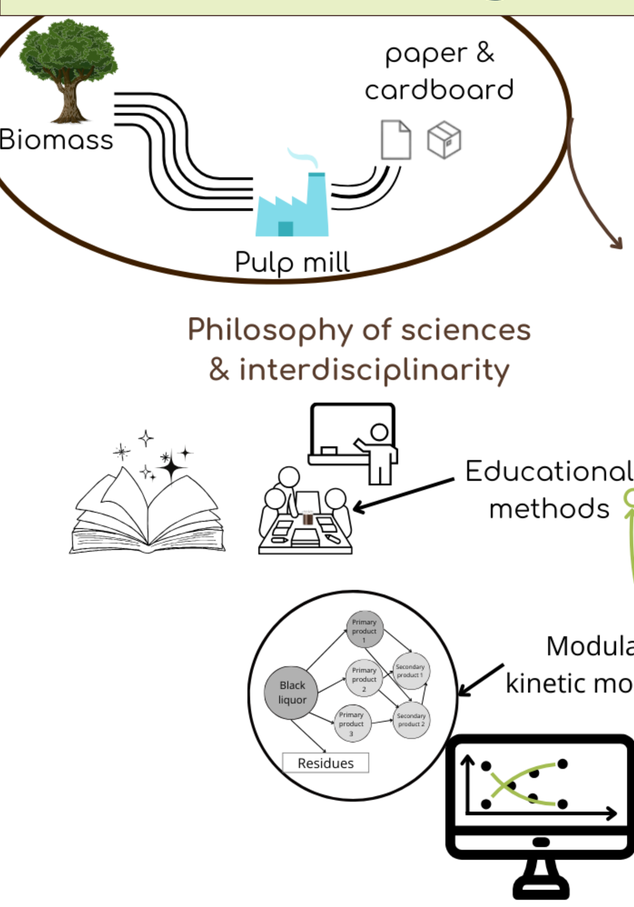
DREAM

Processing Complex Matrices: Description, Reaction-Separation, Modelling



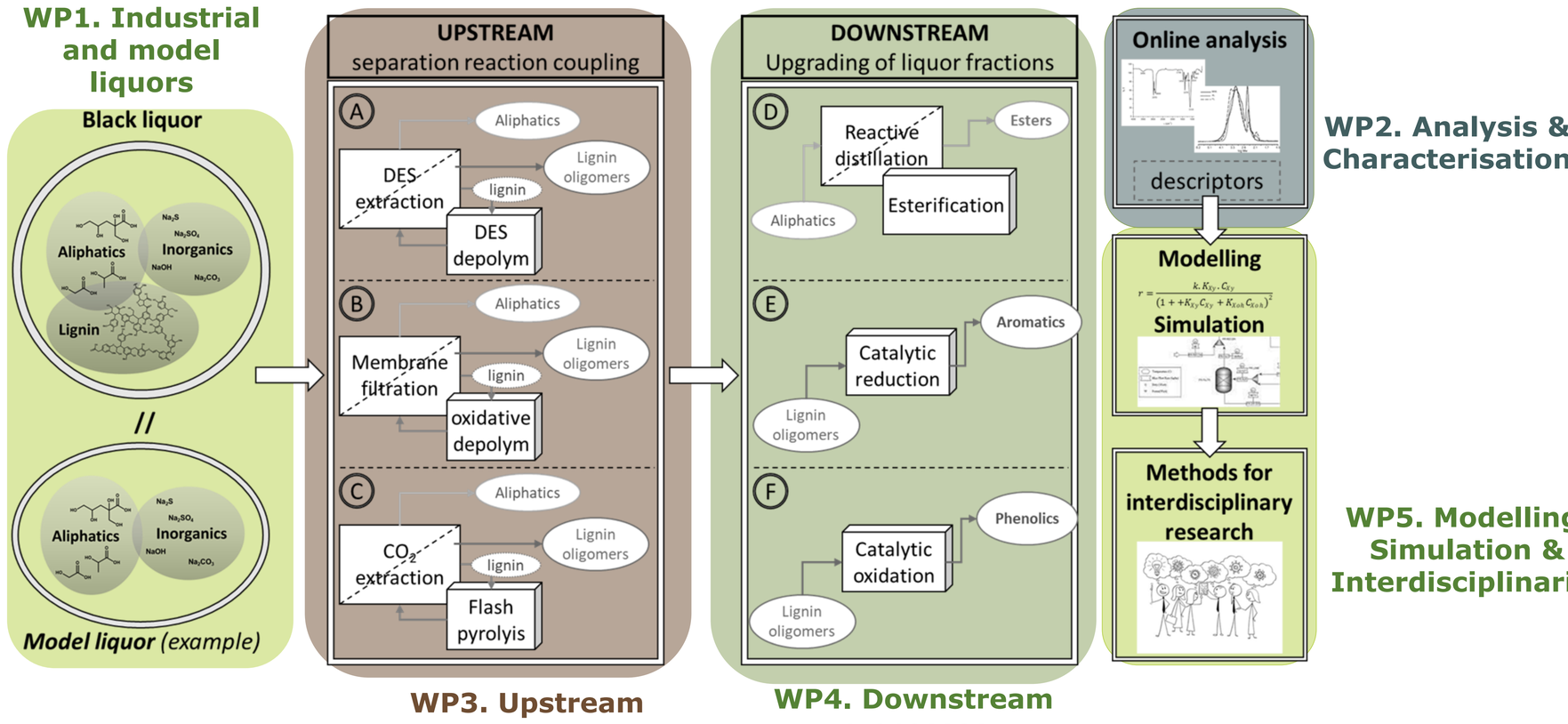
Transforming complex matrices for the future chemical industry:

The DREAM project aims to address the transformation of complex matrices, like those derived from renewable or waste resources, in the chemical industry. There is a need for a better understanding of these materials and their transformation from a chemistry and chemical engineering point of view.

It will use **Kraft black liquor** as a case study to develop new processes that combine reaction and separation in parallel and sequential mode to produce valuable products. Online monitoring coupled with the design of original modelling and simulations will be elaborated. **Interdisciplinarity methodology**, as the core of the project, will be explored with approaches from the **philosophy of science**.

Project objectives:

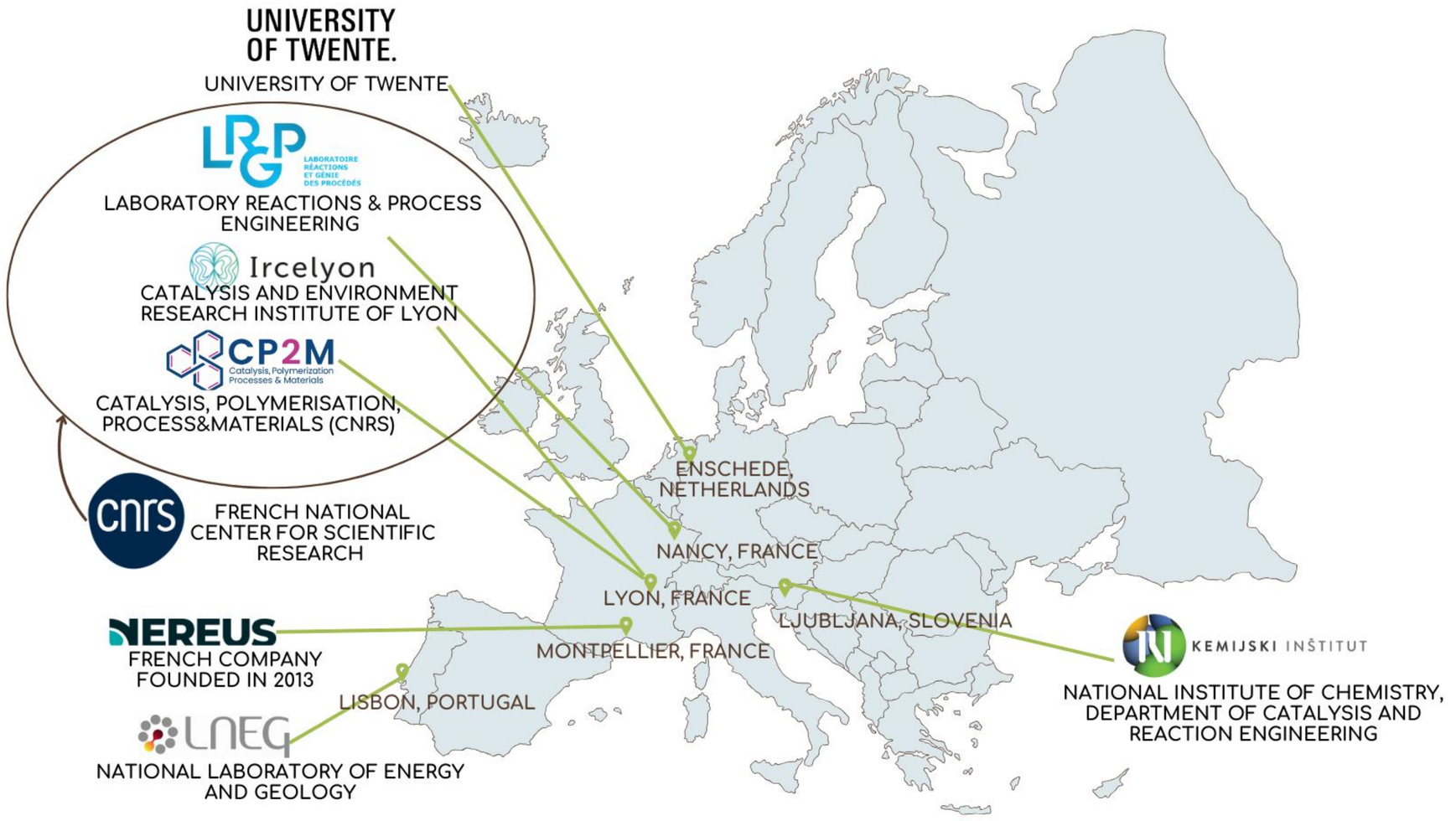
- Design new methodologies to **execute**, **monitor** and **model** the transformation of Kraft black liquor
- Synthesize and compare **model liquors** and **industrial KBL**
- **Build descriptors** from high quality data to have a more comprehensive understanding of the complex chemical transformations
- Investigate the conversion of KBL using **coupled reaction/ separation processes**, to identify and optimize the most efficient conversion pathways
- **Develop mathematical models** for each reaction and separation step and **simulate the entire process**
- **Understand and develop methodology** that integrates the scientific domains to achieve overarching goals



Interdisciplinarity in the DREAM project:

- Biomass chemistry
- Catalysis and analytical chemistry and signal treatment
- Chemical engineering
- Mathematical Modelling
- Sociology
- Philosophy of science

The consortium:



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