



From Plastic waste to Plastic value using
P*seudomonas* p*utida* Synthetic Biology

P4SB project overview

EC-Workshop on maximising the impact of KET
Biotechnology

Nick Wierckx

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This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement no. 633962.

The P4SB coordinators



Lars Blank – RWTH | iAMB

- 🔬 Coordinator
- 🔬 Official, scientific



Nick Wierckx – RWTH | iAMB























- 🔬 Co-coordinator
- 🔬 Scientific, practical



Christine Kempchen – RWTH | Div. 4.2

- 🔬 Project manager
- 🔬 Administration, organization, finance

The Consortium

	Participant	Principal investigators	Country	Expertise
	RWTH Aachen (coordinator)	Lars Blank, Nick Wierckx		Metabolic engineering
	University Leipzig	Wolfgang Zimmermann		PET-hydrolysis
	CSIC – National Centre for Biotechnology	Auxi Prieto, Juan Nogales		PHA-biotechnology; Model-based design
	University College Dublin	Kevin O'Connor		PET-biotechnology
	Bioplastech	Shane Kenny		PHA-production
	Bacmine	Pablo Pomposiello		Synthetic Biology
	Helmholtz Centre for Environmental Research	Hermann Heipieper		Bacterial stress response
	University of Surrey	José Jiminez		Synthetic Biology
	CNRS – University of Strasbourg	Luc Averous, Eric Pollet		PU-hydrolysis
	Soprema	Rémi Perrin		Plastic manufacturer
	Protéus	Cécile Persillon		Enzyme technology

The problem

Plastic waste!

🦠 Best case:



🦠 Worst case:



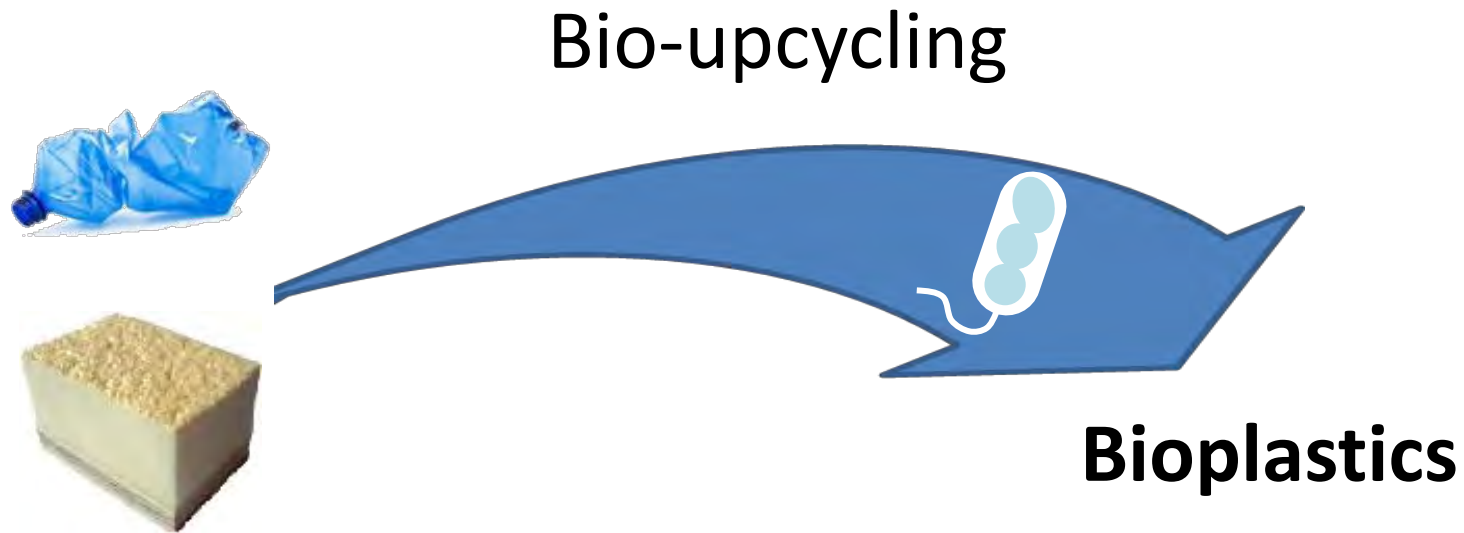
Plastic waste

8 million tons per year into the oceans!

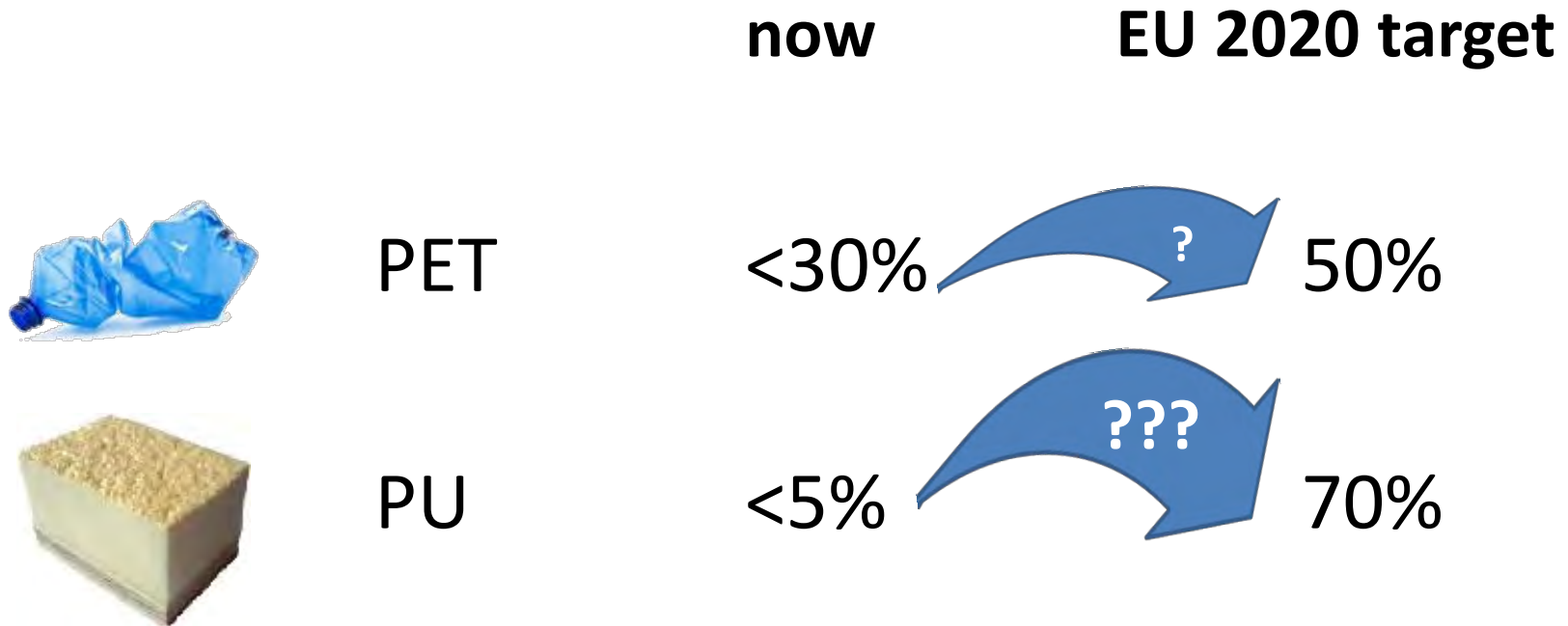


The P4SB objective

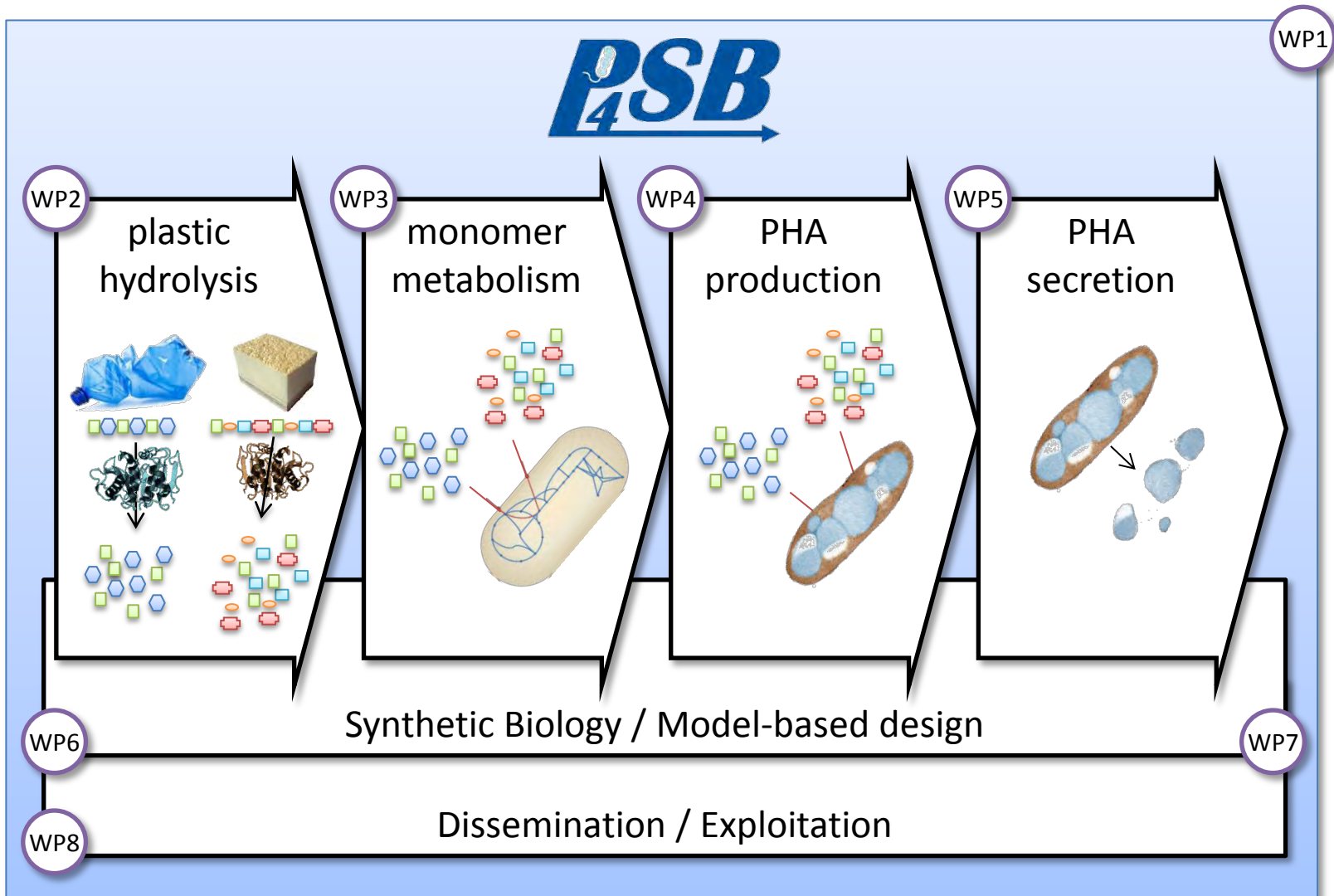
the biotransformation of non-sustainable plastic waste into sustainable value-added alternative materials



EU recycling targets



The P4SB approach



Maximizing impact

- Have a good business case
 - e.g. PU waste valorization
- Different, compatible commercial partners
 - Along the value chain



PU production
new products
new applications
increase efficiency

Enzyme engineering
patent licencing
technology
development

Synthetic biology
patent licencing
new technologies
partnerships

PHA production
new substrates
new products
Increase efficiency

Thank you

Thank you for your attention

Nick Wierckx

Co-coordinator P4SB

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www.P4SB.eu (coming soon)

Check out our new opinion paper:

Plastic waste as a novel substrate for Industrial Biotechnology.

Wierckx, N., M.A. Prieto, P. Pomposiello, V. de Lorenzo, K. O'Connor, and L.M. Blank
Microbial Biotechnology (2015) DOI: 10.1111/1751-7915.12312