eurecat

Green Cities & Industries

Innovation with impact

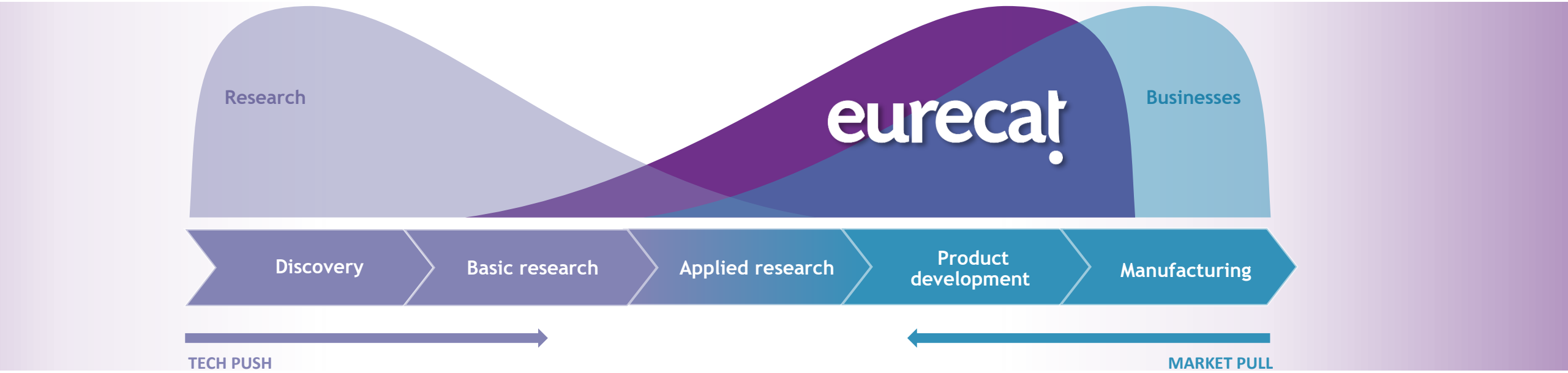
We promote business competitiveness and social welfare through applied research, technological development and innovation.

"innovating with businesses"

Applied Innovation

Applied research, technological development and innovation with market impact

Quite a challenge! …
which opens up great opportunities



Our Mission

To increase the **competitiveness** of companies and the welfare of society through **R&D&I**

Results-Oriented, Market-Oriented

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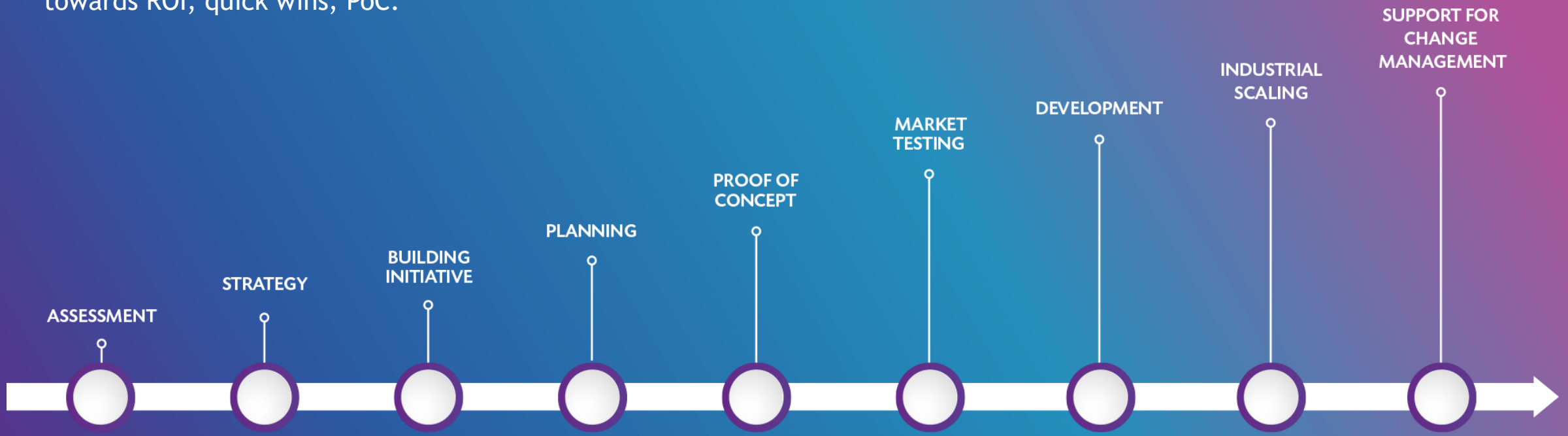
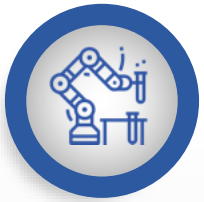
We mentor businesses from innovation design to pre-commercial scaling.

We use agile methodologies to monitor projects. Targeted towards ROI, quick wins, PoC.



Interdisciplinary integration



Industrial Area

1. Advanced materials and new manufacturing processes
2. Functional printing and embedded devices
3. Collaborative and cognitive robotics
4. Functional textiles
5. Chemicals
6. Modelling and multiphysics simulation
7. Product innovation

Digital Area

1. Sensor systems and IoT
2. Quantum computing
3. Data science and analytics
4. Artificial intelligence
5. Cybersecurity
6. Multimedia technologies
7. Digital Health

Biotechnology Area

1. Nutrition and health
2. Omic sciences
3. Biotechnology

Sustainability Area

1. Water
2. Soil
3. Air
4. Energy
5. Waste
6. Environmental impact
7. Batteries
8. Climate change

Innovation Consultancy

Eurecat Academy

Our standout value:

Our interdisciplinary capabilities enable us to address complex challenges.

Transversal services:

Consultancy & Training
Sustainability evaluation
Industrial automation & Robotization

Alliances and territorial presence

Proximity and trust

We promote alliances with universities and research centres to bring knowledge sources closer to companies. We are committed to **being close to our clients and their challenges.**

1
Eurecat Latam Foundation Office

Madrid
Barcelona
Malaga

11
Offices in Catalonia

eurecat labs

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More than **20 laboratories** at the service of companies to find technological solutions to complex industrial or innovation challenges.

labs.eurecat.org

Our laboratories:

Our laboratories have strategic equipment to carry out **tests, analysis and characterisation** services, proof of concept tests and complex projects.

We have a highly qualified team to solve complex scientific and technological challenges and a business development team with experience innovating with companies.

Innovation with impact

Eurecat, a trusted partner for companies

Eurecat works with more than 2,000 companies from different sectors with the aim of accelerating and promoting technological innovation in their processes, services and products.

EURECAT in figures & the team

71%
Of our activity is with
PYMES

70M€ Income in 2024

2.000 Client companies

200 Patents

We have a results-oriented team, committed to each of the projects to offer an excellent service to the company

334 in 2015

+900 As of today

57% men

43% women

25% doctors

GREEN CITIES & INDUSTRIES TEAM

Jesús Boschmonart

Resources		Merche Carod
Building Industry		José Sevillano
Energy		Joan Recasens
Smart City		Pedro Martínez

Eurecat's differential value according to our clients:

- ✓ Expertise
- ✓ Multidisciplinarity
- ✓ Quality
- ✓ Proximity
- ✓ Impact

Customer satisfaction index: 8,65 /10

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BUILDING, ENERGY AND RESOURCES IN THE SMART CITY

"innovating with businesses"

Target Markets

Key sectors for the transition towards sustainable development in Green & Smart Cities.

BUILDING INDUSTRY

- MATERIALS
- SUSTAINABILITY
- DIGITALIZATION
- DOMOTICA
- HOME AUTOMATION

ENERGY

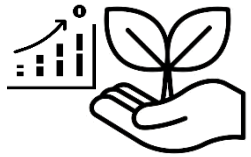
- RENEWABLE ENERGIES
- DECARBONIZATION & BIOFUELS
- GREEN HIDROGEN
- ENERGY STORAGE
- ENERGY MANAGEMENT
- CARACTERIZATION & SIMULATION
- EQUIPMENT DESIGN AND DEVELOPMENT

RESOURCES

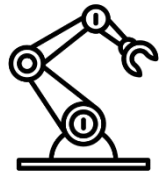
- MINING
- WASTE
- WATER
- SOIL
- FOREST PRODUCTS

TRANSVERSAL SERVICES

CONSULTANCY & TRAINING - SMART CITY, ENERGY RESOURCES, BUILDING INDUSTRY CYBERSECURITY & AI



EVALUATION AND MONITORING OF SUSTAINABILITY



INDUSTRIAL AUTOMATION & ROBOTIZATION FOR PRODUCTION AND INSPECTION

Key areas of expertise

Green & Smart Cities

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Centre Tecnològic de Catalunya

IoT Data Integration and Robotics

Connect and sense environments through IoT sensors, actuators, and intelligent infrastructures, ensuring real-time monitoring and interactive management across domains like water, air quality waste, and logistics. Industrial Automation & Robotics. Virtual and augmented reality. **Building and Environmental Inspection, Water & Air Quality monitoring, IoT HOME (DOMOTICA). IoT in BUILDINGS-LIGHTING-WASTE sorting and recycling.**

Advanced Materials & Processes

Functional materials, energy-efficient building components, and cutting-edge manufacturing processes that deliver tangible improvements in resource efficiency, product quality and maintenance.
Ecodesign. New materials & composites. Membrane technology. Lab on a chip devices. 3D printing. Impact assessment.

Innovation consulting

- Technology Surveillance
- Sustainability Monitoring
- Diagnosi, Strategy and Innovation Roadmap
- Innovation Management

AI & Cybersecurity Digitalization

Robust cybersecurity aligned with emerging regulations (e.g., **NIS2**), ensuring the confidentiality, integrity, and trustworthiness of interconnected systems and critical infrastructure networks including **Artificial intelligence and Big Data. Predictive Systems, Digital twins, GenAI (Generative AI), Explainable AI (XAI), RFID Blockchange networks.**

Sustainability, Climate Change & Decarbonization

By integrating environmental data analysis, circular economy principles, and renewable energy solutions, development of resilient, low-carbon cities and industries that meet global sustainability goals.
Mitigation and adaptation. Highly Efficient Energy Systems. Circular Economy. Recycling, Carbon uptake. Renewable energies. Biofuels. Green H2.

Each innovation project could be participated for one, more of even by all those 4 key areas. For example, imagine this project involved in the 4 areas: The conceptualization, design and development of a new CO2 gas sensor, made by a new ceramic absorber, whose data is resulting from electrochemical analog acquisition plus AI post-processing, which is embedded in a cybersecure electronic board, and it will be used integrated in a IoT network which will reduce the CO2 footprint of an industry contributing to decarbonization.

IoT Data Integration & Robotics

Green & Smart Cities

SENSING AND INTERACTING with the environment

Eurecat enables cities and businesses to connect and sense environments through IoT sensors, actuators, robots and intelligent infrastructures, ensuring real-time monitoring and interactive management across domains like water, soil, air quality and waste mangnt

- Water & Air Quality sensors.
- Lab-on-chip sensors for waste sector.
- IoT HOME (Domotica).
- SMART buildings, SMART lighting. SMART waste by intelligent sorting and recycling.
- Industrial and collaborative Robots for inspection and manufacturing. Recognition, vision and sorting operations.
- Air Robots (Drons) for remote sensing and infraestructures inspection.

We offer:

- Innovation conceptualization, design and protoyping.
- Scale-up, optimization, hybridization and demonstration of new technologies and processes.

AI & Cybersecurity Digitalization

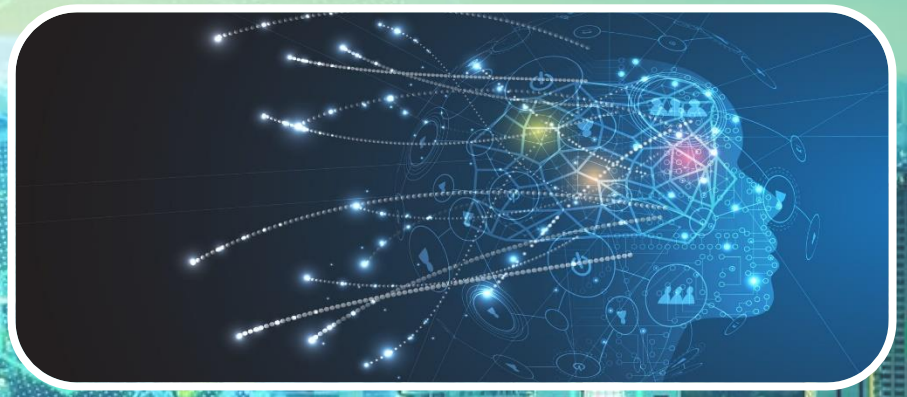
Green & Smart Cities

Artificial Intelligence & Predictive Analytics:

Leveraging AI, data science, and digital twins, Eurecat delivers advanced predictive modeling, forecasting, and decision-support tools that improve operational efficiency, resource management, and energy consumption.

- **PROCESS AUTOMATION**
- **SUPPLY CHAIN OPTIMIZATION**
- **PREDICTIVE MAINTENANCE**
- **GENERATIVE DESIGN**

Examples powered by AI models:
•Waste material sorting.
•Contaminant identification.
•Enhanced manufacturing & maintenance efficiency.
•Product Quality prediction and anomaly detection. QC process optimization.
•Enhanced sales model.



Cybersecurity and Compliance:

- Eurecat provides robust cybersecurity measures* aligned with emerging regulations (e.g., **NIS2**), ensuring the confidentiality, integrity, and trustworthiness of interconnected systems and critical infrastructure networks.

(*) Threat and attack detection. Fraud detection (with cyber threat context). Internal threat detection. Cyber Threat Intelligence (CTI) generation. Digital surveillance (possible identity theft).

Advanced materials and processes

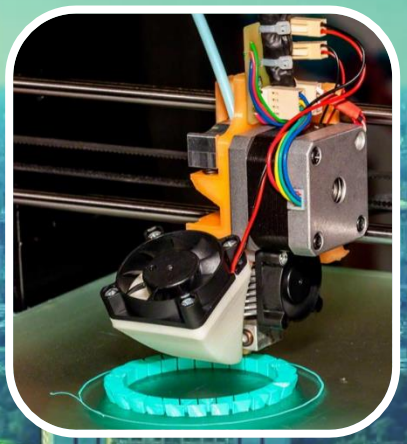
Green & Smart Cities

Characterization and Development of new materials, products and coatings:

- **Metals**
- **Plastics**
- **Ceramics**
- **Composites**
- **Textiles**
- **Membranes (Advanced sorting)**
- **Organic photovoltaics**
- **Micro and nanomaterials with Functional properties.**

Development of:

- New Battery cells and Battery Management systems (BMS).
- Smart energy management systems (IEMS)
- Sun protection devices and Facade panels
- Detailed elements and finite element simulation.



We offer:

- Ecodesign and circularity in the Innovation of new materials. Micro&nanomaterials, biomaterials, recycled and recyclable materials.
- New industrializable construction technologies adapted to the regulations and needs of the sector.
- Surface coatings to extend the useful life of materials.
- Additive manufacturing (3D printing).
- Diagnosis of the behavior of materials in infrastructures and coatings: fatigue, corrosion, biocorrosion.

Sustainability, Climate Change & Decarbonitzation

Green & Smart Cities

Eurecat promotes sustainability and climate action by integrating environmental data analysis, circular economy principles, and renewable energy solutions, development of resilient, low-carbon cities and industries that meet global sustainability goals.

- **Circular Economy.**
- **CO2 capture and biogas upgrade.**
- **H2 production and storage technologies.**
- **Pyrolysis Technology.**
- **Advanced Recycling technologies. Waste as resources: metals, mining, chemicals, textiles, plastics…**
- **Waste-to-Energy and Biomass-to-Energy.**
- **Eco-Design of products and processes.**
- **Efficiency & hybridization of renewable energies: Electrical and thermal.**
- **Efficient Energy storage (BATTECH initiative).**

We offer:

- Innovative conceptualization, design and protoyping. Scale-up, optimization, hybridization and demonstration of new technologies and processes.
- Methodologies for environmental impact and risk assesment. Modelling and simulation of contaminants in fluids and soils. (microbiological, aerosols, microplastics, metals and nitrates)
- Advanced lab services. Mechanical, Chemical and microbiological analysis/testing. Sampling and characterization of environmental parameters.
- Consultancy in adaptation to new regulations and climate resilience challegneces.

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PROJECTS

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Intelligent Water Management

Highlighted Projects | IA applied for Water and Energy consumption reduction

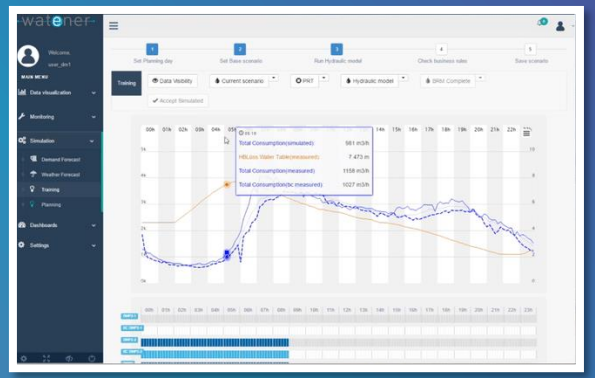
WATENER

IA for intelligent water distribution management.
It is a technological solution to increase efficiency in water and energy consumption.

Monitoring web platform based on automatic event detection that includes:

- Visualization of information in real time.
- Intelligent functionality by algorithms of decision support.
- Control panels with indicators of different levels.

- The main advantages are :
  - the storage of water and energy,
  - reduction of energy costs in management,
  - reduction of carbon consumption,
  - adaptation of information to different users,
  - multi-device access to information,
  - alignment of the operation with business strategy,
  - efficiency and profit maximum resources,
  - return on investment within a short time.



Cybersecurity for Risk Prevention in Water Infrastructures

Highlighted Projects | Real-time sensor network & block chain for cyber-physical threats

STOP - IT

Strategic, Tactical, Operational Protection of water Infrastructure against cyber-physical Threats.

Technological tools for the analysis and prevention of risks in water supply infrastructures in order to counteract cyberattacks and natural hazards, verifying the effectiveness of current practices and to propose new complementary or palliative measures in order to foresee future threats.

The technologies to be used and developed by STOP-IT project include mature technologies, like public warning systems and smart locks that are improved by their combination and embedment, and novel technologies such as high-volume real-time sensor data protection via blockchain schemes or efficient water contamination detection algorithms.

The STOP-IT project, founded by the European Union's Horizon 2020 programme, counts with the collaboration of eight partners from seven different European countries. H2020-EU.3.7.4. Num. 740610

stop-it-project.eu

Emergents Contaminats removal

Highlighted Projects| Sostenibility

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Centre Tecnològic de Catalunya

PRISTINE

Removing Contaminants of Emerging Concern (CECs) from water streams thanks to the PRISTINE Integrated Solution

LIFE PRISTINE project aims to develop the **PRISTINE Integrated Solution to remove Contaminants of Emerging Concern (CECs) from water streams**. The PRISTINE Integrated Solution will be adaptable on a case-by-case basis for **drinking water (DW)**, to protect humans from CECs, and for **wastewater (WW)**, to protect the environment and remove these contaminants from the water cycle.

LIFE PRISTINE will focus on **PFAS, pesticides, PPCPs, toxins, antibiotic resistance genes and microplastics** as target contaminants, designated according previous studies in the two demo sites and existing literature.

LIFE PRISTINE goal is to **effectively remove >80% of every CECs in WW and DW scenarios**, going further if requested by existing legislation. Furthermore, the PRISTINE Integrated Solution will be cost-effective, 30% lower OpEx cost that comparable technologies

VIDEO

- **Encapsulated adsorbents**
- **Hollow-fibre nanofiltration membranes**
- **Advanced Oxidation UV-LED reactor**
- **Artificial intelligence based soft sensors**

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Thank you

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