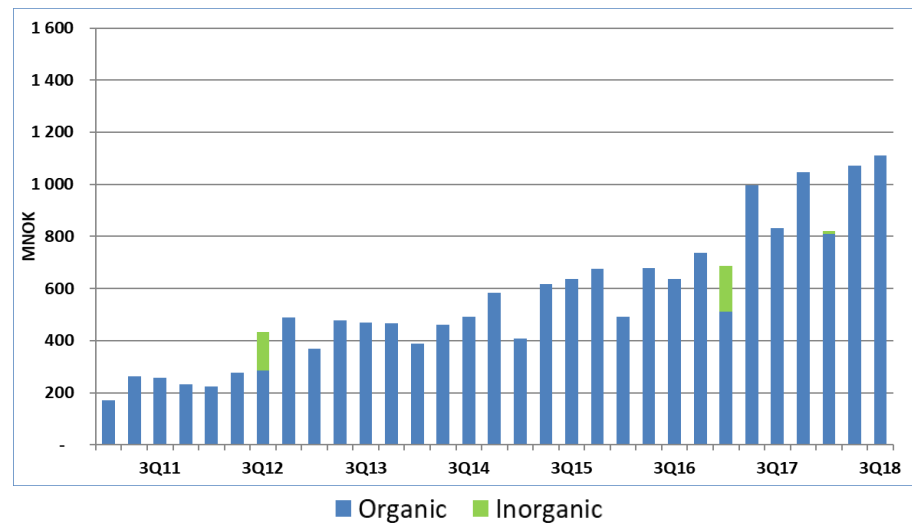
## ORDER INTAKE



## ORDER BACKLOG



## REVENUES



- TOMRA Sorting Solutions (TSS):
  - Revenues of 1,112 MNOK, up from 831 MNOK last year
  - Order intake of 1,105 MNOK in the quarter, compared to 964 MNOK last year
  - Despite all time high revenues in the quarter, a strong order intake led to healthy order backlog of 1,579 MNOK by the end of third quarter
- Estimated backlog conversion ratio in 4Q18: 80%\*

# FOOD FOR THOUGHT

- By 2050 we will be close to **10bn** people
- We will need more food in the next 40 years than **all the harvests in history combined**
- But **farmland is constant** – at best
- The food you eat will have **travelled more than you have**

**YIELD  
INTO   
USAGE**

# FOOD VALUE CHAIN IS GETTING MORE COMPLEX AND DRIVES THE FOOD MARKET TOWARDS NEW SOLUTIONS

---



**Production**



**Distribution**



**Consumption**

# AUTOMATION CONTINUES ON A STRONG GROWTH TRAJECTORY

From...



To...



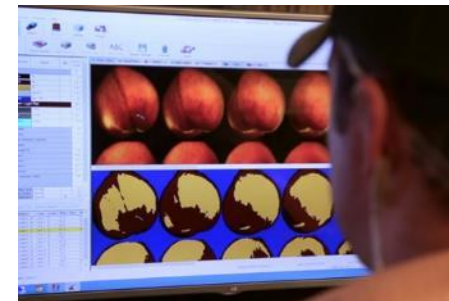
Robotics become cheaper, more advanced and user-friendly

Higher labor cost and labor shortages



Ensure quality and safety

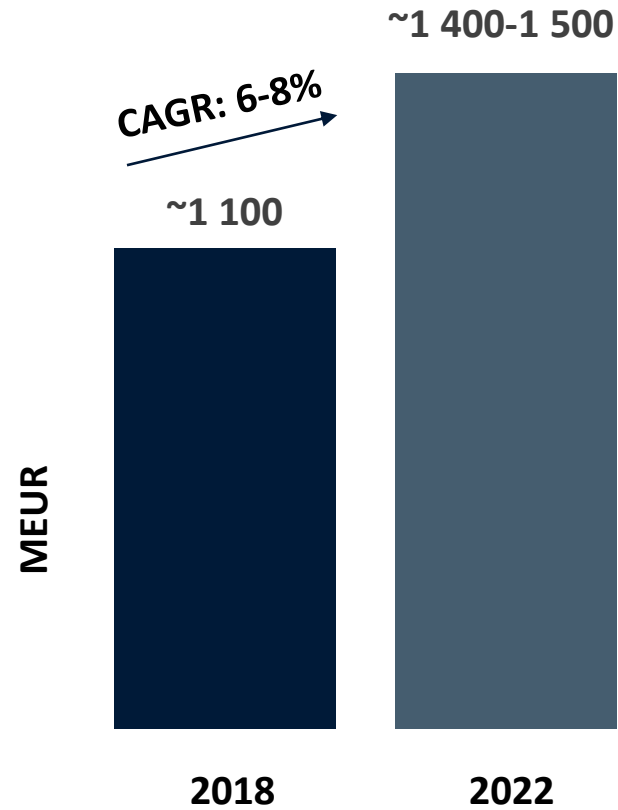
Improve efficiency



Leverage data insight



# MARKET GROWTH EXPECTATIONS – FOOD



## MARKET DEFINITION FOOD

### Sensor-based sorting and grading equipment

- Including color sorting
- Excluding peripheral equipment and turn-key solutions

### Fresh and processed segment

## AFFECTING FACTORS

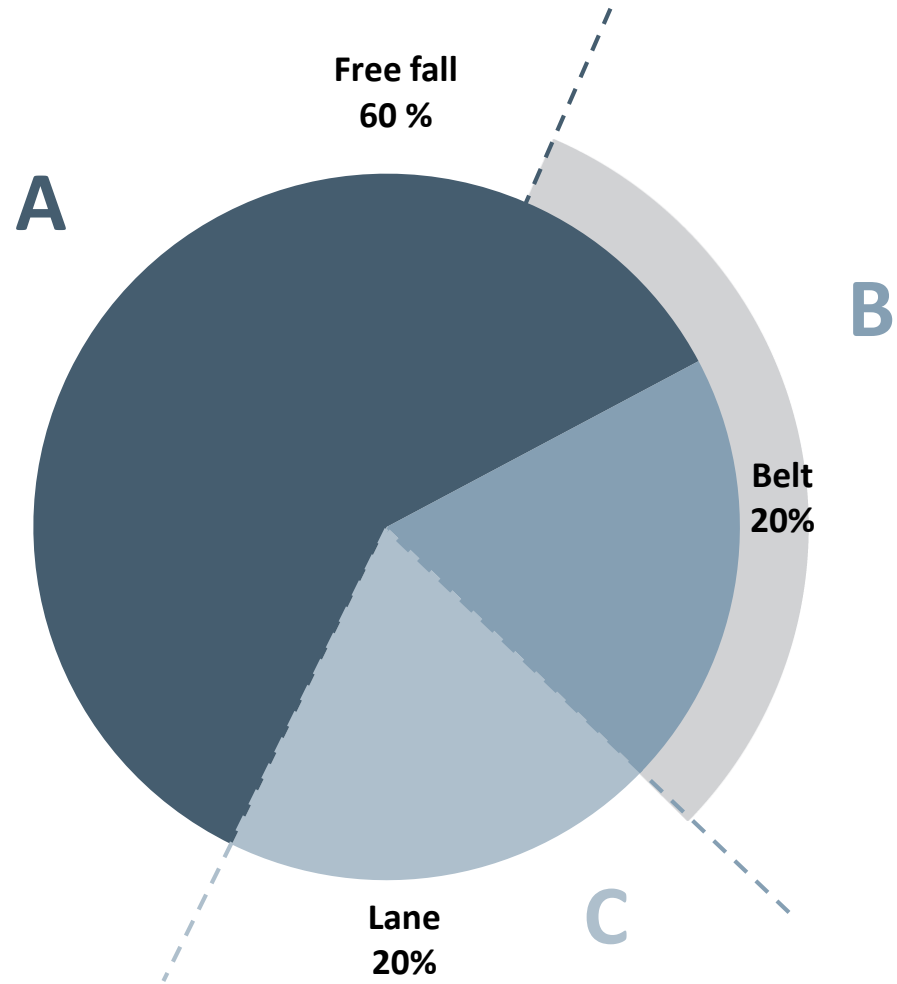
Weather conditions

Raw material pricing

Manual labor cost

Living standards

# THREE WAYS OF SORTING WITHIN THE FOOD SEGMENT



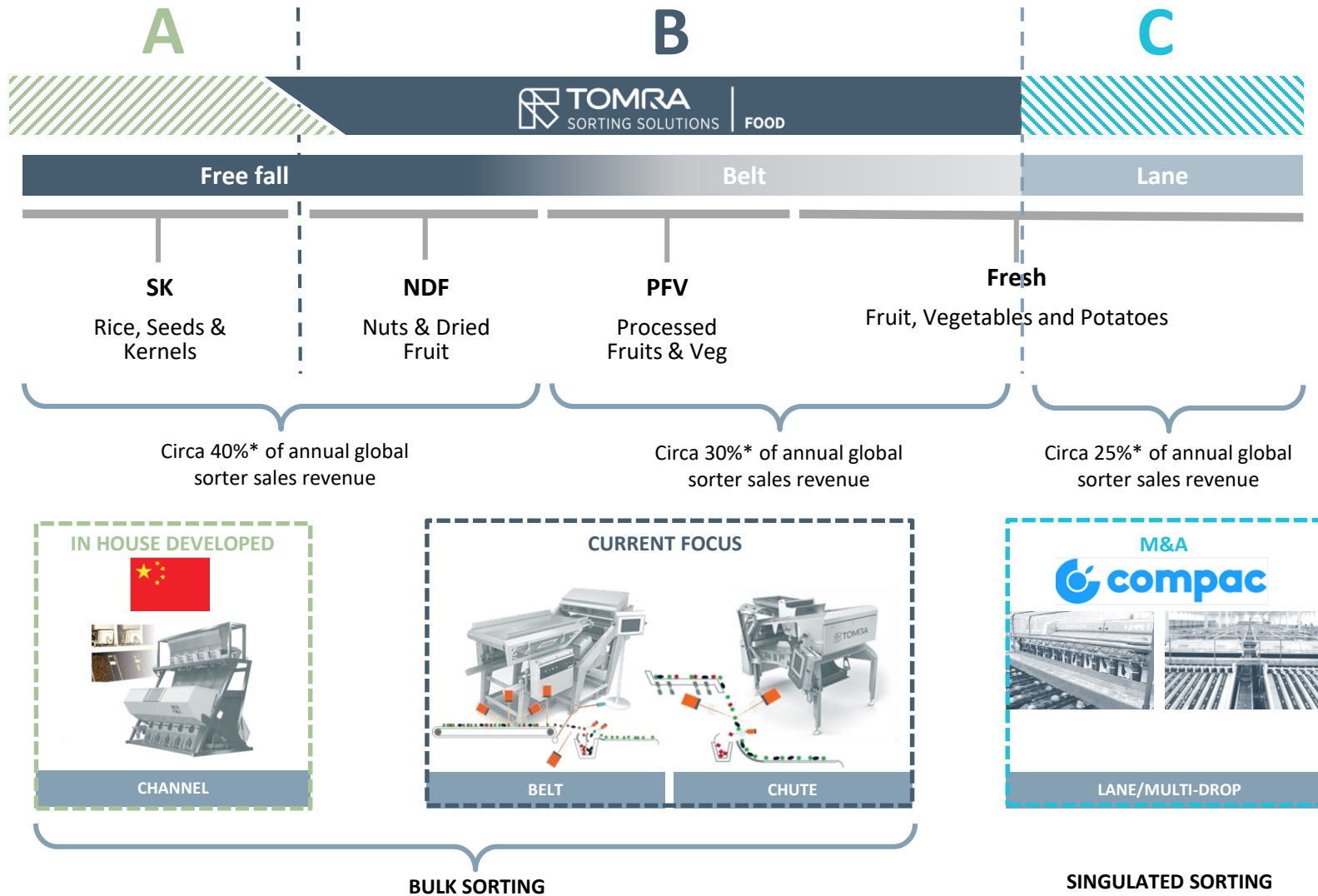
| Free fall (Channel / Chute) |  |
|-----------------------------|--|
| Application                 | Seeds, rice, grains                                      |
| Companies                   | Buhler, Key, <b>Best</b> , Satake, Daewon, Hefei, Orange |
| Sensor tech.                | Camera (simple)  |

| Belt         |   |
|--------------|---|
| Application  | Prepared /preserved veg. and fruit          |
| Companies    | <b>Best</b> , Key, <b>Odenberg</b> , Raytec |
| Sensor tech. | Several (complex)                           |

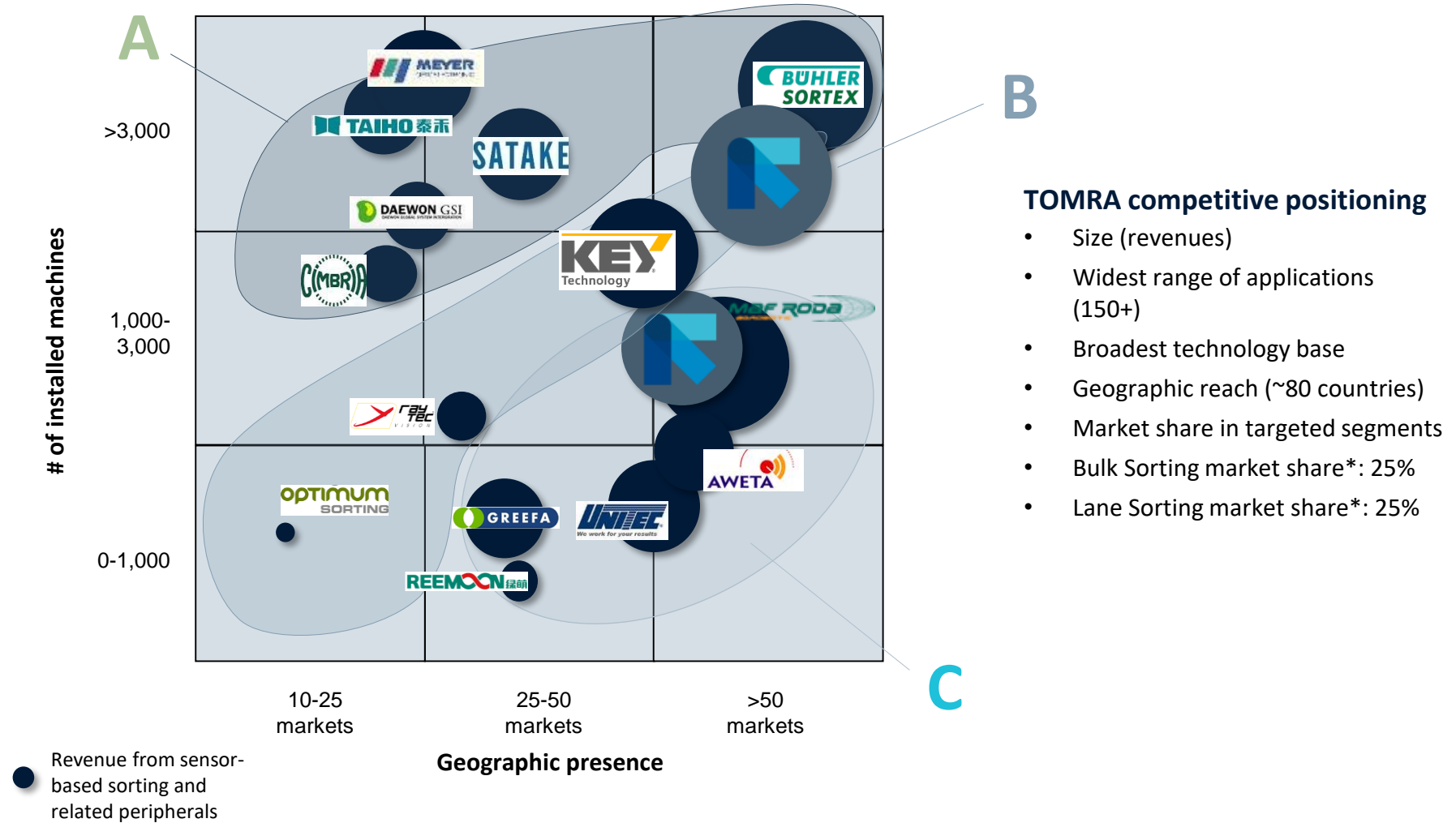
| Lane         |                            |
|--------------|----------------------------|
| Application  | Fresh produce              |
| Companies    | MAF, Aweta, Greefa, Compac |
| Sensor tech. | Several (medium)           |

Note: Piechart showing estimated total revenue within the food sorting segment

# TOMRA HAS ESTABLISHED THE BROADEST FOOTPRINT WITHIN FOOD SORTING



# FOOD COMPETITIVE LANDSCAPE



# FOOD: APPLICATIONS AND SENSOR TECHNOLOGY

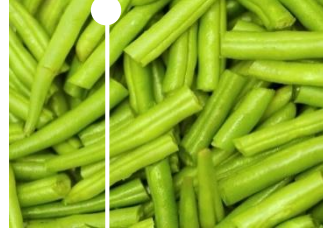
## POTATOES



Chips, French fries, peeled, specialty products, sweet potatoes, unpeeled, washed

**LASER, CAMERA, BSI, PULSED LED**

## VEGETABLES



Beans, beets, broccoli, carrots, corn, cucumbers, industrial spinach, IQF vegetables, jalapenos/peppers, onions, peas, pickles

**LASER, CAMERA, BSI, PULSED LED**

## NUTS



Almonds, cashews, hazelnuts, macadamias, peanuts, pecans, pistachios, walnuts

**LASER, CAMERA, X-RAY**

## DRIED FRUIT



Apricots, cranberries, dates, figs, prunes, raisins

**LASER, CAMERA, BSI, X-RAY**

## SEEDS & GRAINS



Barley, coffee, corn, dry beans, lentils, oat, pulses, pumpkin, sunflower and watermelon seeds, wheat

**LASER, CAMERA, BSI, X-RAY**

## FRUIT



Apples, blackberries, blueberries, cherries, cranberries, peaches & pears, raspberries, strawberries, tomatoes

**LASER, CAMERA, BSI, PULSED LED**

## FRESH CUT



Baby leaves, iceberg lettuce, spinach, spring mix

**LASER, CAMERA**

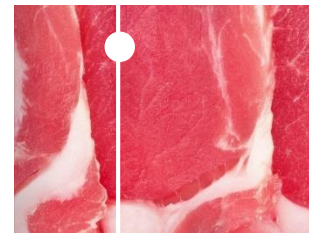
## SEAFOOD



Mussels, scallops, seaweed, shrimps, tuna, pet food

**LASER, CAMERA, BSI, X-RAY, INTERACTANCE SPECTROSCOPY**

## MEAT



Bacon bits, beef, chicken breasts, hot dogs, IQF meat, pork, pork rind, sausages, pet food

**LASER, CAMERA, BSI, INTERACTANCE SPECTROSCOPY**

## GUMMIES



**LASER, CAMERA**

## TOBACCO

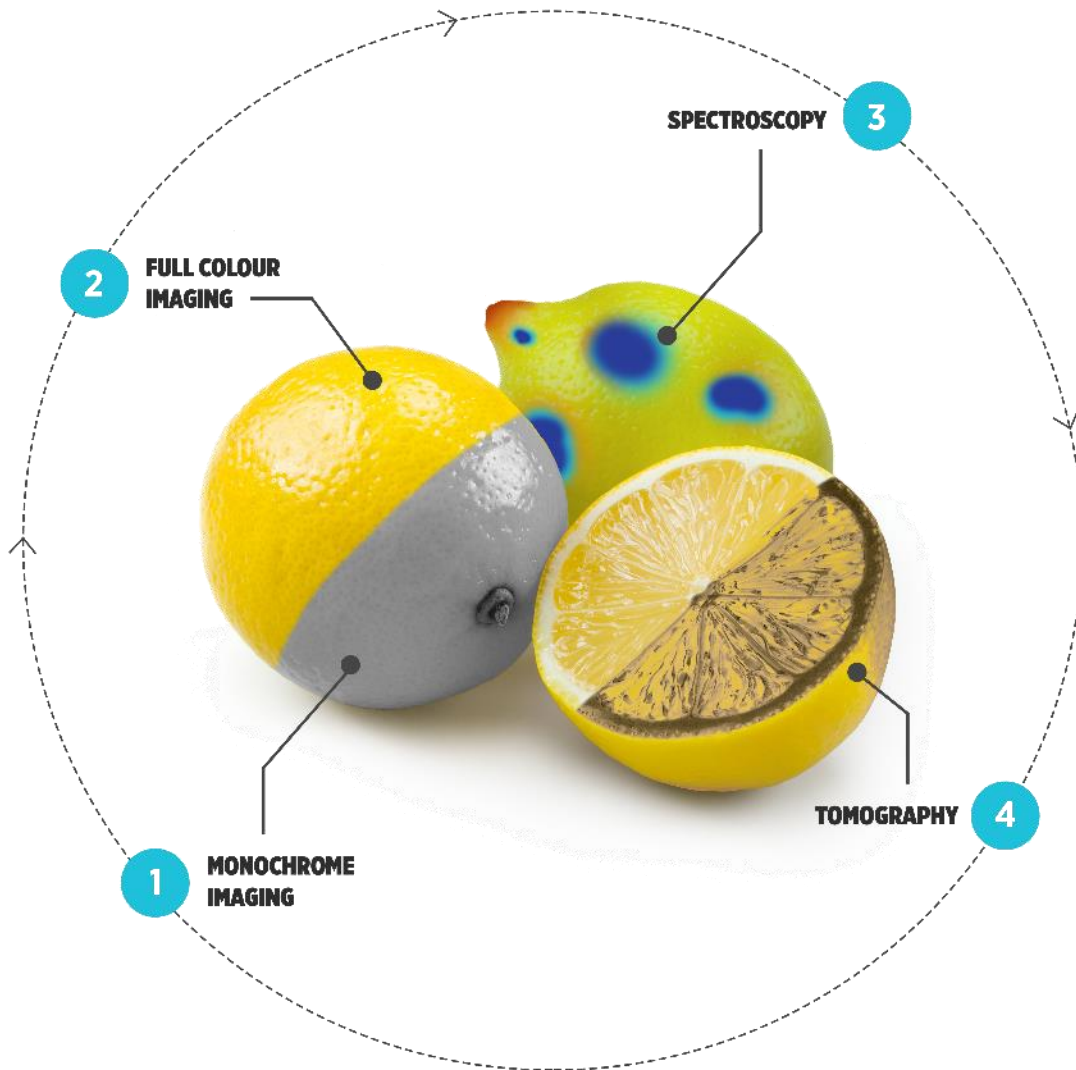


**LASER, CAMERA**

# OUR FOOD SORTING CUSTOMERS



# NEW SENSOR TECHNOLOGIES WILL UNLOCK NEW OPPORTUNITIES...



From measuring visual appearance...

... to measuring

Internal defects

Taste

Shelf life / Freshness

Food hazards

# RESOURCES ARE FINITE

- **Today:** we are paying to get rid of our waste through landfill fees and incineration
- We are wasting perfectly good materials that can be reused
- **Tomorrow:** The Circular Economy is a driver for change
- Creating **value out of waste**
- That is what the **Circular Economy** is all about

**WASTE  
INTO   
VALUE**



# THE CIRCULAR ECONOMY DRIVES A LEGISLATIVE PUSH...

Continued ambitious EU regulations and recycling targets:  
Attracts capital and drives investments



**“A common EU target for recycling 70% of packaging waste by 2030”**

The Strategy also highlights the need for specific measures, possibly a legislative instrument, to reduce the impact of single-use plastics, particularly in our seas and oceans

From Green Fence to National Sword: **Short-term demand for recycling solutions in waste exporting countries**



- Limits the import of contaminated recyclable commodities and increases inspections of recyclable commodity imports
- Purity level set to 99.5%

# ...PROMOTING RECYCLING



## 2018 CIRCULAR ECONOMY PACKAGE

### Description

### Targets and measures

| Directive   | Description   | Targets and measures   |
|---|---|--|
| <b>Waste Framework Directive</b>                                  | <ul style="list-style-type: none"> <li>Rules on how waste should be managed in the EU. It provides general principles for doing so, such as the Waste Hierarchy, Polluter Pays Principle and Extended Producer Responsibility.</li> </ul>   | <ul style="list-style-type: none"> <li>A common EU target for recycling 60% of municipal waste by 2030</li> </ul>  |
| <b>Packaging and Packaging Waste Directive</b>                    | <ul style="list-style-type: none"> <li>Rules on the production, marketing, use, recycling and refilling of containers of liquids for human consumption and on the disposal of used containers</li> <li>2015 revision includes lightweight plastic carrier bags</li> </ul>   | <ul style="list-style-type: none"> <li>A common EU target for recycling 70% of packaging waste by 2030</li> </ul>  |
| <b>Waste Electrical and Electronic Equipment (WEEE) Directive</b> | <ul style="list-style-type: none"> <li>Collection, recycling and recovery targets for all types of electrical goods</li> <li>10 categories: Large household appliances, Small household appliances, IT and telco equipment, Consumer equipment, Lighting equipment, Electrical and electronic tools, Toys, Leisure and sports equipment, Medical devices, Monitoring and control instruments, Automatic dispensers</li> </ul> | <ul style="list-style-type: none"> <li>A binding landfill target to reduce landfill to maximum of 10% of municipal waste by 2030</li> </ul>  |
| <b>Landfill Directive</b>   | <ul style="list-style-type: none"> <li>The objective of the Directive is to prevent or reduce as far as possible negative effects on the environment from the landfilling of waste</li> <li>In particular: impact on surface water, groundwater, soil, air, and on human health by introducing stringent technical requirements for waste and landfills.</li> </ul>   | <ul style="list-style-type: none"> <li>Separate collection of textiles and hazardous waste by 2025</li> </ul>  |
| <b>End of Life Vehicle (ELV) Directive</b>                        | <ul style="list-style-type: none"> <li>Aims at reduction of waste arising from end-of-life vehicles</li> <li>The scope of the directive is limited to passenger cars and light commercial vehicles</li> </ul>   | <ul style="list-style-type: none"> <li>Simplified and improved definitions and harmonized calculation methods for recycling rates</li> <li>Concrete measures to promote re-use and stimulate industrial symbiosis</li> <li>Economic incentives for producers to put greener products on the market and support recovery and recycling schemes</li> </ul> |



...AND ALSO CREATES A MARKET PULL

**100% reusable, recyclable or  
compostable plastic packaging  
by 2025**

Follow their lead



**Large companies committing to use recycled raw materials = increased demand for recycled offtake**

# RECYCLING: MARKET GROWTH EXPECTATIONS

## MARKET DEFINITION RECYLING

### Sensor-based sorting equipment

- Excluding cullet glass sorting
- Excluding peripheral equipment and turn-key solutions

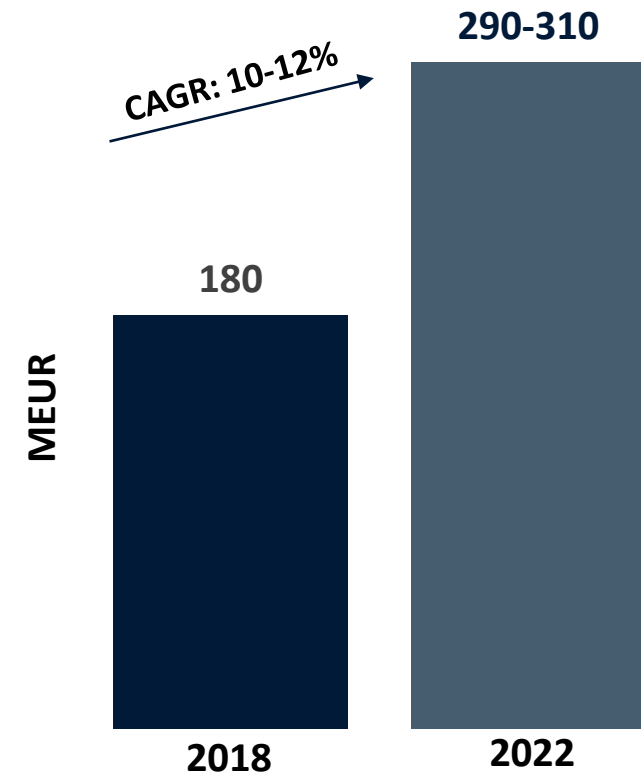
## AFFECTING FACTORS

Tightening regulation

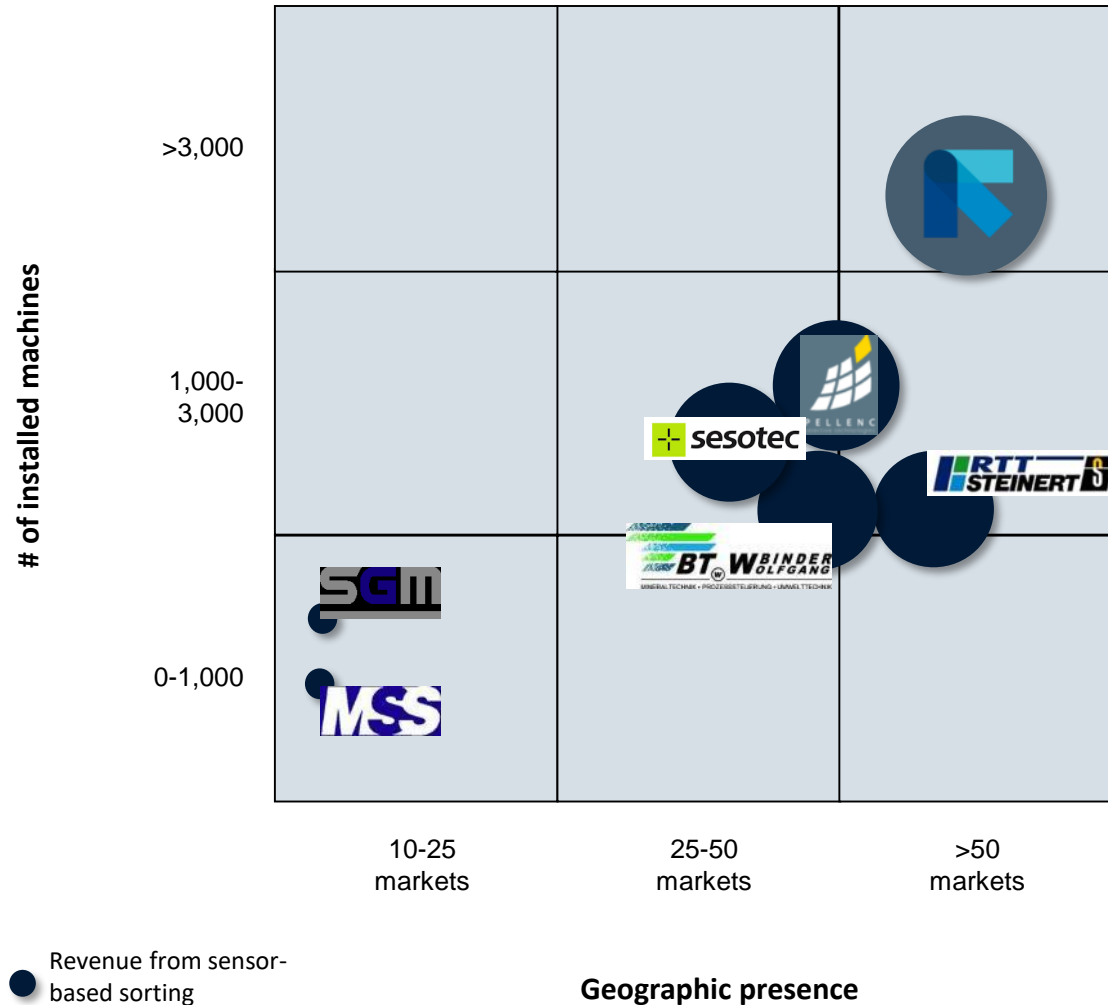
Access to capital

Consumer awareness

Commodity price fluctuations



# RECYCLING: COMPETITIVE LANDSCAPE



## TOMRA competitive positioning

- Largest installed base
- Highest revenues
- Broadest technology platform
- Highest number of applications and markets served
- Leading brand
- **Market share: 55-65%**

# RECYCLING: APPLICATIONS AND SENSOR TECHNOLOGY

## MUNICIPAL SOLID WASTE



Hard plastics, plastic film,  
mixed paper, RDF,  
metals,  
organics/biomass

**NIR, VIS, XRT, LASER**

## PACKAGING



Plastics, plastic film,  
cardboard, mixed paper,  
deinking paper, metal

**NIR, VIS, EM**

## UPGRADING PLASTICS



PET, PE, PP, flakes

**NIR, VIS, EM**

## POST-SHREDDER



NF metal, stainless steel,  
copper cables, copper,  
brass,  
aluminum

**NIR, VIS, XRT, XRF, EM,  
COLOR**

## ELECTRONIC SCRAP



Printed circuit boards,  
non-ferrous metal  
concentrates,  
cables, copper, brass,  
stainless steel

**XRT, XRF, EM, NIR,  
COLOR**

## PAPER

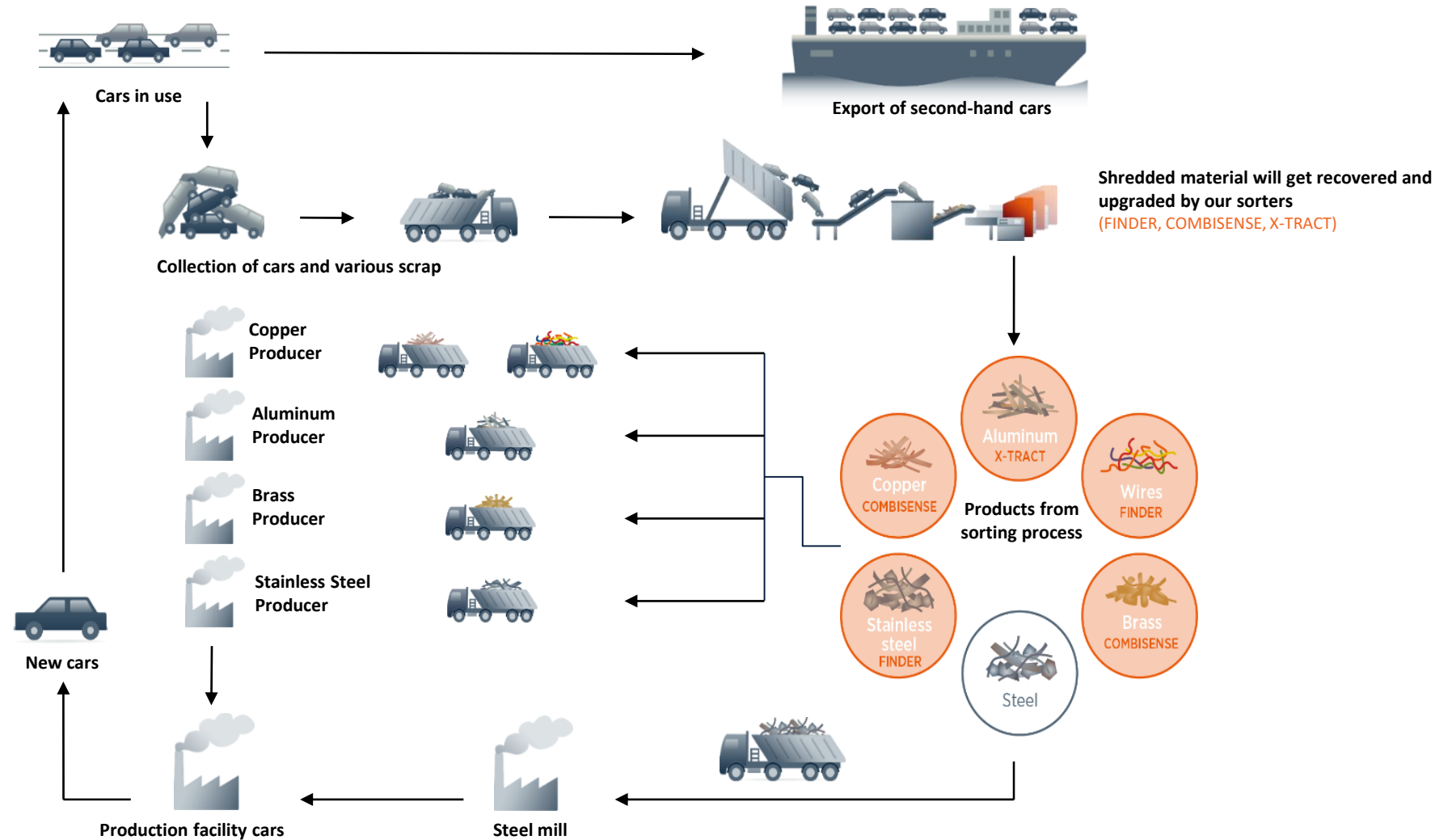


Deinking, cardboard,  
carton

**NIR, VIS, EM**

# SENSOR-BASED TECHNOLOGY CREATES VALUE IN VARIOUS PARTS OF A RECYCLING PROCESS

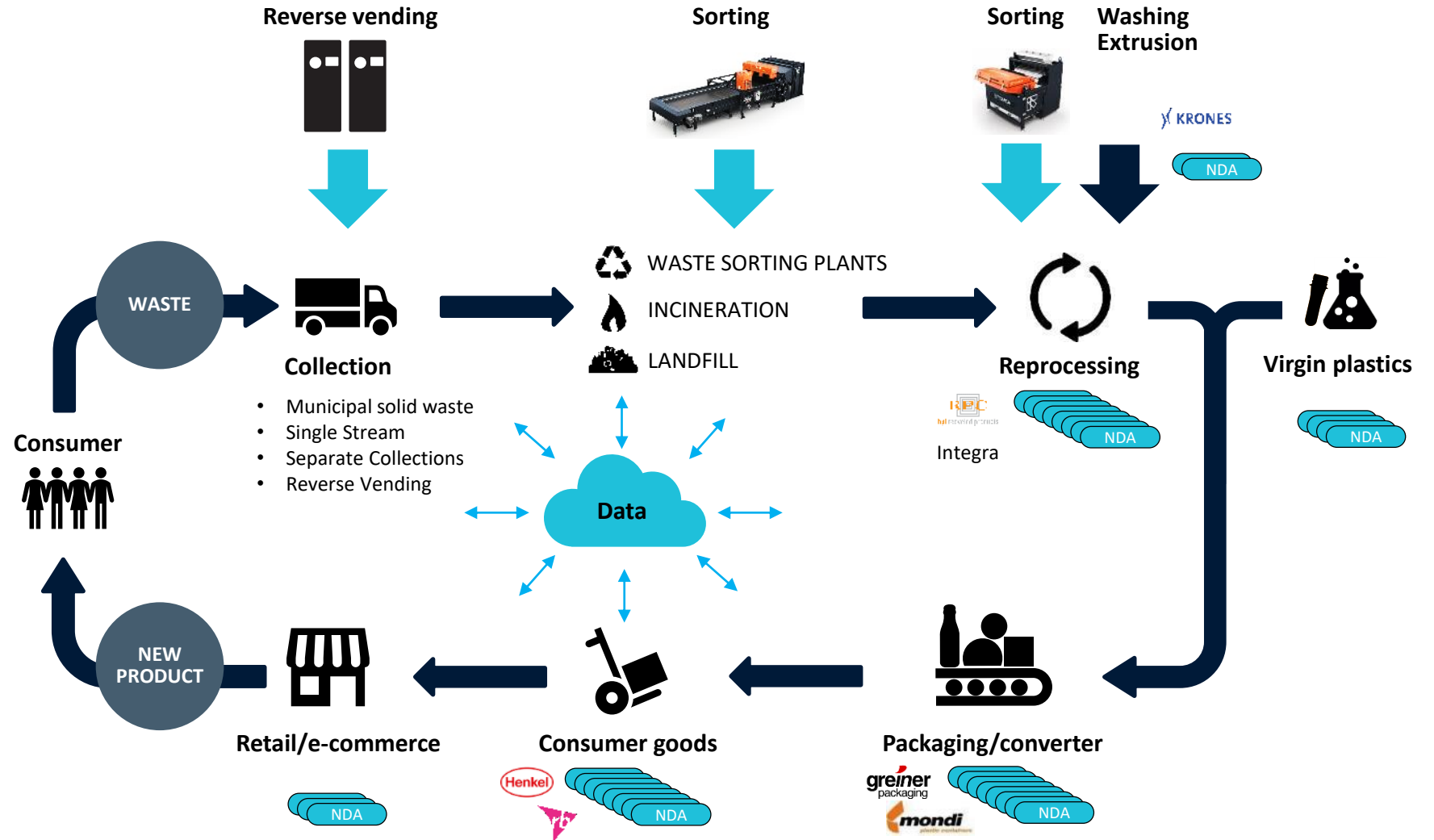
## Life cycle of Steel from End-of-life vehicles



# INDUSTRIALIZING THE PROCESS FOR RECYCLED PLASTIC

## GOALS

- Create a **demand** for the plastic through a process
- Output to be of high quality in order to **replace** virgin material
- **Extract plastics** from all waste streams (incl. landfill and incineration) to satisfy demand
- **Feasibility proven, working with multiple partners on commercialization**





# INTELLIGENT MINE

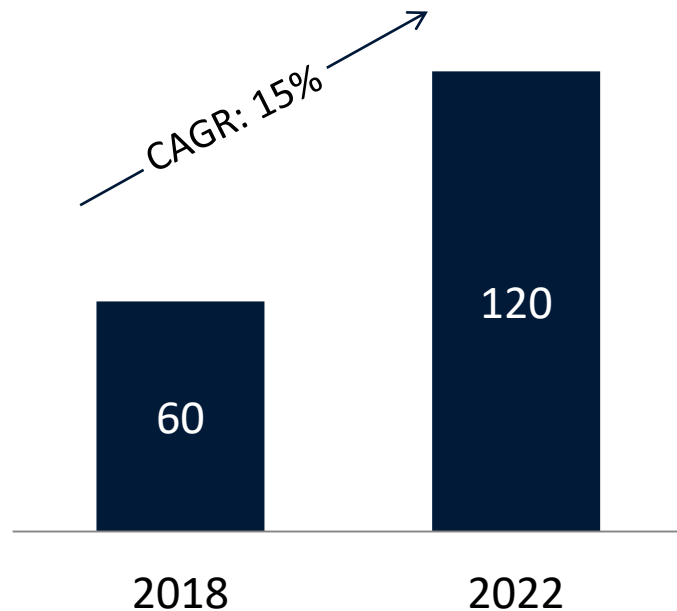
- **Mining** is an old industry. But chances are that it will **look very different** in 10 years time
- Energy intensity and water stress are major drivers...
- **...for disruptive technology forces to reshape the industry**
- Commodity prices and capex impact the investment sentiment

**SOURCE  
INTO   
RESOURCE**

# MINING: MARKET GROWTH EXPECTATIONS

Total annual market size

EUR million



## MARKET DEFINITION MINING

### Sensor-based sorting equipment

- is still a technology to be accepted
- Growth is conditional on new applications and technologies being developed

## AFFECTING FACTORS

Political climate

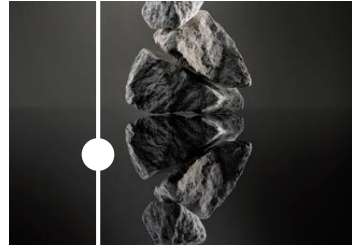
Access to capital

Cost drivers

Commodity price  
fluctuations

# MINING: APPLICATIONS AND SENSOR TECHNOLOGY

## INDUSTRIAL MINERALS



Calcite, quartz, feldspar, magnesite, talc, dolomite, limestone, rock salt, phosphates, potash

**COLOR, XRT, NIR**

## DIAMONDS



Diamonds, emeralds, rubies, sapphires, tanzanite

**COLOR, XRT, NIR**

## FERROUS METALS



Iron, manganese, chromite

**XRT, EM, NIR**

## NON-FERROUS METALS



Copper, zinc, gold, nickel, tungsten, silver, platinum group metals

**XRT, COLOR, EM, NIR**

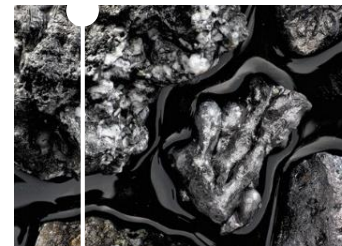
## FUEL



Coal, oil shale

**XRT**

## SLAG

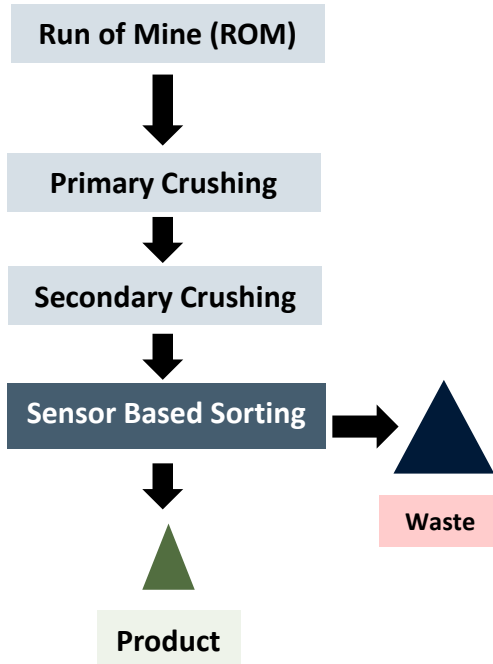


Stainless steel slag, carbon steel slag, ferro silica slag, ferro chrome slag, non-ferrous slag

**XRT, EM**

# THE CONCEPT OF SENSOR-BASED SORTING IN MINING

## Mining process: Industrial minerals

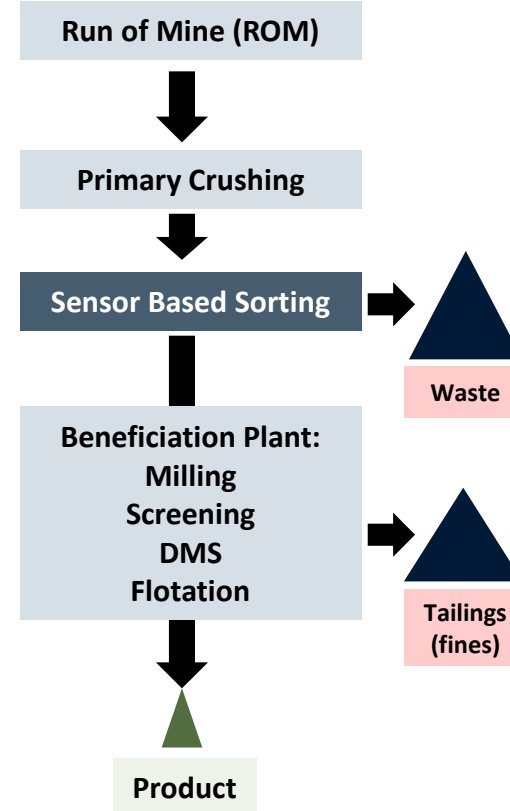


Current segment



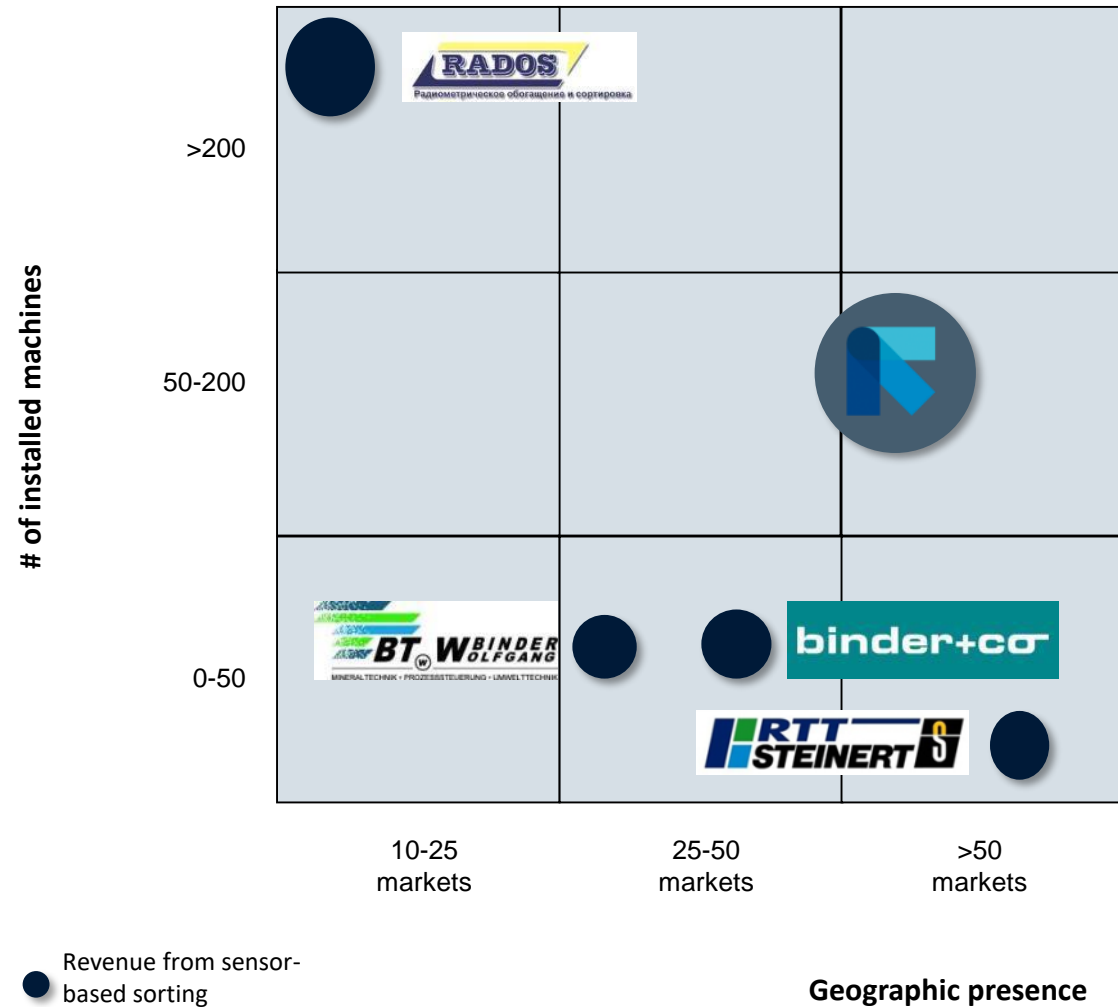
- 15% to 50% of the ROM can be rejected in an early stage of the process (application dependent)
- These low grade waste rocks don't need to be transported, crushed, grinded or further treated

## Mining process: Metal mining



Potential new segment

# MINING: COMPETITIVE LANDSCAPE



## TOMRA competitive positioning

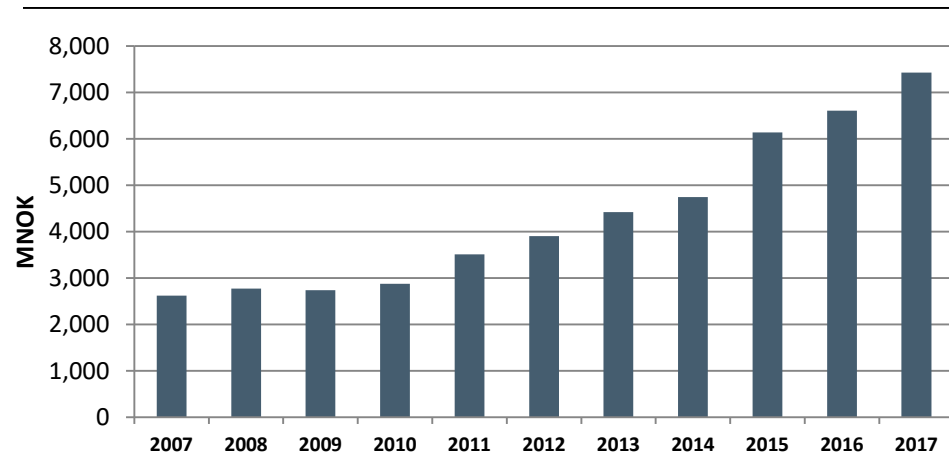
- Wide geographical coverage
- Broadest technology platform
- Leading brand
- **Market share: 40-50%**



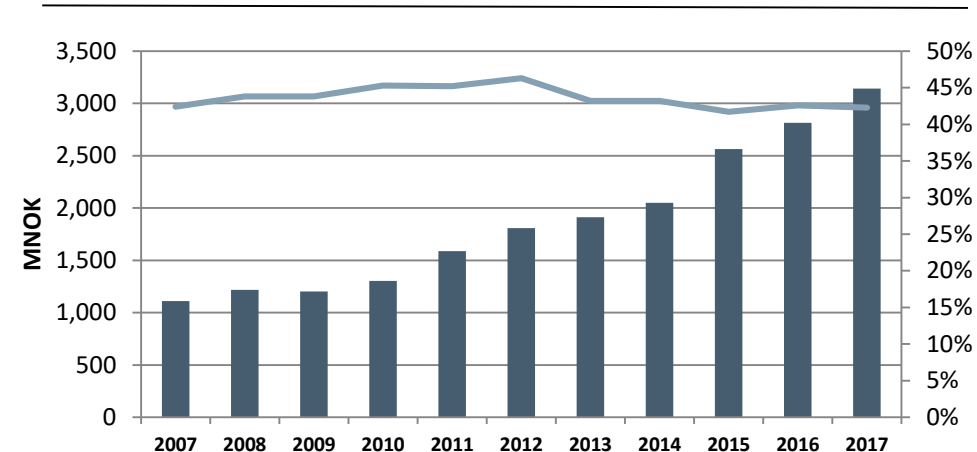
# HISTORICAL GROUP FINANCIALS AND TARGETS

# GROUP FINANCIALS DEVELOPMENT – SOLID TRACK RECORD

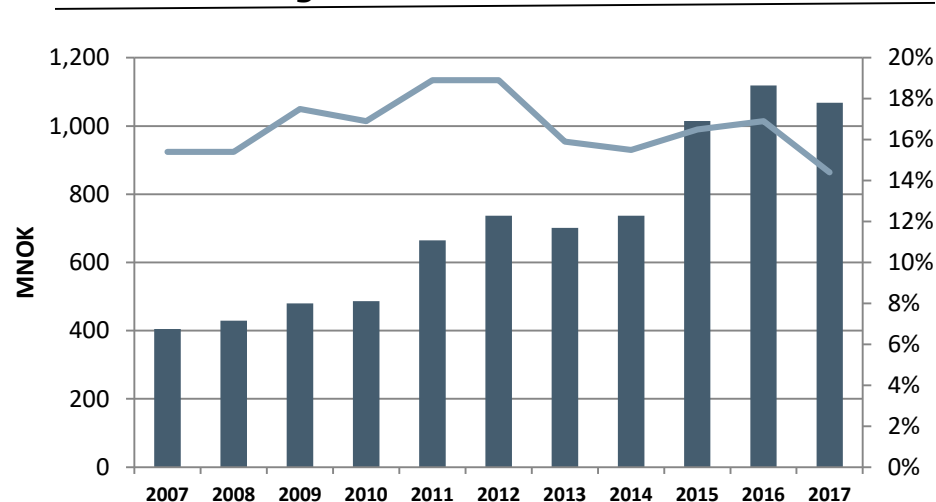
## Revenues



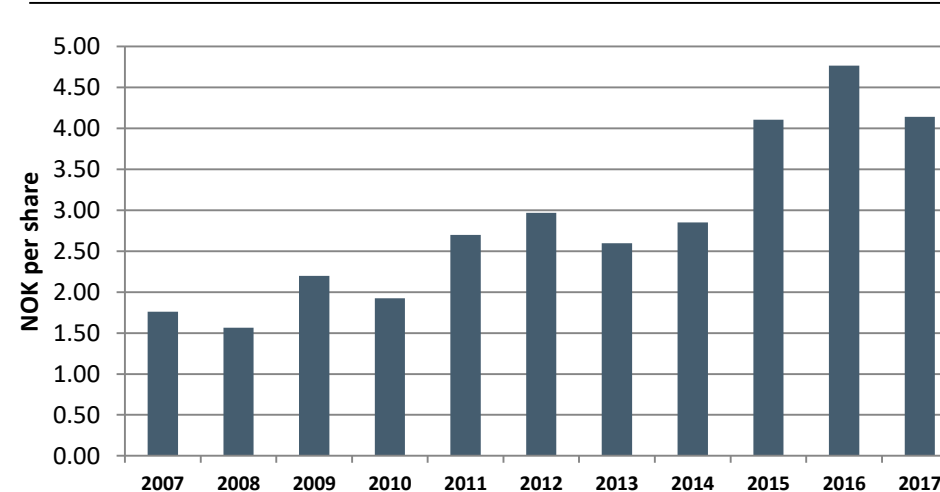
## Gross Contribution and margin



## EBITA and margin



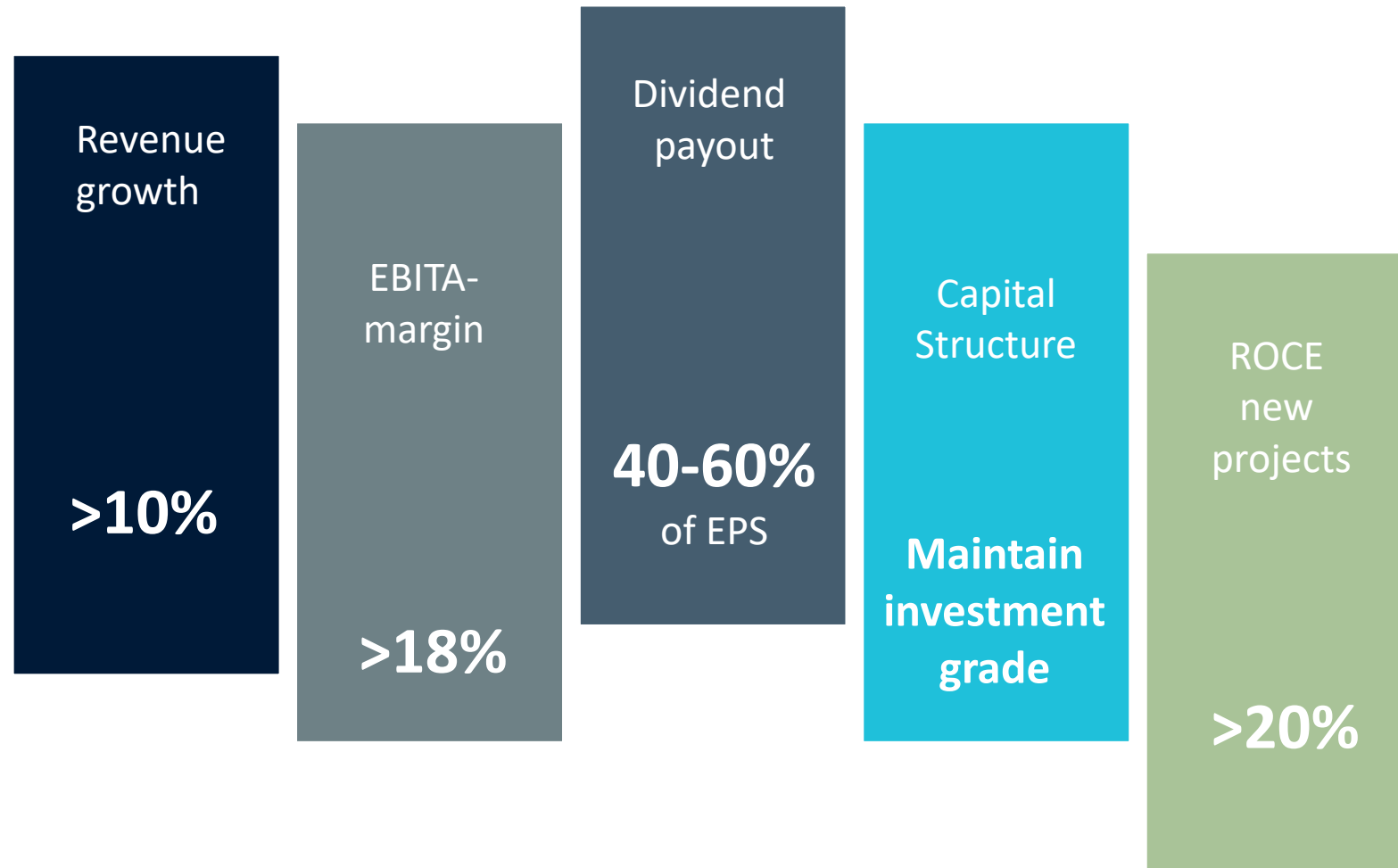
## Earnings per share



EPS from continued operations, excluding other items

# GROUP FINANCIAL TARGETS 2018-2023 – OUR AMBITIONS AFFIRMED

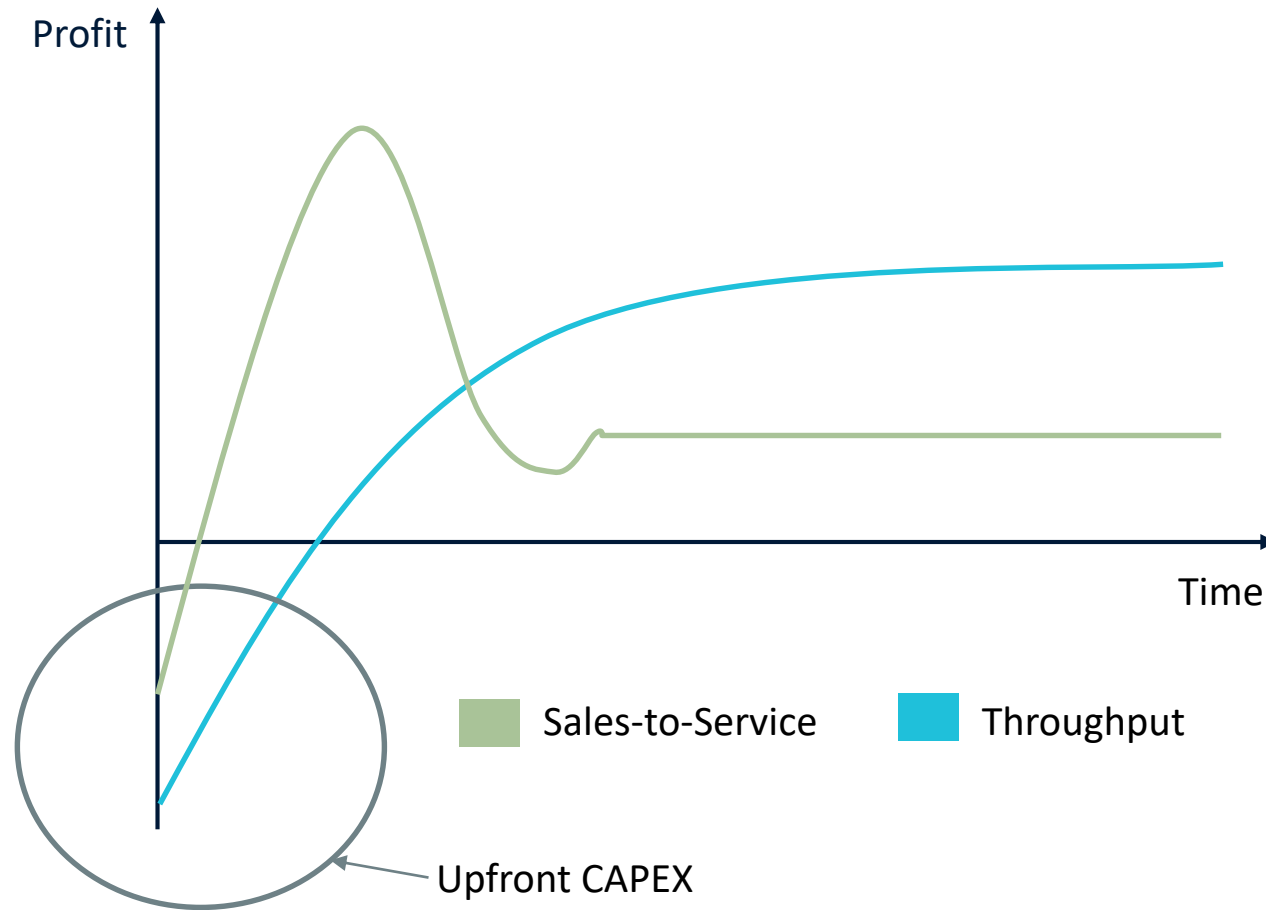
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# A COMMENT ON THE CAPITAL EXPENDITURE NEEDS

Illustrative revenue profiles for the two main type of container deposit schemes

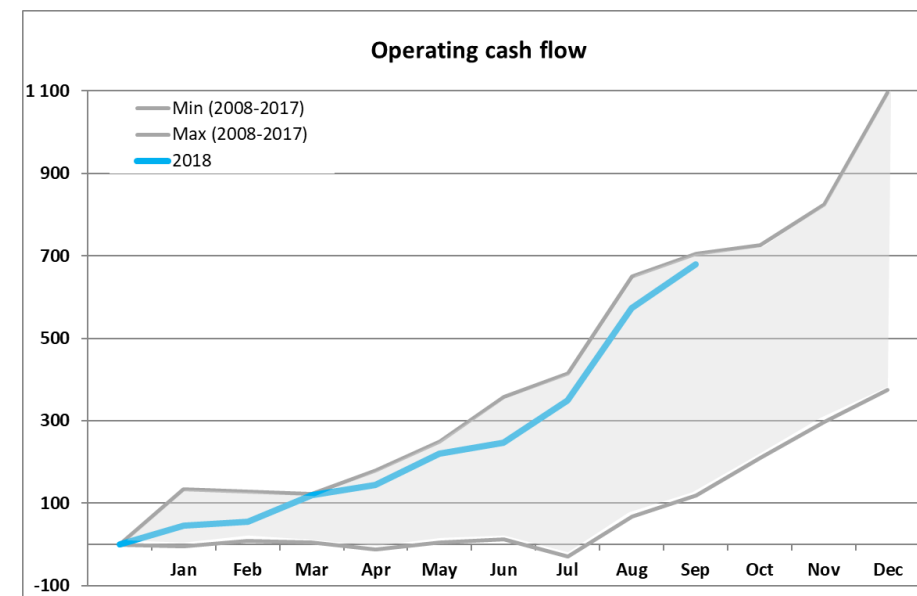


Uncertainties around timing and design of each new container deposit scheme can have significant impact on the revenue profile for Collection Solutions.

# FINANCIAL HIGHLIGHTS

## BALANCE SHEET, CASH FLOW AND CAPITAL STRUCTURE

| <i>Amounts in NOK million</i>      | 30 Sept<br>2018 | 30 Sept<br>2017 | 31 Dec<br>2017 |
|------------------------------------|-----------------|-----------------|----------------|
| <b>ASSETS</b>                      | <b>9,117</b>    | <b>8,214</b>    | <b>8,437</b>   |
| • Intangible non-current assets    | 3,653           | 3,314           | 3,412          |
| • Tangible non-current assets      | 1,129           | 848             | 998            |
| • Financial non-current assets     | 327             | 307             | 349            |
| • Inventory                        | 1,400           | 1,204           | 1,197          |
| • Receivables                      | 2,322           | 2,067           | 1,887          |
| • Cash and cash equivalents        | 286             | 474             | 594            |
| <b>LIABILITIES AND EQUITY</b>      | <b>9,117</b>    | <b>8,214</b>    | <b>8,437</b>   |
| • Equity                           | 4,577           | 4,326           | 4,594          |
| • Minority interest                | 156             | 174             | 143            |
| • Interest bearing liabilities     | 1,487           | 1,214           | 1,280          |
| • Non-interest bearing liabilities | 2,897           | 2,500           | 2,420          |



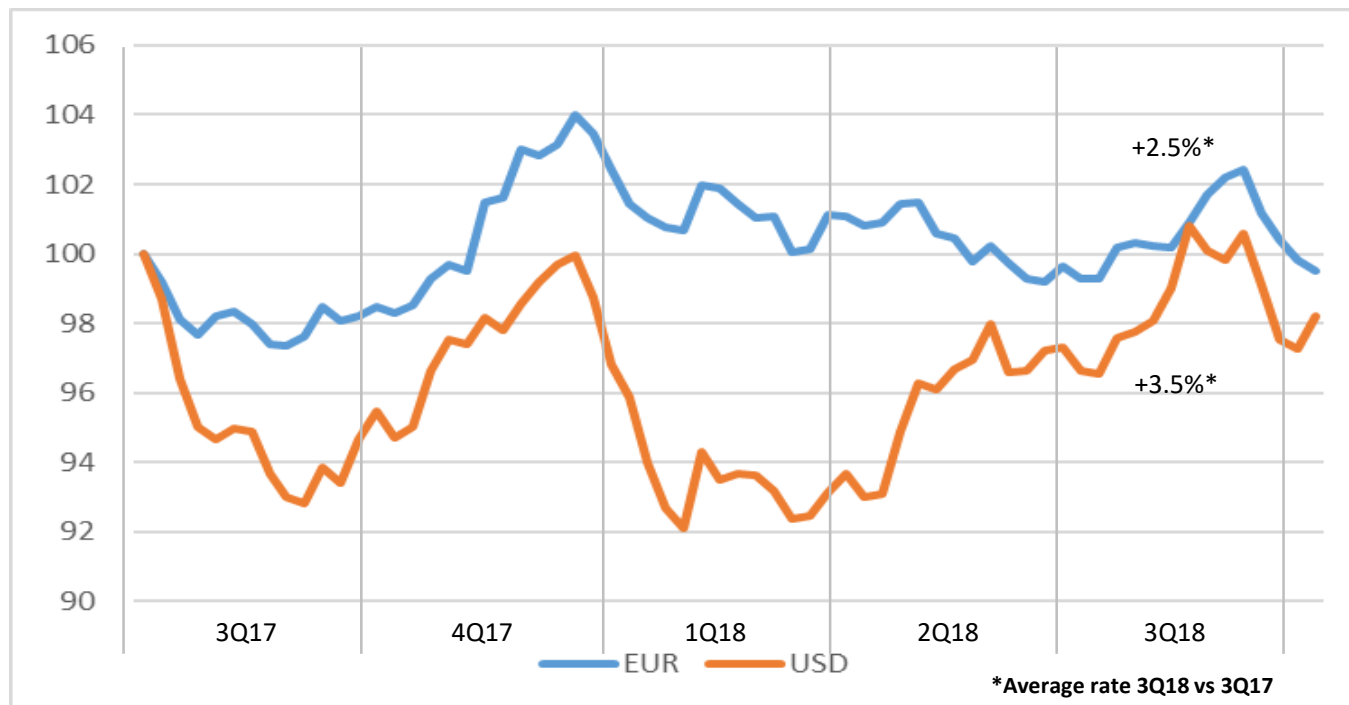
### Ordinary cashflow from operations

- 433 MNOK (375 MNOK in third quarter 2017)

### Solidity

- 50% equity
- NIBD/EBITDA = 0.8x (Rolling 12 months)

# CURRENCY RISK AND HEDGING POLICY



Overall limited currency effect, still:

TCS: Positive impact from both stronger EUR and USD vs NOK.

TSS: Positive impact by weaker NOK and stronger USD vs EUR.

10% change in NOK towards other currencies will impact:

|            | Revenues     | Expenses    | EBITA        |
|------------|--------------|-------------|--------------|
| EUR*       | 4.5%         | 4.0%        | 5.0%         |
| USD        | 4.5%         | 3.0%        | 10.0%        |
| NZD        | 0.0%         | 0.5%        | -2.0%        |
| OTHER      | 1.0%         | 2.0%        | -1.0%        |
| <b>ALL</b> | <b>10.0%</b> | <b>9.5%</b> | <b>12.0%</b> |

\* EUR includes DKK

## Revenues and expenses per currency:

|          | EUR* | USD   | NOK    | NZD    | OTHER | TOTAL |
|----------|------|-------|--------|--------|-------|-------|
| Revenues | 45 % | 45 %  | 0 %    | 0 %    | 10 %  | 100 % |
| Expenses | 40 % | 30 %  | 5 %    | 5 %    | 20 %  | 100 % |
| EBITA    | 50 % | 100 % | - 20 % | - 20 % | -10 % | 100 % |

\* EUR includes DKK

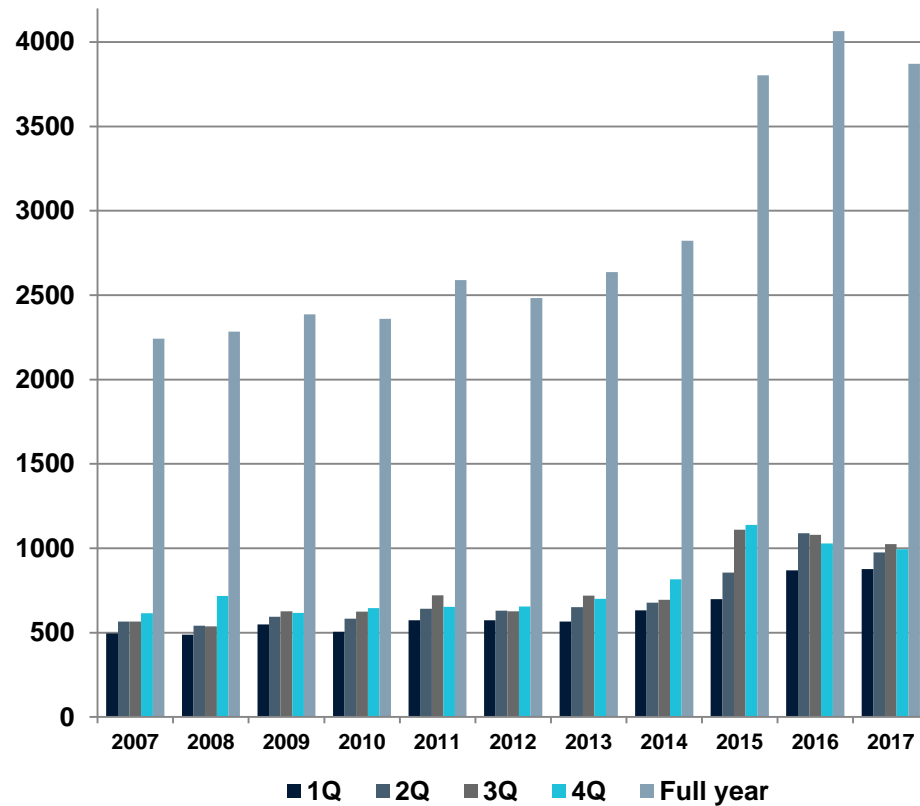
NOTE: Rounded figures

## HEDGING POLICY

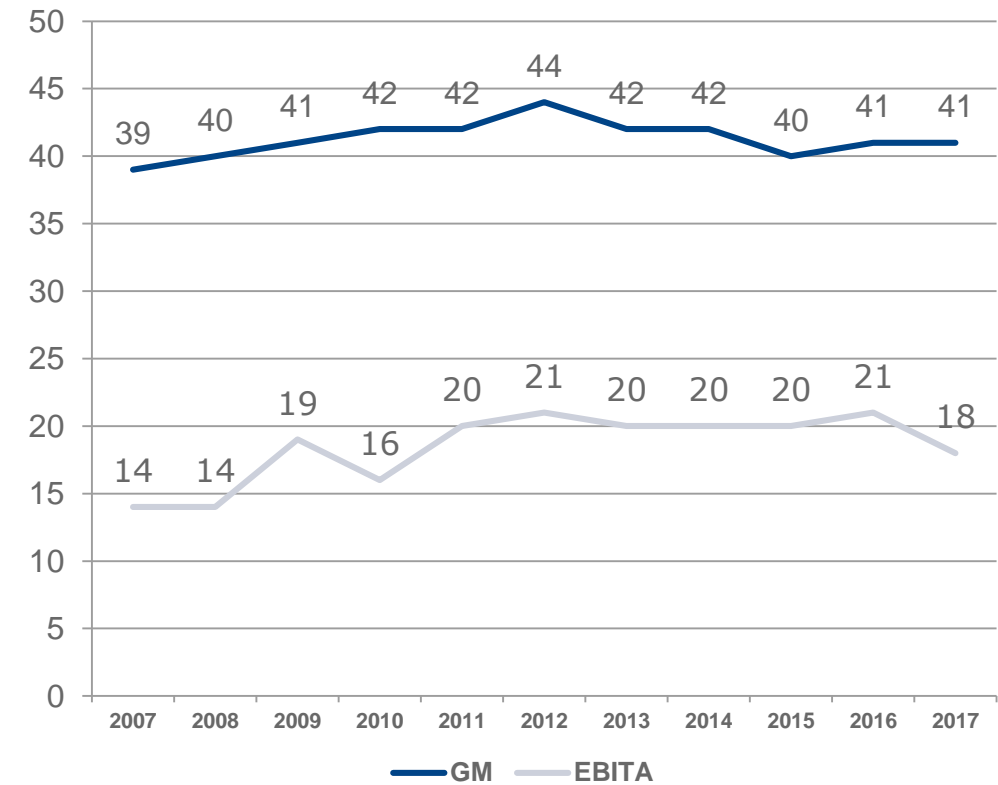
- TOMRA hedges B/S items that will have P/L impact on currency fluctuations
- TOMRA can hedge up to one year of future predicted cash flows. Gains and losses on these hedges are recorded in the finance line, not influencing EBITA

# COLLECTION SOLUTIONS – SEGMENT FINANCIALS

Revenue development  
NOK million

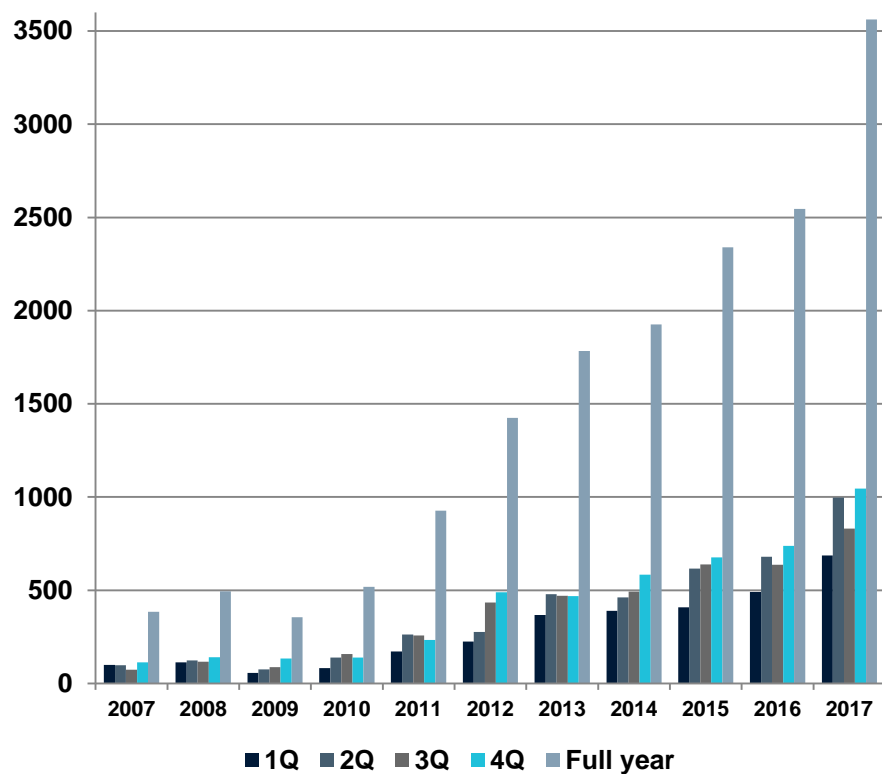


Gross and EBITA margin development  
Percent

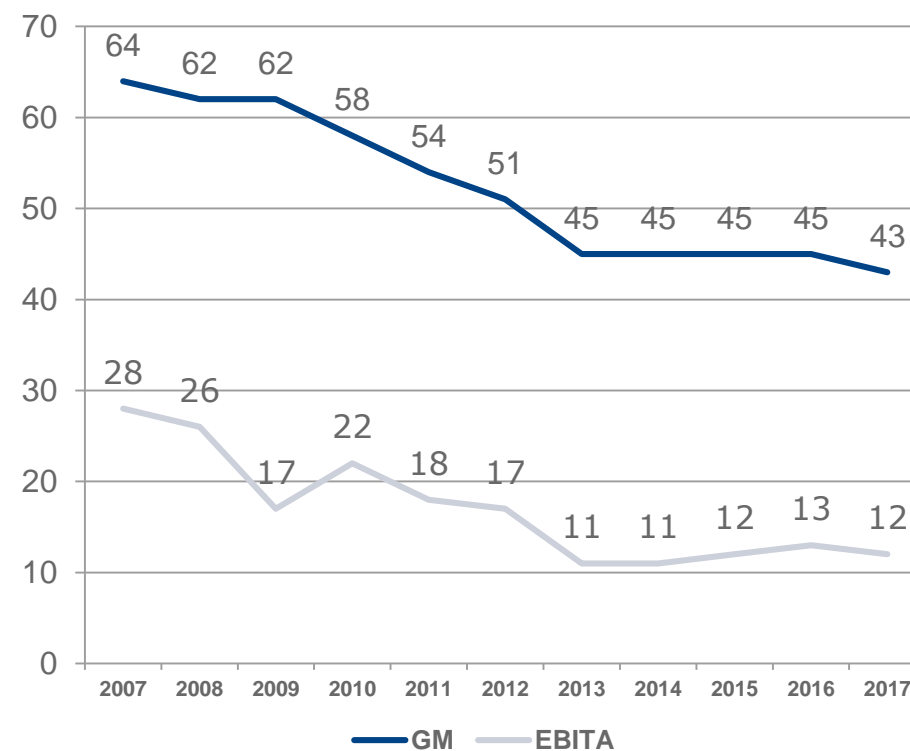


# SORTING SOLUTIONS – SEGMENT FINANCIALS

Revenue development  
NOK million



Gross and EBITA margin development  
Percent

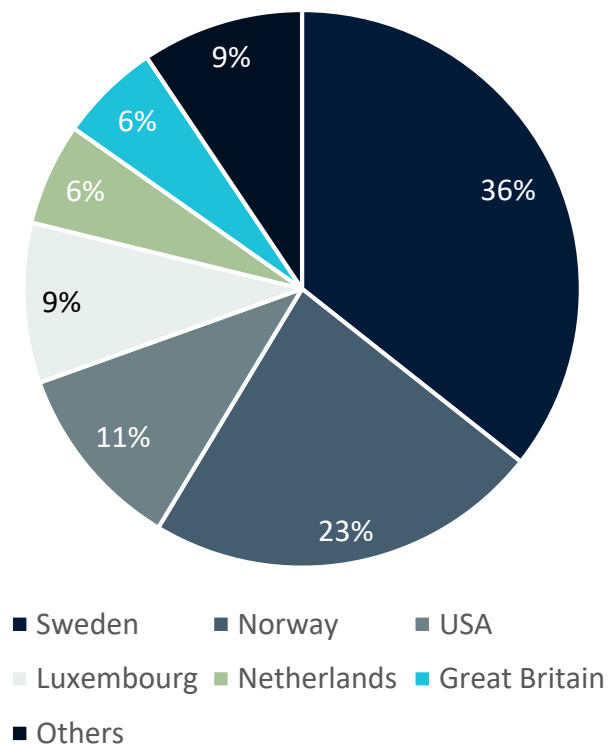


# SHAREHOLDER STRUCTURE

## Top 10 shareholders as of 03 October 2018

|                                   |  |                    |               |       |
|-----------------------------------|--|--------------------|---------------|-------|
| 1                                 | Investment AB Latour                       | 39 000 000         | 26,3 %        |       |
| 2                                 | Folketrygdfondet                           | 11 735 490         | 7,9 %         |       |
| 3                                 | The Bank of New York, Stichting Depository | 7 845 000          | 5,3 %         | (NOM) |
| 4                                 | Clearstream Banking                        | 3 964 496          | 2,7 %         | (NOM) |
| 5                                 | Goldman Sachs & Co                         | 3 563 326          | 2,4 %         | (NOM) |
| 6                                 | Lannebo Småbolag Skandinaviska Enskil      | 3 000 000          | 2,0 %         |       |
| 7                                 | Nordea Nordic Small                        | 2 349 276          | 1,6 %         |       |
| 8                                 | Danske Invest Norske C/O Danske Capital    | 2 155 942          | 1,5 %         |       |
| 9                                 | ODIN Norge                                 | 1 855 736          | 1,3 %         |       |
| 10                                | State Street Bank                          | 1 807 641          | 1,2 %         | (NOM) |
| <b>Sum Top 10</b>                 |  | <b>77 276 907</b>  | <b>52,2%</b>  |       |
| <b>Other shareholders</b>         |  | <b>70 743 171</b>  | <b>47,8%</b>  |       |
| <b>TOTAL (6,981 shareholders)</b> |  | <b>148 020 078</b> | <b>100,0%</b> |       |

## Shareholders by country



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