

# Dilemmas in sustainable packaging

the sustainable innovator

Rob Verhagen  
Sustainability Director



**OPACKGROUP**  
the sustainable innovator



# Introduction



## Ir. Rob Verhagen

- Sustainability director OPACKGROUP
- NRK Verpakkingen (Dutch plastic packaging branch organisation) - President
- Dutch Plastic Pact Steering committee
- EUPC (European Plastic Convertors) – Steering committee
- StIMO (Overarching all packaging materials) – President
- Afvalfonds – board advisor
- MVO Nederland (CSR Netherlands) advisory council (Raad van Partners)
- Wageningen University (Food-Technology & Food-Safety) advisory board
- Co-owner Food Forest Langsteeg



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# Members



**Fardem Packaging**



**opi** OOSTERWOLDE  
PLASTIC  
INDUSTRY



**Plast Hill**  
technical films



**Stempher**  
polyethylene and paper packaging



**OTC**  
OPACKGROUP TECHNOLOGY CENTRE



**PerfoN**  
FLEXIBLE PACKAGING



**ORC**  
OPACKGROUP REPRO CENTRE



**FLEXPAK**  
FLEXIBLE PACKAGING



**oerlemans plastics**  
FLEXIBLE PACKAGING AND FILMS



# Facts & Figures



760 employees



80.000 ton production



export worldwide



265 mln euro turnover



OPACKGROUP Technology Centre &  
OPACKGROUP Repro Centre



## Materials

LDPE – LLDPE – MDPE – HDPE – PP –  
BOPP – EVA – PA – EVOH – Paper

## Machines

88

Extruders

34

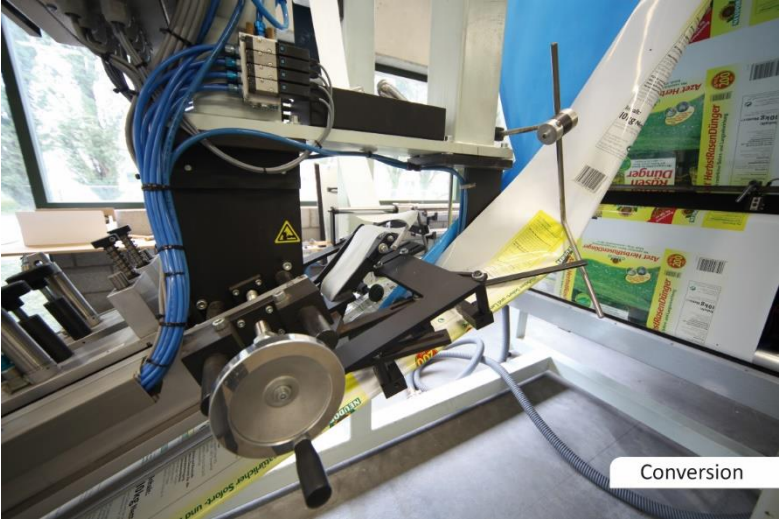
Flexoprint machines

118

Verwerkingsmachines



# Technology





# Markets & -Producten

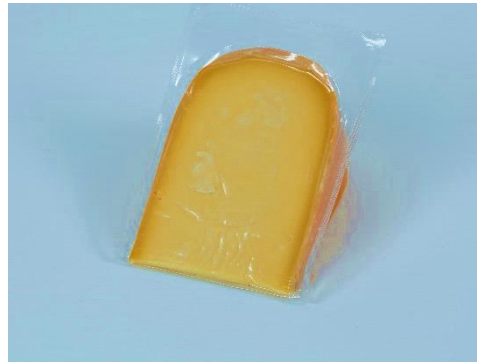
Food



Non-Food



Retail



Horticulture







### CLIMATE EMERGENCY



# If we don't act now ... this is **our** future

Mirror investigates the global warming crisis threat to our nation's way of life



#### WEATHER AND NATURAL DISASTERS

## Europe is experiencing its worst drought in at least 500 years



PUBLISHED TUE, AUG 23 2022-11:58 AM EDT | UPDATED TUE, AUG 23 2022-6:54 PM EDT



Extremely low water levels on the exposed bed of the Rialb reservoir during a drought in La Baronia De Rialb, Spain, on Tuesday, Aug. 23, 2022. Angel Garcia / Bloomberg / Getty Images

# nature

NEWS | 01 September 2022

## Ocean 'garbage patch' is filled with fishing gear from just a few places

The bulk of large plastic bits in the North Pacific garbage patch have been lost or discarded by fishing vessels.

# Climate change widespread, rapid, and intensifying – IPCC

## The Washington Post

*Democracy Dies in Darkness*

## Rising seas could swallow millions of U.S. acres within decades

New research finds an estimated 25,000 properties in Louisiana could slip below tidal boundary lines by 2050. Florida, Texas and North Carolina also face profound economic risks.

By Brady Dennis

Updated September 8, 2022 at 2:59 p.m. EDT | Published September 8, 2022 at 9:00 a.m. EDT





# Emotion defines the debate



Whale dies due to 80 plastic bags  
in stomach

**rtl**nieuws



1 in 3 turtles has plastic in stomach,  
according to scientists

**GREENPEACE**



The dance of seahorse and  
cottonwool swab

**nrc** >



# ... negative side-effects are getting more attention ...



We eat plastic, we breathe plastic and it rains plastic

**nrc.nl** >



Plastic produces greenhouse gasses when exposed to sunlight



Microplastics everywhere – any harm in it?



# ... But the debate is lacking facts and knowledge



EU wants to ban single-use plastics.  
What are the alternatives?

**NOS**



Stop with bio-plastics, it's all  
bullshit

**NOS**



Plastic straws? Lets focus on the  
real problem..

deVerdieping  
**Trouw**



# The consumer is confused ...







# Sustainability drivers

1. Regulatory
2. Voluntary commitments, brancheplans & customer demands
3. Intrinsic company motivation & Corporate branding
4. Changing perspectives from the consumer



## General highlights:

- (Thickness) Reductie
- Focus on re-use
- 100% recyclable
- Application of recycled material
- Optimized recycling processes (mechanic & advanced)
- biobased raw materials
- Less printing
- Littering risk: alternative materials

# Tsunami of new legislation

## European/ global

- Packaging & Packaging Waste regulation
- European Green Deal
- EU strategy for Plastics in the Circular Economy
- EU New circular Economy Action Plan (NCEAP)
- EU industrial Policy strategy
- EU chemicals strategy for sustainability (CSS)
- Basel convention – Plastic Waste Amendments
- Renewable Energy Directy (REDII)
- Ecodesign Directive (EcD)
- Waste Shipment Regulation (WSR)
- Single Use Plastic Directive (SUP)
- Waste Framework Directive
- Renewed EU Waste Hierarchy
- Green public procurement guideline
- Industrial Emissions Directive
- Directive on Landfill
- Green Claims directive
- Food Contact Materials
- REACH
- CO2 taxation
- CSRD & EU Taxonomy

## Country specific

- Plastic Tax (UK, Spain, Italy... Netherlands)
- Ban on certain type of packaging (Spanje, Frankrijk)
- Primaire fossiele grondstofheffing
- Labelling – per land anders
- SUP (European directive – local interpretation)
- EPR– Afvalfonds
- Nationaal plan circulaire Economie
- Dutch Due Diligence Act





# Plastic Tax



## Focus op recycled content - 2022

- 200 GBP/ ton <30% recycled content



## Focus op virgin Plastic – Q1 2023

- 450 EURO/ ton virgin plastic (Non- Re-usable)
- Challenge: recyclability might be hampered



## Expected t follow Spain – 2023???

- Politics and timing not fully clear



## DRAFT - Focus on virgin & CO2 reduction

- Only for Dutch producers (not import)
- CE DELFT: reduction of 44% for Dutch producers
- → Under discussion multiple alternatives under discussion

# New reports in abundance



The Consumer Voice in Europe

## TOWARDS SAFE AND SUSTAINABLE FOOD PACKAGING

European consumer organisations call for action on single-use tableware made of alternatives to plastic



Contact: Pelle Moos – [safety@beuc.eu](mailto:safety@beuc.eu)

BUREAU EUROPÉEN DES UNIONS DE CONSOMMATEURS AISBL | DER EUROPÄISCHE VERBRAUCHERBEREIND  
Rue d'Anvers 89, B-1050 Brussels • Tel: +32 (0)21 742 15 85 • [www.beuc.eu](http://www.beuc.eu)  
EC register for interest representatives: identification number 9505781573-45  
Co-funded by the European Union  
Ref: BEUC-K-2021-050 - 27/05/2021

**Nationale heffing op virgin plastics**  
Mogelijkheden en effecten

CE Delft  
Committed to the Environment

UNDER EMBARGO UNTIL 00:01 GMT SEPTEMBER 6, 2021  
A REPORT FOR WWF BY Dalberg

**PLASTICS: THE COSTS TO SOCIETY, THE ENVIRONMENT AND THE ECONOMY**

WWF

McKinsey & Company

**Climate impact of plastics**

July 2022

April 2022

**ReShaping Plastics**  
PATHWAYS TO A CIRCULAR, CLIMATE NEUTRAL PLASTICS SYSTEM IN EUROPE

SYSTEMIQ

ipcc  
INTERGOVERNMENTAL PANEL ON climate change

**Climate Change 2022**  
Impacts, Adaptation and Vulnerability  
Summary for Policymakers

Working Group II contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

WHO UNEP

**CO<sub>2</sub>-reductie met circulaire kunststoffen in Nederland**  
Scenario-analyse voor 2030 en diverse praktijkcases

CE Delft  
Committed to the Environment

**Introductie van chemische recycling: Plastic afval wordt een waardevolle hulpbron**

Position Paper | Februari 2021

PlasticsEurope  
vereniging van kunststofverwerkers

ECORYS TNO innovation for life

**Bijdrage circulaire economie aan de Klimaatopgave**  
Beleidsmaatregelen en actualisatie kwantificering reductie broeikasgas

Oprachtgever: Ministerie van Infrastructuur en Waterstaat

UN environment programme 50 1972-2022

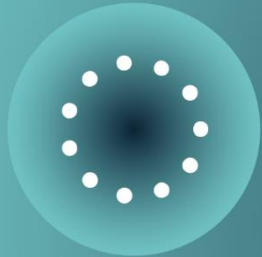
**FROM POLLUTION TO SOLUTION**  
A GLOBAL ASSESSMENT OF MARINE LITTER AND PLASTIC POLLUTION

the sustainable innovator





Sustainability becomes the norm



**Elimination of problematic or unnecessary plastic packaging**



**Moving from single-use to reuse models**



**100% reusable, recyclable or compostable by design**



**Reuse, recycling or composting in practice**



**Decoupling from the consumption of finite resources**



**Transparency**





# PLASTIC PACT NL



## Which agreements are contained in the Plastic Pact NL?



PLASTICS PACT  THE ELLEN MACARTHUR FOUNDATION'S PLASTICS PACT NETWORK



# Role of the government? Not a frontrunner...





# Branch initiatives and plans

- In the Netherlands:
  - 17 Branch plans for different sectors – public and reviewed.
- <https://kidv.nl/brancheplannen>
- Various transition agendas drive change throughout the value chain



Targets 2030:

10 → 40% recycled plastics

1 → 15% from bio-based plastics

Result:

- Virtually all plastics will be recycled
- 50% reduction in CO2/ kg plastic



# Big multinationals

- FMCG is leading. B2B and industry less clear and lagging
- Ellen McArthur is the Benchmark
- Re-use systems are increasing
- Big commitments on reduction virgin Plastic usage o.a.:
  - Unilever -50% 2025
  - Henkel -50% 2025
  - P&G -50% 2030
  - MARS inc. -25% 2025
  - Nestle -33% 2025

02-10-20 | WORLD CHANGING IDEAS

## Giant brands love Loop's zero-waste packaging—and now it's coming to a store near you

A year after it launched, the delivery service that takes back its packaging to be reused is expanding, and you'll soon be able to find its innovative packaging designs at retail stores.





# Food retail leads the way

## UK Packaging Preferred Materials & Formats Guidelines 2022 – Own Label and Branded.

Version: PM04  
Date: 250222

### Red

Not to be used as customers cannot easily recycle (UK)

Materials	Formats & Designs
Compostable/PLA & Biodegradable Plastics	Rigid Black Plastic
Oxy/Oxo degradable Plastics	Expanded/Foamed/Density Modified Plastics
Polystyrene	Paper/board laminated on both sides
PVC	Complex laminates using aluminium layers for decoration
PVdC	Hi/Mid-Cones
MDF	Plastic straws & cutlery
Water Soluble Plastics	Glitter
<u>Waxed &amp; Siliconised Paper</u>	

### Amber

When functional requirements mean green materials are not an option

<b>CONTROLLED USE: CONTACT THE PACKAGING TEAM FOR APPROVAL</b> <a href="mailto:packaging.team@tesco.com">packaging.team@tesco.com</a>	
<b><u>New materials, formats and designs</u></b>	
Materials	Formats & Designs
NIR Black HDPE (non food grade)*	Beverage/Liquid Food Cartons
Complex laminates**	Composite Drums
Foiled paper	Shrink sleeves (perforated, include messaging to remove, max ink coverage of 60%)
Wood	Spouted pouches of mixed material
<u>Bio sourced polymers</u>	

### Green

Preferred for UK recycling via kerbside or store

Materials	Formats & Designs
Glass	Paper/board with plastic; single side lamination <10% by weight (incl. windows)***
PET (Rigid)	
Polyethylene	
<u>Mono flexible films</u>	
Polypropylene	Mono PET lidding film on PET tray perm-welded
Steel & Aluminium	
Cardboard	
Paper	Mono material spouted pouch
Non Siliconised Glassine	

**Underlined denotes 2022 additions/updates** (Production for own brand products to cease by end of 2022)

\* Dependant on utilising coloured (jazz) recyclate only – no natural HDPE from food sources (to be reviewed annually with processors)

\*\* Complex laminates should only include a metallised layer where no alternatives are available

\*\*\* Easily separated in the recycling stream to maximise fibre recovery



# Cooperation FNLI- NRKV: Design guidelines:



Duurzaamheid



Launched on 17th of Jan together with Wageningen UR, FNLI & NRKV



## Design Guidelines kunststof verpakkingen

Versie 1.0

Januari 2023





# 100% Recyclable- according to which standards?



Packaging & Packaging waste  
regulation:

RecyClass™

Consortium of more than 170  
plastic producers, converters,  
brand owners, retailers,  
collectors, sorters & recyclers,  
suppliers & others.

→ Leading in development of  
standard for flexible  
packaging:

- Traffic light system  
Focus op: Recyclability of  
polyolefin-based flexible  
packaging.



Key aim: 1 joint definition:

Harmonisation across Europe?



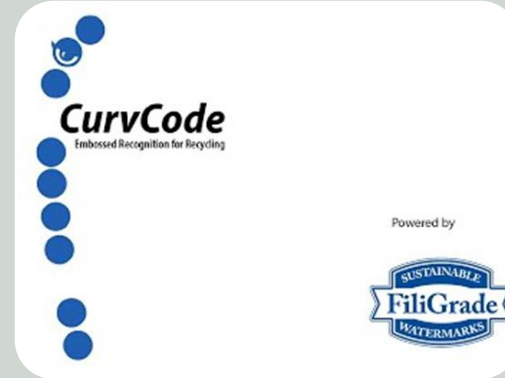
Kennisinstituut  
Duurzaam Verpakken

Consortium of more than 43  
partners. Recycling standards en  
online tool for all plastics.

Based on PET standard

- Certificates :
- Recyclability
- Recycled content  
Class A-B-C-D-E-F  
Relatively strict  
(e.g. <50% printing).

# Better sorting? 3 key developments



Digimarc  
technologie



Filigrade  
CurvCode

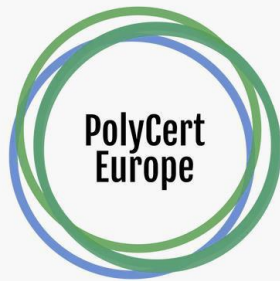


Artificial  
intelligence



# Recycled content

- Recycled content is a key differentiator. Validation and verification is crucial. Different schemes under development.



Umbrella technical platform for harmonising existing certification schemes for converters of polymeric materials in Europe

Founding members



MY RECYCLED  
CONTENT  
by Valipac



## Die Schwarz-Gruppe will künftig Müll vermeiden – und damit Geld verdienen

Die Muttergesellschaft von Lidl und Kaufland startet mit PreZero einen Großangriff auf die Entsorgungsbranche. Die Konkurrenz ist beunruhigt.

8 juli  
2018

by Elizabeth Slow

6 JULY 2018

### Lidl to acquire German waste business

letsrecycle.com

The Schwarz Group, parent company of retailer Lidl, is to acquire German waste disposal company, Tönsmeier Group.

The acquisition via GreenCycle – a subsidiary of German retail giant Schwarz – is designed to expand the firm's "range of services in the environmental service branch while strengthening its internationalisation".

#### 'Game changer'

Lidl's expansion in the waste sector has raised eyebrows among waste companies. One German waste sector expert told *letsrecycle.com*. "This is a big market step and something of a game changer in that a retailer is buying a business within the waste sector."



Retail giant Schwarz Gruppe – the parent company which owns Lidl – is acquiring German waste business, Tönsmeier Group (Shutterstock)



# SCHWARZ



## SUEZ Nederland overgenomen door het Duitse PreZero

De Nederlandse tak van SUEZ gaat verder onder de naam van het Duitse PreZero. De overname hing al enkele maanden in de lucht en wachtte op goedkeuring door de mededingingautoriteiten. Dinsdag werd de overname definitief bekendgemaakt.

1 juni  
2021



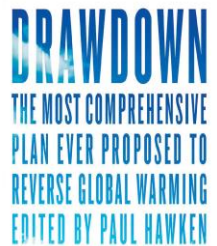


# What are the key sustainability challenges for the packaging industry?



## Waste

- Waste Management → Re-duce, Re-design & Re-cycle
- Littering & behavior change



## CO<sub>2</sub> Emissions

- Paris agreement & global warming
- Re-duce & Re-duce Food waste
- Re-design, Re-new



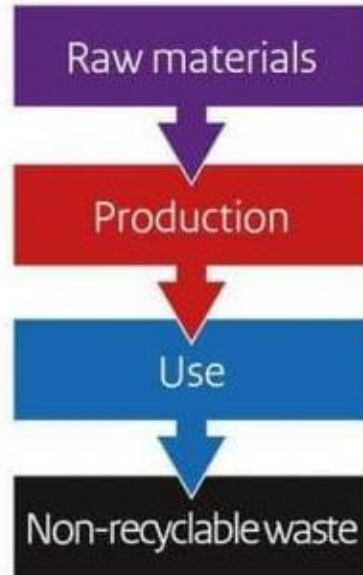
## Overconsumption of raw materials

- Re-duce our footprint
- Re-design & Re-new

# What are the key sustainability challenges for the packaging industry?



Linear economy



Reuse economy



Circular economy





# Alternatives are not better...



## Denmark just became the first country to ban PFAS 'forever chemicals' from food packaging

### Use of PFASs 'widespread' in UK food packaging, report finds

'Significant levels' in samples from major supermarkets, food outlets

13 February 2020 / Food & drink, Food contact, Food contact Regulation 10/2011, PFAS, UK

A Scottish-based NGO said it found "significant levels" of per- and polyfluoroalkyl substances (PFASs) in 90% of the food packaging samples bought from major UK supermarkets, coffee chains and takeaway restaurants.

The highest concentrations detected were 300 times the new legislative limit for PFASs in **Denmark** for paper and cardboard packaging, which will come into force in July, Fidra says in its report *Forever chemicals in the food aisle* published this week.

The substances were in the packaging material used by eight out of nine major UK supermarkets, Fidra said, after testing 20 samples, such as biscuit and bakery bags, takeaway boxes and greaseproof paper for 'Total Organic Fluorine' (TOF) – a widely accepted proxy for total PFAS content.

PFASs are added to create a grease and water repellent effect on paper and cardboard packaging. They do not easily break down in the environment and some accumulate in humans. Many are suspected carcinogens and endocrine disruptors, and can affect the immune system.



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## Paper food packaging "not as innocent as it seems", says consumer body

Written by **Martin Banks** on 30 July 2019 in **News**

**A new study by consumer group BEUC underscores the need for EU-wide rules to regulate non-plastic food packaging and protect consumers from potentially harmful chemicals.**



# Innovation with the RETHINK approach

Invest in:

- Reduction
- Reuse options
- Use of recycled content
- Recyclability
- Biobased and / or biodegradable options





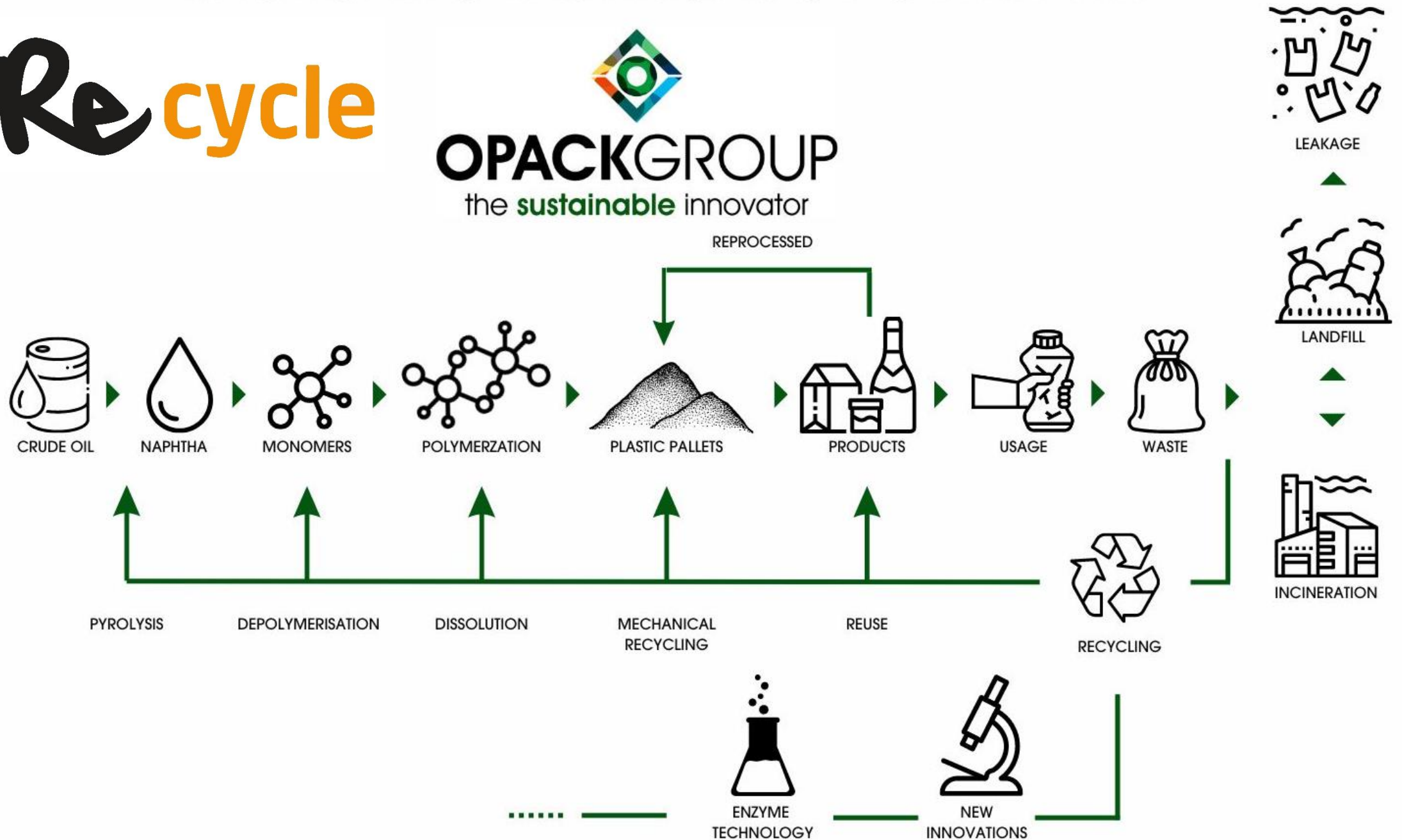
# RECYCLING TECHNOLOGY OVERVIEW

# Recycle

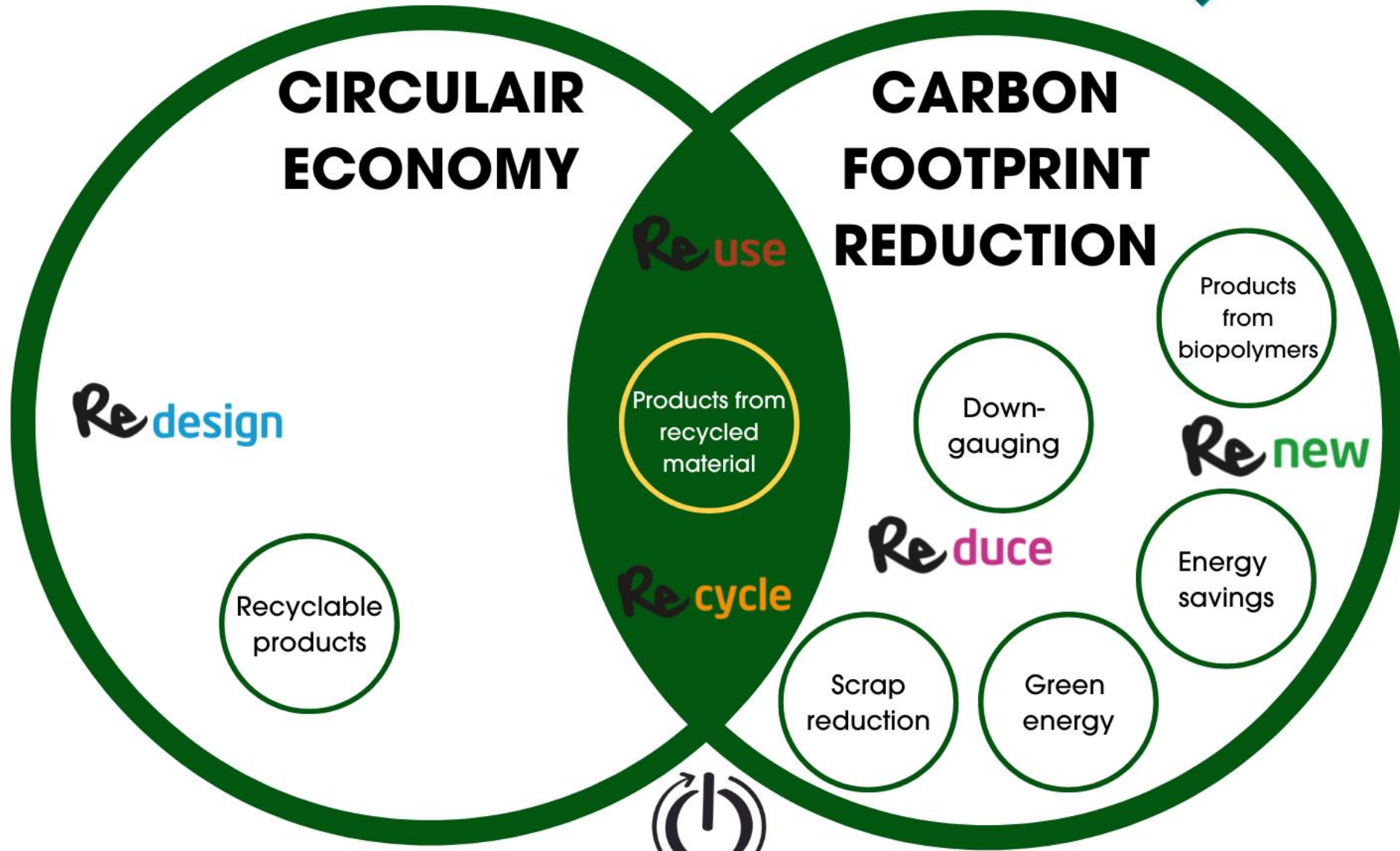


## OPACKGROUP

the **sustainable** innovator



the sustainable innovator





# Recycle

Challenge: Circularity in pallet sleeves

Solution:

- Shrink sleeves – upto 60% recycle
  - Stretch sleeves – upto 30% recycle
- Functionality tested, Recycled content gecertified



# Re design Re cycle

Challenge: Recyclability: Glue & label residues.

Solution:

- Stretchsleeves without glue
- 80% recyclate applied
- Fully recyclable

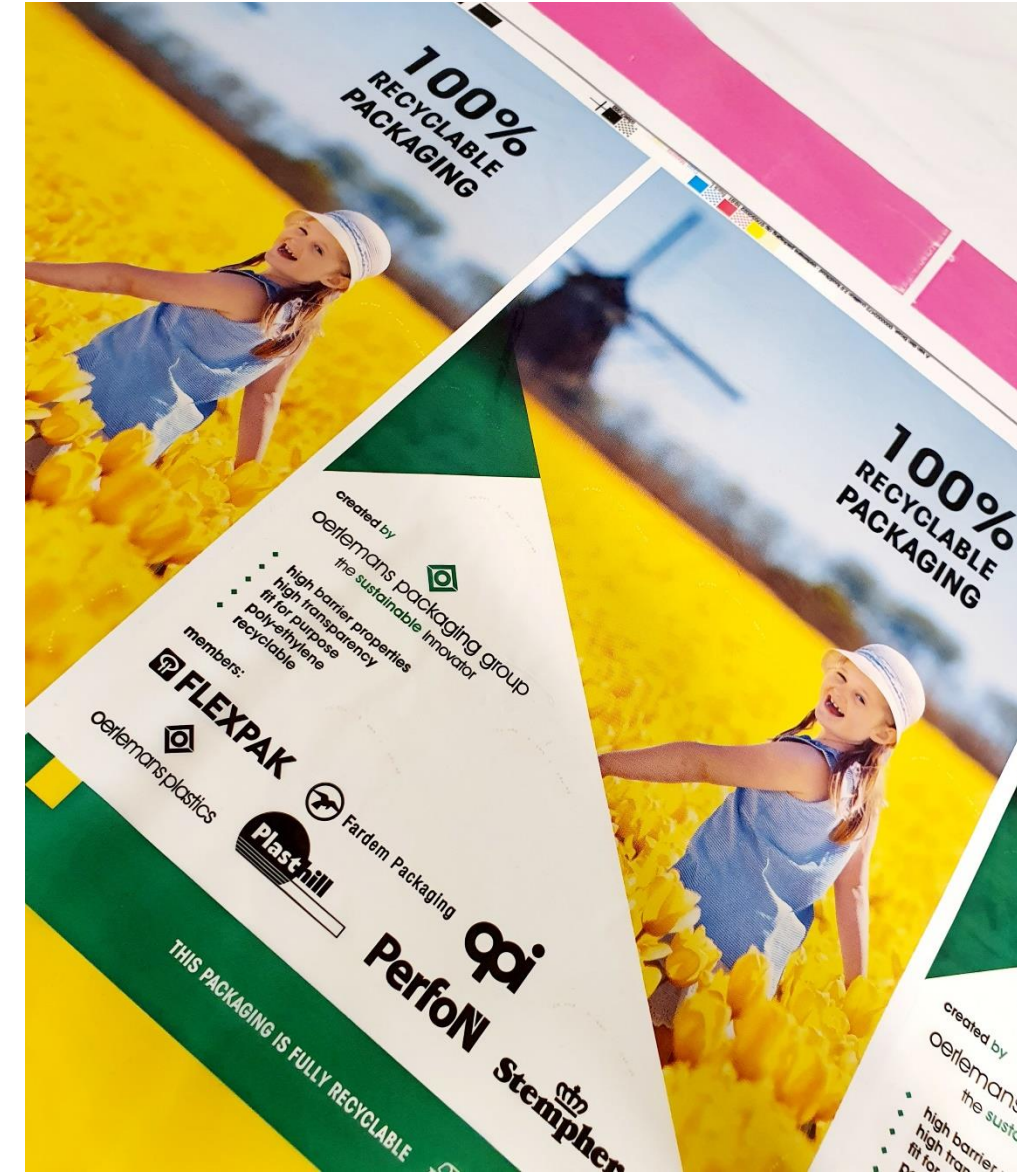




# Re design

Challenge: OPP-PE , PVDC / PA disrupt recycling:  
Focus on 100% recyclable packaging with full functional properties

Solution: Mono-laminate/ co-extruded options  
Innovative technology (MDO)  
in new factory





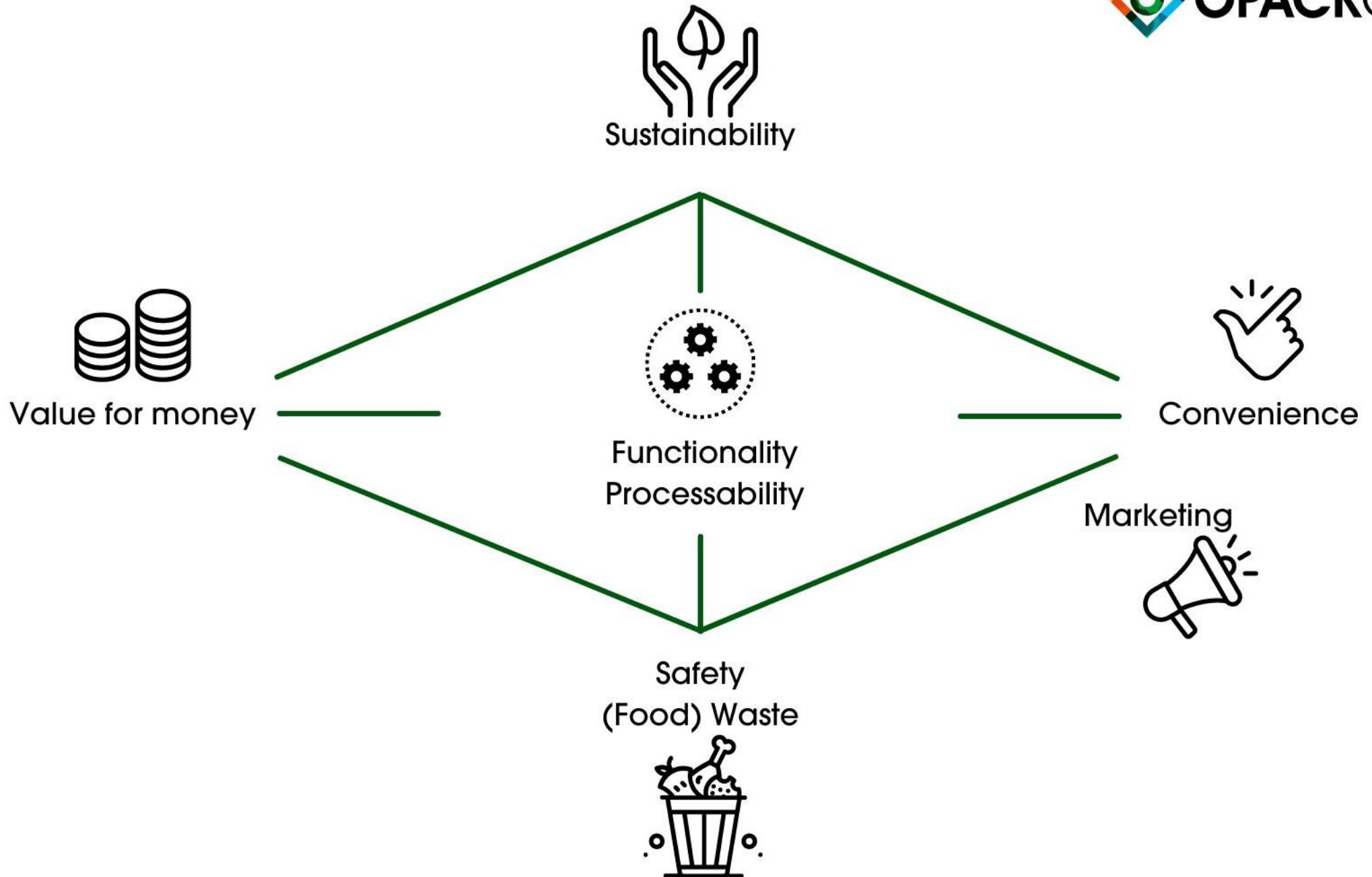
# New factory - Giessen

## Facts & figures:

- Investment €20mln
- 8800 m<sup>2</sup> footprint
- Extrusion 25 meter high
- 2x 7 layer co-extruders
- MDO module for production of 100% recyclable foils
- 25 extra jobs
- New seal factory
- New logistics Centre







# What is your strategy?

Re use ↔ Re duce

Re design ↔ Re cycle

Re duce



Re cycle ↔ Re new





# Cooperate to speed up the transition



**FieldLab  
Circular  
Packaging**



**Even if you are on the right track, you'll get  
run over if you just sit there.**  
-Will Rogers

