MANDALA

Advanced recycling strategies for multilayer food and pharma packaging products

June 3rd, 2022

MANDALA
Sustainable Multilayer Packaging

NeXT GeN EU

Funded by the European Union

This project has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 837715

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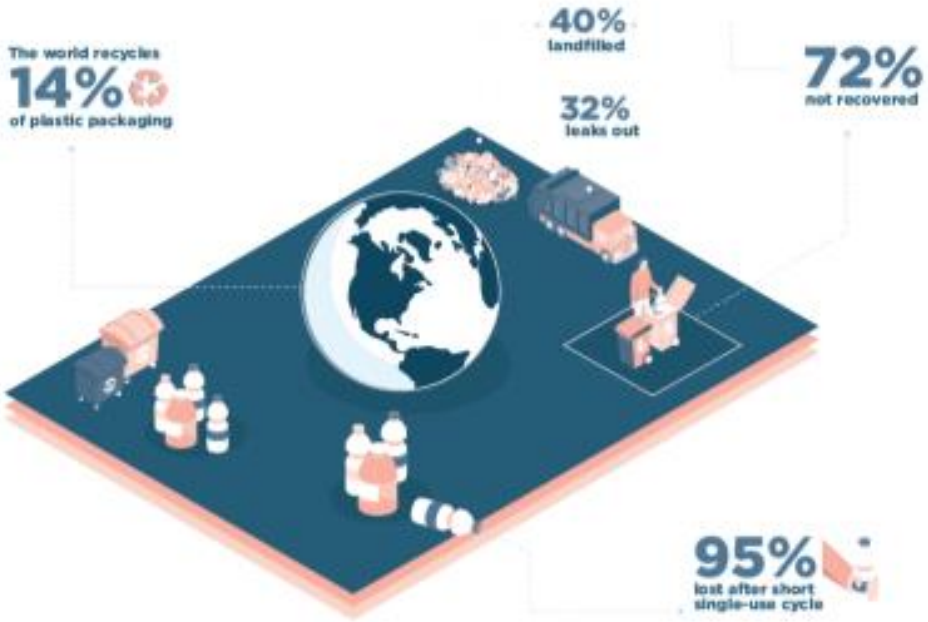
PROBLEM

Transition towards a circular economy in packaging industry



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PROBLEM

RIGHT PACKAGING

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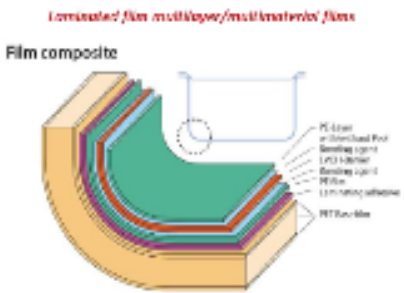
PROBLEM

- Problem 1: current **multilayer packaging**, is not recyclable and the **end-of-life is either incineration or landfill**
- Problem 2: Available biological **waste treatment** processes **not suitable** for compostable biobased Packaging
- Problem 3: **lack of eco-design** and decision making on **re-routing** applied to packaging



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SOLUTION

- Sustainable use of raw materials
- Biobased materials substitute oil-based materials
- Efficient recovery and separation of materials
- Re-use and recycling strategies

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SOLUTION

- Tackle three main pillars of the multilayer packaging product:

1. **Eco-design**;
2. Developing **dual functionalities in the adhesives** (easy to split and enhanced barrier properties)
3. Demonstrating the **valorisation of the recovered materials and assessing best end-of-life routes** ensuring that they will be returned to the market assuring a real circular economy.

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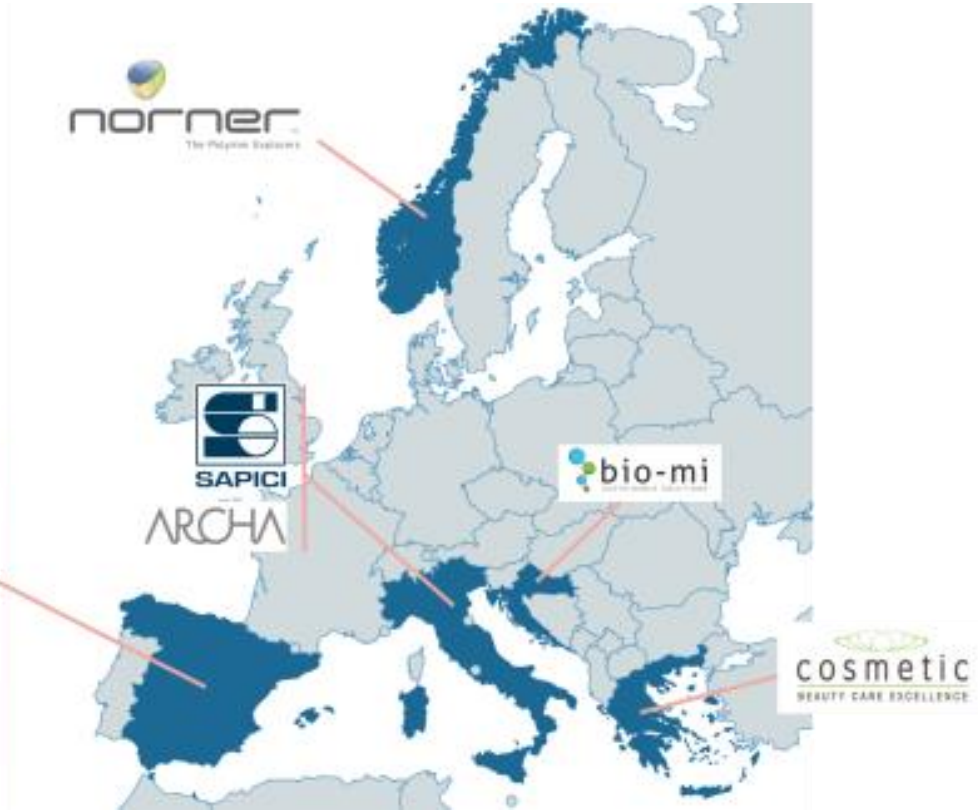
CONSORTIUM

42-months project

4,5 M€ Budget



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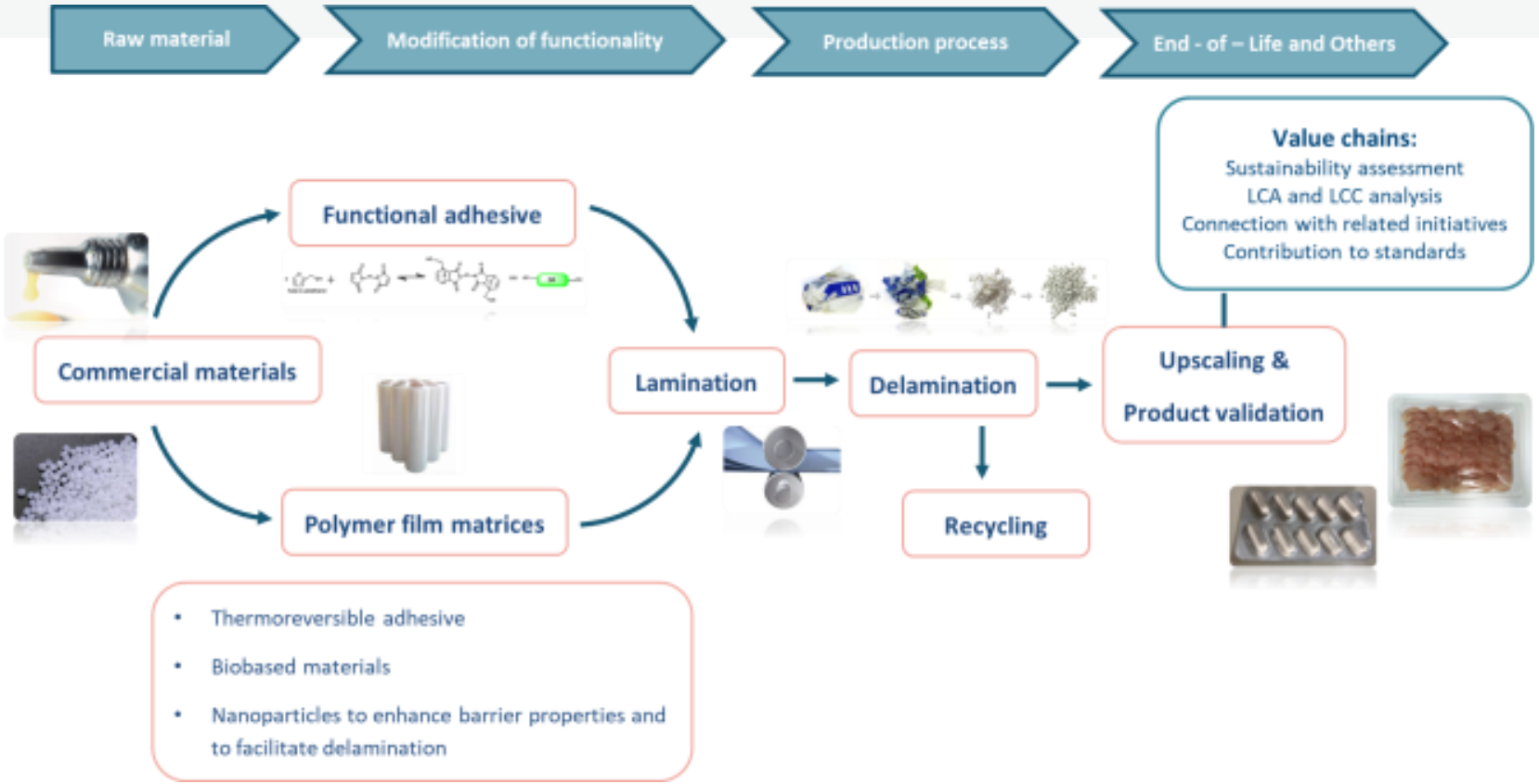
PROJECT



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SELECTION OF DIFFERENT FOOD & PHARMA MATRICES

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PROJECT

- ✓ **Decrease the use of virgin fossil-based materials** by 40%
- ✓ Guiding and designing the MANDALA products **according to the Consumers Protection Directives**
- ✓ **Contribution to new regulations** in terms of new uses and value
- ✓ Pilot plant and **fabrication processes developed in agreement with ISO 9001 & 14001** and OHSAS 18001 standards (Quality, Environment and H&S assurance of the processes)

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CONCLUSIONS

- **New multilayer product** will set the basis for new food (ready-to-eat) and pharma (pill blister) packaging products with enhanced performances.
- The **delamination technology** can be up-scaled at pilot level
- **Novel strategies to separate and recover multilayered materials** will pave the way to increase the recycling rate of strategic EU sectors.
- Applications of delaminating strategies will be validated **in other sectors and applications.**

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Thank you!

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Follow the project's social media channels!

www.mandalaproject.eu

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