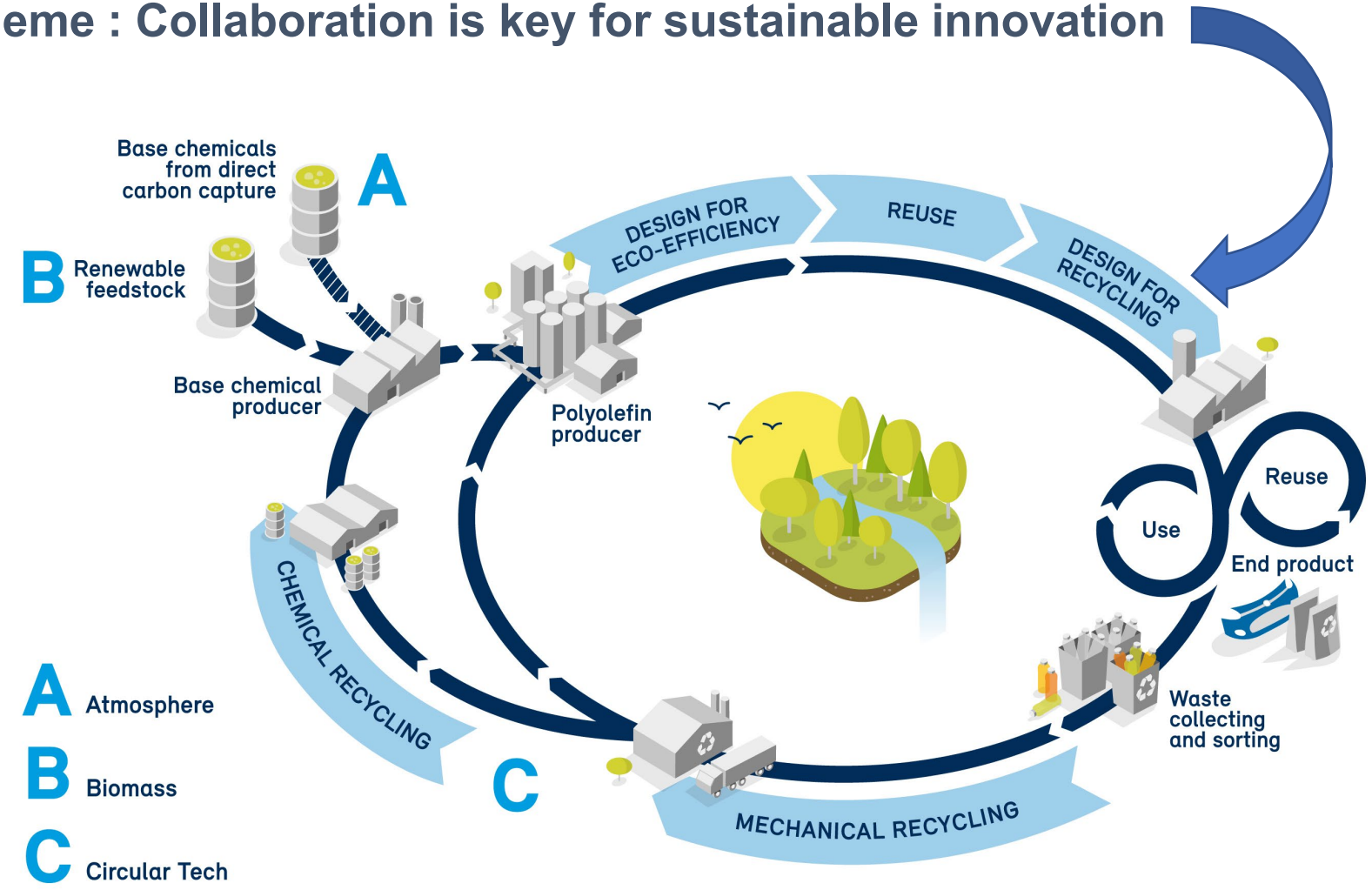
Building a Circular Economy requires a holistic approach : the circular cascade model

Theme : Collaboration is key for sustainable innovation



TRUCE CONSORTIUM – 2021-2023

Collaboration is key for sustainable innovation

amcor
Creating a new world of packaging

Bostik
smart adhesives

BOREALIS
Keep Discovering

EASTMAN

synthomer

puratos
Food Innovation for Good

GHENT UNIVERSITY

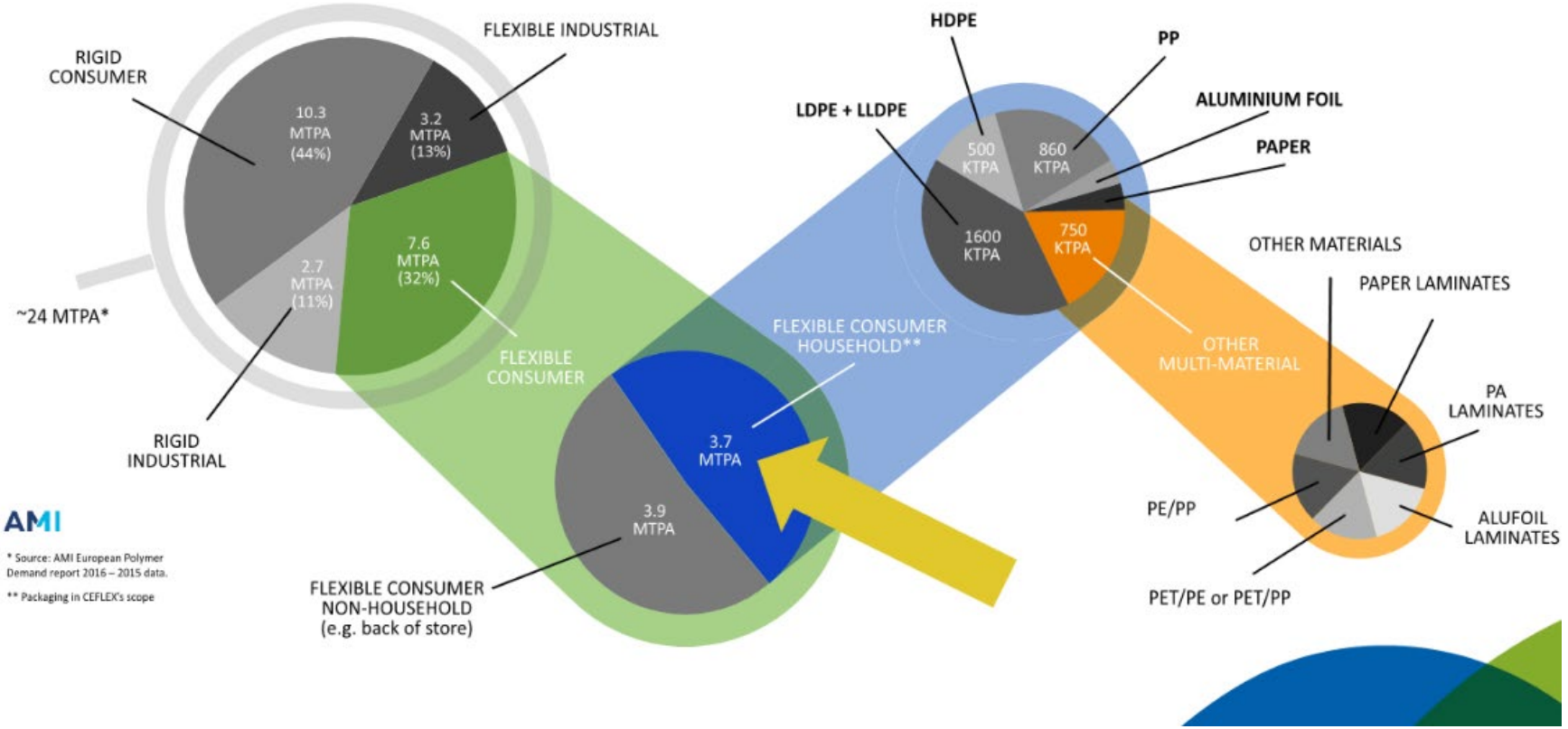
VLAIO FF FLANDERS' FOOD
Clusters for Growth

VLAIO CATALISTI
Clusters for Growth

THE CHALLENGE : ADVANCED DESIGN FOR RECYCLING

CEFLEX

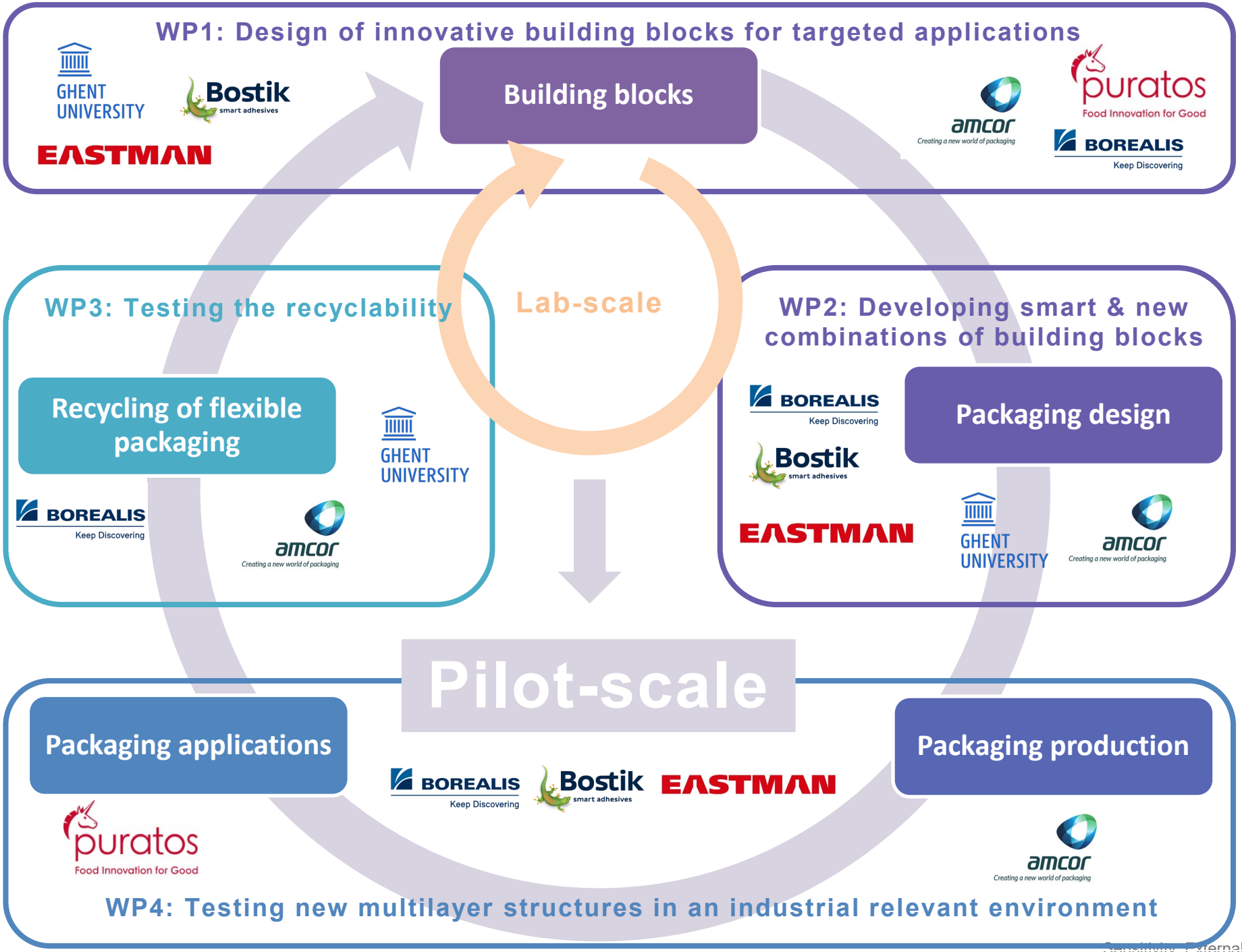
Quantities of plastic packaging in the EU (2015 data)



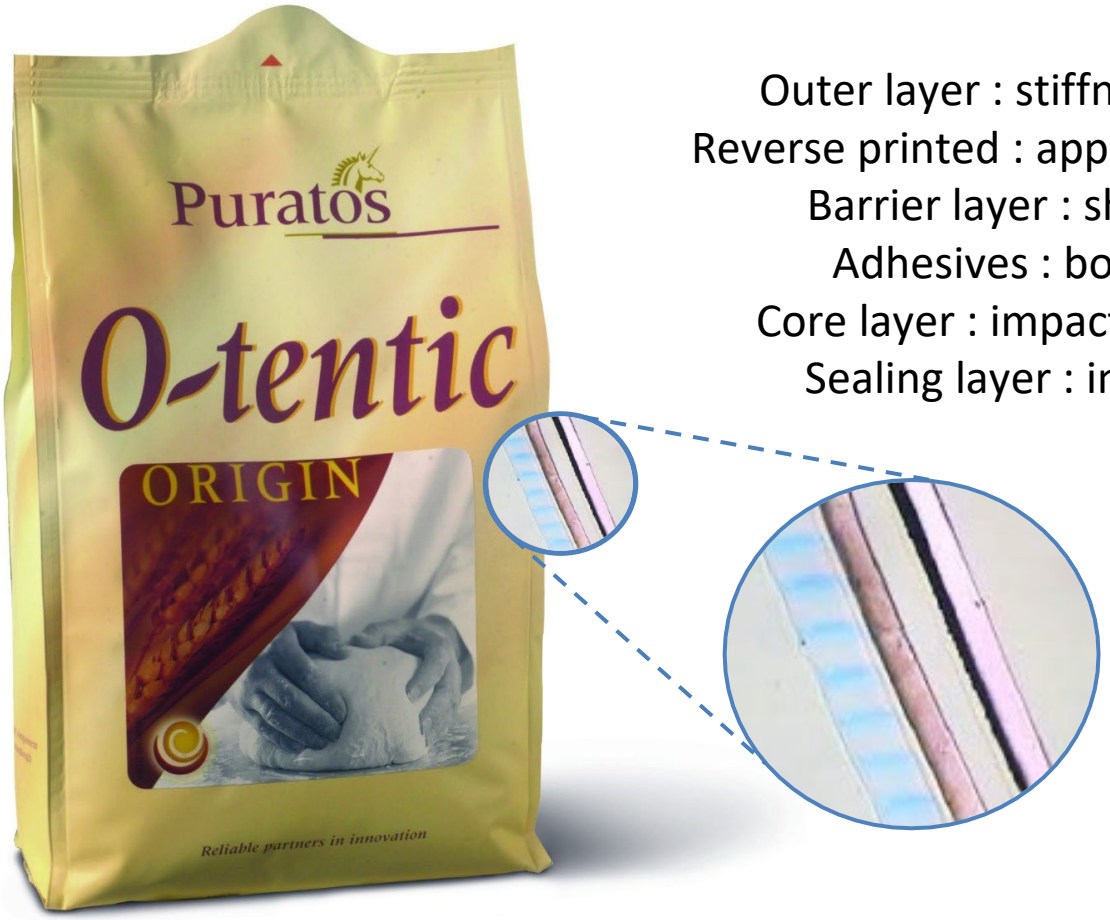
AMI

* Source: AMI European Polymer Demand report 2016 – 2015 data.

** Packaging in CEFLEX's scope



From Multi-material PE/PET to Mono-material PE Packaging



Outer layer : stiffness, gloss NEW
Reverse printed : appeal, branding
Barrier layer : shelf life
Adhesives : bonding NEW
Core layer : impact strength
Sealing layer : integrity NEW

Technological challenges

- Functional (performance of packaging during lifetime)
- Recyclability
- Operational (run on existing filling lines)
- Visual

OTHER CHALLENGES

- COVID
  - 9 MONTH DELAY
  - 1 PHYSICAL MEETING IN 2.5 YEARS
- COMPANY CHANGES
- UPSCALING TO PILOT (SEMI INDUSTRIAL)
- CONTRACTS (A SIX PARTY MARRIAGE !)

UGHENT AS KNOWLEDGE PARTNER

CENTRE FOR POLYMER AND MATERIAL TECHNOLOGIES (CPMT)
DEPARTMENT GREEN CHEMISTRY AND TECHNOLOGY

- SOTA
- DEINKING
- DEVELOPING FAST PROTOCOL FOR TESTING RECYCLABILITY
- LCA ANALYSIS

RESULTS

- The primary goal of the TRUCE project was to develop new building blocks for functional, flexible packaging solutions, which can be combined into fully recyclable mono-polyethylene (PE) structures (> 95% PE), and this was achieved !
- Processability on industrial packaging lines proven : workable solution found, further optimization opportunities exist.
- LCA : the use of PE structures to substitute other classic functional building blocks such as polyamide (PA) and polyethylene terephthalate (PET) already results in approximately 25% reduction of CO_2eq.
- Moreover, this redesign offers additional benefit regarding end-of-life as mechanical recycling of mono-PE films is more environmentally sustainable than incineration with energy recovery for conventional films.