CIRCULAR SYSTEM PET

Photo by Arshad Pooloo on Unsplash

PET (bottles), Norway – Circular System Characteristics

System characteristics:

PET bottles enjoy a high level of consumer acceptance. 11.500 collection points exist. Return systems include supermarkets, and various small shops, offering store credit or cash. Consumers have the **choice of using their refund to buy a lottery ticket that benefits charity.** The shop owner also **benefits from a small fee** for each bottle they recycle. **A regressive tax system** encourages manufacturers to use recycled plastic (every producer is excused from the environmental tax put on plastic producers).

Availability/Role of recycling technology:

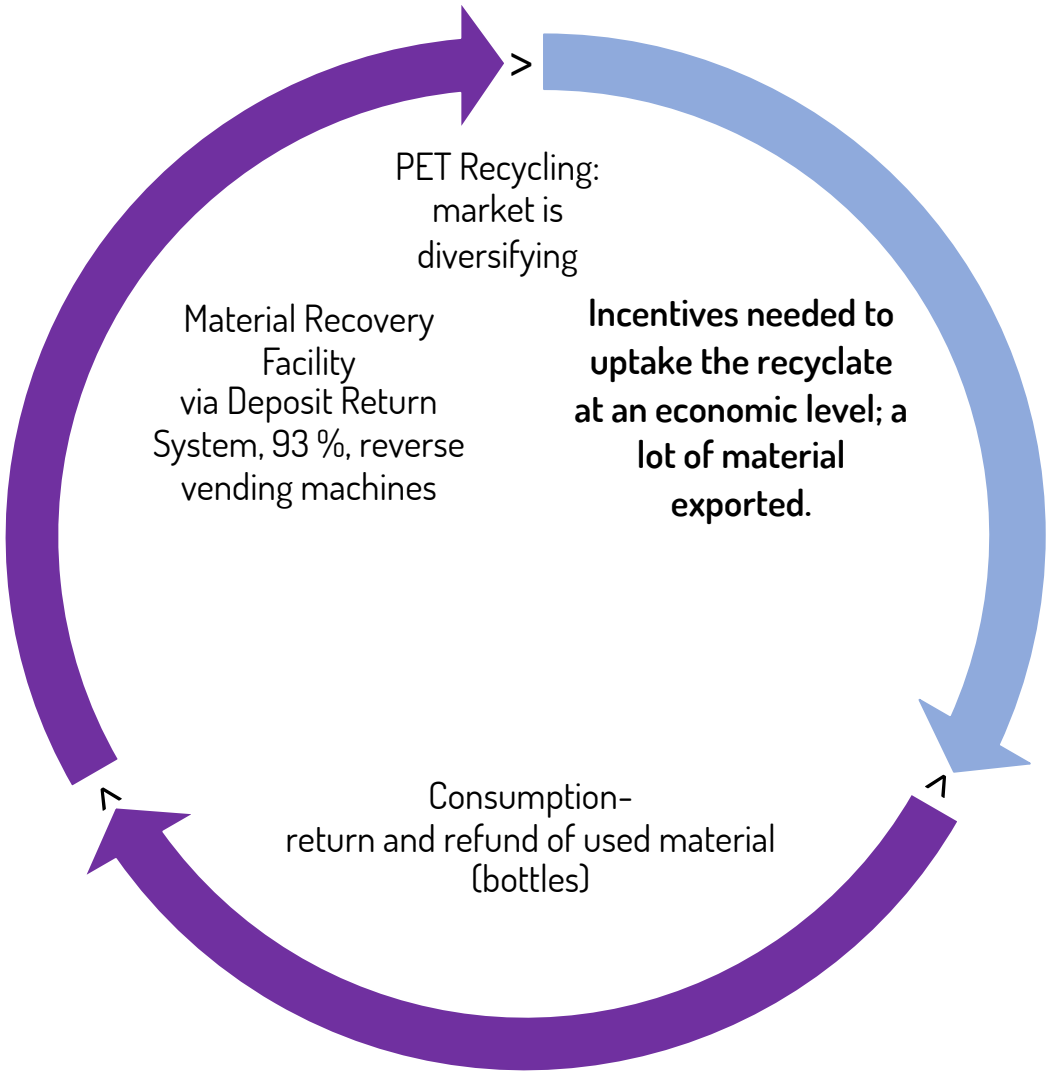
- Technology leadership in all relevant sub-areas of the corresponding recycling industry.

Maturity of market:

- Small numbers of companies in the plastic recycling industry.
- Infinitum, private non-profit organization, owned by retailers & producers, dominates the market.
- Close agreements and cooperation among the involved business/industry sectors: recycling, logistic, technology and retail trade/wholesale.
- Strong acceptance on social and environmental awareness-raising between politics, business and general public by viewing packaging as borrowed item ("by the product – borrow the packaging").

Policy intervention type/regulations/directives:

- SUP Directive EU 2019_904 (Norway 10 years ahead).
- 2nd Circular Economy Action Plan, EU Commission (2020).
- Current legislation under revision to design best practice national regulations as minimum standards on EPR (Ministerial declaration, 2019, on a new legally binding agreement to combat plastic pollution).
- Plastic beverage bottles are covered by different regulations than other plastic packaging waste.



Source: Deloitte, Reducing Plastic Pollution and Creating a True Circular Economy for Plastics through Extended Producer Responsibility, Analysis of the status and potential of EPR for plastic in Norway for WWF, May 2020

SWOT PET (bottles)

Strength

1. Nearly closed loop: 99 % recycling rate
2. Technical cycle, C2C
3. Compliance for Circular Economy
4. Performance of the deposit return scheme outperforms the EPR schemes for other plastic packaging streams (the quality of the recycled PET bottles is also higher)

Weakness

1. Limited reporting/monitoring obligations
2. Unclear definition of the producer that is subject to the EPR provisions
3. Limited cost coverage and cost transparency
4. The producer does not hold full responsibility for collection and/or the clean-up of littering.

Opportunity

1. USP – Better than glass or aluminum – PET generates up to 75% less greenhouse gases than glass or aluminum beverage packaging
2. Modell for other countries under EU directive

Threat

1. Substitution (i.e., glass container)
2. Subsidies for new recycling materials as a substitution

Source: WWF 2020

1. **Nature Science**

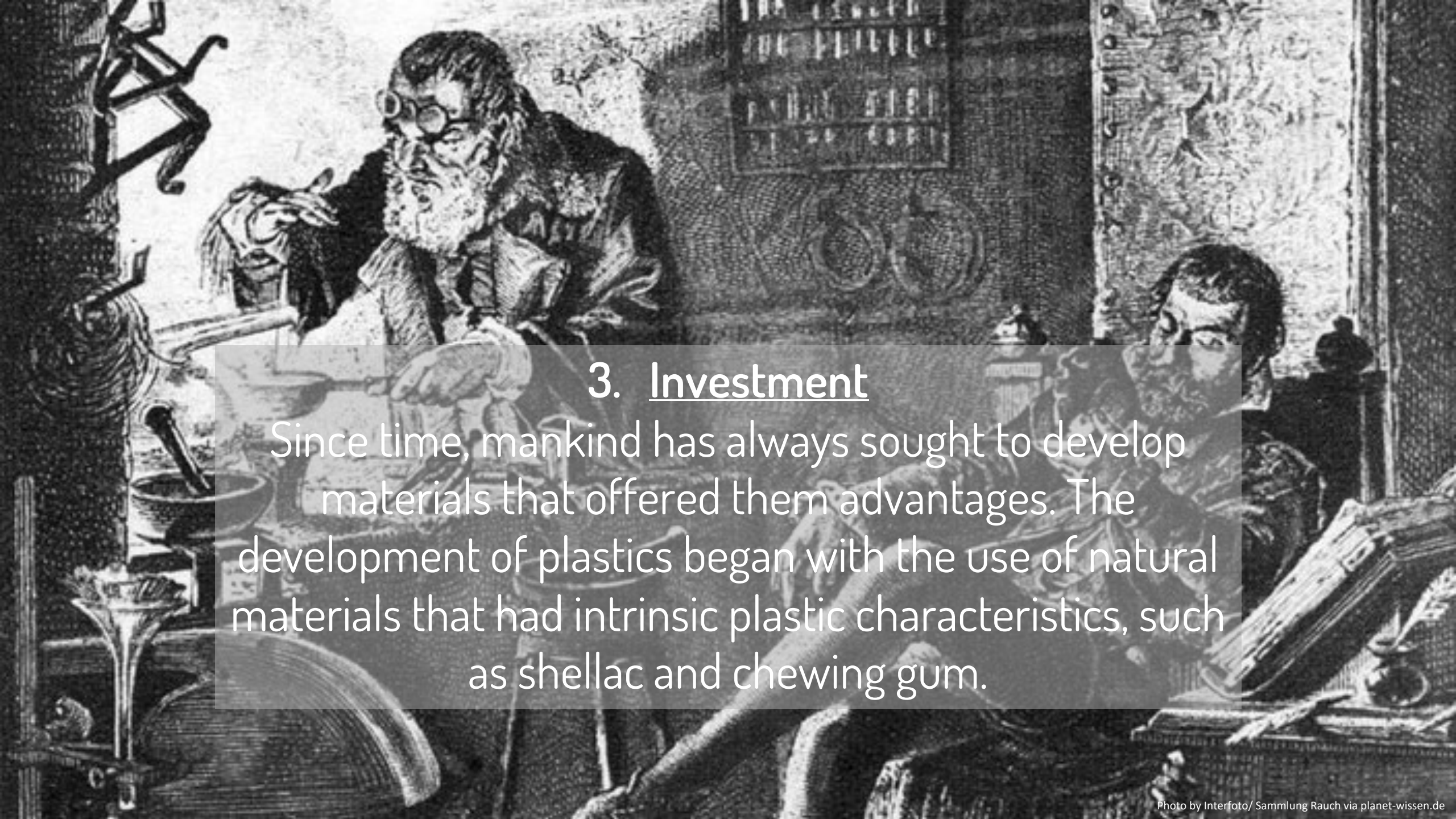
Crude oil as a useful source for many applications.

Photo by Danylo Suprun via Unsplash

2. Envisioning

To find suitable packaging was important for food security, cost effectiveness and handling for transportation. Glass bottles were the beginning, but to find a clear, lighter, more cost efficient, more convenient, non-breakable and reclosable packaging was still envisioned.

Photo by Julia Volk via Pexels



3. Investment

Since time, mankind has always sought to develop materials that offered them advantages. The development of plastics began with the use of natural materials that had intrinsic plastic characteristics, such as shellac and chewing gum.

Photo by Interfoto/ Sammlung Rauch via planet-wissen.de

4. Rocket Science

A decisive breakthrough came in 1907, when the Belgian-American chemist Leo Baekeland developed Bakelite, the first truly synthetic, mass-produced plastic. The material was, for example, used for telephones.

5. Historic Event

Due to the global ocean plastic crisis, directives have been initiated to return PET bottles to producers for recycling.

Photo by Brian Yurasits via Unsplash

6. Cognition for System Relevance

Due to the specific material characteristics, PET bottles have established themselves in the beverage system.

Photo by Jonathan Chng via Unsplash

Photo by Nick Fewings via Unsplash

7. Technical Innovation

Market players have developed digitized sorting and recycling technology to solve diversification.

Photo by Getty Images via stern.de

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Extended Producer Responsibility

UPDATED GUIDANCE FOR EFFICIENT WASTE MANAGEMENT

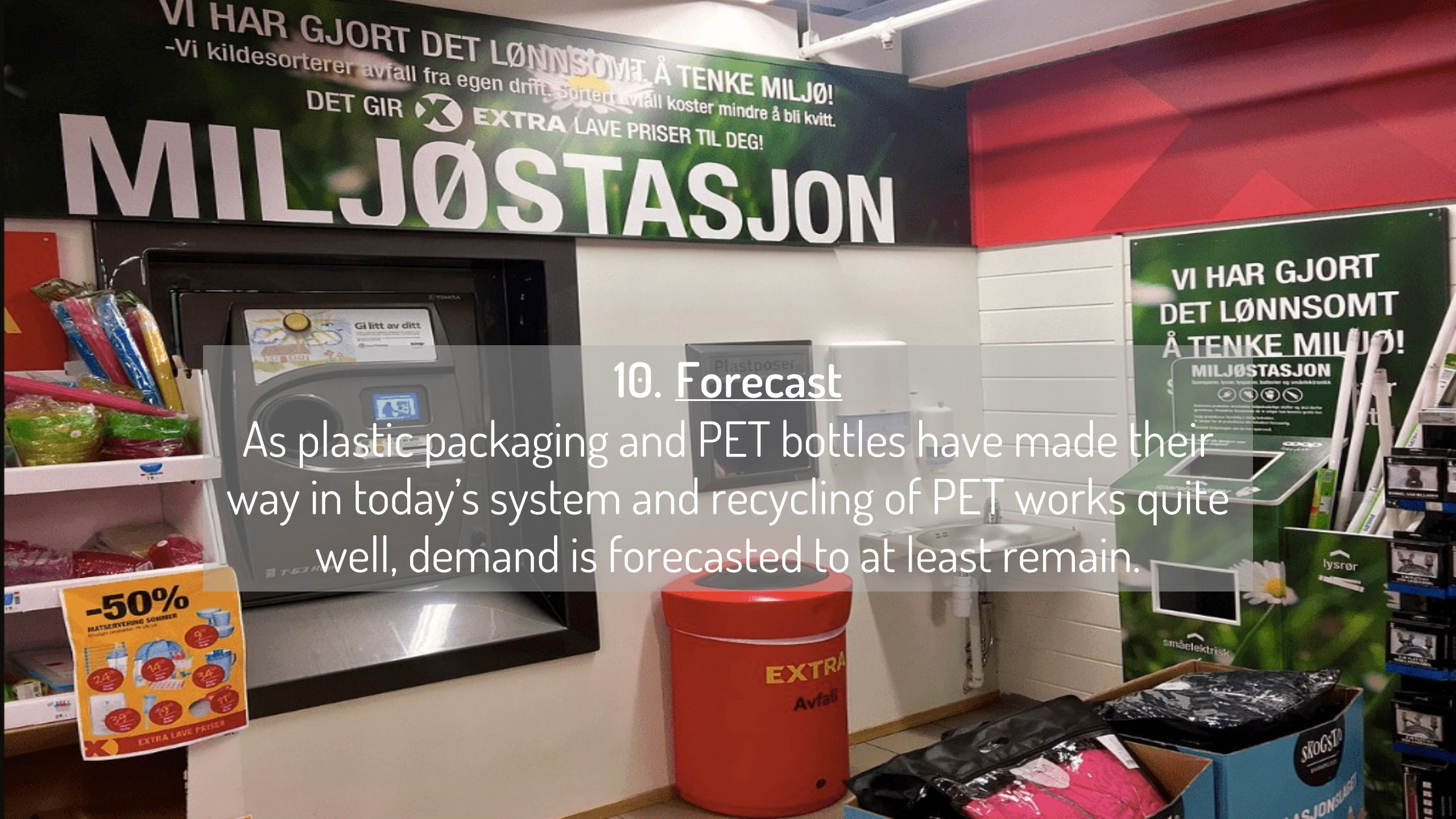
8. Business Innovation

The system has become manageable through extended producer responsibility.

Photo by OECD Organisation for Economic Co-operation and Development

9. Life Cycle

System has evolved. Technical cycle is working. PET recycling has reached technical maximum.



10. Forecast

As plastic packaging and PET bottles have made their way in today's system and recycling of PET works quite well, demand is forecasted to at least remain.

PET-bottles cycle – product system evolvement

Thank you for your attention

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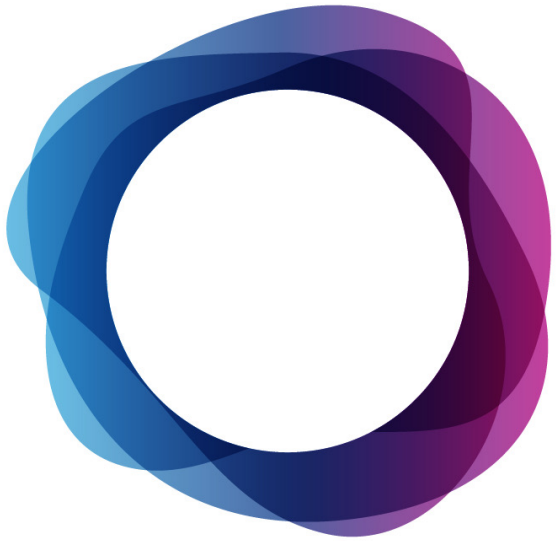

Thinking Circular