



# Introduction & Progress Update

Q2 2018

# Who We Are



CEFLEX is a collaborative initiative of a European consortium of companies and associations representing the entire value chain of flexible packaging to enhance the performance of flexible packaging in the circular economy.

# The Value Chain



# The Stakeholders\*



\*Stakeholders without a logo, mentioned below their respective group

## MATERIAL PRODUCERS



## FLEXIBLE PACKAGING CONVERTERS



## BRAND OWNERS AND RETAILERS



## COLLECTORS, SORTERS AND RECYCLERS



## SUPPLIERS, END USERS AND OTHERS



# Our Vision for the Circular Economy



The **CEFLEX initiative** will make flexible packaging more relevant to the circular economy by advancing better system design solutions via collaboration of companies representing the entire value chain



## • CEFLEX Vision

- **By 2020** flexible packaging will be recognised for the significant value it adds to the circular economy, by robustly measuring, demonstrating and communicating
  - -its resource efficiency
  - -the waste prevention benefits
  - -its relevance in a circular economy
- **By 2025** there will be an established collection, sorting and reprocessing infrastructure/economy across Europe for flexible packaging based on end of life technologies and processes which deliver the best economic and environmental outcome for a circular economy.

# Project Goals & Deliverables



- **By 2020** flexible packaging will be recycled in an increasing number of European countries, facilitated by CEFLEX initiative through:
  - The development and application of robust **Design for A Circular Economy Guidelines** for both flexible packaging and the “End of Cycle” infrastructure to collect, sort and recycle them
  - The identification and development of **sustainable end markets** for the secondary materials recycled from flexible packaging
- **By 2025** the development of a collection, sorting and reprocessing infrastructure for post-consumer flexible packaging across Europe, facilitated by the CEFLEX initiative through:
  - A robust **business case** for collecting all flexible packaging
  - Successful **pilot projects** to demonstrate “proof of principle”





# Design for A Circular Economy (D4ACE) Guidelines for flexible packaging



## D4ACE Guidelines

For packaging developers and  
the end of cycle value chain



## D4ACE Pack Assessment Tool



## Future-proofing

Process to update the  
D4ACE Guidelines



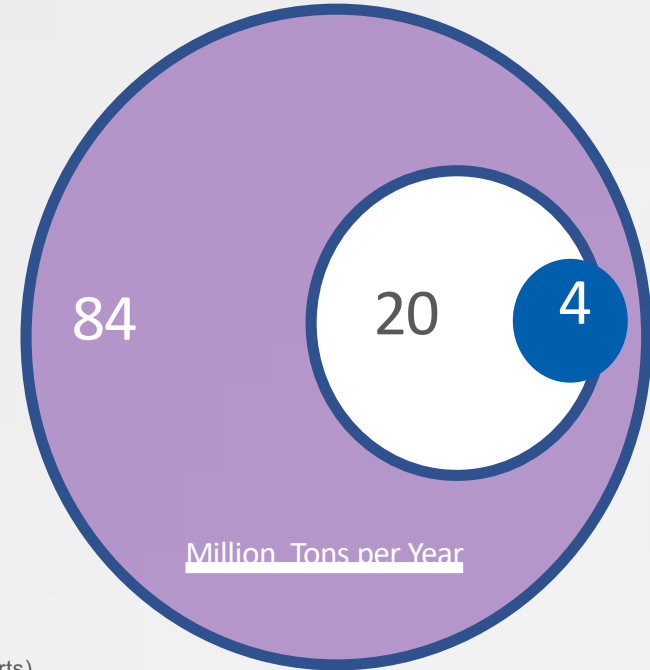
# Economic and Environmental impact in a Circular Economy



# What does the European Packaging market look like?



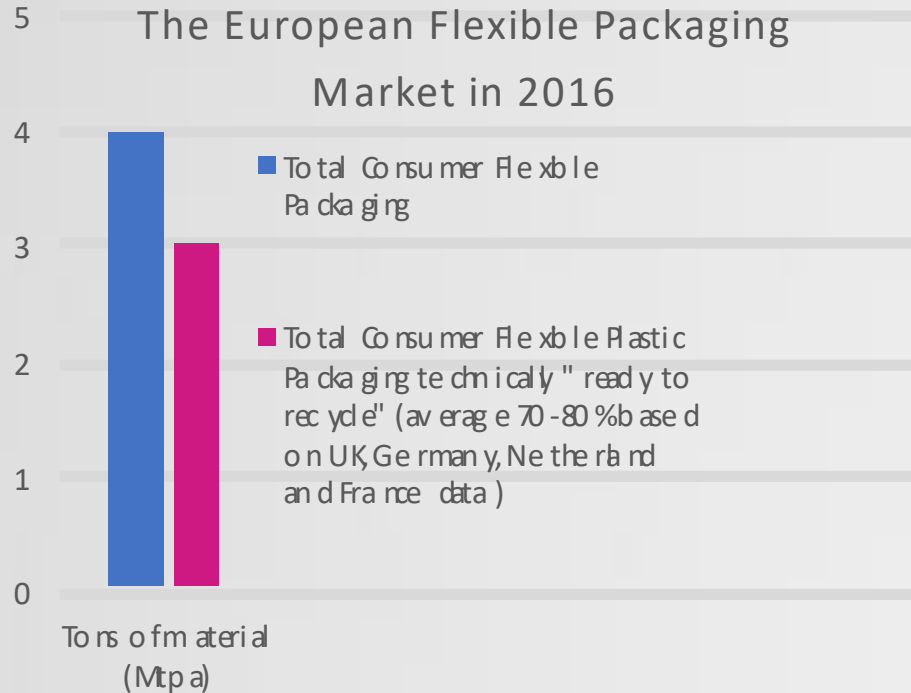
- Total EU packaging market: c.a. 84 M T\*
- Total EU plastics packaging: c.a. 20 M T\*\*
- Total EU consumer flexible packaging: 4 M T\*\*\*
  - Not yet collected everywhere in Europe and majority is sent for energy recovery (or landfilled)
  - Sorting and recycling solutions developed in EU can be relevant globally



Eurostat 2015 data, \*\* 19.55 Mtpa. Plastics – The facts 2016 -2015 data, \*\*\* 2016 data. 3.987 Mtpa (incl. exports).

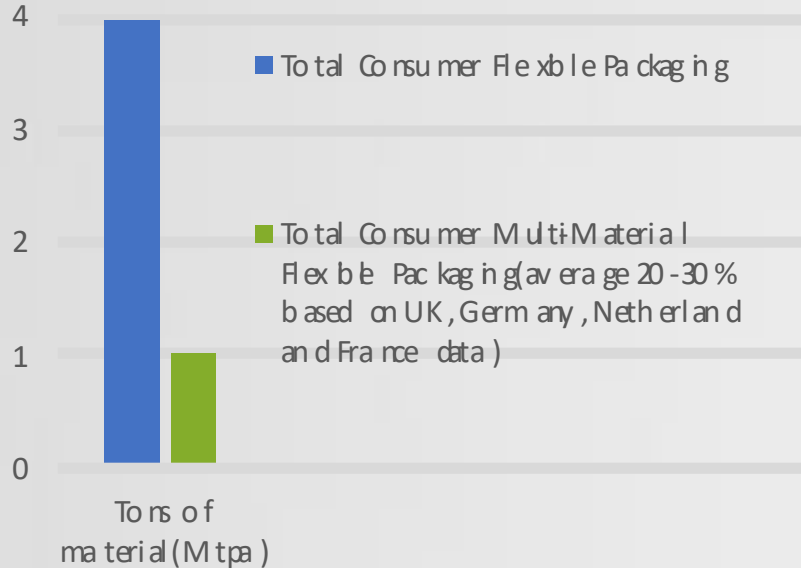
Calculated by CEFLEX, based on Plastics – The facts 2016 and FPE Market Report Summary 2016





- Approximately 3 M T of consumer flexible packaging is mono PE or PP material or a PE/PP mix, and it is technically “recycling ready” if it can be sorted into PE or PP film fractions or a mixed PE/PP fraction
- Flexible packaging with aluminium as the dominant material can be sorted into the aluminium fraction and recycled

## The European Flexible Packaging Market in 2016



Multi-material flexible packaging (incl. PE, PP, PA, PET, Alu, paper, etc) represents 0.8 – 1 M T

### Today

- Predominantly sent for Recovery as SRF (cement kiln) or RDF (Waste to Energy)
- When Aluminium present, can be sorted recycled using pyrolysis

### Future

- Recycle structures with compatible polymers : ex PE/PP and PE or PP /selected barrier with or without a compatibiliser
- Recycle with chemical recycling and other new/existing recycling technologies: eg solvent separation, pyrolysis etc that have been/are being developed and rolled out
- Re-design the packaging, where possible, to be recycled with existing recycled fractions



1. Collection of flexible packaging is essential to recycling

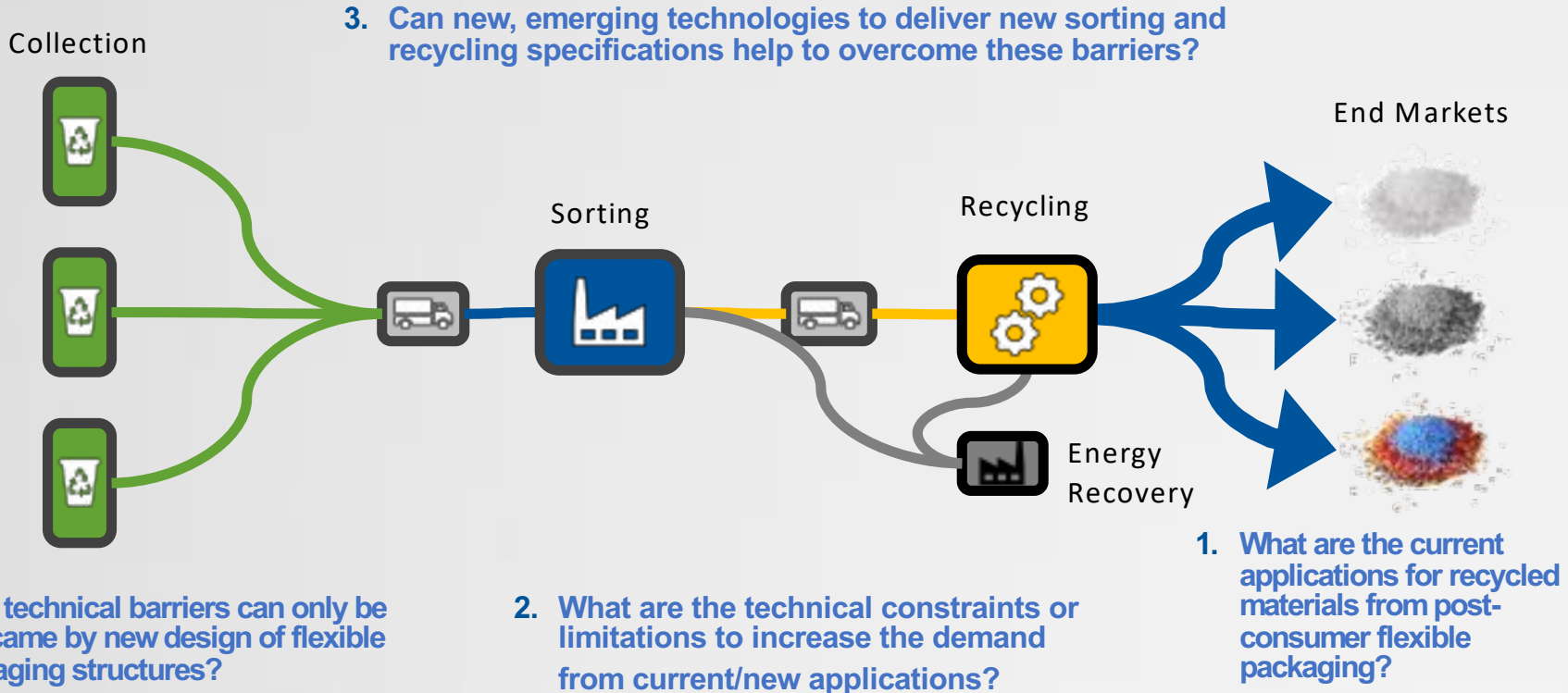
If it is not collected, it cannot be sorted for recycling.

2. Sorting needs re-design to include post-consumer flexible packaging

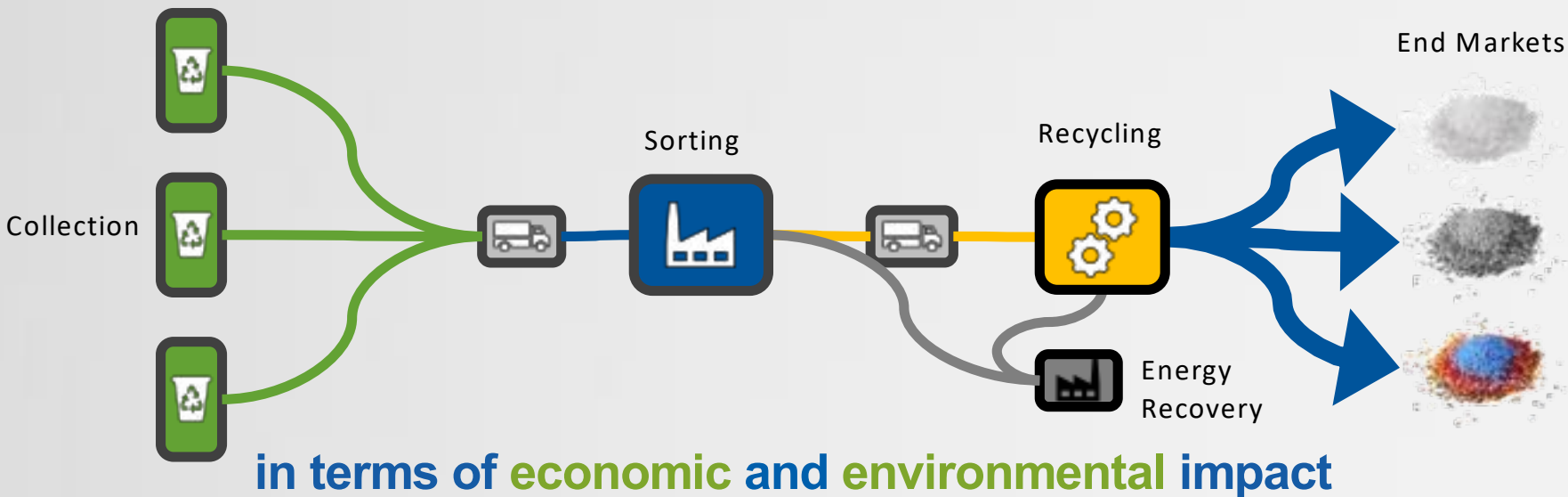
~70% is mono PE or PP which, once sorted, can be recycled.

3. Improved design, collection, sorting & recycling solutions\* need to be developed/more widely available for the ~30% of flexible packaging which is multi-material/multi-layer with barrier properties.

\*This relatively small quantity of multi-material/multi-layer flexible packaging can prevent countries from collecting all flexible packaging.



## Understanding the optimal "End of Cycle" options for flexible packaging





## Show “Proof of Principle” in pilot plant/region/country



- Pilot wide collection of flexible packaging and increase recycling of flexible packaging in a lead region/country by 2021
- Provide “proof of principle” for identified best practice and possible business models developed as part of W4

### On-hold pending external funding:

- Clarifying W1 and W6 testing and pilot requirements
  - Identifying specific stakeholder pilots

Identify, communicate and support the rollout of technologies which contribute ...

BETTER OUTPUT  
ENABLE RECYCLING



## Design\*



## Sorting



## Recycling

Washing

Separation

Mechanical, Chemical recycling

Easy to empty

Recycled content

Digital bar-codes\*\*

Layers separation  
• Dissolving polymers  
• Delamination

Deinking/Deodorisation

Adapt design for purpose

Recycling: compatible inks & adhesives

Enhanced NIR\*\*

Chemical recycling  
• Pyrolysis to feedstock  
• Gasification

Down-gauging

Facilitate separation of materials

2D / 3D sorting\*\*

Pyrolysis for Aluminium recovery

Layer optimisation

Magnetic Density Separation\*\*

Compatibilisers\*

High-speed flake sorting\*\*

Improved washing\*\*

...to circular economy solutions



# Communication: Stay in touch!



.....more to come!



# Our changing world



**Polyolefins**  
Circular  
Economy  
Platform

CEFLEX actively monitors and where appropriate collaborates with all the European high-level initiatives to ensure alignment and compatibility of the work developing the D4ACE Guidelines and “end of cycle” systems and infrastructure.

For more information

[www.CEFLEX.eu](http://www.CEFLEX.eu)

If you want to become a member of the CEFLEX consortium  
or wish to learn more about the project, contact

[info@ceflex.eu](mailto:info@ceflex.eu)

You can also contact the project team:

Graham Houlder

Project Co-ordinator/Workstream Consultant

[graham@sloop-consulting.com](mailto:graham@sloop-consulting.com)

Dana Mosora

Workstream Consultant

[dmosora@danamosora-consulting.eu](mailto:dmosora@danamosora-consulting.eu)

Liz Morrish

Workstream Consultant

[liz@madeconsult.co.uk](mailto:liz@madeconsult.co.uk)