Microbial Integration of Plastics in the Circular Economy (MIPLACE)

RRI and stakeholder engagement

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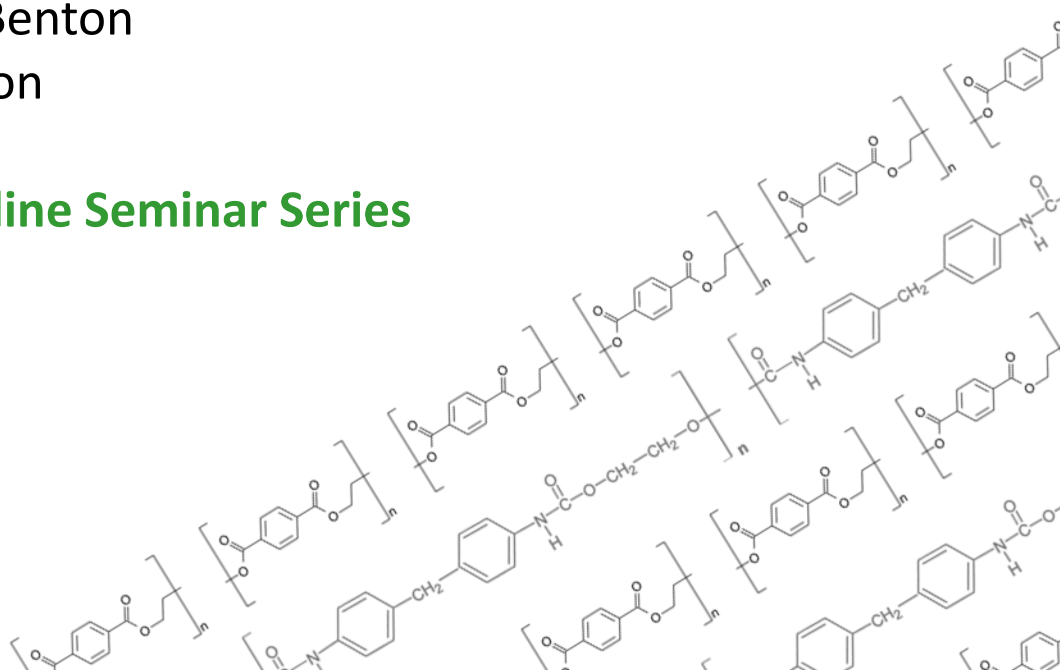
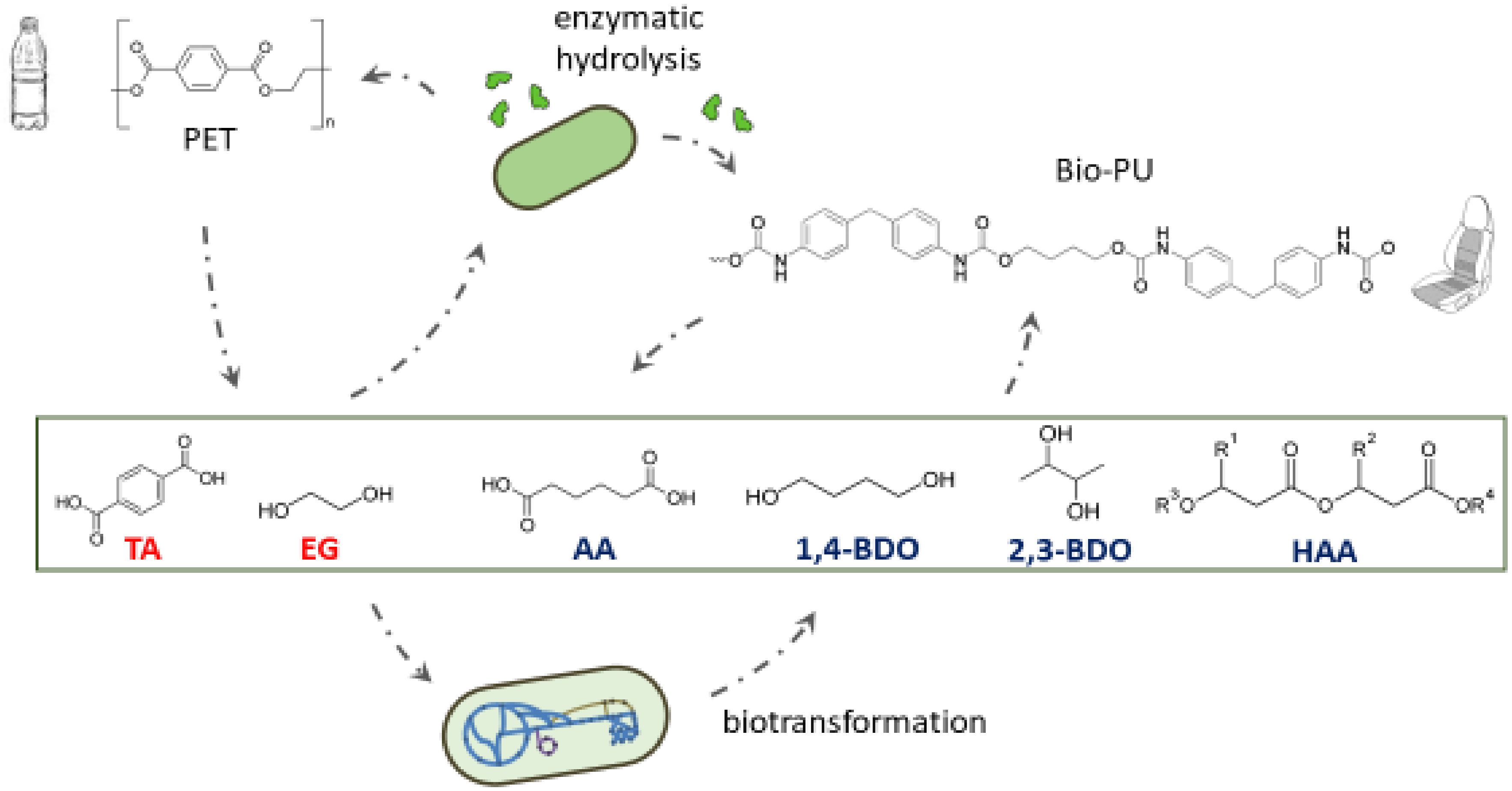


Developing a bio-based process that uses plastic waste as feedstock



PET: polyethylene terephthalate *(commonly used for single-use plastics especially in the beverage industry)*
PU: polyurethane *(foams) used in insulation panels, carpet underlay, furniture*
EG = ethylene glycol; TA = terephthalic acid; AA = adipic acid; 1,4-BDO = 1,4-butanediol; 2,3-BDO = 2,3-butanediol; HAA = hydroxyalkanoyloxy-alkanoic acid

MIPLACE partners

Imperial College London

RWTH AACHEN UNIVERSITY

Universitat de València

Universität Leipzig

SOPREMA GROUP

MUTAXIO

Responsible research and innovation (RRI)?

"RRI implies that societal actors (such as researchers, policymakers, business, charities, industry etc.) work together during the research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society"

"…a collective responsibility… a collective process of all the different stakeholders linked in some way to the research and innovation..."

https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation
https://rri-tools.eu/about-rri#in-short

The BESTER project

‘bio-processes for the optimized, integrated production of butyl esters from sustainable resources’

Implementing RRI: integrating life cycle analysis & stakeholder engagement

Eva Sevigné-Itoiz, Lorenzo Di Lucia, Onesmus Mwabonje and Jeremy Woods
Centre for Environmental Policy (Imperial College London)

https://www.cobiotech.eu/funded-projects/1st-call/bester

Life cycle assessment of the MIPLACE project

Goals:

i) to conduct a cradle to gate Life Cycle Analysis (LCA) (based on ISO 14040-14044) of the MIPLACE project,

ii) to evaluate and interpret the environmental impacts under different scenarios,

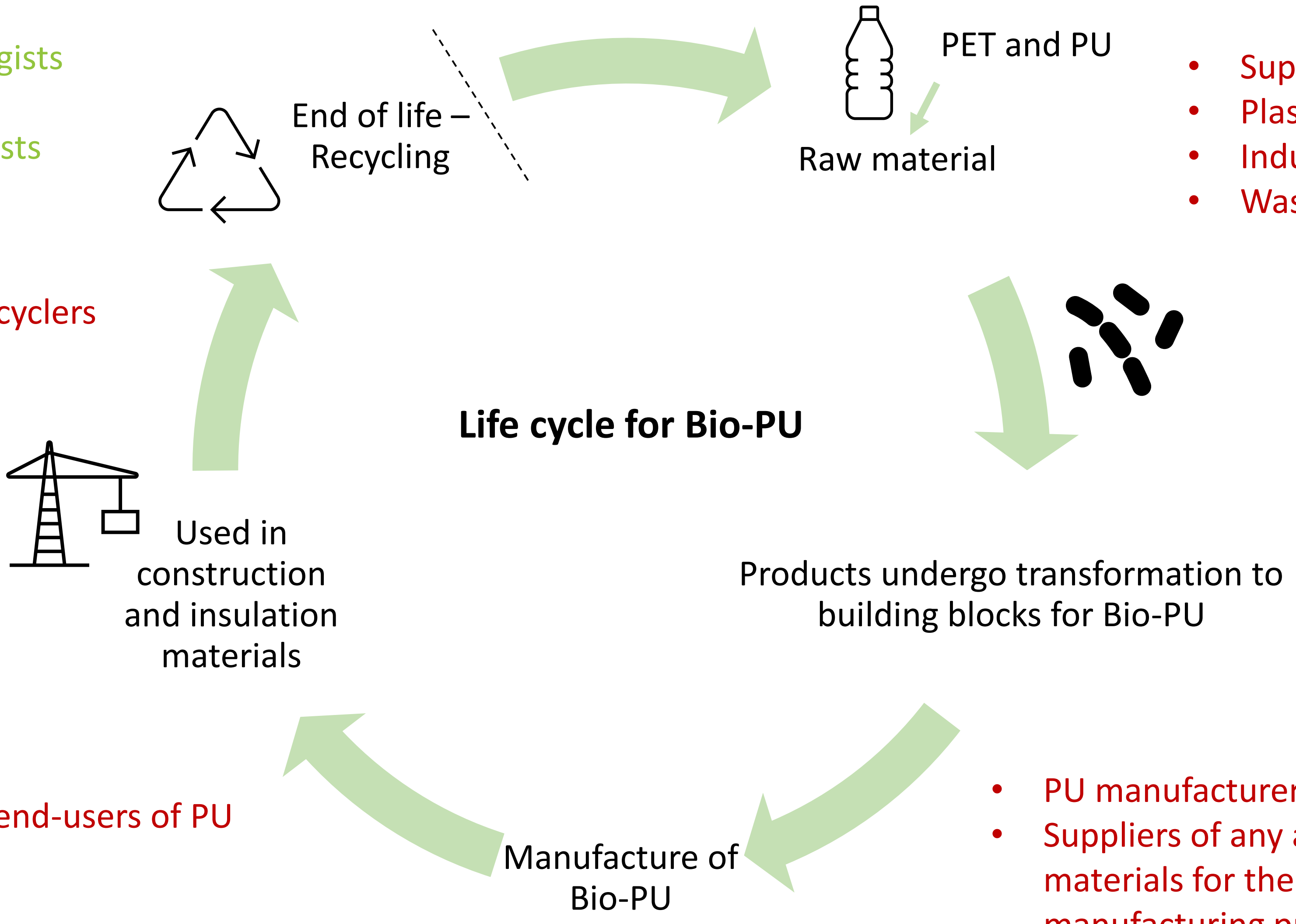
iii) to provide suggestions for improvement if necessary.

Primary data collected from MIPLACE and secondary data from databases and literature.

LCA can help identify stakeholders along the supply chain and stakeholder feedback informs the design of the LCA.

Life cycle for Bio-PU and stakeholder engagement

- Synthetic biologists
- Ecologists
- Environmentalists



- Suppliers of waste PET and PU
- Plastic recycling industry
- Industry representatives
- Waste management services

PU-recyclers

Government
Dept/Agency

- Charities / think tanks
- NGOs

Suppliers and end-users of PU

- PU manufacturers
- Suppliers of any additional materials for the Bio-PU manufacturing process

1. Stakeholder engagement: semi-structured interviews

- Resemble a flowing conversation
- Interview should be guided but allow for other relevant themes to develop
- To include a series of open-ended questions
- Questions can be adapted depending on the stakeholder
- Interview until themes become repetitive

Source: Kvale, S. (2008); Evans, C. (2017)

2. Stakeholder engagement: developing a storyboard

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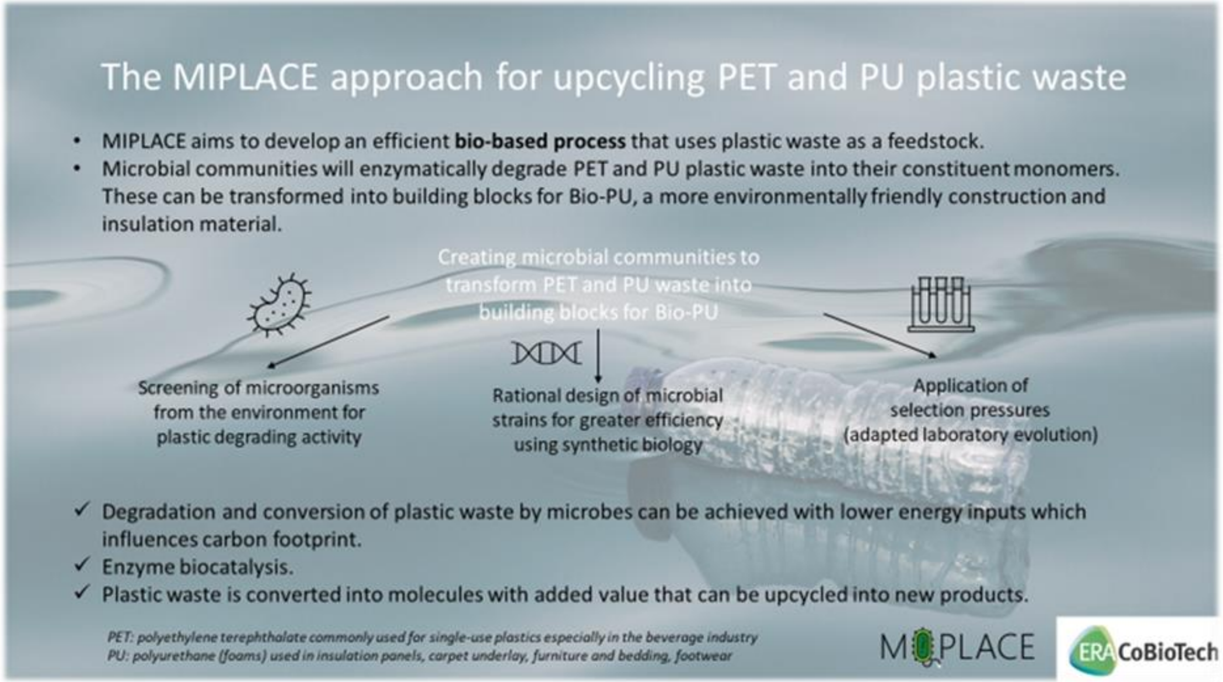
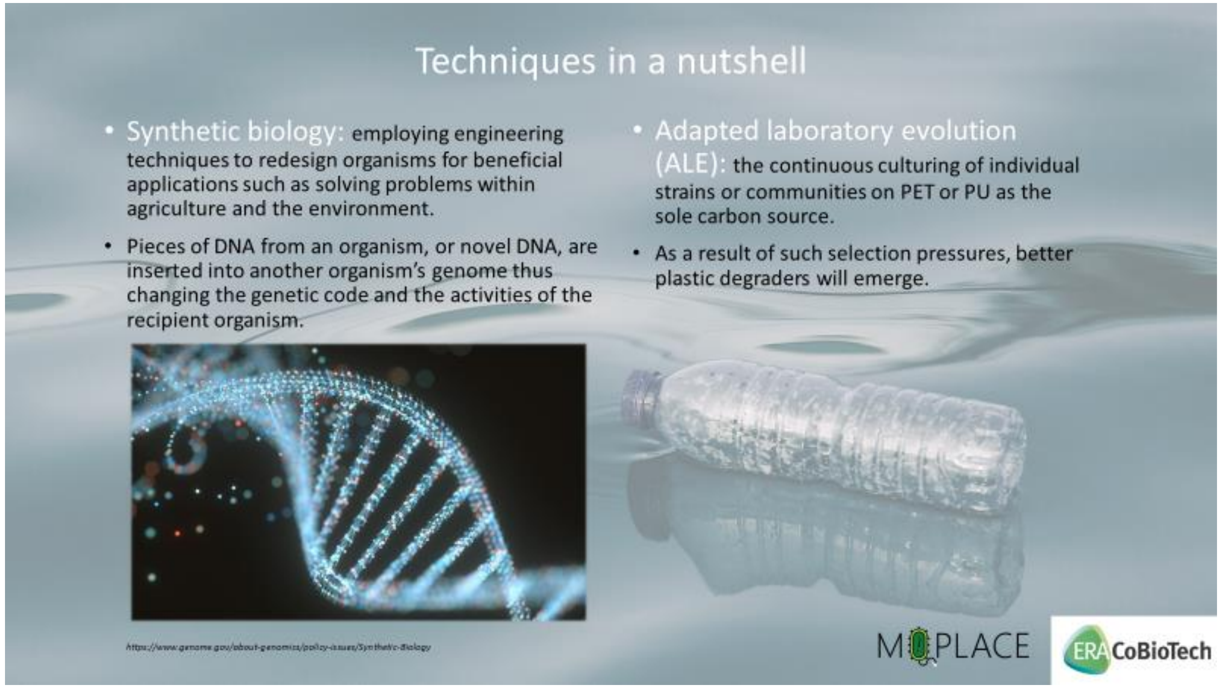
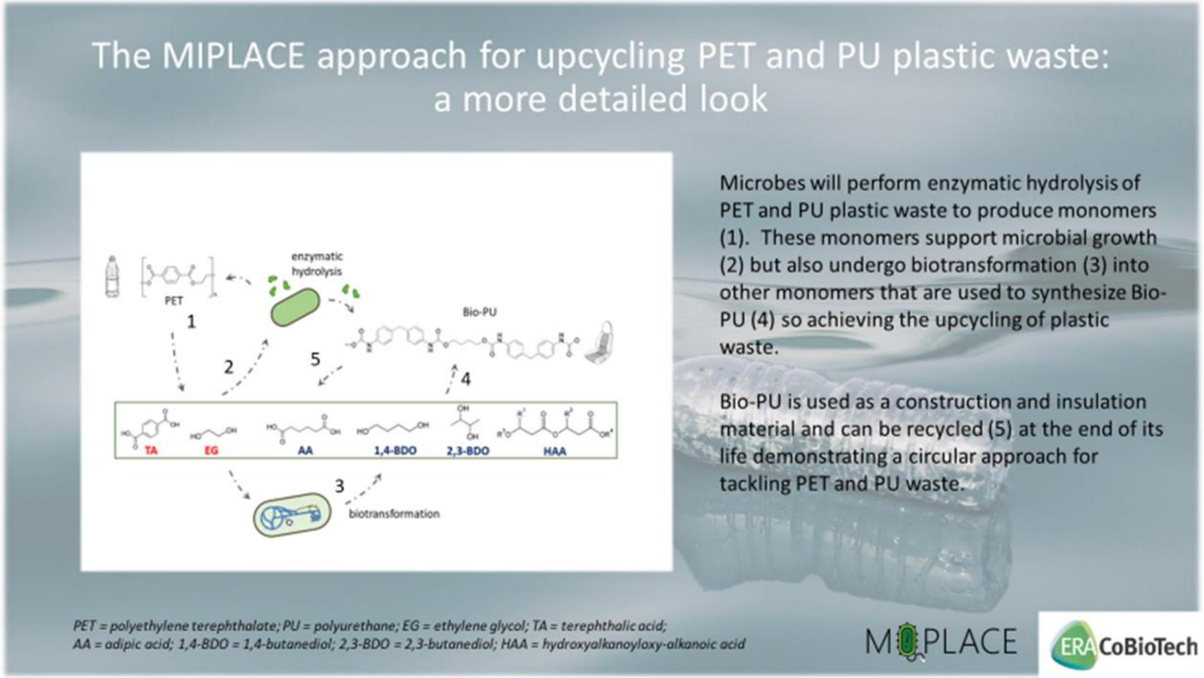


2. Stakeholder engagement: developing a storyboard





3. Stakeholder engagement: example interview questions

- What are your overall thoughts on the MIPLACE approach for tackling plastic waste?
- Are there any aspects of this research that you would like to know more about?
- Should the technology do anything else?
- Is the technology socially desirable and in the public interest?
- What do you consider the best platform for providing access to scientific information?
- Does terminology influence how you think about the research? ('GMO' vs 'engineered organisms')

- *We welcome your feedback on our approach to stakeholder engagement – what else could we do?*
- *We invite you to comment on the above questions!*

4. Stakeholder engagement: what next?

- Have identified different stakeholder groups but need to identify potential interviewees
- To look for emerging themes in stakeholder feedback following interviews
- To report feedback to project partners
- To use stakeholder feedback to inform the design of the LCA
- How to engage with the general public?

Acknowledgements

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Thank you for listening!

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