

18th April 2023

WHAT ARE THEY
REALLY MADE OF?

New **BIO-BASED** materials for everyday life.

ITALIAN BUSINESS FORUM
JOŽEF STEFAN INSTITUTE

This project has received funding from the Circular Bio-based Europe Joint Undertaking (JU) under grant agreement No 792195. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio Based Industries Consortium.





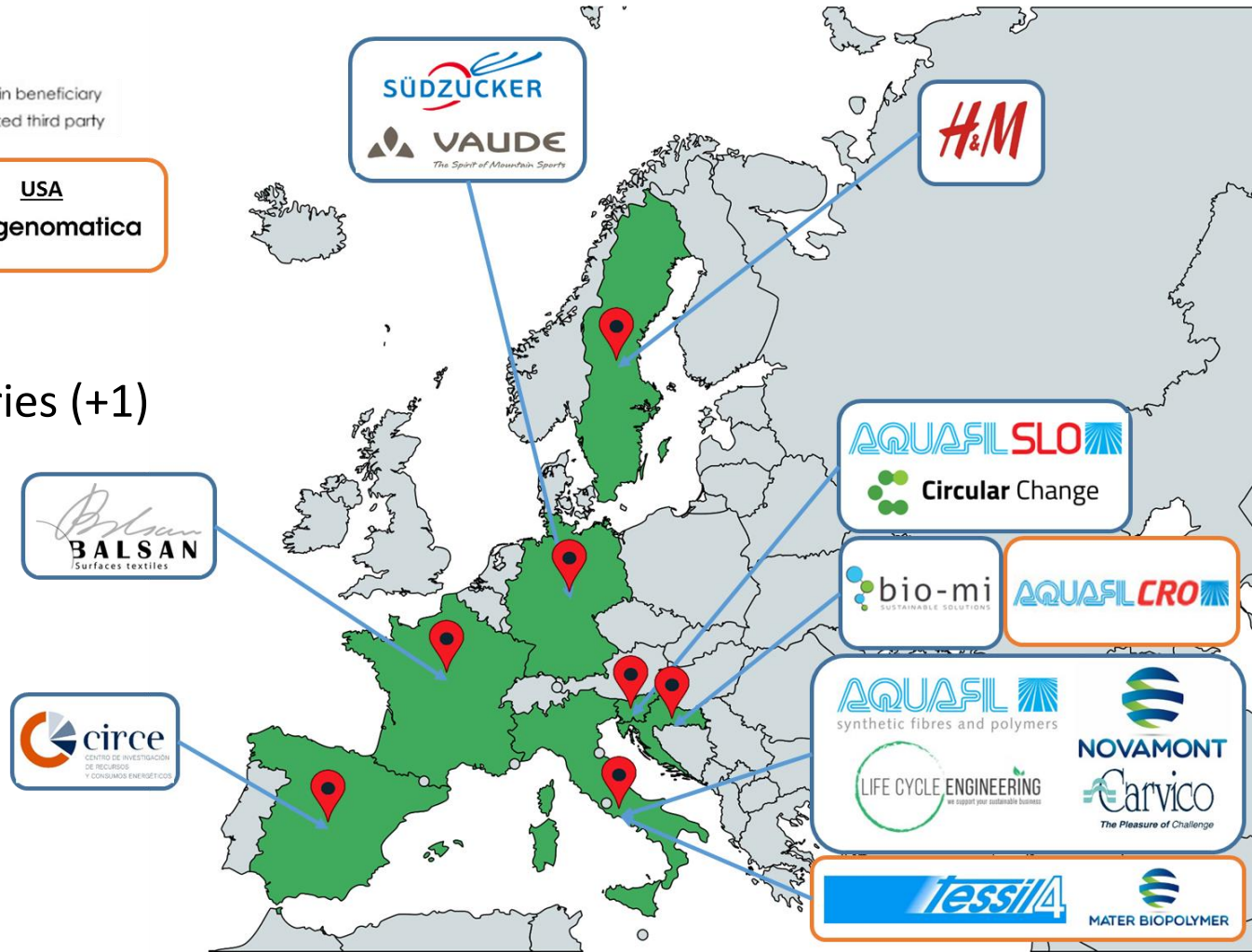
WHAT IS PROJECT EFFECTIVE ABOUT?

PROJECT EFFECTIVE IN A NUTSHELL

- Call for proposal: H2020-BBI-JTI-2017
- Topic: BBI.2017.D5
- Funding scheme: BBI-IA-DEMO
- Grant Agreement number: 792195
- Consortium: 12(+1) partners | 7 European countries (+1)
- Duration: 57 months | 01.06.2018 – 28.02.2023
- Total foreseen costs: € 11,790,447.58
- EU contribution: € 7,171,906.64 €

■ Main beneficiary
■ Linked third party

USA
 genomatica



INTRODUCING PROJECT «EFFECTIVE»



Backed by CBE (formerly BBI), **project EFFECTIVE** aimed at establishing a concrete bridge between **bio-based economy** and **circular economy** by:

- Demonstrating the production of innovative **bio-based polyamides and biopolyesters** from sustainable feedstock
- **Validating them into large consumers products**
- **Closing the loop in the materials' cycle**

 **8 Large Companies**

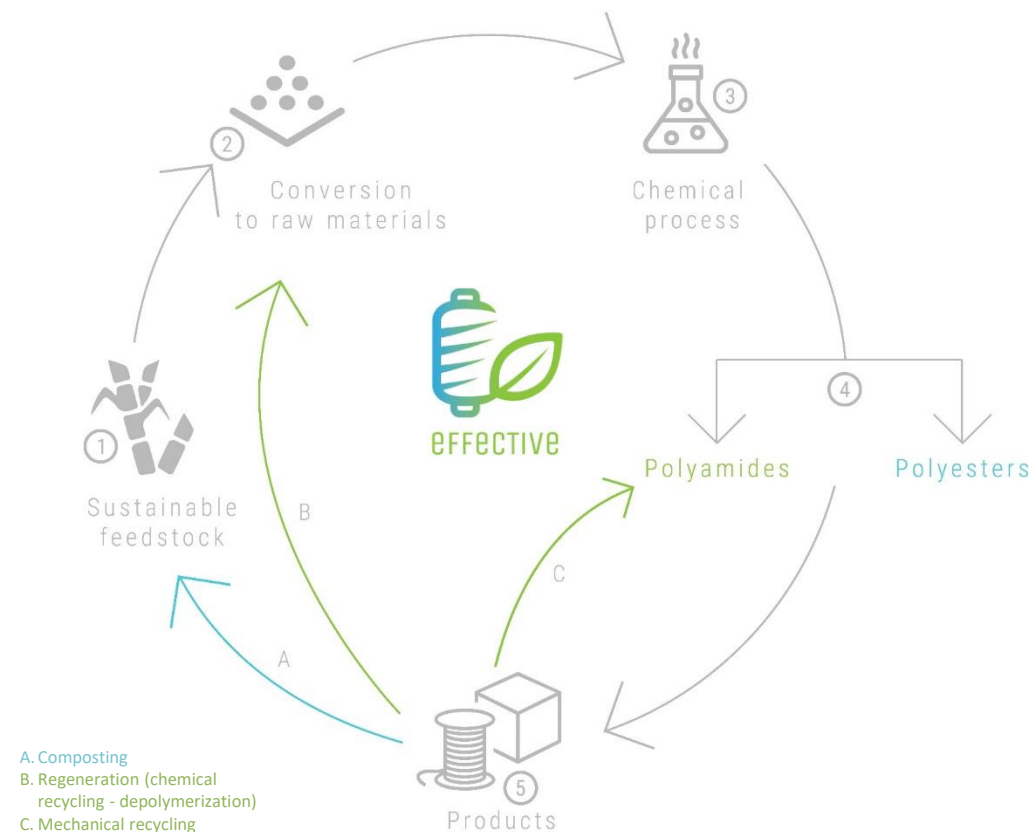
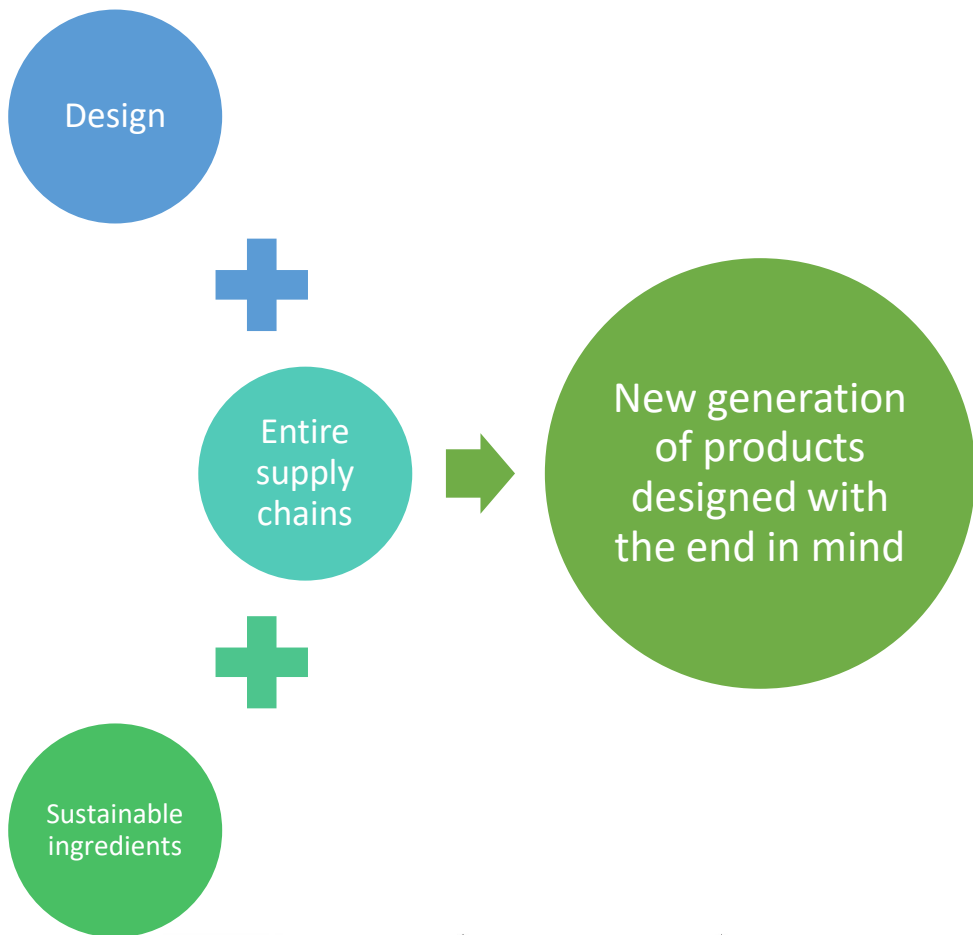
 **3 SMEs**

 **1 RTOs**

Duration: 01.06.2018 – 28.02.2023

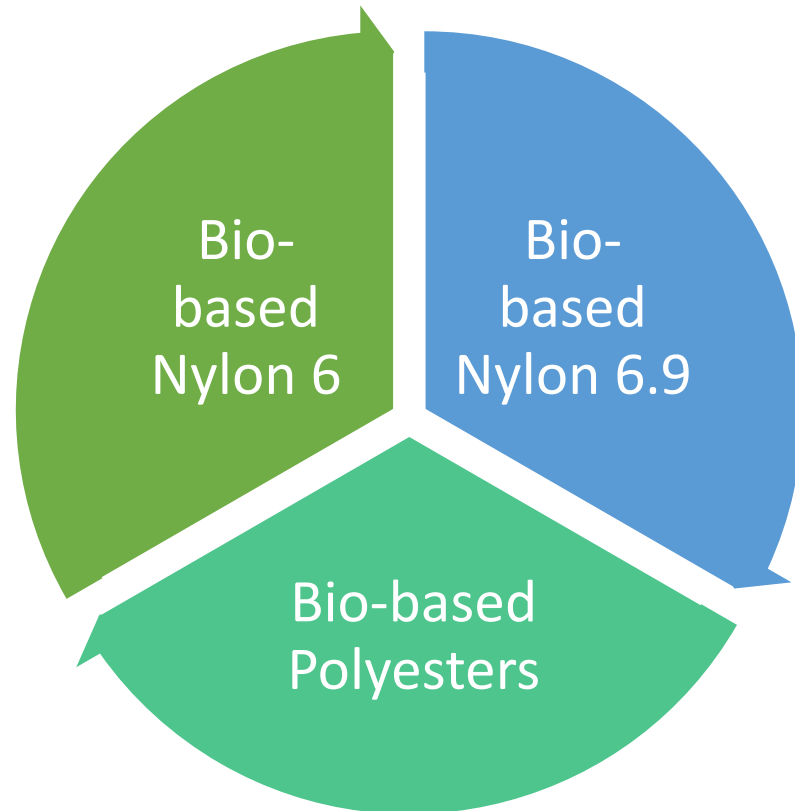
A CIRCULAR APPROACH TO BIO-BASED PRODUCTS

Are bio-based materials enough to make the plastics and the textile sector more sustainable? NO

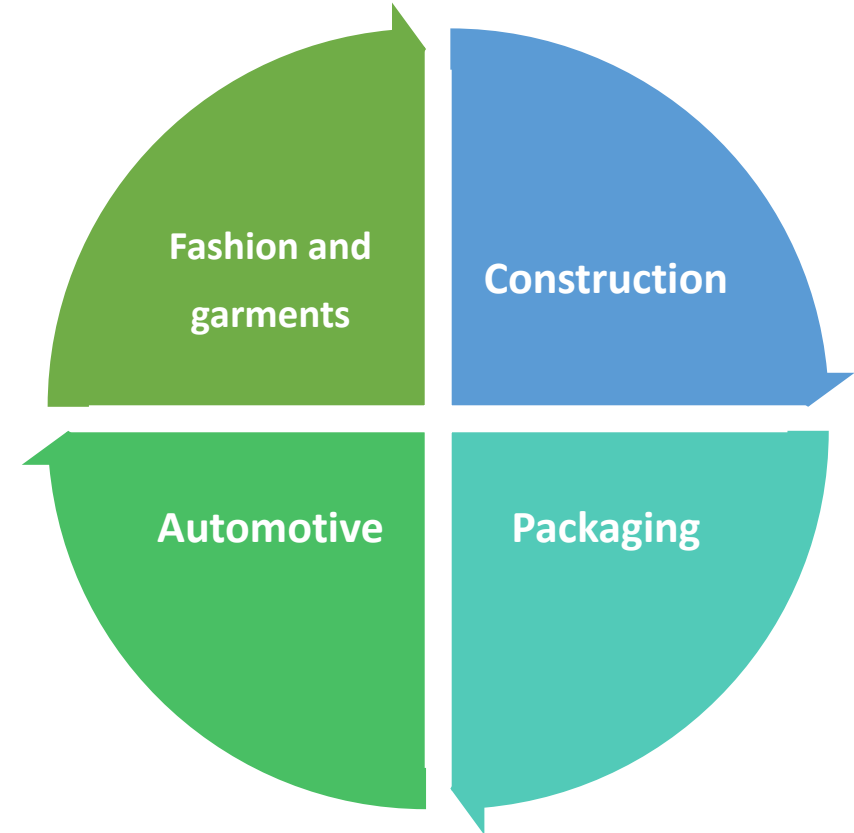


THE PRODUCTS

3 bio-based polymers...



...targeting **4** main markets



High replicability potential

EXPECTED RESULTS



Call requirements

- create at least 1 new cross-sector interconnection in bio-based economy clusters
- establish at least 2 new bio-based value chains
- create at least 3 new bio-based materials with high potential marketability
- create at least 4 new demonstrated consumer products based on bio-based chemicals and materials that meet market requirements
- overall reduction of at least 10 % in the carbon footprint of the considered bio-based operation compared with the state-of-the-art

Project EFFECTIVE

- ✓ **1 new cross-sector interconnection** in bio-based economy clusters established
- ✓ **3 new bio-based value chains**
- ✓ **5 new bio-based materials**
- ✓ **8 new bio-based products**
- ✓ **Carbon footprint reduction*** of bio-based products spanning **from -18% to -44%**

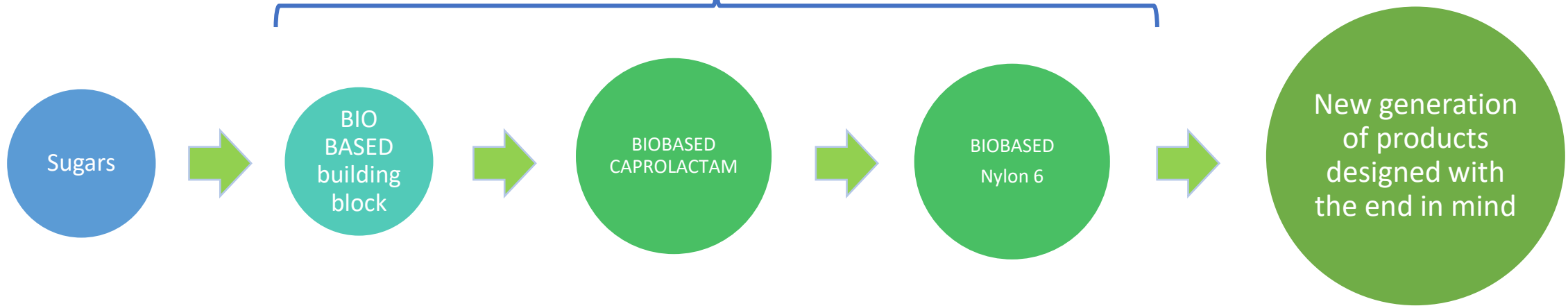
*: preliminary results from LCA analysis not validated by independent third party. Further improvement might be possible at industrial scale with plant, energy and resource integrations.

ADDITIONAL KEY RESULTS

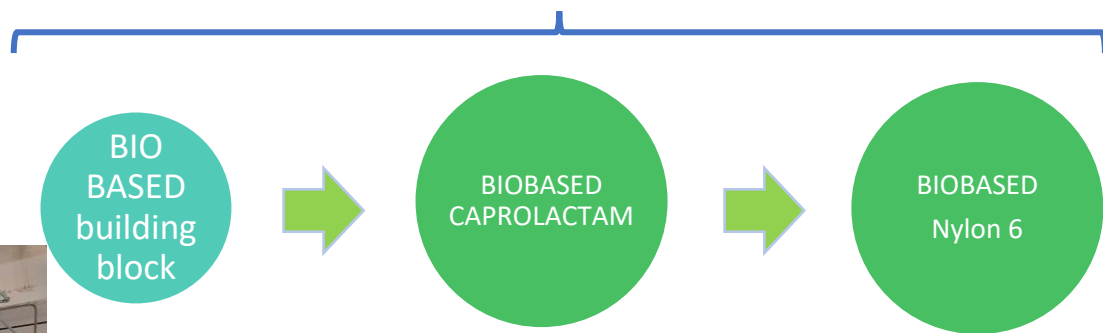


- ✓ Demonstration at pre-industrial scale of innovative technologies to produce bio-based Nylons and Polyesters
- ✓ Identification of eco-design guidelines for carpet and garment
- ✓ Validation of circular end-of-life treatment
- ✓ Exploration and identification of resource & energy efficiency measures (for any future industrial operations)
- ✓ Involvement of 100+ external stakeholder from 24 countries in the stakeholder group

RESULTS

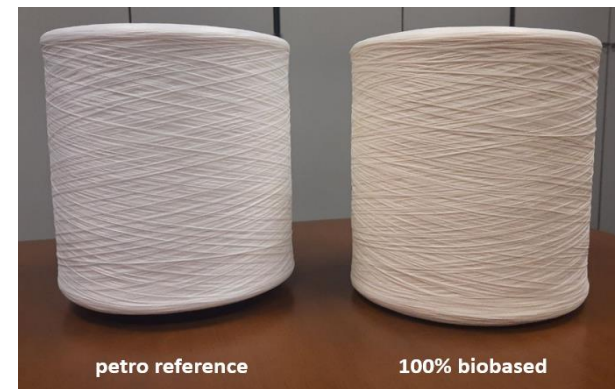


RESULTS

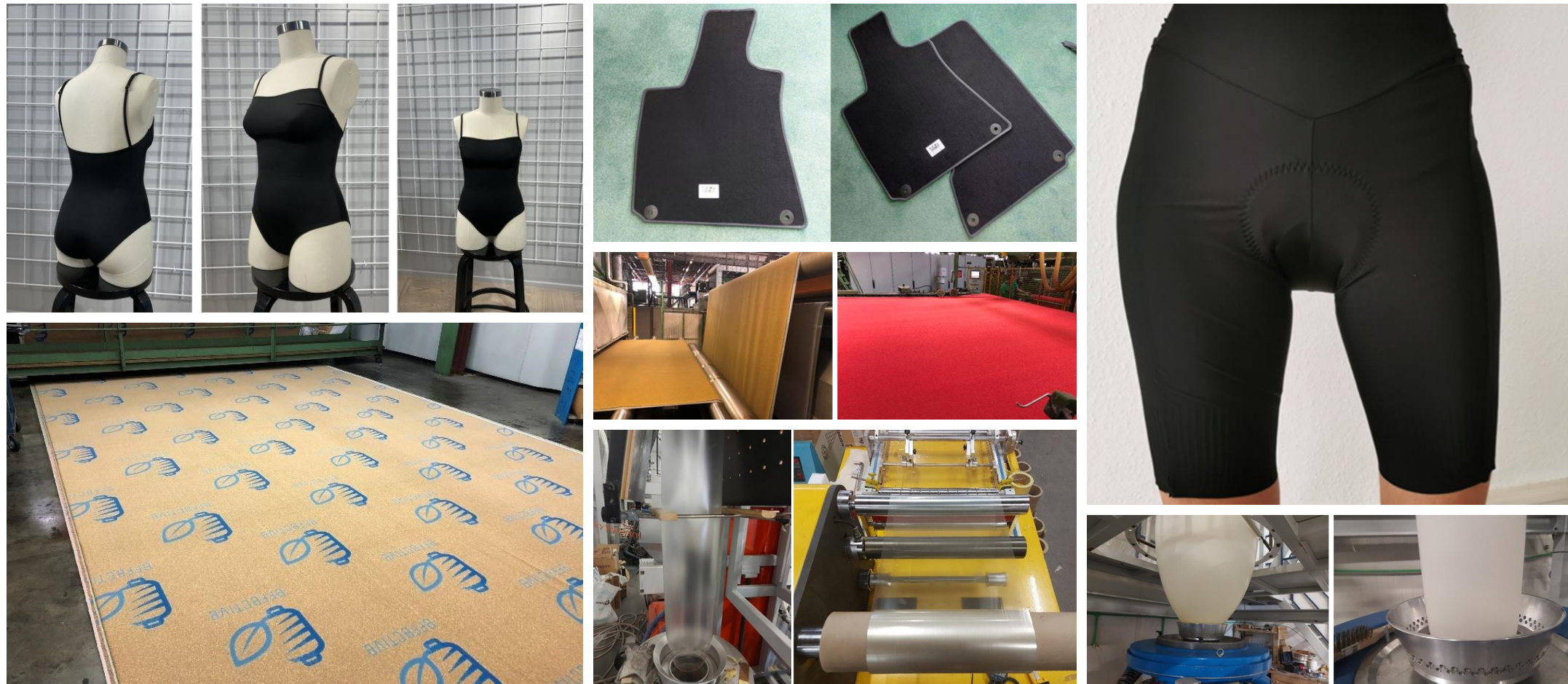


- conversion of building block to CPL
- Purification of CPL

- Polymerization of CPL
- Spinning of Nylon 6



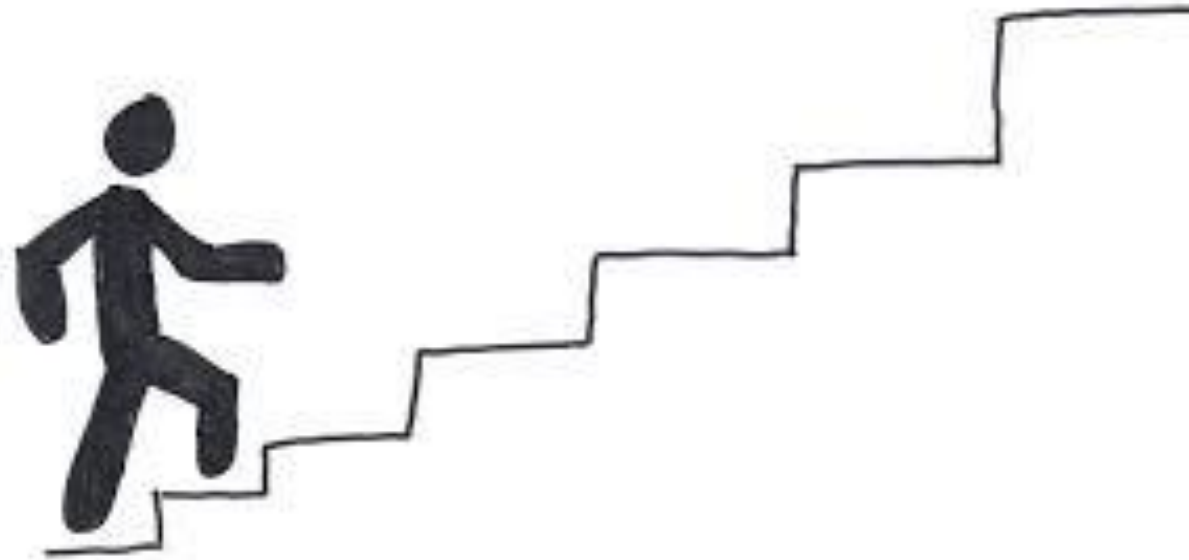
RESULTS



WHAT'S NEXT?



"ONE SMALL STEP"





THANK YOU!

