

# What do energy and health have in common?



**Institution:** MICRO ELECTROCHEMICAL TECHNOLOGIES SL  
**Country:** Spain  
**Type of partnership:** RC & HEI-SME  
**Website:** [b5tec.com](http://b5tec.com)

## Background

B5Tec is a company for the design, development and manufacture of batteries and electric accumulators, power electronics systems and all the hardware and software for these systems, oriented to medical applications, mobility, electronics and robotics.

B5Tec has been recognized and labelled by the Ministry of Science, Innovation and Universities as "Innovative SME".

B5Tec gathers alliances with different HEIs and research centres, both at national and international level, its core is microfluidics and organic chemistry.

Since its foundation, B5tec has been focused on developing organic active species that can replace metals in batteries performance. Lithium, cobalt, zinc, cadmium or nickel are widely used for the development of batteries and cells. Not only because these are limited resources, but also because of their great environmental impact in the countries, from the beginning, at the moment they are extracted, until the the batteries end of use when they are discarded.

## Story

The background of the promoters of the company balances different and complementary profiles: researchers, investors and Enrique Serrano, CEO, who gathers former experience in the private energy sector as Managing Director and failed entrepreneurial initiatives

## Stakeholders

Currently, in coherence with the consolidation phase of the company, there are different layers stakeholders that can be gathered under several groups: institutional, knowledge generators, funding, network. The following list most relevant in each group:

- Ministry of Science, Community of Madrid. Institute of Materials Science of Madrid (ICMM by its acronym in Spanish)
- Imdea Energy, Universidad Carlos III de Madrid, INTA (National Institute of Aeronautics Technics)
- Center for Industrial Technological Development (CDTI by its acronym in Spanish), ESA-BIC, European Commission

*"More than great barriers for university-company collaboration in European projects, there are certain solvable nuances"*

## Resource needs

Resources are always limited, however, not only resources are important but also, policies and framework:

- Incentive strategies at the university side promote the university-business relationship.
- Common alignment of the company and the university for the marketing of the knowledge generated in both institutions and obtain feedback from it to formalize future relationships.
- At research centre or HEI level, ordinary, following up and preparation work before the funding lines for your research line are published for a more efficient and better organization of the UBC.
- The knowledge generated by the university aligned with the R&D of the company to implement new lines aligned with the company.
- Industrial capability at regional and national level to fabric the output. It is the next step of the goal of the relation.
- The need for human resources trained in Knowledge collaboration also aligned with the company's R&D field helping to identify opportunities.
- Economic resources to carry out projects. Sometimes, public funding calls are less interesting than certain loans from bank; but the company spends a lot of time search for this financial alternatives.
- Regardless that this has not been so much a case of obtaining and taking advantage of these support mechanisms, stronger support mechanism will be very useful, appreciate it and will save a lot of time and effort.

## Outputs

The results obtained by the company were the development of disruptive products related to energy storage.

- Disruptive approach: Lab – on – a – chip technology and organic chemistries (metal free)
- Pioneers through microfluidics & MEMS for fuel cells and batteries
- International footprint and first-class network of partners
- Impact in society through the direct contribution to the SDGs 7, 8 and 9: (affordable and clean energy), 8 (decent work and economic growth), and 9 (industry, innovation and infrastructure).

*"B5tec is accredited with the Seal of Excellence of the European Commission. B5Tec is recognized by its achievements and impact"*



B5tec in AIS 2021 (credit: B5TEC)

## Motivations

The main motivation to formalize and generate this type of relationship was due to:

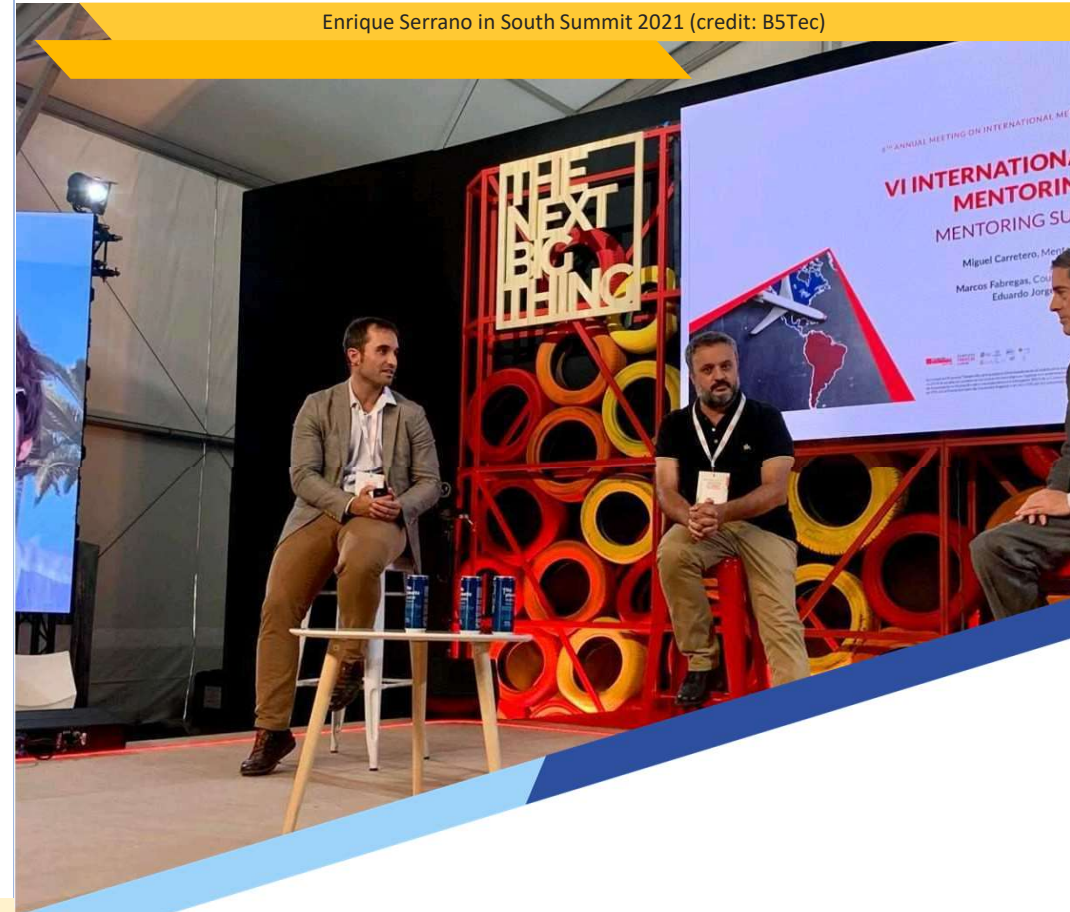
- The entrepreneurial mindset of the interviewee, Enrique Serrano, whom intellectual interest surpasses the state of the art focused on the industry
- As a driver of open-innovation, talent and an open business culture that search novelty and allows risk taking.
- *bringing together technology in the sectors of Lab-on-a-chip, micro/ nano fabrication, pharma industry and microelectronics requires, for a high tech SME strong alliances with knowledge generators.*



B5tec in the final phase of Bloomberg BNEF PIONEERS 2022. (Credit: B5Tec)

## Barriers

- It is difficult for SMEs to access knowledge or what is being done within the university, undermining potential collaboration potential.
- There is a lack of incentives towards the collaboration of researchers with companies:
  - As it weighs very little or nothing in their career. University staff, which is focused on the research / academic career in which publications on transfer are awarded.
  - There are many administrative protocols and bureaucracy for both parties. The researcher feels overflowed by it, and, the company perceives the requirement of unnecessary time and resources
  - Often, in these consortia, they appears certain problems related to intellectual property and the task scheme
- There is no industrial fabric to become really productive and competitive and, therefore, it is difficult to face an industrial production phase.
  - As a result, there is a low (but enough and necessary) internal demand to launch the company. Then, those that survive many not have the capacity to collaborate with the university on regular basis.



Enrique Serrano in South Summit 2021 (credit: B5Tec)

## Key success factors

1

### Corporate culture

The ability to incorporate this type of relationships and projects into the structure of the company.

2

### Contact network

Access to the talent, researchers, platforms and customers. Building upon high quality relational capital.

3

### Experience in the field

Knowledge of the calls in which they participate, either from experience or through a partner or even contracting a consulting firm.

*“New Challenges require new approaches: bringing together already existent technology in the sectors of Lab-on-a-chip, micro/ nano fabrication, pharma industry, and microelectronics. The world of tomorrow is an exciting adventure”*

**Author:** María José Herrero-Villa; Ester Martínez-Ros; Jose Luis G. Sacristán. (Uc3m team project)

**Interviewee:** Enrique Serrano. CEO