



bionet
ENGINEERING

Advanced engineering services for the scale-up and engineering of bio-based industries

Process
Development



Process
Engineering





The rise of bio-based processes, products and new value chains is a general trend in many industries (chemicals, energy, food, pharmaceutical,..). These bio-products, as real substitutes for chemicals, are still at an initial stage. It takes many years, and a big financial effort, to create bio-substitutes that can compete with existing petrol based products.

BIONET, with the LAB TO MARKET ENGINEERING service concept, is your technology partner for a rapid and successful industrialization of your bio-processes and R&D, reducing risks and time to market.



BIONET provides process development and scale-up engineering services. We have a practical approach, a long and intense experience and the flexibility to adapt our services to the specific needs of your project or company.



L2ME Process development

The objective of BIONET s process development services is:

- Reduce "time-to-market"
- Ensure/asses the viability of new developments.

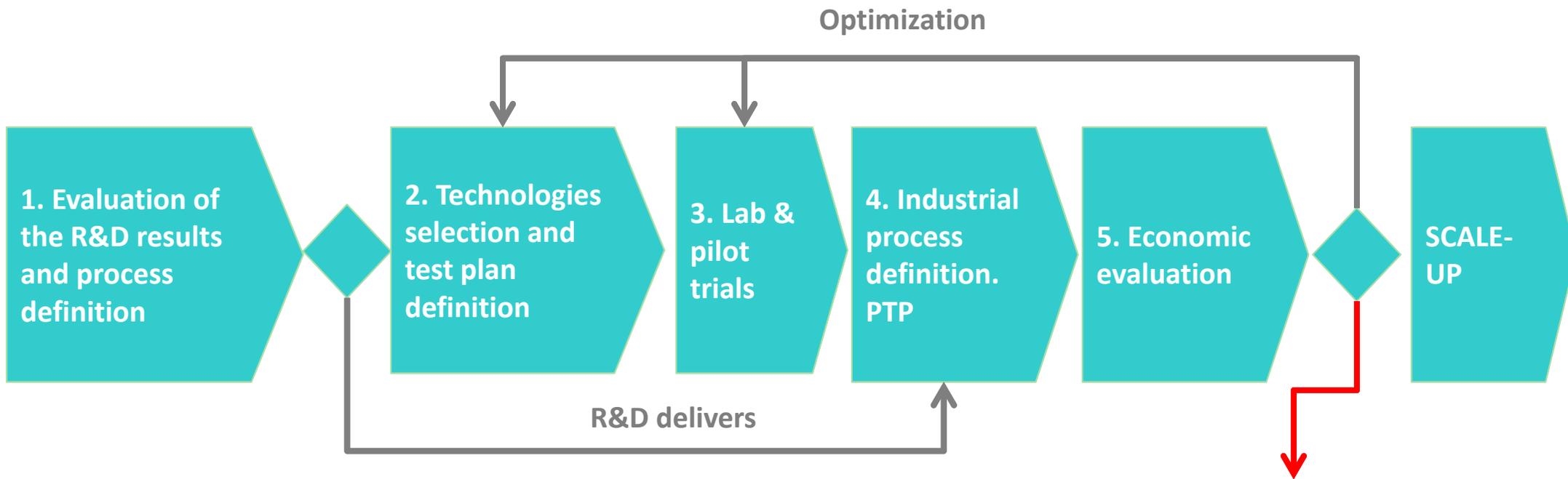
Very often the R&D, in which companies have to based their new developments, is incomplete, or too science driven. It has significant gaps of knowledge needed to asses the industrial viability, or scale-up the results.

What BIONET s does is to complete this job (when needed) and generate a Process Technology Package (PTP). The PTP translates R&D to industrial language. reducing uncertainty and allowing our clients to make decisions. Its content provides the process data needed for feasibility studies, business plans and scale-up process engineering.



L2ME Process development

We develop processes for its industrialization through a successfully proven methodology



We have applied, with success, this methodology in APIs, biomaterials, biofuels, biocides, food additives-ingredients and other biochemicals, creating feasible biobased processes

Low business value
High technical risk or
technically not feasible



L2ME Process development

IN BIONET we have over 12 years experience in bioprocess development, having worked in a complete range of process development services.

Fermentation & biomass growth

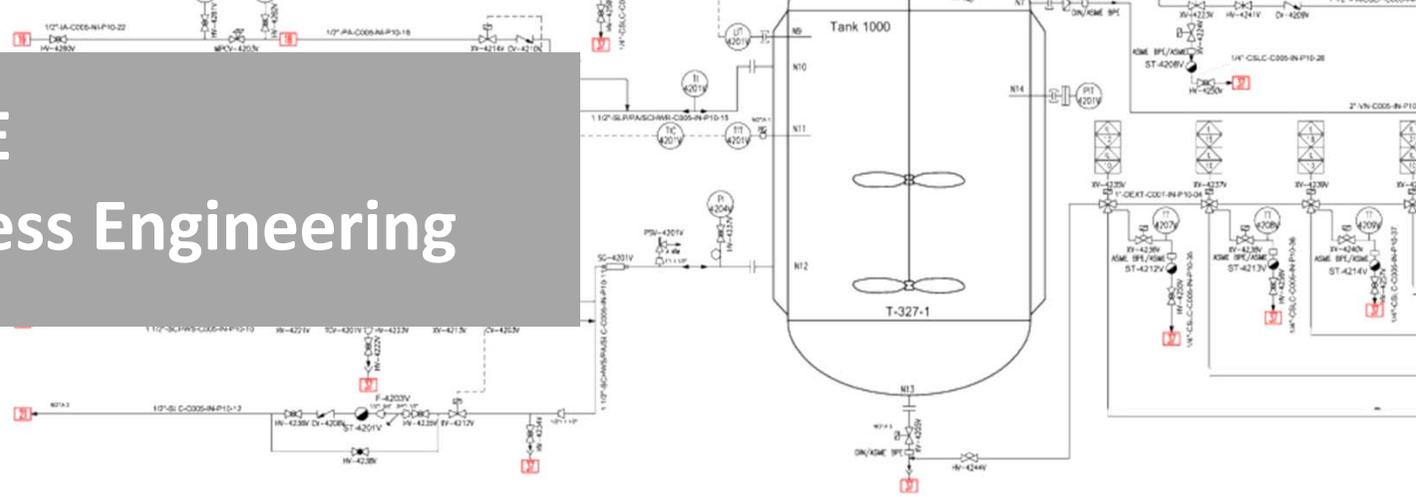
- Culture medium improvement and optimization
- Up-scale from flask to stirred reactor
- Batch and feed-batch process improvement
- Scale-up trials

Downstream

- Pre-or post-harvest treatment (conditioning)
- Clarification / concentration of broth
- Isolation and Purification

Though we have our own process development capabilities, many of these services are carried out in collaboration with technology centers, universities and technology providers, depending on the needs of each project. That is to say we are very open to incorporate and search for new technologies and solutions to solve your specific requirements.

L2ME Process Engineering



Once process are defined, an industrial plant design is needed to assess feasibility, raise capital and build new processes and facilities.

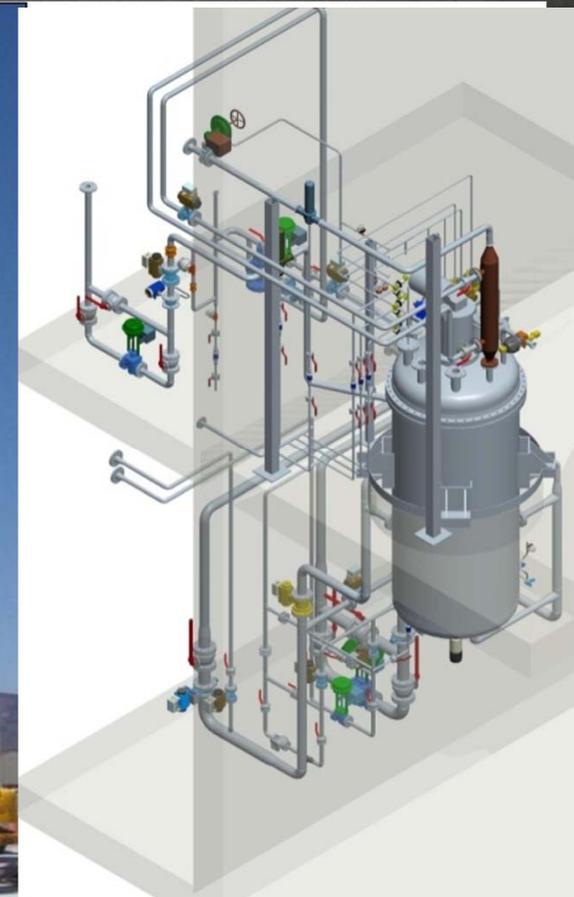
BIONET engineering team provides process engineering services throughout all the project cycle. From the post-R&D stage to start-up of industrial facility.

- Definition and selection of industrial processes
- Conceptual and basic engineering
- Fermentors/bioreactors design and construction
- Cost modelization (CAPEX and OPEX)
- Process engineering for construction
- EPC of pilot-demonstration units
- Process start-up support
- “Turn-key” projects

L2ME Process Engineering

At BIONET we have accumulated real experience in process engineering for very diverse products and industries.

- Algae biomass (microalgae)
- Aminoacids (enzimatic hydrolysis)
- Antibiotics (fungi)
- Biogas (digestion)
- Biopolymers (bacteria)
- Biocides for food conservation (bacteria)
- Enzymes (bacteria)
- Ethanol (yeast)
- Oils (yeast)
- Steroides (bacteria)



Why BIONET?



Professionalism and experience: Our team has over 15 years of industry experience, developing, engineering and running industrial bioprocesses. We are specialist in the industry and in the specific technologies applied in bioprocesses.

Method and practicality: We apply a proven method combined with our practical experience. At BIONET we have a clear idea of what is key to have a successful scale-up, and we focus on that.

Success Commitment: BIONET is going to be with you throughout the whole project cycle. From the first visit to your R&D lab, where the scientists explain their work and vision, to the commissioning and start up of the new process and equipment at the industrial plant.

BIONET is an independent SME founded in 1999. We are placed in Southeast Spain, at Fuente Alamo Technology Park (Murcia). We own a 2500 m² facility, with our engineering team, workshop, FAT area and process development center.



Bionet Engineering

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