Blue Synergy SL

We deliver sustainable profitability through efficient innovation.

Company presentation - 2025

www.bluesynergy.eu

WELCOME TO BLUE SYNERGY

Nowadays, it is inconceivable not to take sustainability into account in any project or enterprise, public or private. At Blue Synergy, we empower innovation through sustainability. By delivering expert environmental, economic and social assessments, as well as supporting innovation management, we help our clients, partners and research projects drive real impact for Europe. Our mission is to guide transformative ideas toward a greener, fairer future—where scientific excellence, innovation, and sustainability shape a better tomorrow.

Germán Cavero López
General & Operations Manager

ABOUT BLUE SYNERGY

Blue Synergy is an engineering & consultancy company based in Madrid, Spain. Our company offers services that allow our clients to meet their sustainability goals. We will guide your organization through the transition to sustainable business models following these three pillars:

Environmental Sustainability

Social Innovation

Economic profitability

BLUE SYNERGY'S EXPERTISE AND EXPERIENCE

AREAS OF EXPERTISE

- Circular economy
- Nanotech
- Industry 4.0
- Biobased economy
- Fishery & Sea Biomass
- Smart devices
- Smart cities
- Water waste
- Social Responsibility
- Forestry & Construction
- Electronics & Nanoelectronics
- Clean energy
- Biorefinery
- Food industry
- Bioremediation

OUR EXPERIENCE

The Blue Synergy SL team has vast experience supporting organisations in the development and implementation of the best strategies to transition towards sustainable operations.

Our talented group of scientist and experts have contributed to address the sustainability & circularity in the following fields:

- Valorization of by-products/residues and implementation of circular economy strategies in the biorefining, agricultural, marine, aquaculture, food, feed, urban, cosmetics, electric and electronic equipment, wood and building sectors.
- Development of High-performance materials & nanomaterials for the construction, machine and equipment, optics, electronics, cosmetics, personal care, food, and chemical sectors.
- Efficient use of renewable energy sources for Industrial Processes and provision of energy management services to SMEs

OUR EXPERIENCE

The Blue Synergy SL team has vast experience supporting organisations in the development and implementation of the best strategies to transition towards sustainable operations.

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- Development of green electronics and electric insulation components
- Implementation of sustainable pretreatment processes for heterogeneous bio-waste.
- Development of advanced solutions for termochemical energy storage.
- Development of environmental bioremediation technologies.
- Recovery of critical raw materials from primary and secondary sources.
- Recycling of polymer materials

BLUE SYNERGY'S SERVICES

OUR SERVICES

Sustainability & Climate Change

ENVIRONMENTAL IMPACT ASSESSMENTS

Aimed at identifying and understanding the environmental impacts of innovation, to implement strategies that mitigate the negative impacts and maximize the positive ones, and to evaluate the results of this implementation.

ENVIRONMENTAL RISK ASSESSMENT

Design and implementation of environmental and human risk assessment, based on the outcomes from environmental fate processes modeling (including chemicals persistence in air, water and soil; reactivity and degradation; migration in groundwater; etc.)

INCREASE RESOURCE EFFICIENCY AND WASTE VALORISATION

Guide to increased resources efficiency, including raw materials, energy, water, trough the analysis of the value chain, detection of hot-spots where there is room for improvement and innovation, design of a Zero-Waste roadmap and full support during the implementation stage.

OUR SERVICES

Sustainability & Climate Change

ECO-DESIGN
Implementation of ecodesign principles through the analysis of the product value chain; identification of hotspots where improvement is possible from a sustainability perspective; design of the product to align it with the organizational objectives; and the efficient promotion of your green products.

CIRCULARITY ASSESSMENTS
Assess the circular performance of a production line through a methodology based on Material Circularity Indicators to measure the extent to which linear flow has been minimized, restorative flow maximized and how long and intensively it is used compared to a similar product.

CARBON AND WATER MANAGEMENT
Calculate the carbon and water footprint of your organization, define the emission and water consumption reduction objectives and implementation strategy to achieve them.

OUR SERVICES

Sustainability & Climate Change

PRODUCT LIFE CYCLE MANAGEMENT

A methodology that manages not only the product design, but also the materials and the quality while effectively collaborating with other stakeholders and ensuring that product plans remain confidential

TECHNO-ECONOMIC ASSESSMENTS

A techno-economic assessment (TEA) evaluates the technical performance and economic viability of a technology, combining engineering and economic analyses to inform cost-effective decision-making.

LIFE CYCLE COSTING AND PROFITABILITY ANALYSIS

Assessment the total costs and financial performance of a product over its entire lifecycle. LCC examines costs from production to disposal, while profitability analysis evaluates revenue, expenses, and profit margins to ensure long-term financial viability.

OUR SERVICES

Social Sciences & Communication

SOCIAL INNOVATION

We ensure the process of developing and deploying effective solutions to challenging and often systemic social and environmental issues in support of social progress.

SOCIAL ACCEPTANCE & PERCEPTION ANALYSIS

Assess whether or not a project enjoys the approval or support of its community and other applicable stakeholders, and to measure their perception on the matter.

STAKEHOLDER ENGAGEMENT

Our team support private and public organizations to design effective stakeholder engagement strategies. We are able to map stakeholders and issues to engage them, define engagement objectives and plans, monitor engagement activities, and integrate and evaluate results.

OUR SERVICES

Social Sciences & Communication

SOCIO-ECONOMIC IMPACT ANALYSIS

A systematic analysis used to identify and evaluate the potential socio-economic and cultural impacts of a proposed development on the lives and circumstances of people, specific groups of interest and their communities.

AWARENESS RAISING

A strategy aimed at audiences using a range of different techniques and approaches. It includes newsletters, social media and events, meetings with stakeholders and target groups to encourage a general awareness on the target topic.

SUSTAINABILITY COMMUNICATION

For companies that have integrated sustainability into their strategic plan, this tool helps your company to tailor a communication plan to announce your sustainable achievements to your clients. It helps companies and project build their reputation, create a competitive advantage, and engage stakeholders.

OUR SERVICES

Social Sciences & Communication

SOCIAL LIFE CYCLE & SOCIAL IMPACT ASSESSMENTS

S-LCA makes use of generic and site-specific data (quantitative, semi-quantitative or qualitative) to measure categories such as health and safety; jobs creation; working conditions; well-being; human rights; governance or socio-economic repercusion.

CAPACITY BUILDING & TRAINING

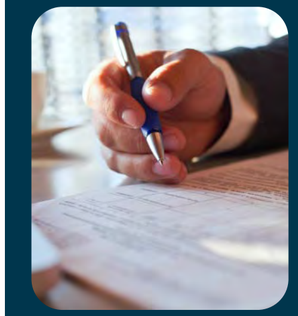
We can accelerate the process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations, projects and communities need to adapt and thrive in a fast-changing world where sustainability is key.

NETWORKING AND CLUSTERING

We plan and foster clustering and networking strategies with the objective of strengthening collaboration, promoting learning in innovation for all parties involved, and add value it delivers to its members.

OUR SERVICES

Innovation Management



CORPORATE & LEGAL COMPLIANCE

Comprises the design and implementation of environmental strategy, industrial sustainability, and environmental management systems throughout the process, including the ISO14001 certification and EPDs.

BUSINESS CASE DEVELOPMENT

Our team provides advice & support from the design of a sustainable business case and inputs provision, project advice through its whole life cycle, business case review, risks assessments of inaction on sustainability, technology transfer, funding and investment evaluation.

SUSTAINABLE SUPPLY CHAIN MANAGEMENT

We evaluate supply chains efficiency, identify hot spots, implement methodologies such as risks assessment and management of products' supply chain, best practices benchmarking and roadmap.

OUR SERVICES

Innovation Management

i+d+I PROJECTS FOR SUSTAINABLE DEVELOPMENT

This is how our team provides support for the proposal writing, submission and negotiation stages, and during the implementation of projects for sustainable development:

1

We **identify innovation opportunities** that best fit our clients' objectives and resources within the framework of the most important regional and European innovation programs (Horizon Europe Clusters, European Partnerships, Eureka, CBEJU, Pathfinder, etc.)

2

We **guide our clients from writing highly competitive proposals**, to structuring or forming consortia, to submitting the proposal in compliance with the funding agencies' requirements.

3

We **provide guidance for successfully completing the negotiation process** should the proposal be selected by the funding agencies. This helps ensure the project is successfully launched.

4

We **provide support for the coordination of European projects to meet all administrative, financial and technical requirements**, and to ensure the timely collection and submission of all pertaining documentation. We help our clients thoroughly monitor the overall progress of the projects.

BLUE SYNERGY'S PROJECTS

OUR PROJECTS

BIOSYSMO

BIOSYSMO is a 48-month action that develops a **computationally-assisted framework for designing and optimising synergistic biosystems combining the required pathways and traits to achieve the most efficient degradation and sequestration of pollutant mixtures**.

These biosystems comprise combinations of bacteria, fungi and plants containing the natural or engineered pathways required for pollutants degradation and identified based on a computationally-assisted analysis. **BIOSYSMO takes advantage of the high natural microbial diversity by screening samples from polluted sites and locations affected by diffuse pollution to identify natural microorganisms already present and able to metabolise the target pollutants**.

www.biosysmo.eu

valorish

VALORISH is a research project funded under the Horizon Europe framework aligned with HORIZON-CL6-2023-CIRCBIO-02. Its mission is to **develop and scale up a computationally assisted cascade valorisation approach for waste and by-products from the fishing industry, transforming these resources into high-value bioproducts targeting food applications**.

The project focuses on **creating more sustainable bio-based processes and products, aiming to reduce environmental impact and drive future advancements in marine biotechnology.** By minimising the reliance on low-value management routes like silage, compost, or biogas production, and avoiding direct disposal of fishing industry waste, VALORISH supports the Waste Framework Directive and the EU Bioeconomy Strategy, contributing to climate neutrality.

www.valorish.eu

OUR PROJECTS

The NANOMAT Project pioneers the emerging field of **“Flexible power RF nanoelectronics” to overcome current limitations in flexible electronics, which cannot meet the high-power demands of future applications like satellite IoT and avionic radar**. By developing a novel heterogeneous platform integrating carbon-based electronics, wide bandgap semiconductors, RF MEMS, and thermoelectrics, NANOMAT delivers flexible RF components and circuits. **Two prototypes—a flexible hybrid system for Ka-band satellite IoT and a monolithic RF transceiver for X-band avionic radar—will demonstrate its innovation**. With 12 partners from 9 countries, the project is industry-driven and highly interdisciplinary, advancing from TRL 3 to TRL 5.

www.nanomat-project.com

POWERSAT introduces the concept of combined solar and microwave energy harvesting in satellites. This harvested energy is employed to fuel the low-power embedded electronics within satellites, including components like low-noise amplifiers, various sensors, and oscillators. The specific goals of the project are to scavenge the unexploited solar spectrum by providing an original THz (10-400 THz ≈ 30 μm-750 nm) energy harvesting platform, thus complementing the function of photovoltaics (PV) cells; to harvest the microwave spillover losses from satellite’s antennas and transform them into a practical DC power supply; and to facilitate efficient and low-power inter-satellite links (ISLs). **Additionally, the work of POWERSAT allows the future partial replacement of the satellite’s solar cells, thus lowering their overall weight and, hence, the launch costs**.

OUR PROJECTS

EYES HEARTS HANDS

The Eyes Hearts Hands project addresses urban challenges in combating climate change by equipping cities with the skills and tools needed to implement effective energy and sustainability plans. Many city managers face difficulties in selecting appropriate technologies and managing large-scale renovations.

Rooted in the principles of the New European Bauhaus (NEB), t**he project introduces an innovative methodology that connects art, culture, and education with science and technology.** It also supports EU Missions aligned with NEB goals, promoting citizen engagement and leveraging research and innovation to tackle pressing issues in climate, health, and the environment.

www.eyesheartshands.eu

NewWave

NewWave is a Horizon Europe funded research project which contributes to building a circular economy by **introducing sustainable raw materials in 4 manufacturing lines, replacing toxic chemicals, and lowering the environmental footprint of the products**. The innovative approach of NewWave is to apply Thermo-Chemical Fractionation (TCF) to unlock and fractionate residual biomass. TCF combines fast pyrolysis of the biomass with subsequent liquid-liquid extraction of the obtained fast pyrolysis bio-oil (FPBO), keeping the key chemical functionalities in separate, depolymerized fractions. **New Wave's manufacturing lines fully exploit the unique chemical functionalities already present in the biomass feeds**. Moreover, the lines are interlinked, and output from one line will further improve the sustainability of the other.

www.newwave-horizon.eu

OUR PROJECTS

NANO-EH sought to create a multi-source energy harvester technological platform by translating forefront knowledge in novel smart nanomaterials and nanomaterial systems/structures into advanced engineering that enables efficient manufacturing processes.

NANO-EH opened the pathway towards large scale implementation of these battery-free technologies in a wide range of commercial IoTs and wireless network of sensors (WSNs) applications. In order to achieve its goal NANO-EH exploit four classes of smart nanomaterials that are lead- and rare earth-free materials and will demonstrate their recyclability potential at module level.

www.nano-eh.eu

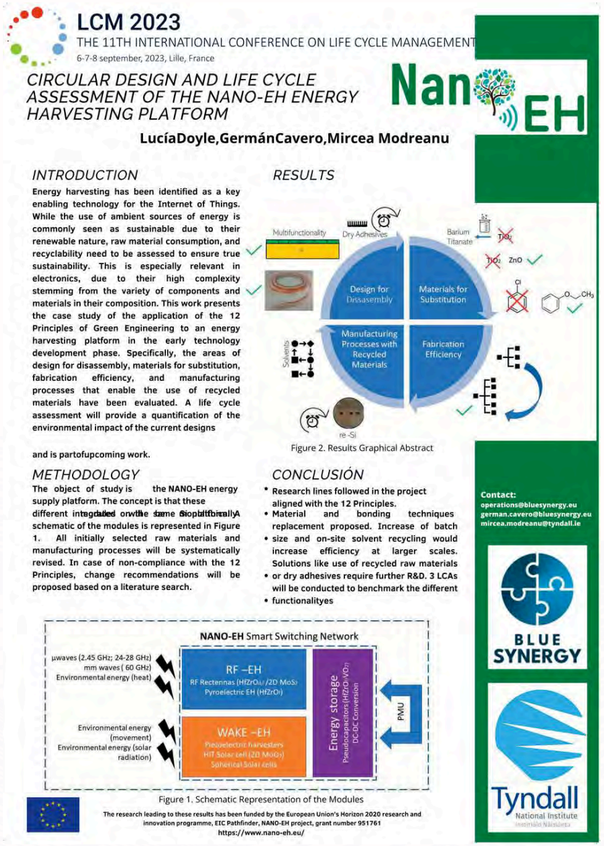
SECRETed exploits the application of potential of Systems and Synthetic Biology toolboxes on aquatic biotechnology to develop novel hybrid compounds for different industries. **Biosynthetic pathways of marine and extremophilic microorganisms are reverse engineered to infer the individual roles of their constituent genes, which are combined for the production of non-natural biosurfactants and siderophores with tailor-made properties**.

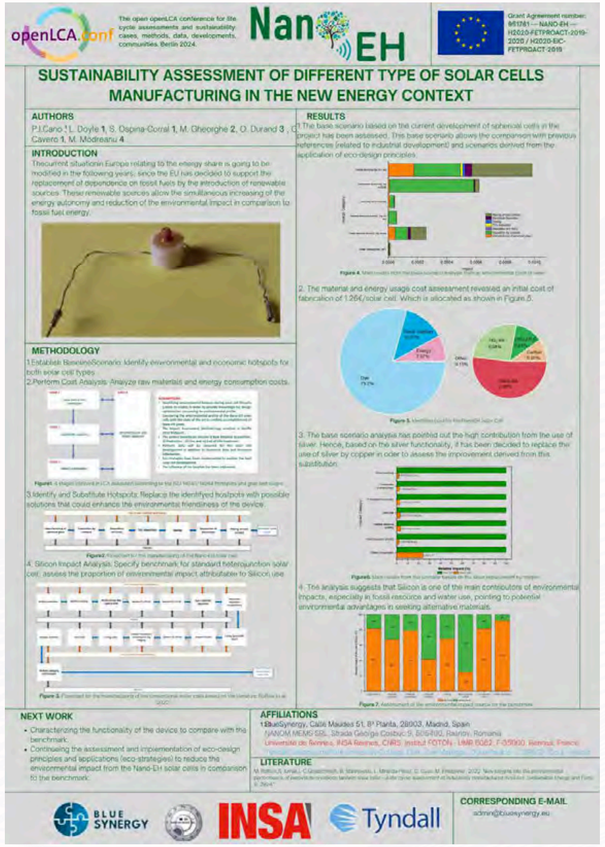
This results in the production of new microbial strains that support the selected genetic elements and satisfy sustainable industrial processing solutions for the production of biosurfactants and siderophores.

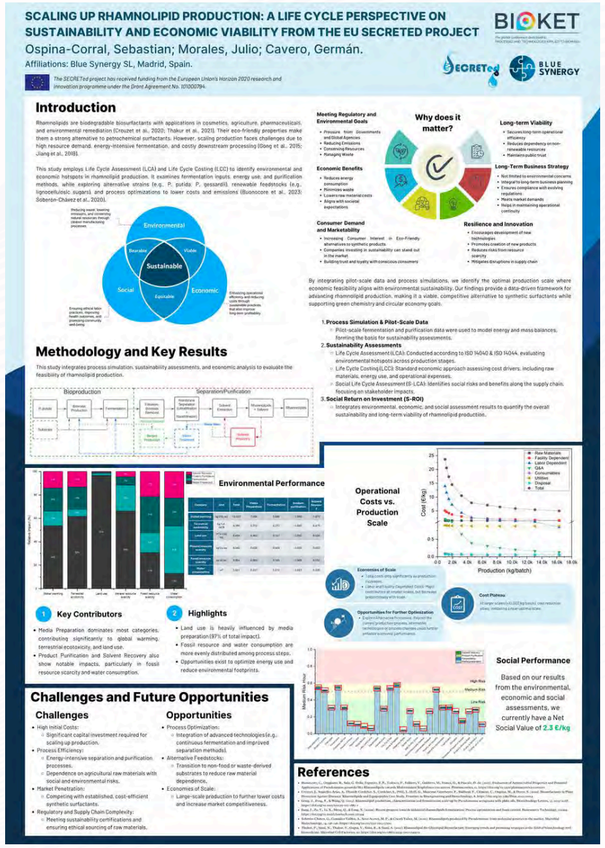
www..secreted.eu

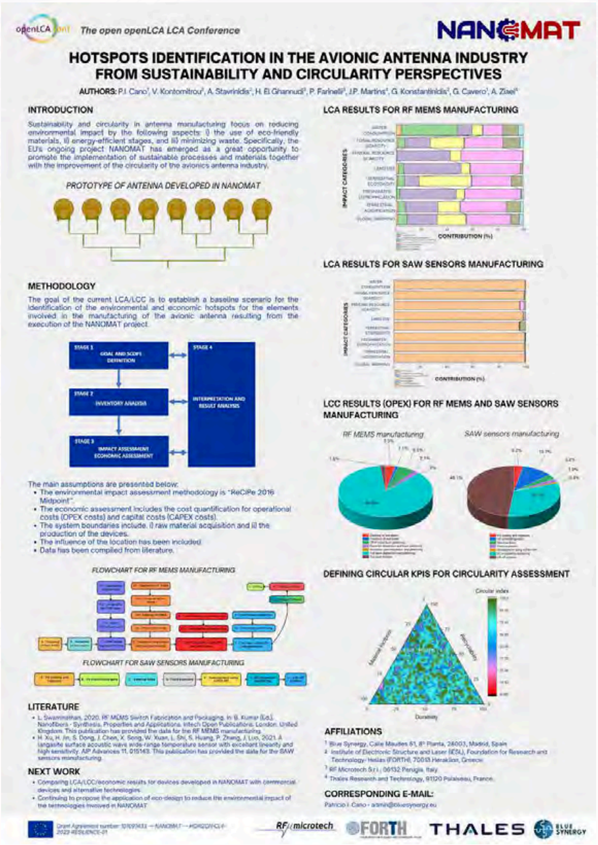
BLUE SYNERGY'S SCIENTIFIC AND TECHNICAL ACTIVITIES

OUR POSTERS









SECRETed, NANOMAT and NANO-EH posters presented at multiple sustainability conferences in Europe.

PARTICIPATION IN EVENTS AND PUBLICATIONS

Speeches at conferences

Assessing Sustainability and Market Viability of Thermochemical Biorefinery Products
Workshop: From Forest to Function: Thermochemical Pathways Driving Industrial Bioeconomy Innovation in the NewWave Project
EUBCE - Valencia, Spain. 2025.

Sustainable Nanoelectronics: The NanoEH Approach
Workshop: A new technological platform for hybrid integrate energy harvesting
IEEE - Gijón, Spain. 2024.

The Role of Stakeholders in Marine-Based Compound Production
SECRETed Social Awareness Workshop for Stakeholders
Verona, Italy. 2024.

Encapsulation Innovations: Sustainable Drug Delivery Systems for the Future
SECRETed Social Awareness Workshop for Pharma/Cosmetic Industry
Farmaforum - Madrid, Spain. 2024.

Case Study – Encapsulation of siRNA with Biosurfactants
SECRETed Social Awareness Workshop for University Students
Universidad de Sevilla - Seville, Spain. 2025.

Environmental assessment of groundwater remediation from a biodiversity approach.
1st International Life Cycle Assessment Symposium —Towards Circular Water and Nutrient Management for Food Production
Universitat Autònoma de Barcelona - Barcelona, Spain. 2025.

Environmental and Economic Evaluation of Low-TRL Technologies for Soil and Water Bioremediation.
LCM 2025 — 12th International Conference on INTERNATIONAL Life Cycle Management
LCM - Palermo, Italy. 2025.

Papers and other publications

Doyle, L.; Cavero, G.; Modreanu, M. **Applying the 12 Principles of Green Engineering in Low TRL Electronics: A Case Study of an Energy-Harvesting Platform**. Sustainability 2023, 15, 11227. https://doi.org/10.3390/su151411227

PICTURES FROM OUR ACTIVITY

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FOLLOW US

THANK YOU!

BLUE SYNERGY