



# Setting Objectives to Commercialise an Innovation Project

## Challenge

During the early stages of development of a product or process, there is usually limited data available. Project teams and businesses nevertheless need to consider whether to commit resources to continue the development and set development objectives that will move the project towards commercial viability. The Lewwave project partners, funded through the Industrial Strategy Challenge Fund (ISCF), found themselves facing this challenge as they sought to develop a novel process using solid-state catalysis and microwave heating for the manufacture of levulinic acid from a by-product of the paper industry.

## Approach

Britest developed an understanding-based methodology for setting commercialisation objectives for an innovation project and road-tested it on the Lewwave technology.

Selected Britest tools were used in a facilitated process to capture *Process Understanding* of the key chemical and physical transformations, and critical equipment characteristics.

An *Initial Process Definition* (quantities, inputs, outputs, tasks and times) was captured and documented using visual mapping and semi-quantitative information. This was used as the starting point for *Preliminary Techno-Economic Analysis* on the base case process. The effects of potential process improvements were then modelled, and the results used to generate development targets for the project.

A *Sustainability Assessment* was carried out, mapping impacts to assess the process both before and after the proposed process improvements. Finally a *Scale-Up Risk Assessment* was conducted, to assess scale-up issues and gaps in knowledge, and the likely effects on both product and process.

## Benefits

- Techno-economic and sustainability assessments can successfully be carried out even on an early-stage laboratory process
- Potential process improvements can then be modelled and the economic and sustainability effects determined. This analysis gives rise to development targets for the project.
- A scale-up risk assessment highlights important tasks and gaps in knowledge.

**“ Techno-economic and sustainability assessments successfully carried out on an early-stage laboratory process. ”**

*Supporting organisations in gaining value from process understanding*

## Key Features:

**Partners** - Drochaid Research Services, Manchester Metropolitan University, Croda Europe Ltd, Saica Paper UK Ltd and Britest Ltd.

### Project - Application Area

Production of a platform chemical (levulinic acid) from a paper manufacturing waste stream

### Challenge

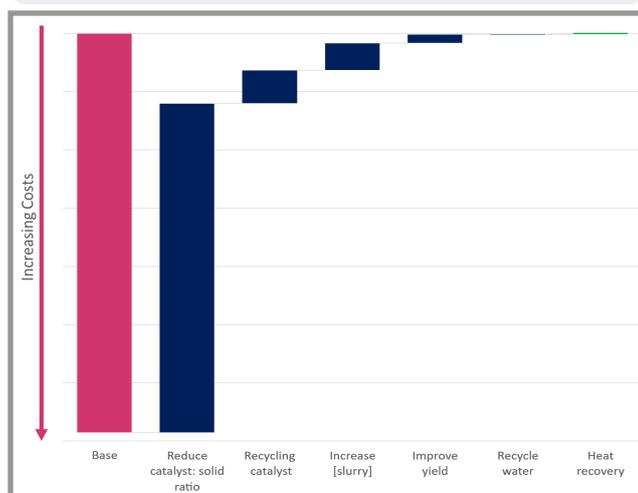
Making go/no go decisions and setting development objectives for early stage projects

### Solution

Development and validation of an understanding-based methodology enabling initial techno-economic and sustainability assessments, and generation of a commercialisation roadmap

### Outcomes:

- Britest tools used to establish process understanding
- Techno-economic and sustainability assessments conducted on early-stage laboratory process
- Potential process improvements identified and their effects on economic and sustainability performance established
- Scale-up risk assessment identified key risks and knowledge gaps



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