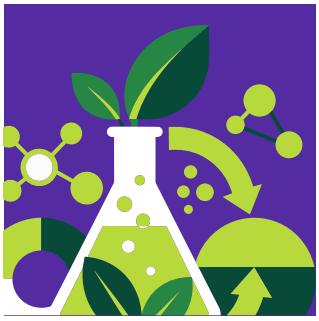






Start up competitions 2026

Digital handbook

startcup LOMBARDIA



Regione Lombardia

StartCup Lombardia 2026

18 progetti finalisti



Agroindustria Lombardia 2026

9 progetti finalisti



Tessile Lombardia 2026

4 progetti finalisti



Siderurgia Lombardia 2026

5 progetti finalisti



Edilizia sostenibile e sicura 2026

7 progetti finalisti

In collaborazione con:

Università degli Studi di Milano Bicocca

Bocconi

Università degli Studi di Bergamo

Università di Brescia

Università Cattolica del Sacro Cuore

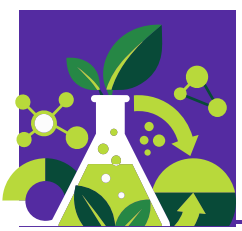
Università degli Studi dell'Insubria

Università degli Studi di Milano

Università di Pavia

IULM università iulm

Politecnico Milano 1863



Chimica Verde Lombardia per un futuro sostenibile 2026

13 progetti finalisti

In collaborazione con:

federated innovation MIND

INDEX

StartCup Lombardia 2026

AI Lights S.r.l.
Cellmets Srls
EpiCope
Etronix Power
LABBY
LiftLab
Livia
M.I.R.A. S.R.L.
PredictARIAble™
Qubitecture
RBV AquaTech
Sensintegra Solutions Srl
SMET4MED
Solship
Teerra
TRAC3S Technology
Vectorialis S.r.l.
W.A.K.A. (PAC-MAN Platform)

Agroindustria Lombardia 2026

AgriAI
AI Lights S.r.l.
Aquido
BIOSINESS srl
LABBY
MOOVET
Nemoris Nature Intelligence
Scanopy
SMART-SOIL
Talos Robotics

Tessile Lombardia 2026

BIOSINESS srl
Talos Robotics
TRAC3S Technology
Why Only White

Siderurgia Lombardia 2026

Etronix Power
GraphiCore
GRUCIO
M.I.R.A. S.R.L.

Edilizia sostenibile e sicura 2026

Bamboosa
INNOVATION DYNAMIC
Ladomus
Sensintegra Solutions Srl
Solship
Thelia
View Matters

Chimica Verde Lombardia per un futuro sostenibile 2026

Battery
CarpeCarbon
ChromeTrust
FORMA
HoverSpect
HydraX
M.I.R.A.
Mindis XR
Orbita
R2A Labs
RarEarth
Renovo
SIEVE

AgriAI

Project and company

Name of the project/company: AgriAI
Contact email address: agriaist@gmail.com
Website: agriai.it

SHORT DESCRIPTION OF THE PROJECT

AgriAI uses AI, multispectral imaging and drones to detect disease and physiological stress in olive trees before visible symptoms appear, helping growers identify which trees need attention and act before significant damage occurs.

EXTENDED DESCRIPTION OF THE PROJECT

AgriAI is developing a system designed to help growers detect plant diseases and physiological stress earlier. The solution combines drones, RGB and multispectral imaging, artificial intelligence and agronomic validation to analyse plants individually and identify which trees may require attention. AgriAI has already developed an artificial intelligence model for RGB image analysis, currently reaching an indicated accuracy of 91%. In parallel, we have started collecting multispectral data in real olive groves. These acquisitions are being used to build the proprietary dataset required to develop and train the multispectral artificial intelligence model. This component is therefore still under development and validation, and we do not yet have a validated multispectral model. Repeated field acquisition will progressively expand the dataset across different olive varieties, seasons and environmental conditions. Once sufficient data have been collected, the next stage will be to develop, train and validate the multispectral model in real field conditions. Rather than giving growers another crop map to interpret, AgriAI aims to tell them which plants need attention and give them the time to act.

NEED ADDRESSED

Growers highlighted that detecting diseases in time is their main challenge, as phytopathologies and stresses become visible only after damage has occurred. Our survey of 120+ olive growers showed that 71% identified pests and diseases as their main risk.

SOLUTION PROPOSED

AgriAI combines drones, multispectral imaging and artificial intelligence to monitor individual plants. We have already developed the RGB artificial intelligence model and have started collecting mul-

tispectral data in real field conditions. These data will be used to build the proprietary dataset required to develop and train the multispectral artificial intelligence model, which is not yet validated. The objective is to progressively develop a system able to identify plants showing abnormal signals and help growers focus inspections and interventions where they are most needed.

TARGET MARKET

Our initial market is European olive farming. The EU has approximately 4.6 million hectares of olive groves, concentrated primarily in Spain, Italy, Greece and Portugal. At a planned subscription price of approximately €500 per hectare per year, this represents an addressable olive monitoring market of roughly €2.3 billion annually. Our potential customer base includes individual farms, cooperatives and agricultural consortia. Larger growers can subscribe directly, while smaller farms can access the service collectively through cooperatives or consortia, allowing several producers to aggregate their acreage under a single contract. In addition, the EU has approximately 11.1 million hectares of permanent crops, including olives, vineyards, almonds and other tree crops. Applying the same service model gives us a broader European opportunity of approximately €5.6 billion annually.

Technology Readiness Level: TRL 4 Technology Validated in Lab
Patent: No, but I plan to apply for a patent
Funding needed: < 500.000 Euros

AI Lights S.r.l.

Project and company

Name of the project/company: AI Lights S.r.l. featuring THAITI: where Artificial Intelligence and innovation meet people
Contact email address: ailights.thaiti@gmail.com
Website: https://ai-lights.it/

SHORT DESCRIPTION OF THE PROJECT

THAITI is an artificial intelligence-based solution for acquiring high-quality images during Cardiac Magnetic Resonance exams.

EXTENDED DESCRIPTION OF THE PROJECT

THAITI is an Artificial Intelligence-based solution designed to predict the optimal inversion time, personalized to the patient's profile, during contrast-enhanced Cardiac Magnetic Resonance (CMR) imaging. THAITI accurately estimates this value using minimal information immediately available during the CMR scan; these data serve as a reliable proxy for more complex parameters that directly influence contrast agent kinetics but are otherwise unobtainable in a clinical setting.
THAITI has been trained and tested on a wide range of cardiac conditions (using data from over 700 patients), and operates in real-time via a standalone app with a user-friendly interface, offering multi-vendor and multi-contrast capabilities.
THAITI ensures high image quality and standardization in CMR, while minimizing the number of required acquisitions and enhancing patient comfort.

NEED ADDRESSED

Standardize and optimize cardiac magnetic resonance image quality by calculating personalized parameters.

SOLUTION PROPOSED

THAITI uses custom-trained AI models that leverage patient characteristics readily available at the time of the examination.

TARGET MARKET

Public and private healthcare institutions, within and outside Europe, performing cardiac magnetic resonance imaging.

Technology Readiness Level: TRL 8 System completedand qualified
Patent: Yes
Funding needed: Between 500.000 Euros and 2.000.000

Aquido

Project and company

Name of the project/company: Aquido
Contact email address: stefano.mariani@polimi.it
Website: N/A

SHORT DESCRIPTION OF THE PROJECT

Every paddy field becomes a sensor of the land: Aquido turns local data into Water Intelligence for resilient rice farming.

EXTENDED DESCRIPTION OF THE PROJECT

Aquido is an innovative digital platform for monitoring and managing water resources in rice paddies, born from research experience at Politecnico di Milano and Torino. It integrates IoT sensors, cloud technology, Digital Twin models and Artificial Intelligence to increase the resilience of the rice supply chain to climate change.
Through low-power sensors, the system collects real-time data on water levels and environmental conditions, building a Digital Twin of the paddy field. Farmers can monitor their paddy fields, receive anomaly notifications, and reduce site visits, water waste and operating costs.
The distinctive element is the creation, at no additional cost, of a territorial database that, once aggregated and anonymized, supports irrigation consortia, land reclamation authorities and public administrations in managing the irrigation network.
The long-term vision is to build the first distributed Digital Twin of the Italian irrigation network, extendable to other crops.

NEED ADDRESSED

Inefficient water management in rice paddies, worsened by climate change, due to the lack of continuous, real-time monitoring.

SOLUTION PROPOSED

IoT/cloud platform with Digital Twin and AI, scaling from single paddies to a distributed Digital Twin of the whole basin.

TARGET MARKET

Rice farms, large agro-industrial groups, irrigation consortia, land reclamation bodies and public administrations, in Italy and Europe.

Technology Readiness Level: TRL 4 Technology Validated in Lab
Patent: No, but the patent application has been filed
Funding needed: < 500.000 Euros



Bamboosa

Project and company

Name of the project/company: Bamboosa
Contact email address: dimoiagiorgia05@gmail.com
Website: N/A

SHORT DESCRIPTION OF THE PROJECT

Bamboosa is a cleantech project aimed at developing proprietary technology to transform Moso bamboo grown in Italy into biomaterials for the construction industry. The first product under development is a bamboo fibre thermal and acoustic panel, with the aim of using natural binders as an alternative to synthetic ones, whilst studying its performance, durability and potential use in outdoor applications, subject to validation and certification. Research will be coordinated in Lombardy through collaboration with universities, laboratories and industrial partners, whilst a traceable demonstration cultivation scheme will be launched in Abruzzo. Whilst the bamboo is growing, biomass purchased from existing producers will enable R&D to commence immediately. The asset-light model initially envisages contract manufacturing and the cascading utilisation of leaves and residues, with the aim of creating a circular and scalable Italian supply chain.

EXTENDED DESCRIPTION OF THE PROJECT

The construction sector poses a challenge for the transition to a low-carbon economy, both in terms of the consumption of resources and raw materials and in terms of the emissions associated with the production, use and end-of-life of materials. The most widely used insulation materials and cladding panels today are often based on:

1. wood fibres with synthetic binders (petroleum-derived resins, formaldehyde or its derivatives), which compromise the biodegradability of the final product and can generate harmful indoor and outdoor emissions;
2. slow-growing raw materials, which makes the supply chain difficult to scale up in the face of growing demand for green building;
3. fragmented supply chains, where those who produce the raw material, those who process it and those who recover waste are disconnected actors, resulting in a loss of value along the chain. The challenge Bamboosa aims to tackle is to develop a renewable and rapidly regenerable raw material for the construction industry and to identify a technology that enables it to be transformed into a high-performance material, without relying on traditional synthetic binding systems. The distinctive feature of the project is the development of an efficient system for transforming the fibre into a stable, high-performance and industrially scalable material using a naturally derived binder.

The research will focus on:

- the chemical, physical and morphological characterisation of bamboo fibre;
- the study and development of various naturally derived binding agents;
- the interaction between the fibre and the binding agent;
- the determination of the optimal material composition.

Edilizia sostenibile e sicura



NEED ADDRESSED

The aim is to reduce the environmental impact of the construction industry by developing natural, circular biomaterials made from Italian Moso bamboo, using bio-based binders and a traceable supply chain.

SOLUTION PROPOSED

The project addresses the main limitations of current biomaterials for the construction industry through three integrated approaches, combining technological innovation, the Italian supply chain and the circular utilisation of biomass:

- Regenerative and traceable raw material: Moso bamboo has a significantly faster growth cycle than the timber species traditionally used for panels and insulation. Italian cultivation, launched in Abruzzo, will enable the gradual development of a local and traceable supply chain. During the growth phase, Bamboosa will use biomass purchased from existing producers to immediately commence research and development.
- Natural binder technology: the project's key distinguishing feature is the development of a panel using natural binders as an alternative to synthetic ones. The research, carried out in collaboration with university partners and specialist laboratories, will evaluate various bio-based solutions, including natural waxes and beeswax, examining their compatibility with the fibre, water-repellent properties, durability and performance. Any use in external applications and external insulation systems will be subject to technical validation and the required certifications.
- Cascade utilisation of biomass: Bamboosa aims to fully utilise the plant in accordance with a biorefinery model. Selected fractions, including the leaves, may be supplied to chemical, cosmetological and dermatological laboratories for extraction and research purposes, through potential supply agreements, royalty arrangements or licensing deals. Residues that cannot be further utilised may be converted into biochar, pellets, wood chips or used for energy recovery, thereby reducing waste and creating further economic opportunities.

TARGET MARKET

Bamboosa's initial target market is the B2B sector of sustainable construction, with a particular focus on professionals seeking natural, traceable and environmentally friendly thermal and acoustic insulation materials that are also capable of delivering verifiable and certifiable technical performance. The target customer is therefore not the end consumer, but the professional operator who can integrate the Bamboosa panel into their building systems, specifications and construction projects. The initial commercial phase will focus on manufacturers of building systems, green building firms, prefabrication companies and operators specialising in energy-efficient refurbishment, who are interested in trialling innovative materials of natural origin and willing to collaborate on technological validation and the implementation of the first demonstration projects. For Bamboosa, these entities represent not only potential buyers but also early adopters and industrial partners, capable of providing feedback on the performance required by the market, contributing to application validation and facilitating the product's introduction on the first construction sites

Technology Readiness Level: TRL 2 Technology Cancept Formulated
Patent: No, but I plan to apply for a patent
Funding needed: < 500.000 Euros

BIOSINESS srl

Project and company

Name of the project/company: BIOSINESS srl
Contact email address: alireza@biosiness.com
Website: biosiness.com

SHORT DESCRIPTION OF THE PROJECT

BIOSINESS turns coffee silverskin, a dry, regulated industrial by-product of Italy's roasting industry, into a family of bio-based materials: leather-like film, granules, and technical filaments, produced through an asset-light network of 20+ industrial partners in Northern Italy.

EXTENDED DESCRIPTION OF THE PROJECT

Italy roasts 25% of Europe's coffee, generating roughly 7,500 tonnes/year of silverskin currently disposed of at a cost. BIOSINESS intercepts it as an industrial by-product, not urban waste, giving the supply chain predictable volumes, consistent quality, and an already-defined regulatory framework. The material reaches up to 85% bio-based content, retains a natural coffee aroma for over five years, and is produced without solvents. Production runs through a partner network rather than owned infrastructure, keeping capital expenditure minimal while scaling.

NEED ADDRESSED

B2B manufacturers in packaging, accessories, furniture and automotive need durable, industrially compatible sustainable materials but face unstable supply chains, seasonal feedstocks, or fossil-derived content hidden behind "bio-based" claims.

SOLUTION PROPOSED

A family of coffee-silverskin-based materials (in form of film, granules, filaments) that integrate into existing manufacturing processes without retooling, backed by a non-seasonal, geographically concrete industrial supply chain.

TARGET MARKET

B2B manufacturers in luxury packaging, accessories, furniture, and automotive across Italy and Europe, beginning with packaging and accessories as the beachhead segment.

Technology Readiness Level: TRL 8 System completedand qualified
Patent: No, but I plan to apply for a patent
Funding needed: Between 500.000 Euros and 2.000.000

Cellmets Srls

PROJECT AND COMPANY

Name of the project/company: Cellmets Srls
Contact email address: ivan.colamartino@cellmets.it
Website: www.cellmets.it

SHORT DESCRIPTION OF THE PROJECT

CELLMETS is a Politecnico di Milano spin-off that replaces the expanded polystyrene inside helmets and protective equipment with 3D-printed auxetic cellular metamaterials, designed on real-world crash data and validated in a crash laboratory. Lab tests show up to a 74% reduction in brain injury risk at the same thickness, with multi-impact tolerance and unlimited geometric customisation.

EXTENDED DESCRIPTION OF THE PROJECT

While automotive and aerospace innovate continuously on impact materials and design methods, personal protective equipment still relies on expanded polystyrene (EPS): an isotropic, single-density, single-use material that performs poorly against the rotational impacts responsible for most severe brain injuries.
CELLMETS, born from the Crash Laboratory of Politecnico di Milano, develops 3D-printed cellular metamaterials that replace the EPS liner entirely rather than adding a layer on top of it. Its technology stack combines four capabilities: a patented parametric pipeline that generates auxetic and topology-optimised lattice geometries from impact requirements; experimental validation in a university crash lab (drop tests, impact rigs, multi-impact and temperature-conditioned testing); industrial-grade additive prototyping through established service partners, with a design-to-prototype cycle measured in days; and human-body biomechanical modelling — including an advanced finite element head model developed with clinical partners — that translates absorbed energy into injury actually avoided, using HIC and BrIC criteria.
The result is a drop-in component that the manufacturer integrates into its existing product with no retooling and no internal R&D investment: higher measured safety, reduced volume at equal protection, superior ventilation thanks to open printed structures, tolerance to repeated impacts, and geometry tunable zone by zone. The business model mirrors the one validated by established component licensors in the protection industry: paid co-design proof-of-concept projects, then a technology licence with an upfront fee and a per-unit royalty, with direct production reserved for high-value, low-volume niches.
The company holds two filed patent applications, operates functional prototypes validated in laboratory and in tests with industry leaders, and is currently running proof-of-concept projects with manufacturers in the premium helmet segment and with an operator in the fine-art logistics sector, where the same lattice design method is applied to vibration damping in transport crates. The technology is transferable across verticals — helmets, body protection, technical packaging for high-value goods, medical devices — for a combined addressable market of approximately €3.2 billion.

NEED ADDRESSED

Impact protection still relies on EPS foam: uniform density, single-use, and certified on linear drop tests that ignore the rotational acceleration causing most brain injuries. It passes the test but underperforms in real accidents.

SOLUTION PROPOSED

CELLMETS replaces the foam liner with a 3D-printed cellular metamaterial insert whose geometry is generated by a patented parametric pipeline from the expected impact conditions — severity, direction, available space, material. The structure deforms without fracturing, tolerates repeated impacts, and absorbs proportionally more energy as the load increases; because stiffness and directionality can be tuned zone by zone, protection is concentrated where the accident data say it is needed. Design choices are driven by real-world accident scenarios and validated on two levels: physically, through drop tests and impact rigs in a university crash laboratory, and biomechanically, through finite element human models that convert absorbed energy into predicted injury using HIC and BrIC criteria. Laboratory testing has shown up to a 74% reduction in brain injury risk compared with the reference EPS liner, together with reduced volume at equal protection, superior ventilation, and the option of fully customised geometry. For the manufacturer the change is minimally invasive: a drop-in component, no retooling, no internal R&D investment, and an estimated cost delta of €20–30 per unit.

TARGET MARKET

CELLMETS sells business-to-business to industrial manufacturers, not to end users. The anchor market is premium helmet OEMs in Italy and Europe — motorcycle, cycling, snow, equestrian, sport, industrial safety — a segment worth approximately €800 million within a global helmet market of around €30 billion across nine sub-segments, plus public procurement for armed forces, police and fire brigades. A second market, already at proof-of-concept stage, is technical packaging for the transport of high-value goods, starting with fine-art logistics: a global market of about $3.6 billion, roughly €55 million among Italian operators, where a lattice insert tuned to the resonance frequencies of the artwork replaces commodity foam inside premium crates. Mapped step-out verticals include body protection, technical packaging for jewellery and watches, medical devices for organ transport, and pressure-relief cushions. Across the six verticals analysed, the serviceable addressable market is approximately €3.2 billion, with a defensible long-term share of around €190 million.

Technology Readiness Level: TRL 5 Technology validated in industrially relevant environment
Patent: Yes
Funding needed: Between 500.000 Euros and 2.000.000

EpiCope

Project and company

Name of the project/company: EpiCope – Applied Epigenomic Intelligence for Adaptive Health
Contact email address: valentina@epicope.com
Website: epicope.com

SHORT DESCRIPTION OF THE PROJECT

AI-powered epigenomic platform measuring Adaptive Capacity to enable personalized prevention and early health interventions.

EXTENDED DESCRIPTION OF THE PROJECT

Current approaches in epigenetics focus on measuring individual biomarkers but fail to provide an integrated assessment of an individual's biological capacity to adapt to environmental stressors. As a result, they cannot identify vulnerability before disease onset or support truly personalized prevention. EpiCope, a spin-off of the University of Milan, has developed the first Applied Epigenomic Intelligence platform to measure Adaptive Capacity, a novel biomarker of biological resilience. The platform combines proprietary epigenetic assays (EpiAssay™), Artificial Intelligence algorithms (EpiCompass™), and personalized intervention strategies (EpiAdapt™) to transform complex epigenomic data into actionable insights for precision prevention, occupational health, sports performance, and clinical research. Built on more than twenty years of scientific research, EpiCope enables earlier risk detection and data-driven interventions, shifting healthcare from reactive disease management to proactive resilience monitoring.

NEED ADDRESSED

The lack of tools to measure Adaptive Capacity prevents early identification of biological vulnerability and precision prevention.

SOLUTION PROPOSED

An Applied Epigenomic Intelligence platform combining proprietary epigenetic assays, AI, and personalized interventions to measure Adaptive Capacity and enable precision prevention.

TARGET MARKET

Preventive healthcare, occupational health, precision medicine, sports science, clinical research, and the pharmaceutical industry.

Technology Readiness Level: TRL 6 Technology demonstrated in industrially relevant environment
Patent: No, but I plan to apply for a patent
Funding needed: < 500.000 Euros

Etronix Power

Project and company

Name of the project/company: Etronix Power

Contact email address: filippo.gemma@unipv.it

Website: N/A

SHORT DESCRIPTION OF THE PROJECT

Custom power electronics: drives, high-density DC-DC and BESS converters, with control and AI optimization designed as one system.

EXTENDED DESCRIPTION OF THE PROJECT

Power electronics designed to customer specification, with conversion hardware and control developed jointly rather than sequentially a combination of competencies that rarely coexists in one organization. Drives: custom DC-AC stages and firmware for makers of machines with proprietary designs, who today use off-the-shelf inverters and generic control laws and forfeit designed performance; predictive control and online parameter identification are joined by AI fault diagnosis. DC-DC: an isolated high-density platform on GaN/SiC with planar transformers whose leakage inductance replaces the discrete resonant element, for e-mobility and computing. BESS: AC/DC converters and control for bidirectional battery-grid exchange, with AI optimization of sizing and losses and real-time cell-parameter estimation, extending pack life and enabling second-life packs. All three share one method: characterization, modeling, optimization, bench validation.

NEED ADDRESSED

Delivering the performance, efficiency and lifetime that custom machines and batteries were designed to achieve.

SOLUTION PROPOSED

Custom converters and control designed on the customer's actual machine or battery, with AI for diagnosis and optimization.

TARGET MARKET

Manufacturers of proprietary electrical machines and battery storage systems; data centres and e-mobility for the DC-DC platform.

Technology Readiness Level: TRL 3 Experimental Proof of Concept
Patent: No, but I plan to apply for a patent
Funding needed: < 500.000 Euros



GraphiCore

GraphiCore

Project and company

Name of the project/company: GraphiCore
Contact email address: fabio.vanoni@graphicore.eu
Website: https://graphicore.eu/

SHORT DESCRIPTION OF THE PROJECT

GraphiCore's ExEn: high-temperature end-effector platform for robotic handling of hot parts up to 1400°C, where magnets and vacuum fail.

EXTENDED DESCRIPTION OF THE PROJECT

ExEn is a modular family of end-effectors developed by GraphiCore, a deep-tech spin-off of Politecnico di Milano, originating from robotic handling technology first developed for nuclear graphite decommissioning. The platform extends the feasible temperature window for robotic handling beyond the limits of incumbent magnetic and vacuum tooling, offering reliable grip on rough, porous, or irregular hot surfaces thanks to a soft, compliant, and insulating surface made from a unique composition of materials. Target applications span the steel, forging, foundry, aluminium, and glass industries.

NEED ADDRESSED

Steel and forging plants struggle to handle hot parts: magnets fail at high heat, vacuum tools degrade, rigid grippers damage surfaces.

SOLUTION PROPOSED

ExEn: modular high-temperature end-effectors for hot, rough, irregular or delicate surfaces where conventional tools fail.

TARGET MARKET

Steel, forging, foundry, aluminium, glass and heat treatment plants, plus OEMs and integrators serving hot-part handling automation.

Technology Readiness Level: TRL 5 Technology validated in industrially relevant environment
Patent: No, but the patent application has been filed
Funding needed: < 500.000 Euros



GRUCIO

Project and company
Name of the project/company: GRUCIO
Contact email address: paolo.milani@mi.infn.it
Website: N/A

SHORT DESCRIPTION OF THE PROJECT

Grucio builds Edge AI hardware powered by the Receptron, enabling compact, efficient AI with lower latency and power use.

EXTENDED DESCRIPTION OF THE PROJECT

Grucio develops Edge AI hardware solutions that enable AI to run directly on resource-constrained embedded devices. By reducing reliance on cloud infrastructure, the technology lowers latency, power consumption, and privacy risks. At its core is the Receptron, a novel nonlinear computational model that extends the traditional perceptron by introducing input-dependent nonlinear weights. This increases the representational power of individual computational units, enabling smaller, more efficient AI models that require less data than conventional neural networks. The result is high-performance, privacy-preserving and energy-efficient AI designed for edge applications where memory, computing power, and energy are critical constraints.

NEED ADDRESSED

The market needs explainable Edge AI with out-of-distribution detection for trustworthy, safe, real-time decisions.

SOLUTION PROPOSED

Receptron-based Edge AI hardware solution with native explainability and advanced out-of-distribution detection.

TARGET MARKET

Edge AI market valued at $29B in 2025; Edge AI hardware segment at $12B, with a $100M SOM target by 2030.

Technology Readiness Level: TRL 4 Technology Validated in Lab
Patent: Yes
Funding needed: < 500.000 Euros



INNOVATION DYNAMIC

Project and company

Name of the project/company: INNOVATION DYNAMIC
Contact email address: info@i-dyn.eu
Website: https://www.i-dyn.eu

SHORT DESCRIPTION OF THE PROJECT

Innovation Dynamic makes buildings and critical infrastructure safer and more sustainable. Its integrated structural health monitoring solution combines IoT sensors, AI, operational modal analysis and FEM-based digital twins to turn vibration data into health indicators, alerts and predictive maintenance decisions.

EXTENDED DESCRIPTION OF THE PROJECT

Innovation Dynamic provides an end-to-end structural health monitoring service for buildings, bridges, railways and industrial assets. High-precision IoT sensors collect vibration and physical data without interrupting operations. Operational and experimental modal analysis extracts frequencies, mode shapes and damping, while calibrated FEM models and digital twins reproduce the real structural behaviour. AI-supported analytics identify deviations and degradation trends. Through a dedicated web portal, asset owners and managers can access real-time information, receive actionable alerts and plan inspections and maintenance based on actual condition. The modular approach combines engineering expertise, hardware integration, automated analytics and recurring digital services, reducing risk, downtime, unnecessary interventions and environmental impact.

NEED ADDRESSED

Asset owners lack continuous, objective information on structural health. Periodic inspections may detect damage late, while conservative maintenance increases cost, downtime and environmental impact.

SOLUTION PROPOSED

An integrated SHM solution combining IoT sensors, OMA/EMA, AI and FEM-based digital twins. It continuously converts vibration data into health indicators, trends and alerts, delivered through a web portal to support condition-based inspection and predictive maintenance.

TARGET MARKET

B2B and B2G customers: owners and operators of bridges, railways and critical infrastructure; public bodies and concessionaires; facility managers of large public, commercial and industrial buildings; engineering firms, contractors and industrial companies with high-value assets. Initial focus: Lombardy and Northern Italy, followed by national and selected European markets.

Technology Readiness Level: TRL 7 System prototype demonstration in operational environment
Patent: No, but I plan to apply for a patent
Funding needed: Between 500.000 Euros and 2.000.000

LABBY

Project and company

Name of the project/company: LABBY
Contact email address: ufficio@labbytechnologies.com
Website: https://labbytechnologies.com/

SHORT DESCRIPTION OF THE PROJECT

Labby is a startup developing a point-of-care diagnostics platform: portable, reusable devices paired with single-use cartridges that deliver reliable analytical results in minutes, directly in the field. Its flagship product, CalCow, measures blood calcium levels in dairy cows to enable early detection of postpartum hypocalcemia

EXTENDED DESCRIPTION OF THE PROJECT

Labby S.r.l., based in Lissone (Monza Brianza, Italy), was founded to bring laboratory-grade diagnostic capability directly to the field. The company designs an integrated technology ecosystem combining portable diagnostic hardware, functional chemistry (selective membranes and bio-chemical reagents) and proprietary data intelligence algorithms. Its first and most mature product, CalCow, addresses hypocalcemia in dairy cows — a condition affecting up to 60% of animals in subclinical form after calving, with significant economic impact on farms. CalCow has completed laboratory validation with a demonstrated 90% accuracy rate and is currently undergoing field testing (TRL 5). Labby's long-term strategy is to extend the same device-plus-cartridge architecture to new diagnostic parameters and sectors, starting with ketosis testing already in development, and later expanding into agricultural, water and food-safety testing

NEED ADDRESSED

Postpartum hypocalcemia is one of the main health and economic issues in dairy farming: it affects up to 60% of cows in subclinical form and about 5% in clinical form, and most farmers and vets do not perform regular calcium monitoring because existing s

SOLUTION PROPOSED

CalCow is a reusable measuring device (about 60 g) paired with single-use cartridges, based on a colorimetric method that automatically classifies results into normocalcemia, subclinical or clinical hypocalcemia, with results in minutes and no need for laboratory expertise, calibration or cleaning solutions — usable directly in the barn.

TARGET MARKET

Dairy farmers and veterinarians, initially in Northern Italy (Lombardy, Emilia-Romagna, Piedmont — about 72% of national dairy cows), expanding to Spain and Croatia, as well as feed producers and animal nutritionists

Technology Readiness Level: TRL 5 Technology validated in industrially relevant environment
Patent: Yes
Funding needed: < 500.000 Euros



Ladomus

Project and company

Name of the project/company: Ladomus
Contact email address: info@ladomus-design.com
Website: https://ladomus-design.com/

SHORT DESCRIPTION OF THE PROJECT

LADOMUS industrializes the renovation of building interiors through a system of modular wood-based components (partitions, integrated furniture) designed according to DfMA principles and supported by an AI platform that translates floor plans and regulatory constraints into production-ready design solutions. We replace the wet, artisanal, unpredictable work of traditional construction sites with prefabricated, dry-assembled, traceable and reversible components, cutting the time, waste and environmental impact of retrofit interventions.

EXTENDED DESCRIPTION OF THE PROJECT

LADOMUS streamlines the renovation of existing building interiors. We replace traditional, artisanal construction—which relies on wet, unpredictable processes—with modular wooden components—including walls and built-in furnishings—designed according to the DfMA principle. An artificial intelligence platform translates floor plans, regulatory constraints, and design decisions into production-ready solutions, maintaining the quality of the architectural design while eliminating on-site variability. Each project generates a proprietary dataset that feeds into the parametric catalog, making every subsequent project faster, more traceable, and more sustainable. We primarily target real estate companies and property managers with real estate portfolios requiring repeatable retrofits across multiple units.

NEED ADDRESSED

75% of European buildings are energy-inefficient, yet interior retrofit remains artisanal: slow, costly, unpredictable in timing.

SOLUTION PROPOSED

Modular wood walls and furniture (DfMA) designed with AI: we industrialize retrofit: prefabricated, traceable, reversible.

TARGET MARKET

Real estate companies and property managers with portfolios needing repeatable retrofits across multiple units.

Technology Readiness Level: TRL 3 Experimental Proof of Concept
Patent: No, but I plan to apply for a patent
Funding needed: < 500.000 Euros

LiftLab

Project and company

Name of the project/company: LiftLab
Contact email address: info@liftlabspace.com
Website: https://liftlabspace.com/

SHORT DESCRIPTION OF THE PROJECT

Satellites have become industrial products. Access to space has not: the launch window is set by whoever sells it, not by whoever needs it. LiftLab is developing LL1, a two-stage European launch system for sub-300 kg satellites to sun-synchronous orbit, designed as an industrial product around one hard constraint: the whole system must fit in standard 40-foot containers and travel by ordinary logistics. Storable propellants remove the cryogenic ground chain; automated manufacturing makes the vehicle repeatable. LiftLab enters the market flying dedicated missions, and then makes the system itself available — to lease or to own.

EXTENDED DESCRIPTION OF THE PROJECT

Space-qualified commercial components, compact optical and radar sensors and industrialised assembly lines have made capable satellites fast to build and fast to replace. Launch has not followed: it still depends on large fixed infrastructure, campaigns planned far in advance and complex vehicles. The deeper asymmetry is that launch availability is set by the launch provider, not by the operator who needs to fly: when the manifest is full or the window does not match, there is no alternative.

LiftLab addresses that asymmetry. LL1 is a two-stage launcher sized around the sub-300 kg satellite class for sun-synchronous orbit — Earth observation, environmental monitoring, civil security and scientific research.

The system is designed as an industrial product rather than an infrastructure, around one declared design constraint: the assembled vehicle and its complete ground segment must fit inside standard 40-foot ISO containers, each stage travelling in its own container and assembled on site. Every architectural choice — diameter, stage length, engine count — is verified against that envelope. It is what makes LL1 transportable by ordinary logistics, storable, and replicable across sites without building infrastructure.

Storable propellants — high-concentration hydrogen peroxide and ethanol, the same combination ESA is developing in its Greta engine under the FLPP programme — are kept at room temperature and remove the cryogenic ground chain, which is what makes a mobile ground segment possible at all. Metal additive manufacturing for engines and automated processes for structures mean the vehicle and the factory that builds it are designed together, and keeping that development in house keeps schedule, iteration and cost inside the company rather than inside a supply chain.

This enables a commercial model with three modes on one architecture. LiftLab enters the market as a launch operator, selling dedicated missions: this generates revenue and, just as importantly, builds the flight record. The system can then be offered on an availability contract — the customer pays an annual fee to keep a system reserved and ready — and finally sold outright: the customer owns the system and hosts it at their own site, while LiftLab continues to prepare, launch and maintain it. The later modes depend on the first: nobody buys or leases launch capability without a demonstrated operational track record.

LL1 does not start from a blank sheet. The founding team comes from Skyward Experimental Rocketry at Politecnico di Milano, which over five years designed, built and flew five complete experimental vehicles, one a year, winning the European Rocketry Challenge twice — in 2022 and 2024 — and developing in-house hybrid

and liquid propulsion, including the first student-built liquid rocket engine in Italy, composite airframes, avionics, guided recovery systems and pressure vessel qualification campaigns. Each of the six has been through the full requirements-to-flight cycle several times, on schedule and with limited resources. That engineering capability is what LiftLab carries forward.
On price per kilogram, rideshare cannot be matched by any small launcher. LL1 competes in dedicated launch, where the customer buys a mission rather than kilograms — and where the system itself can be handed over to the customer.

NEED ADDRESSED

Europe builds world-class satellites but depends on external, slow and oversubscribed launch capacity. For operators and institutions alike, the value of an orbital asset increasingly depends on how quickly it can be placed in orbit, on who controls that

SOLUTION PROPOSED

A two-stage launch system for sub-300 kg payloads to sun-synchronous orbit, built around storable propellants, automated manufacturing and a containerised mobile ground segment — first operated by LiftLab as a dedicated launch service, then offered on availability contracts and sold outright to customers who need to own or reserve their launch capability, with LiftLab preparing and flying the vehicle in every case.

TARGET MARKET

First, satellite manufacturers and operators in the sub-300 kg class needing dedicated missions rather than rideshare, plus universities and research centres. Then constellation operators with structural replenishment needs, operators and national programmes in other regions that want launch capability of their own without building a launch organisation, and European civil space and emergency-response programmes seeking responsive, sovereign orbital capability.

Technology Readiness Level: TRL 3 Experimental Proof of Concept
Patent: No, but I plan to apply for a patent
Funding needed: > 2.000.000

Livia

Project and company

Name of the project/company: Livia
Contact email address: alessandro@liviacasa.it
Website: https://liviacasa.it/

SHORT DESCRIPTION OF THE PROJECT

Livia is an AI-native condominium administration studio. We don't sell software to property administrators, we become the administrator: winning and acquiring condominium mandates and operating them on a proprietary AI platform that automates accounting, communications, vendor management and compliance. Residents get what this market has never offered: 15-minute response times with automatic penalties, real-time glass-box accounting, and a guaranteed 10–15% reduction in building expenses.

EXTENDED DESCRIPTION OF THE PROJECT

Italy has ~1.2M condominiums (18M residential units) run on a model unchanged since the 1970s: solo administrators working from spreadsheets, no transparency on the €40K+ flowing through each building yearly, and incentives broken by vendor kickbacks. 52% of customers are dissatisfied and 20% consider switching every year (IPSOS/Osservatorio Unipol 2023), yet almost nobody does, because no credible alternative exists.
Livia is that alternative. We operate condominiums directly on a proprietary AI operating system: agents that reconcile accounts, triage resident communications, dispatch and track vendors, and prepare assemblies with full audit logs. This lets one licensed administrator manage 60–100 buildings instead of the traditional 20–30, converting the market's 36 points of back-office cost into margin, and, more importantly, into service quality. We renounce hidden kickbacks by design: every vendor euro is disclosed, and our accountability is contractual (SLAs with automatic penalties).
The AI-native operator model is funded across Europe (Theo, Dwelly, Matera, Buena); Italy, Europe's largest condominium market, has none. Starting from Milan, with a first product already deployed across 65 condominiums through partner studios, our regulatory path solved via a licensed partner studio, and a 12-month plan to reach 200 buildings, Livia is building the infrastructure layer of urban living in Europe.

NEED ADDRESSED

Opaque, unaccountable and unresponsive condominium administration: 52% of Italian residents are dissatisfied, with no credible alternative to switch to.

SOLUTION PROPOSED

An AI-native administration studio that operates buildings directly on a proprietary agent-based platform: 15-minute guaranteed response times with automatic invoice penalties, real-time transparent accounting visible from residents' phones, WhatsApp-based fault reporting with parcel-style tracking, 45-minute comprehensible assemblies, and a guaranteed 10–15% reduction in building expenses through scale-negotiated, fully disclosed vendor terms — no hidden kickbacks. AI makes these promises keepable at scale with positive unit economics: one administrator manages 60–100 buildings instead of 20–30.

TARGET MARKET

Italy's ~1.2M condominiums (18M residential units): a ~€2BN core administration fee pool inside an €8BN+ household-ecosystem spend, with €40K+ flowing through each building yearly. ~240K condominiums are structurally available for capture each year (20% evaluate switching annually). Beachhead: Milan and Northern Italy, at ~€5K revenue per condominium; adjacencies on the same operating rails include long-term rental property management (€400–600/unit/year), insurance and energy brokerage, and renewable energy communities. The same broken model runs France, Germany, Spain and Poland — European expansion is designed in from day one.

Technology Readiness Level: TRL 9 Actual system proved in operational environment
Patent: No
Funding needed: Between 500.000 Euros and 2.000.000

M.I.R.A. S.R.L.

Project and company

Name of the project/company: M.I.R.A. S.R.L.
Contact email address: albertomannu@gmail.com
Website: www.mirarecycling.it

SHORT DESCRIPTION OF THE PROJECT

Deep-tech startup developing microwave technology to upgrade black mass and enable sustainable lithium recovery from Li-ion batteries.

EXTENDED DESCRIPTION OF THE PROJECT

M.I.R.A. is a deep-tech startup originating from research at the University of Brescia. The company develops a proprietary technology platform for upgrading black mass generated from end-of-life lithium-ion batteries, addressing one of the main bottlenecks in the European battery recycling value chain: efficient lithium recovery before hydrometallurgical refining. The modular platform combines industrial microwave systems, advanced electromagnetic field control, sensors, automation, proprietary software and process know-how to produce higher-value intermediate products. Rather than operating as a battery recycler, M.I.R.A. acts as a technology provider, offering modular plants, technology licenses and engineering services. The technology is currently at TRL 4, supported by two patent applications and a strong network of academic and industrial partners, with the goal of reaching TRL 7 through pilot-scale validation and contributing to a more resilient, circular and competitive European battery value chain.

NEED ADDRESSED

Europe needs efficient, low-impact technologies to recover lithium and critical raw materials from black mass generated by battery recycling.

SOLUTION PROPOSED

Modular microwave technology upgrading black mass to increase lithium recovery and produce higher-value recycled materials.

TARGET MARKET

Black mass producers, battery recyclers and hydrometallurgical refiners seeking efficient lithium recovery technologies.

Technology Readiness Level: TRL 4 Technology Validated in Lab
Patent: Yes
Funding needed: Between 500.000 Euros and 2.000.000

MOOVET

Project and company

Name of the project/company: MOOVET
Contact email address: info@moovet.eu
Website: moovet.eu

SHORT DESCRIPTION OF THE PROJECT

MOOVET DXC, a spin-off of the University of Milan, has developed the first objective molecular indicator of animal welfare for the agri-food industry. Using a simple biological sample, its proprietary microRNA-based platform quantitatively and reproducibly measures an animal's welfare status, replacing today's subjective and retrospective assessments with scientifically validated, objective data.
Animal welfare is now a direct driver of sustainable production: healthier animals require fewer antibiotics, generate fewer losses and waste throughout the production chain, achieve greater feed conversion efficiency, and reduce resource consumption and emissions per unit of product. By providing an objective measurement, MOOVET enables livestock supply chains to optimize resource use, enhance the value of sustainably produced products, and integrate welfare data into certification standards and quality assurance systems.
The same platform has already led to a first commercial application in precision veterinary diagnostics, demonstrating the validity and scalability of the technology. The method can be readily adapted to new animal species and additional biomarkers while maintaining the same operational model and centralized laboratory infrastructure.

EXTENDED DESCRIPTION OF THE PROJECT

MOOVET DXC is a spin-off of the University of Milan developing the first objective molecular indicator of animal welfare for the livestock industry. Our proprietary platform uses microRNA biomarkers extracted from a simple biological sample to provide a quantitative, reproducible, and scientifically validated assessment of animal welfare. By replacing the subjective and retrospective methods currently used in the industry, MOOVET enables continuous, evidence-based monitoring that supports better management decisions across the production chain.
The global livestock sector produces more than 340 million tonnes of meat and over 950 million tonnes of milk annually, representing a market worth over US$1.5 trillion. At the same time, increasing regulatory pressure, consumer demand, and retailer requirements are driving the adoption of objective animal welfare standards. Animal welfare is no longer only an ethical concern but a key determinant of productivity, food quality, sustainability, and market access.
Animals raised under better welfare conditions require fewer antibiotics, experience lower mortality and disease incidence, improve feed conversion efficiency, and reduce production losses. Livestock production accounts for approximately 14.5% of global anthropogenic greenhouse gas emissions, making welfare improvements an important strategy for increasing resource efficiency and reducing environmental impact. However, the sector still lacks an objective, standardized, and scalable tool capable of measuring welfare in a scientifically robust manner.
MOOVET addresses this unmet need through a laboratory-based molecular analysis that generates a standardized welfare score from a simple biological sample. The platform integrates seamlessly with existing quality assurance programs, sustainability frameworks, and certification schemes, allowing producers, processors, retailers, and certification bodies to objectively verify welfare standards while supporting ESG reporting and

compliance with evolving regulations.
The technology is built on a scalable biomarker discovery and validation platform that can be rapidly adapted to multiple livestock species, including dairy cattle, beef cattle, pigs, and poultry, and expanded to measure additional physiological parameters using the same centralized laboratory infrastructure. This modular approach significantly reduces development costs while enabling new commercial applications from a common technological platform.
The platform has already been validated through its first commercial application in precision veterinary diagnostics, demonstrating both the robustness of the technology and the scalability of the business model. This first product substantially de-risks the expansion into the animal welfare market while validating the underlying molecular platform.
MOOVET's vision is to become the global reference for objective animal welfare assessment, enabling the transition from subjective evaluations to standardized molecular biomarkers. By generating reliable, reproducible, and actionable data, the company aims to improve productivity, reduce antibiotic use and environmental impact, strengthen consumer trust, and support the transformation of livestock production toward a more sustainable and transparent food system.

NEED ADDRESSED

MOOVET addresses the lack of objective, standardized tools to measure animal welfare through molecular biomarkers.

SOLUTION PROPOSED

MOOVET provides a patented microRNA-based platform that objectively measures animal welfare through molecular biomarkers. The platform generates standardized and scientifically validated data that can be integrated into animal welfare certification schemes and sustainability standards across the agri-food supply chain.

TARGET MARKET

MOOVET's customers are stakeholders across the agri-food value chain seeking to objectively measure and enhance the sustainability of their production systems. These include dairy processing companies, protected designation of origin (PDO/PGI) consortia, certification bodies, and animal nutrition and health companies that require objective scientific evidence to support their products and services.
The value proposition is primarily targeted at downstream stakeholders, who protect premium product positioning and brand reputation through demonstrable quality and sustainability. For these customers, the cost of objective welfare measurement is marginal compared to the value it safeguards. The platform's scalability also enables its progressive expansion to additional production chains and new sustainability parameters.

Technology Readiness Level: TRL 8 System completedand qualified
Patent: Yes
Funding needed: Between 500.000 Euros and 2.000.000

Nemoris Nature Intelligence

Nemoris
Science for Nature Explorers

Project and company

Name of the project/company: Nemoris Nature Intelligence – MRV infrastructure for biodiversity and ecosystems
Contact email address: info@nemorislab.com
Website: https://nemorislab.com

SHORT DESCRIPTION OF THE PROJECT

Nemoris develops an MRV platform for biodiversity and ecosystems, providing scientific and verifiable data for reporting and nature credits.

EXTENDED DESCRIPTION OF THE PROJECT

The demand for reliable biodiversity and ecosystem data is growing rapidly. Public authorities, land managers and companies increasingly need to measure and document nature-related impacts, dependencies, risks and opportunities through robust, traceable and verifiable scientific evidence. Nemoris turns expertise developed through academic research into professional environmental monitoring services for baseline assessments, impact evaluation, ecological restoration, soil health, target species detection, and research support. The project aims to make these services more standardized, continuous and scalable through a Monitoring-as-a-Service model and a proprietary software platform for organizing data, monitoring campaigns, indicators, trends and technical documentation, while producing semi-automated reports. The framework will be developed around standardization, traceability, auditability, and verifiability, with a view towards future applications in biodiversity and nature credit schemes.

NEED ADDRESSED

Companies lack reliable, comparable site-level evidence to measure and report their impacts and progress on biodiversity.

SOLUTION PROPOSED

A science-based MRV service and digital platform integrating multi source ecological data to track impacts and progess on biodiversity

TARGET MARKET

Companies, public bodies and asset managers with nature impacts across sectors such as agriculture, energy and infrastructure.

Technology Readiness Level: TRL 2 Technology Cancept Formulated
Patent: No
Funding needed: < 500.000 Euros

PredictARIAble™

Project and company

Name of the project/company: PredictARIAble™
Contact email address: caa2addiagnosticssrl@legalmail.it
Website: https://www.caa2ad.com

SHORT DESCRIPTION OF THE PROJECT

PredictARIAble: enabling precision neurodiagnostics for equitable implementation of Alzheimer's immunotherapy and underserved rare diseases.

EXTENDED DESCRIPTION OF THE PROJECT

CAA2AD Diagnostics, a University of Milano-Bicocca spin-off, is developing PredictARIAble™ Platform, an enabling precision-neurodiagnostics technology combining a high-growth Life Sciences & MedTech opportunity with a strong Social Impact and Ethical Mission. PredictARIAble™ is designed to reduce barriers to equitable, safer and scalable access to the growing Alzheimer's disease immunotherapy market, while advancing better diagnosis and more equitable access to care for underserved and rare cerebral amyloid diseases, including CAA and CAA-ri. The platform measures innovative fluid biomarkers, adding a repeatable biological layer that spans precision diagnosis and future blood-based applications supporting longitudinal monitoring and therapeutic decision-making. Currently at TRL5, PredictARIAble™ is protected by a granted European patent and supported by a pre-industrial prototype, preliminary analytical and clinical proof-of-concept evidence, with industrialization underway.

NEED ADDRESSED

MRI-based pathways limit safe and scalable access to Alzheimer's immunotherapy and equitable diagnosis of challenging CAA and CAA-ri.

SOLUTION PROPOSED

PredictARIAble™ adds repeatable fluid biomarkers to MRI, enabling precision diagnosis, scalable monitoring and safer therapeutic decisions.

TARGET MARKET

Pharma, IVD companies, hospitals and diagnostics labs across the growing Alzheimer's immunotherapy market and underserved rare diseases.

Technology Readiness Level: TRL 5 Technology validated in industrially relevant environment
Patent: Yes
Funding needed: Between 500.000 Euros and 2.000.000

Qubitecture

Project and company

Name of the project/company: Qubitecture
Contact email address: miryalakarthik@gmail.com
Website: N/A

SHORT DESCRIPTION OF THE PROJECT

Qubitecture is a cloud-based no-code and low-code platform that enables students, professors and researchers to simulate, visualize and compare seven quantum-computing hardware architectures. Users can run the same experiment across different technologies and understand how the physical hardware affects its operation, errors, speed and results.

EXTENDED DESCRIPTION OF THE PROJECT

Qubitecture is a cloud-based educational and research platform designed to make quantum-computing hardware accessible without requiring users to begin by writing code. It will provide a unified environment for exploring seven principal hardware families: superconducting circuits, trapped ions, neutral atoms, photonic systems, semiconductor quantum dots, solid-state color centers and emerging topological systems.
Users will select an architecture and launch experiments such as quantum teleportation, Grover's algorithm, VQE, QAOA, entanglement generation, noise analysis and error correction. Qubitecture will translate each experiment into an architecture-aware model reflecting the machine's operating principles, connections, control methods, execution times, measurement constraints and principal sources of error.
Results will be presented through synchronized interactive visualizations, including circuits, quantum states, probability distributions, hardware layouts, control timelines, photonic paths, atom or ion movement and comparative performance indicators. This will allow users to understand not only the result of an experiment, but also why it changes when executed on a different type of quantum computer.
For education, the platform will provide guided experiments, explanatory content, assignments, shared classrooms and instructor dashboards. For research, it will offer configurable parameters, custom noise models, reproducible experiment records, data export, APIs and generated notebooks. Emerging topological systems will initially be represented through scientifically transparent theoretical models, reflecting the current maturity of the technology.
The distinctive element is the unified multi-architecture experience. Existing alternatives are generally code-driven, focused on circuit design or limited to one hardware family. Qubitecture is designed to execute and visually compare the same experiment across seven architectures within one accessible platform.
The product will follow a recurring SaaS model, supported by limited free access for individual users and annual institutional subscriptions. Development will be led by a permanent multidisciplinary team and supported by paid bachelor's and master's thesis interns working on clearly defined architecture modules. Professors and university research groups will subsequently participate as non-exclusive collaborators for pilot testing, scientific validation and feedback before commercial launch.
Qubitecture is currently an independent, pre-revenue initiative at the concept and preliminary validation stage. The next milestones are the development of the MVP, university pilots, scientific benchmarking and conversion of early adopters into paying institutional customers.

NEED ADDRESSED

Quantum hardware is hard to learn and compare because existing tools are fragmented, code-driven or focused on one architecture.

SOLUTION PROPOSED

Qubitecture lets users visually simulate and compare seven quantum hardware architectures in one no-code cloud platform.

TARGET MARKET

Universities and research labs are the primary market, followed by quantum companies, innovation teams and training providers.

Technology Readiness Level: TRL 2 Technology Cancept Formulated
Patent: No, but I plan to apply for a patent
Funding needed: < 500.000 Euros

RBV AquaTech

Project and company

Name of the project/company: RBV AquaTech
Contact email address: info@rbvaquatech.com
Website: www.rbvaquatech.com

SHORT DESCRIPTION OF THE PROJECT

RBV AquaTech turns industrial waste heat into water. Our hygroscopic sorbent captures moisture from ambient air and releases it at 45–50 °C — low enough to run on heat that facilities already discard. Water cost drops to about €1.1/m³, with no wells and no aquifers. We start with AI data centres, targeting an industrial pilot within 15 months.

EXTENDED DESCRIPTION OF THE PROJECT

RBV AquaTech produces liquid water from atmospheric humidity, powered by the low-grade waste heat that industrial sites already discard.

Two flows coexist on almost every industrial site and are never connected: the water the site buys, and the heat it pays to throw away. The case is most acute in data centres, which consume around 560 billion litres of water a year globally, roughly €2.8 billion in spend, with demand expected to double by 2028 as AI workloads expand. Those same sites dissipate enormous quantities of low-temperature heat that has no current use. Below 60 °C, heat cannot drive power generation at meaningful efficiency, cannot feed most industrial processes, and only reaches district heating if a network happens to be nearby. Discarding it is not negligence, it is the only available option.

Our technology closes that gap. We have developed a proprietary hygroscopic sorbent held in a polymer matrix, arranged in a high-surface-area honeycomb structure. The material captures water vapour from ambient air, is then regenerated by heat, and the released vapour is condensed and collected. There is no compression, no refrigeration cycle, and no dedicated grid connection.

The defining parameter is the regeneration temperature: 45–50 °C. That threshold determines whether the heat already present at a site is enough. The most advanced sorbent-based alternatives operate at 60–70 °C under vacuum, which ties them to their own energy supply and a substantially more complex system. Our material works from 35% relative humidity upward and was designed from the outset against an industrial cost constraint, with raw material in the order of €1/kg. The system consumes 1–1.5 kWh per cubic metre of water produced, against 300–1,000 kWh/m³ for conventional atmospheric water generation, and extracts no fresh water from any existing source.

Our entry market is AI data centres. On a 40 MW site with an annual demand of 175,000 m³, water cost falls to €1.1/m³, worth approximately €840,000 in annual savings against a system cost of €750,000, with payback under one year. Our customer interviews surfaced a second driver we had not anticipated: water consumption has become a question of local consent and permitting, not only of cost. A data centre director at Stack Infrastructure in Virginia described an open dispute with the surrounding community over the volume of water drawn from the site.

Beyond the beachhead, the addressable perimeter is defined by technical conditions rather than by sector: process water consumption, available waste heat above 45 °C, and average site humidity of at least 35%. Around 11,000 industrial sites worldwide meet those conditions, representing a serviceable market of approximately

€20 billion within a €50 billion total. We target €100 million by year five, across 52 installations.
We offer two commercial models. Under a fixed tariff, the client purchases the unit and pays a recurring charge of about €1 per cubic metre produced. Under gain sharing, the client invests nothing: we finance the installation and take a share of the savings actually generated, so if the savings do not materialise, the client pays nothing. In both cases the sorbent remains our exclusive supply.
We have synthesised and characterised two distinct formulations, measured adsorption isotherms in a climatic chamber across five humidity levels from 35% to 90%, and defined the regeneration protocol. We were selected among the top three of more than 100 teams at TEF Ignition. In the incoming weeks, the crosslinked material undergoes an independent measurement campaign at a third-party laboratory, extending characterisation to desorption and leakage.
The company was founded by two Politecnico di Milano engineers, combining materials chemistry and thermal system design, and is fully independent, with no institutional shareholding and full ownership of the technology. Our objective is an industrial pilot in operation within 15 months.

NEED ADDRESSED

Cheaper water on-site and free from supply chain, powered by wasted heat already present on site.

SOLUTION PROPOSED

Our sorbent captures water vapour from ambient air and releases it when heated to just 45–50 °C — low enough to run on the waste heat industrial sites already discard, with no dedicated energy source. The vapour is condensed and collected on site.
That threshold is the whole point. Competing sorbents need 60–70 °C under vacuum; ours turns heat a facility currently pays to dissipate into the water it currently buys. The result: water at €1/m^3, 1–1.5 kWh/m^3 versus 300–1,000 for conventional atmospheric water generation, and no extraction from wells or aquifers.

TARGET MARKET

Data centres are our entry market, specifically AI sites with high-density liquid cooling. They run 24/7, consume large, measurable volumes of water, and dissipate exactly the low-grade heat our process needs — a 40 MW site draws around 175,000 m^3 a year. The buying decision is concentrated: a handful of operators control many sites, so one win opens a portfolio. And for them water is no longer only a cost — our interviews show it has become a permitting and community-consent issue.
Beyond the beachhead, the customer is defined by three technical conditions rather than by sector: process water consumption, waste heat above 45 °C, and average site humidity of at least 35%. That covers manufacturing, food, chemicals, steel and mining — around 11,000 qualified sites worldwide, a serviceable market of roughly €20 billion.

Technology Readiness Level: TRL 3 Experimental Proof of Concept
Patent: No, but I plan to apply for a patent
Funding needed: Between 500.000 Euros and 2.000.000

Scanopy

Project and company

Name of the project/company: Scanopy
Contact email address: samuele2fumagalli@gmail.com
Website: greeneye.it

SHORT DESCRIPTION OF THE PROJECT

Scanopy is an AI and computer vision platform that turns orchard images into actionable agronomic data, supporting fruit and flower counting, early disease detection, yield planning and more timely field decisions.

EXTENDED DESCRIPTION OF THE PROJECT

Scanopy develops an end-to-end decision intelligence platform for high-value fruit production. Images are collected during normal field operations through a tractor-mounted device and processed by a proprietary pipeline and crop-specific computer vision models. The platform provides agronomists, cooperatives and structured farms with maps, indicators and alerts for flower and fruit counting, crop-load estimation, yield planning and disease detection. The initial market is apple production in Trentino-Alto Adige, followed by expansion to other high-value crops and European regions. Scanopy combines on-plant analysis, a proprietary annotated dataset and integration into existing workflows.

NEED ADDRESSED

Fruit production still relies heavily on manual scouting and subjective assessments. This limits field coverage, creates variability between operators and can delay the detection of diseases or production imbalances. Growers, agronomists and cooperatives

SOLUTION PROPOSED

Scanopy integrates image acquisition, quality-controlled data processing, crop-specific computer vision models and a decision-oriented dashboard. Images can be collected with a tractor-mounted device during normal operations; a drone payload is planned for later development. The system converts field images into maps, indicators and alerts for fruit and flower counting, crop-load and yield estimation, and disease detection.

TARGET MARKET

The primary customers are agricultural cooperatives, producer organisations, consortia, structured fruit farms and their technical or agronomic managers. The initial beachhead is apple production in Trentino-Alto Adige, where aggregators can provide access to large areas through a limited number of contracts. The longer-term market includes other high-value fruit crops and European production regions.

Technology Readiness Level: TRL 4 Technology Validated in Lab
Patent: No, but I plan to apply for a patent
Funding needed: < 500.000 Euros

Sensintegra Solutions Srl

Project and company

Name of the project/company: Sensintegra Solutions Srl
Contact email address: sensintegrasolutions@pec.it
Website: www.sensintegrasolutions.it

SHORT DESCRIPTION OF THE PROJECT

Sensintegra makes existing buildings smart: sensors, AI and proprietary fan-coil smart-up hardware cut HVAC energy from 15% to 40%, payback <2 Yr.

EXTENDED DESCRIPTION OF THE PROJECT

Sensintegra Solutions is a spin-off of Politecnico di Milano that makes HVAC systems in existing buildings smarter without invasive works. Its smart-up service installs low-cost wireless sensors (LoRaWAN/Zigbee), actuators, and edge devices for room-by-room monitoring and control of HVAC and lighting systems. On top of this infrastructure, Machine Learning agents (SensInt-Synch, SensInt-Core, SensInt-Diagnose) continuously optimize system start-up, supply temperature, and predictive maintenance, reducing energy consumption and failures. In addition, the portfolio includes SensInt-AirSpot, a proprietary hardware device for the smart retrofit of fan coils: non-invasive fan-speed modulation, mmWave radar for occupant detection, QR-code dashboard, and localized comfort control. A working prototype has been tested on a real fan coil. Components of the solution have been deployed in real-world environments, with demonstrated savings and payback periods of less than two years.

NEED ADDRESSED

Legacy HVAC systems in existing buildings waste energy: manual, conservative management and no per-room control or predictive maintenance.

SOLUTION PROPOSED

Wireless smart-up plus edge AI agents that optimise HVAC operation per room and predict faults, cutting energy use and maintenance costs.

TARGET MARKET

Italian non-residential buildings (public administration, hotels and through ESCOs, system integrators), driven by EPBD BACS obligations and incentives

Technology Readiness Level: TRL 7 System prototype demonstration in operational environment
Patent: No, but I plan to apply for a patent
Funding needed: < 500.000 Euros

SMART-SOIL

Project and company

Name of the project/company: SMART-SOIL: drones and ploughs fitted with IR sensors and AI/ML monitor soil organic matter and apply fertiliser in real time
Contact email address: damiano.crescini@unibs.it
Website: N/A

SHORT DESCRIPTION OF THE PROJECT

HYPER-AGRO: Sensori IR su droni e trattori con AI/ML per monitorare la SOM e automatizzare il dosaggio dei fertilizzanti in tempo reale.

EXTENDED DESCRIPTION OF THE PROJECT

The project stems from research by Prof. Damiano Crescini's team at the University of Brescia (UNIBS), who will found a dedicated spin-off by 2026. The initiative develops an innovative, non-destructive, real-time diagnostic system (TRL 5-6) based on infrared spectroscopy (NIR/SWIR) and advanced hyperspectral imaging (HSI) integrated into a hybrid air-land fleet: drones, plows, and smart sprayers.
By analyzing specific molecular vibrations, the system quantifies Soil Organic Matter (SOM) and detects soil contaminants on the fly. Proprietary AI/ML chemometric models run on a cloud IoT platform, unlocking a scalable Software-as-a-Service (SaaS) model.
Technically, drone-borne HSI maps field variability, while sensors embedded in plows analyze underground SOM. Crucially, sensor nodes on sprayer booms compute soil nutrient deficits within milliseconds, commanding automated variable-rate fertilization via ISOBUS to eliminate over-treatment and chemical waste.

NEED ADDRESSED

The need for real-time, non-destructive soil analysis to optimize chemical inputs, reduce waste, and monitor SOM and contaminants.

SOLUTION PROPOSED

Air-to-ground IR hyperspectral sensors and AI IoT platform to map SOM and dose fertilizers in real time via ISOBUS.

TARGET MARKET

Agricultural machinery manufacturers (OEMs), professional farming companies, agromechanical contractors, and soil monitoring agencies.

Technology Readiness Level: TRL 6 Technology demonstrated in industrially relevant environment
Patent: No, but I plan to apply for a patent
Funding needed: < 500.000 Euros

SMET4MED

Project and company

Name of the project/company: SMET4MED
Contact email address: luigiruc99@gmail.com
Website: N/A

SHORT DESCRIPTION OF THE PROJECT

SMET4MED is a bioabsorbable shape-memory medical device designed to protect the exposed spinal cord in spina bifida

EXTENDED DESCRIPTION OF THE PROJECT

SMET4MED is a biomedical project developing a biodegradable, shape-memory scaffold for prenatal repair of myelomeningocele, the most severe form of spina bifida. In this condition, the spinal cord remains exposed to the intrauterine environment and may undergo progressive neurological damage during pregnancy. The device is designed to be temporarily compacted for minimally invasive delivery and, once positioned at the defect site, to recover its functional shape at physiological temperature. This controlled deployment is intended to simplify placement, reduce tissue manipulation and protect the exposed neural tissue. Its main distinctive features are shape-memory behaviour, adaptability to the defect, biodegradability and compatibility with minimally invasive fetal surgery. The project is currently at TRL 4, with the technology validated in a laboratory environment. The available patent specifically covers the shape memory treatment (SMT) used to program the scaffold.

NEED ADDRESSED

Safe, minimally invasive fetoscopic repair of spina bifida to prevent severe fetal neural damage and reduce maternal surgical risks.

SOLUTION PROPOSED

A bioabsorbable, shape-memory scaffold for minimally invasive fetoscopic delivery, neural tissue protection and support of defect repair.

TARGET MARKET

Fetal surgery centers, pediatric neurosurgery hospitals, and tertiary centers performing minimally invasive fetal procedures.

Technology Readiness Level: TRL 4 Technology Validated in Lab
Patent: Yes
Funding needed: > 2.000.000

Solship

Project and company

Name of the project/company: Solship
Contact email address: Hamad@solship.ai
Website: https://solship.ai/

SHORT DESCRIPTION OF THE PROJECT

AI operating system for batteries: buildings cut net energy costs by half and earn from energy markets, automatically.

EXTENDED DESCRIPTION OF THE PROJECT

Solship is an AI operating system for batteries in buildings. It forecasts the site's energy consumption and market prices 24 hours ahead, then runs the battery automatically. Its AI trades the excess energy in the energy market, making customer cut their energy costs significantly.

NEED ADDRESSED

Buildings face high energy costs while their batteries sit underused, locked out of the energy markets that would pay them.

SOLUTION PROPOSED

An AI OS in the battery that forecasts consumption and energy market prices 24 hours ahead and runs the battery, decreasing energy costs and creating new revenue for the customer.

TARGET MARKET

Owners and operators of buildings with solar and battery storage. Now focusing on Italy, then expanding to Europe.

Technology Readiness Level: TRL 7 System prototype demonstration in operational environment
Patent: No, but the patent application has been filed
Funding needed: Between 500.000 Euros and 2.000.000

Talos Robotics

Project and company

Name of the project/company: Talos Robotics
Contact email address: gabriel.voss@talosrobotics.ai
Website: https://talosrobotics.ai/

SHORT DESCRIPTION OF THE PROJECT

TalOS is a Physical AI platform that enables humanoid robots to learn, adapt and work across industry and logistics without reprogramming them from scratch.

EXTENDED DESCRIPTION OF THE PROJECT

Talos Robotics develops TalOS, a Physical AI software platform designed to make humanoid robots easier to train, adapt and operate in industrial environments. Traditional automation performs well in stable, repetitive processes but becomes less effective when tasks, products or layouts change. Humanoid robots can operate in environments built for people, but deploying them still requires significant robotics and AI expertise. TalOS addresses this software gap by providing a unified layer to configure, train, simulate, deploy and manage robotic tasks across compatible platforms. The goal is to make flexible physical automation accessible to manufacturing and logistics companies, increasing productivity and operational continuity while reducing the need for people to perform repetitive, strenuous and low-value activities.

NEED ADDRESSED

Industrial automation struggles with variable physical tasks that are still difficult to automate with traditional robotics.

SOLUTION PROPOSED

TalOS enables humanoid robots to learn and adapt to new industrial tasks through a flexible Physical AI software layer.

TARGET MARKET

Manufacturing and logistics companies seeking flexible automation for repetitive, variable and labor-intensive physical tasks

Technology Readiness Level: TRL 4 Technology Validated in Lab
Patent: No
Funding needed: > 2.000.000

Teerra

Project and company

Name of the project/company: Teerra
Contact email address: luca.morandini@polimi.it
Website: N/A

SHORT DESCRIPTION OF THE PROJECT

AI-powered satellite platform that detects environmental crimes and prioritises sites for environmental enforcement.

EXTENDED DESCRIPTION OF THE PROJECT

Teerra operationalizes the prosecution of environmental crime by integrating AI, satellite imagery, geospatial data, and the regulatory framework, giving environmental agencies and prosecutors the tools to identify violations at scale and generate reliable, court-admissible evidence. Built by the Politecnico di Milano team behind AerialWaste and Horizon Europe PERIVALLON, Teerra processes public satellite imagery (including Italy's IRIDE constellation) and commercial imagery to detect illegal dumping and unauthorized landfills. Detections are enriched with geospatial data and cross-checked against a centralized waste-treatment authorization registry built by Teerra from multiple public databases to assess risk and prioritize sites by impact. Critical sites are analyzed for compliance with EU and local regulations, producing trusted court-ready evidence packages for legal use and reducing most manual review work.

NEED ADDRESSED

Environmental agencies lack scalable and reliable tools to detect illegal dumping and build solid legal evidence, relying on manual work.

SOLUTION PROPOSED

AI-based platform for satellite detection, site prioritization, and regulatory compliance analysis for court-ready evidence.

TARGET MARKET

Italian and EU environmental agencies (ARPA/APPA) and law enforcement, with private-sector compliance buyers longer-term.

Technology Readiness Level: TRL 4 Technology Validated in Lab
Patent: No, but I plan to apply for a patent
Funding needed: Between 500.000 Euros and 2.000.000



Thelia

Project and company

Name of the project/company: Thelia
Contact email address: info@thelia.tech
Website: https://thelia.tech

SHORT DESCRIPTION OF THE PROJECT

THELIA turns 3D reconstruction and hyperspectral imaging into predictive intelligence for safer, smarter infrastructure.

EXTENDED DESCRIPTION OF THE PROJECT

Thelia develops an advanced imaging technology that integrates 3D geometric data and hyperspectral information on material composition within a single system. Unlike conventional approaches, the technology enables native data co-registration, eliminating alignment errors and reducing post-processing complexity.
The solution allows simultaneous analysis of structural geometry and material state, enabling early detection of degradation phenomena, surface alterations, moisture presence, and structural defects. This transforms infrastructure monitoring from a reactive activity into a predictive, data-driven process based on integrated and objective information.
Designed for predictive maintenance of infrastructures such as bridges, tunnels, and railway networks, THELIA's technology aims to improve safety, reduce maintenance costs, and extend asset lifetime. In the longer term, the solution can be extended to robotics and autonomous systems requiring advanced environmental perception.

NEED ADDRESSED

Current infrastructure monitoring is fragmented, missing early detection of degradation and limiting predictive maintenance decisions.

SOLUTION PROPOSED

THELIA integrates 3D scanning and hyperspectral imaging in one system to detect degradation and enable predictive maintenance.

TARGET MARKET

We target the digital inspection market (€30B+) with a focus on infrastructure monitoring and predictive maintenance.

Technology Readiness Level: TRL 3 Experimental Proof of Concept
Patent: No, but the patent application has been filed
Funding needed: < 500.000 Euros

TRAC3S Technology

Project and company

Name of the project/company: TRAC3S Technology
Contact email address: francesco.tissoni@unimi.it
Website: N/A

SHORT DESCRIPTION OF THE PROJECT

TRAC3S Technology is a modular SaaS platform combining NFC smart labels, blockchain and AI to certify authenticity, traceability and sustainability for Italian artisans and micro-brands, ahead of the EU's 2027 Digital Product Passport requirement.

EXTENDED DESCRIPTION OF THE PROJECT

TRAC3S Technology is a modular SaaS platform integrating anti-cloning NFC/RFID smart labels, a blockchain-based digital twin (Polygon PoS), and an AI-powered onboarding web app, designed to certify authenticity, traceability and sustainability for Italian artisanal products. Originating from PNRR MUSA Spoke 5 research at the University of Milan, the platform anticipates the EU's Digital Product Passport requirement (ESPR 2027). Unlike existing luxury-focused blockchain solutions, TRAC3S is built for unique pieces, small batches and micro-brands, with modular pricing and simplified onboarding.

NEED ADDRESSED

Italian artisanal manufacturing loses significant value each year to counterfeiting and undocumented "fake craftsmanship," while most artisan SMEs lack interoperable digital tools to certify authenticity and traceability.

SOLUTION PROPOSED

An integrated NFC-blockchain-AI ecosystem that lets artisans and SMEs digitally certify their products' authenticity and origin, track them through the supply chain, and prepare for mandatory DPP compliance — with an onboarding process designed to take a fraction of the time of enterprise-grade alternatives.

TARGET MARKET

Italian artisans and micro-brands, fashion and design SMEs, and trade associations/chambers of commerce, within a global quality-craftsmanship market estimated at €850–900 billion, with an addressable Italian segment of €40–50 billion.

Technology Readiness Level: TRL 6 Technology demonstrated in industrially relevant environment
Patent: No, but I plan to apply for a patent
Funding needed: Between 500.000 Euros and 2.000.000

Vectorialis S.r.l.

Project and company

Name of the project/company: Vectorialis S.r.l.
Contact email address: n.bono@vectorialis.com
Website: https://www.vectorialis.com/

SHORT DESCRIPTION OF THE PROJECT

VibroFect® turns any DNA or RNA into ready-to-use delivery nanoparticles in 10 seconds: one benchtop device, three non-viral reagent kits.

EXTENDED DESCRIPTION OF THE PROJECT

Vectorialis develops an innovative point-of-use platform for the formulation of nanoparticles enabling therapeutic DNA and RNA delivery, a critical step for over 80% of advanced therapies currently in development and still the main bottleneck of the field.
The technology integrates VibroFect®, a patented plug-and-play benchtop device, with three proprietary low-toxicity reagents: ViALL for DNA delivery in gene therapies, ViRNA for RNA-based therapies, and ViPRO for recombinant protein production.
Through controlled vibration, VibroFect® drives the rapid and reproducible self-assembly of nanoparticles within 10 seconds, eliminating the need for viral vectors, electroporation, or dedicated infrastructure.
The combination of simplicity, biocompatibility, and delivery performance makes this platform unique, addressing multiple markets from research applications to future clinical developments. One device, three kits, one platform to accelerate the future of advanced therapies.

NEED ADDRESSED

80% of advanced therapies depend on getting DNA or RNA inside cells, yet today's tools are either efficient but toxic, or safe but weak.

SOLUTION PROPOSED

VibroFect®: one device, three reagent kits. 10 seconds of vibration self-assemble non-toxic, reproducible nanoparticles, right before use.

TARGET MARKET

From research to clinics, we address 3 markets: Research use only, ex vivo (CAR-T) and gene therapies.

Technology Readiness Level: TRL 5 Technology validated in industrially relevant environment
Patent: Yes
Funding needed: < 500.000 Euros



View Matters

Project and company

Name of the project/company: View Matters
Contact email address: info@view-matters.com
Website: https://view-matters.com/

SHORT DESCRIPTION OF THE PROJECT

We turn the quality of a view into an objective score, so buildings can be designed, valued and traded on measurable evidence.

EXTENDED DESCRIPTION OF THE PROJECT

View Matters makes the quality of a view measurable. Today the view can drive up to 40% of a prime property price, yet it is never measured, compared or included in valuation. From a single 2D panoramic image, a survey photo, a listing picture or a rendering exported from a design model, our patented technology computes the View Score: a percentage index of how much a given element is actually perceived from a defined viewpoint, weighted on human vision, field of view, foveal and peripheral acuity and binocular geometry. No 3D model is required and processing runs in real time on GPU.
The same engine serves three decisions along the property chain: designers and developers compare layout and opening alternatives before building, agencies turn the view into a comparable attribute, funds and valuation providers add visual quality and obstruction risk to portfolio screening and automated valuation.
The technology is protected by patent P1815IT00, owned by Politecnico di Milano.

NEED ADDRESSED

The view drives up to 40% of a property price in prime locations, yet it is never measured, compared or included in valuation.

SOLUTION PROPOSED

A patented AI platform scoring view quality from a single 2D image, usable in design, listing and portfolio valuation.

TARGET MARKET

Prime real estate agencies and networks, developers and design firms, real estate funds, SGRs and automated valuation providers.

Technology Readiness Level: TRL 5 Technology validated in industrially relevant environment
Patent: Yes
Funding needed: < 500.000 Euros

W.A.K.A. (PAC-MAN Platform)

Project and company

Name of the project/company: W.A.K.A. (PAC-MAN Platform)
Contact email address: serena.arnaboldi@unimi.it
Website: N/A

SHORT DESCRIPTION OF THE PROJECT

W.A.K.A. is a wireless, pump-free planar microfluidic platform for continuous-flow asymmetric electrosynthesis. It aims to reduce facility CAPEX from >€1M to <€15k and minimize toxic waste generation, supporting clean and on-demand chiral chemical manufacturing.

EXTENDED DESCRIPTION OF THE PROJECT

The W.A.K.A. (PAC-MAN) system integrates planar microfluidics, inherently chiral polymers, and wireless bipolar electrochemistry. Designed to operate as a scalable “Razor & Blades” continuous-flow reactor, it offers an alternative to conventional, resource-intensive batch chemical plants through an affordable desktop console and smart disposable cartridges. The system operates entirely pump-free via AC electrokinetic fluid actuation, facilitating the synthesis of pure enantiomers without reliance on toxic heavy-metal catalysts. Its modular architecture supports channel parallelization (Scale-Out) to address the need for sustainable, decentralized production within the Flavors & Fragrances (F&F), Pharmaceuticals (CDMO/API), and Radiopharmaceuticals sectors. The underlying intellectual property is protected by a filed patent application managed by Notarbartolo & Gervasi.

NEED ADDRESSED

Industrial chiral batch synthesis yields 100kg toxic waste per 1kg product, demands >€1M CAPEX and relies on $10k/g metal catalysts.

SOLUTION PROPOSED

A compact, pump-free desktop flow-reactor utilizing smart planar microfluidic cartridges. By leveraging low-voltage wireless electrochemistry and reusable chiral polymers, the platform aims to achieve >99% optical purity and significantly reduce reagent consumption. It offers a scalable “Factory-in-a-box” production model designed to bypass traditional mechanical bottlenecks and support sustainable chemical manufacturing.

TARGET MARKET

B2B clients: The Flavors & Fragrances (F&F) industry, Contract Development and Manufacturing Organizations (CDMOs), Pharmaceutical companies engaged in continuous API synthesis, and Hospital Hot-Labs for decentralized Radiopharmaceutical production.

Technology Readiness Level: TRL 5 Technology validated in industrially relevant environment
Patent: No, but the patent application has been filed
Funding needed: Between 500.000 Euros and 2.000.000

Why Only White

Project and company

Name of the project/company: Why Only White
Contact email address: federico.morosi@wowmail.it
Website: https://www.whyonlywhite.com/

SHORT DESCRIPTION OF THE PROJECT

WoW transforms one physical prototype into unlimited digital variants, accelerating product development while reducing costs and waste.

EXTENDED DESCRIPTION OF THE PROJECT

Every successful product is redesigned dozens of times before reaching the market. Each new iteration requires additional physical samples, increasing costs, development time and environmental impact. WoW changes this paradigm.
With WoW Studio, fashion companies can instantly visualize virtually unlimited product variants directly on a single physical prototype, preserving its shape, ergonomics and tactile perception without producing new samples. WoW enables natural interaction without the need for headsets, supports remote collaboration and integrates AI-powered tools that simplify adoption and assist the product development process. The result is up to 60% fewer physical samples, over 40% lower prototyping costs and much faster design decisions. Beyond improving efficiency, WoW expands designers' creative freedom and helps companies develop better products in less time.

NEED ADDRESSED

Fashion companies need faster product development while reducing physical samples, costs and waste.

SOLUTION PROPOSED

A projection-based AR platform that transforms one physical prototype into unlimited digital product variants in real time

TARGET MARKET

Fashion, luxury and textile companies, with future expansion to furniture, packaging, industrial design and retail sectors.

Technology Readiness Level: TRL 8 System completedand qualified
Patent: Yes
Funding needed: Between 500.000 Euros and 2.000.000

Battery grade graphite and other industrial carbon materials from methane pyrolisis.

Project and company

Name of the project/company: Battery grade graphite and other industrial carbon materials from methane pyrolisis.

Contact email address: fabio.difonzo@gmail.com

Website: www.x-nano.it

SHORT DESCRIPTION OF THE PROJECT

Sustainable, low cost and secure battery grade graphite.

EXTENDED DESCRIPTION OF THE PROJECT

X-nano (start-up of the Italian Institute of Technology) has developed an absolutely innovative technology to produce high-purity synthetic graphite (to be processed in BGG) by pyrolysis of methane gas. Pyrolysis is a thermochemical process of decomposition by heat (from the ancient Greek pyro – fire, lysis – splitting, cutting) of a substance in the absence of oxygen. X-nano has patented an innovative pyrolysis reactor, called X-PYRO, which produces very high purity graphite (>>99.99%) starting from methane, including of renewable origin, such as biomethane, in the total absence of catalysts. The co-product of pyrolysis is pure hydrogen that is used to produce the electricity necessary to power the pyrolyzer and the graphite processing plants necessary to reach the “battery grade”. When renewable electricity or grid surplus is available at advantageous prices, it is possible to obtain pure hydrogen for other industrial uses.

The use of natural gas represents a structural cost advantage over Chinese producers using low-sulfur acicular petroleum coke, as one kg of carbon obtained from natural gas costs significantly less than the same kg from coke, even in Europe at current prices. In addition, the transformation of one kg of carbon from coke into graphite requires an additional 1-1.5 €/kg of electricity, while the kg of carbon from natural gas incorporates the energy necessary for its transformation in the form of waste hydrogen from the pyrolysis process.

Lombardy, thanks to the large concentration of biogas and biomethane plants, represents a unique site for the use of biogas in the X-pyro process of X-nano, potentially giving rise to andoic materials for batteries with negative emissions, with a great environmental advantage and therefore a premium price positioning.

NEED ADDRESSED

No graphite no batteries, and now >90% of graphite is produced in China!

SOLUTION PROPOSED

Producing battery grade graphite via a zero emission process based on (bio)methane pyrolysis.

The process will be so clean that can be deployed anywhere: no pollution, no water consumption, no chemicals.

TARGET MARKET

Primary customers: lithium and sodium battery manufacturers.

Secondary customers: users of secondary products and waste from the battery production process like plastics and rubber manufacturers (carbon black), lubricant manufacturers, steel mills (high purity carbon as a decarbonized recarburizing agent).

Technology Readiness Level: TRL 5 Technology validated in industrially relevant environment

Patent: Yes

Funding needed: > 2.000.000

CarpeCarbon, cattura diretta di CO2 dall'atmosfera

CarpeCarbon

Project and company

Name of the project/company: CarpeCarbon, cattura diretta di CO2 dall'atmosfera
Contact email address: chiara.dadamo@carpecarbon.com
Website: www.carpecarbon.com

SHORT DESCRIPTION OF THE PROJECT

CarpeCarbon develops a proprietary Direct Air Capture technology for industrial decarbonisation. Its modular plants capture CO2 directly from ambient air using industrial waste heat and solar thermal energy, cutting electricity consumption by up to 90% compared with existing DAC systems. The captured CO2 replaces fossil-derived carbon as an industrial feedstock, or becomes certified permanent removal when sent to geological storage.

EXTENDED DESCRIPTION OF THE PROJECT

CarpeCarbon is an Italian deep-tech company developing Direct Air Capture (DAC) technology designed to be integrated into existing industrial sites. The technology addresses the main barrier to DAC deployment: electricity consumption. Conventional systems rely on forced ventilation and high-temperature regeneration, consuming between 800 and 2,500 kWh per ton of CO2 captured and competing for renewable electricity, the scarcest input of the energy transition. CarpeCarbon's process substitutes electricity with low-enthalpy heat from 70°C upwards, which also regenerates the sorbent. Electricity consumption falls below 300 kWh per ton captured. The consequence is that the plant no longer competes for renewable capacity: it monetises a thermal flow that industrial sites currently dissipate. The technology is at TRL 6, with a pilot plant operating at the company's facility near Turin, and is covered by three patent applications filed in Italy relating to the process, the adsorption/desorption module and sorbent materials chemistry. The first industrial-scale plant is being developed with an industrial multinational company in Northern Italy, powered by a combination of process waste heat and solar thermal energy, with entry into operation expected in the second half of 2027. Plants are deployed in two configurations, differing in ownership and location rather than in output: modules installed within existing industrial sites and powered by their waste heat, or stand-alone plants powered by solar thermal energy and sited near geological storage. Both can deliver CO2 for industrial reuse or certified permanent removal, depending on the destination of the captured carbon.

NEED ADDRESSED

European industry needs permanent removals for the emissions it cannot eliminate and non-fossil carbon as a feedstock. Yet Direct Air Capture is held back by an electricity demand that puts capture costs beyond market reach.

Chimica verde Lombardia per un futuro sostenibile 2026



SOLUTION PROPOSED

CarpeCarbon's process is built to turn the heat an industrial site dissipates into the energy that captures carbon from the air on that same site.
Air passes through the adsorption modules by the stack effect, driven by the temperature difference generated by low-enthalpy heat. The same heat, from 70°C upwards, regenerates the sorbent once saturated and releases concentrated CO2.
The module is designed to accommodate different sorbent families, so that the technology depends neither on a single supplier nor on a single chemistry; alongside this, the company develops a proprietary formulation. An in-house digital twin supports performance optimisation and industrial scale-up.
For the host site the effect operates on three fronts at once: it replaces fossil-derived feedstock with carbon captured on site, converts dissipated waste heat into a productive asset, and reduces exposure to carbon costs for sites under the EU ETS. Where the captured CO2 is sent to permanent storage, the host produces its own certified removals rather than purchasing them on the market. Modular and co-located, the system behaves like a plant utility, making the productive system itself the atmospheric regulator.

TARGET MARKET

Three segments, partly overlapping.
Industrial sites with available waste heat: energy-intensive operators under the EU ETS, with decarbonisation targets and either a CO2 requirement or exposure to carbon costs. Lombardy is a particularly dense catchment, where chemicals, paper, glass, cement and food processing concentrate both ETS emissions and low-temperature process heat.
Users and distributors of industrial CO2, for whom a co-located plant replaces a supply chain that currently depends on fossil by-products, is volatile in price and subject to recurring shortages.
Buyers of high-integrity permanent removal credits, particularly corporates required to report publicly on their decarbonisation pathway against defined Net Zero targets. The highest-value case is where two of these profiles coincide: a hard-to-abate operator that hosts the plant and takes title to the removals it generates.

Technology Readiness Level: TRL 6 Technology demonstrated in industrially relevant environment
Patent: Yes
Funding needed: > 2.000.000

ChromeTrust
Smart Electrochromic Labels for Sustainable and Traceable Cold Chains

Project and company

Name of the project/company: ChromeTrust – Smart Electrochromic Labels for Sustainable and Traceable Cold Chains
Contact email address: laura.maggini@univie.ac.at
Website: //

SHORT DESCRIPTION OF THE PROJECT

ChromeTrust makes cold chain anomalies visible through irreversible labels, temperature sensors, and digital traceability.

EXTENDED DESCRIPTION OF THE PROJECT

ChromeTrust is developing a new generation of smart labels for temperature-sensitive products, combining a proprietary irreversible electrochromic display with temperature sensing and digital traceability. When predefined temperature conditions are exceeded, the label generates a permanent and clearly visible optical signal directly on the product, enabling immediate status verification without dedicated reading equipment. Integrated NFC/RFID functionalities provide access to the corresponding temperature history and support digital supply-chain traceability. The initial target market is pharmaceutical and biotechnology cold-chain logistics, where ChromeTrust aims to improve unit-level monitoring, simplify handling and release decisions, and reduce unnecessary product losses. The technology is being developed as a flexible, low-power and scalable platform for future smart-packaging and condition-monitoring applications.

NEED ADDRESSED

Cold-chain monitoring often misses unit-level temperature excursions, causing uncertainty, delays and avoidable product losses.

SOLUTION PROPOSED

Smart labels combine an irreversible visual signal with temperature sensors and digital traceability at unit-level.

TARGET MARKET

Pharma and biotech cold-chain logistics for high-value, temperature-sensitive products requiring unit-level monitoring.

Technology Readiness Level: TRL 4 Technology Validated in Lab
Patent: Yes
Funding needed: < 500.000 Euros



FORMA
Quantum Machine Learning for Data-Scarce Chemical Formulation

g2Q COMPUTING

Project and company

Name of the project/company: FORMA — Quantum Machine Learning for Data-Scarce Chemical Formulation
Contact email address: ekaterina.p@g2qcomputing.com
Website: https://g2qcomputing.com/

SHORT DESCRIPTION OF THE PROJECT

FORMA is a quantum machine learning platform that helps chemical R&D teams develop sustainable formulations with far fewer laboratory experiments. Hybrid quantum-classical models are particularly effective where data is scarce and expensive to generate, exactly the condition of industrial formulation R&D.

EXTENDED DESCRIPTION OF THE PROJECT

Developing a sustainable chemical formulation means searching a vast space of ingredients, concentrations and process conditions on very little data: each experiment costs days of lab time, reagents and energy, and most yield nothing usable. Classical design of experiments samples rigidly; conventional machine learning needs far more data than a chemical company has. FORMA closes that gap. A hybrid quantum-classical neural network learns the composition-property relationship from the company's own R&D history. Variational quantum circuits offer high expressivity with few parameters, resisting overfitting exactly where data is scarce and expensive. An active learning loop then hands the chemist a ranked shortlist of formulations worth testing, within cost, safety and regulatory constraints. The architecture is already validated on real industrial data and runs on-premise, so proprietary formulations never leave the company. Target impact: 30-50% fewer experiments per specification.

NEED ADDRESSED

Developing a new chemical formulation takes hundreds of lab experiments, each costing days, reagents and energy - and most yield nothing.

SOLUTION PROPOSED

A hybrid quantum-classical model learns from your R&D history and proposes only the few experiments actually worth running.

TARGET MARKET

R&D teams in European chemical companies: fine and specialty chemicals, coatings, adhesives, surfactants, additives, polymer compounds.

Technology Readiness Level: TRL 5 Technology validated in industrially relevant environment
Patent: No, but I plan to apply for a patent
Funding needed: < 500.000 Euros

HoverSpect
Inventario e verifica digitale del magazzino con droni

Project and company

Name of the project/company: HoverSpect — Inventario e verifica digitale del magazzino con droni
Contact email address: lorenzo@hoverspect.com
Website: https://hoverspect.com

SHORT DESCRIPTION OF THE PROJECT

HoverSpect automates warehouse inventory with a portable system combining drones and image analysis, without dedicated fixed infrastructure. It produces digital evidence to verify stock and compare it with warehouse management system records.

EXTENDED DESCRIPTION OF THE PROJECT

HoverSpect develops a warehouse inventory and intelligence platform built around a portable system combining drones and image analysis. The supervised logistics service is already used in operational warehouses and covers the full workflow from scanning pallet racks to delivering results through HoverSpect Warehouse Analytics. The company has completed real inventories covering thousands and tens of thousands of pallet locations. Portability and deployment without dedicated fixed infrastructure allow customers to start with a single inventory and build a programme of repeat checks across their warehouses. Through the programme, HoverSpect aims to work with partner companies to improve inventory efficiency and stock visibility. Pilot projects will measure data quality, verification time and discrepancy resolution, with the goal of reducing manual searches, unnecessary movements and waste associated with stock errors. The roadmap includes greater operational autonomy for the HoverSpect Box and additional warehouse intelligence software capabilities.

NEED ADDRESSED

Warehouse stock discrepancies drive manual searches and costly inventory checks. Companies need reliable, repeatable stock verification.

SOLUTION PROPOSED

HoverSpect provides a managed inventory service using a portable drone-based system to scan pallet racks and capture location data, visible identifiers and images. The data are analysed and made available through HoverSpect Warehouse Analytics for comparison with warehouse management system records. Digital evidence and flagged exceptions help warehouse teams focus their checks and resolve discrepancies. The service requires no dedicated fixed infrastructure and can start with data exported from the customer's management system.



TARGET MARKET

Companies operating warehouses with pallet racking and palletized goods, across manufacturing, distribution and logistics. The priority segment comprises sites with readable labels and recurring inventory or stock verification needs, including companies managing several warehouses. Initial adoption can start at one site and expand through repeat checks and deployment at additional locations. The approach also offers potential applications in chemical-industry warehouses that share these operating characteristics.

Technology Readiness Level: TRL 9 Actual system proved in operational environment
Patent: No
Funding needed: < 500.000 Euros

HydraX
La ri-generazione dell'acqua

Project and company

Name of the project/company: HydraX – La ri-generazione dell'acqua
Contact email address: riccardo.rebosio@4-ph.com
Website: https://4-ph.com/

SHORT DESCRIPTION OF THE PROJECT

HydraX regenerates water: cavitation, ozone AOP and nanofiltration in one modular and scalable plug-and-play system with low consumption. No chemicals, no toxic residues, Just efficiency

EXTENDED DESCRIPTION OF THE PROJECT

HydraX is a modular water treatment and regeneration platform integrating controlled hydrodynamic cavitation, advanced oxidation (ozone and nano-diffused hydroxyl radicals), and selective nanofiltration membranes, built from regenerated bio-char in a single process. It removes refractory contaminants (and it's now been testing on PFAS, pharmaceuticals, microplastics, pathogens) without chemical reagents and without producing brines or toxic by-products, cutting energy consumption by up to 40% versus conventional technologies. Validated with the University of Trento (DICAM) and accredited labs, it has been successfully applied in agriculture (+15-25% yield), livestock farming (-90% pathogens), municipal wastewater (+15% efficiency, -40% sludge) and food processing (-70% scaling). Plug-and-play, scalable architecture from mobile units to full industrial plants, with IoT remote control and predictive diagnostics. Patent application filed in early 2025 and already with positive report.

NEED ADDRESSED

Emerging pollutants (PFAS, pharma, microplastics) escape conventional water treatment, which is costly, energy-hungry and toxic.

SOLUTION PROPOSED

Modular platform combining low energy hydrodynamic cavitation, ozone AOP and nanofiltration: purifies water with no chemicals and no residues.

TARGET MARKET

Water utilities, food/chemical/pharma industries, agriculture and hydroponics, defence and off-grid applications.

Technology Readiness Level: TRL 6 Technology demonstrated in industrially relevant environment
Patent: Yes
Funding needed: Between 500.000 Euros and 2.000.000

M.I.R.A.
Microwave Innovation for Resource Activation

Project and company

Name of the project/company: M.I.R.A. - Microwave Innovation for Resource Activation
Contact email address: albertomannu@gmail.com
Website: www.mirarecycling.it

SHORT DESCRIPTION OF THE PROJECT

Deep-tech startup developing microwave technology to upgrade black mass and enable sustainable lithium recovery from Li-ion batteries.

EXTENDED DESCRIPTION OF THE PROJECT

M.I.R.A. is a deep-tech startup originating from research at the University of Brescia. The company develops a proprietary technology platform for upgrading black mass generated from end-of-life lithium-ion batteries, addressing one of the main bottlenecks in the European battery recycling value chain: efficient lithium recovery before hydrometallurgical refining. The modular platform combines industrial microwave systems, advanced electromagnetic field control, sensors, automation, proprietary software and process know-how to produce higher-value intermediate products. Rather than operating as a battery recycler, M.I.R.A. acts as a technology provider, offering modular plants, technology licenses and engineering services. The technology is currently at TRL 4, supported by two patent applications and a strong network of academic and industrial partners, with the goal of reaching TRL 7 through pilot-scale validation and contributing to a more resilient, circular and competitive European battery value chain.

NEED ADDRESSED

Europe needs efficient, low-impact technologies to recover lithium and critical raw materials from black mass generated by battery recycling.

SOLUTION PROPOSED

Modular microwave technology upgrading black mass to increase lithium recovery and produce higher-value recycled materials.

TARGET MARKET

Black mass producers, battery recyclers and hydrometallurgical refiners seeking efficient lithium recovery technologies.

Technology Readiness Level: TRL 4 Technology Validated in Lab
Patent: Yes
Funding needed: Between 500.000 Euros and 2.000.000

Mindis XR: Digital Twin, Realtà Aumentata, BIM e Blockchain per Infrastrutture sostenibili

Project and company

Name of the project/company: Mindis XR: Digital Twin, Realtà Aumentata, BIM e Blockchain per Infrastrutture sostenibili
Contact email address: cristianodl@mindis.it
Website: www.mindis.it

SHORT DESCRIPTION OF THE PROJECT

Mindis is an Augmented Digital Twin Platform acting as a Field Execution Layer for infrastructure lifecycle management. By combining Augmented Reality, BIM, Artificial Intelligence and Blockchain, the platform improves traceability, operational efficiency and ESG performance across construction, inspection and maintenance activities.

EXTENDED DESCRIPTION OF THE PROJECT

Mindis is an Augmented Digital Twin Platform designed to connect digital asset information with field operations throughout the entire lifecycle of infrastructure assets. Acting as a Field Execution Layer, the platform integrates BIM, Augmented Reality, Artificial Intelligence and Blockchain technologies into a single operational environment supporting construction, inspection, quality control, maintenance and asset management activities. Mindis enables field teams to access contextual information directly on site, improving decision-making processes, reducing operational inefficiencies and ensuring complete traceability of activities. The platform supports organizations in their digital transformation journey while contributing to sustainability and ESG objectives through more efficient resource utilization and reduced rework.

NEED ADDRESSED

Organisations that manage industrial infrastructure and assets still face processes characterised by a lack of information continuity between design, construction and operational management.
This fragmentation leads to delays, errors in execution, rework, wastage of materials and a limited ability to monitor operational and sustainability performance.



SOLUTION PROPOSED

Mindis provides an operational Digital Twin platform that bridges the gap between digital models and field execution.
By integrating BIM, Augmented Reality, Artificial Intelligence and Blockchain, the solution enables quality assurance, progress monitoring, issue management and certified traceability of field activities. Augmented Reality acts as the enabling interface that delivers digital information directly within the operational environment, improving productivity and reducing resource waste.

TARGET MARKET

Infrastructure operators, utilities, engineering companies, Genral Contractors, EPC contractors, Design firma, Construction firms, Oil & Gas companies, transportation authorities, public organizations and asset owners involved in the design, construction and maintenance of complex infrastructure assets.

Technology Readiness Level: TRL 9 Actual system proved in operational environment
Patent: No, but the patent application has been filed
Funding needed: Between 500.000 Euros and 2.000.000

Orbita
Recupero di materie prime critiche e componenti ricondizionabili da schede elettroniche a fine vita

Project and company

Name of the project/company: Orbita — Recupero di materie prime critiche e componenti ricondizionabili da schede elettroniche a fine vita
Contact email address: startup@orbitatech.it
Website: https://orbitatech.it/

SHORT DESCRIPTION OF THE PROJECT

Orbita recovers critical raw materials and reconditionable components from end-of-life boards via robotic disassembly.

EXTENDED DESCRIPTION OF THE PROJECT

E-waste recyclers sell boards by weight to smelters (~€4,000/ton): pyrometallurgy recovers base and precious metals but disperses rare earths, tantalum and most CRM into slag, destroying reusable components. The bottleneck isn't chemical — it's the lack of a homogeneous feedstock, the precondition for hydrometallurgical and low-temperature biotech recovery. OrbitaX is a robotic microfactory installed inside e-waste plants, zero CAPEX for the host, that selectively disassembles boards instead of shredding them. Its core, OrbitalD, uses computer vision to recognize components and guide removal, separating reusable parts, precious-metal fractions, CRM-concentrated components and hazardous fractions. Value per ton rises from ~€4,000 to ~€12,000. Orbita doesn't replace chemistry — it enables it: certified, homogeneous batches make low-temperature chemical recovery practical, supporting the CRM Act target of 25% of EU CRM demand from recycling by 2030.

NEED ADDRESSED

E-waste boards are shredded as mixed scrap, destroying reusable parts and dispersing critical raw materials

SOLUTION PROPOSED

OrbitaX selectively disassembles electronic boards with AI, separating reusable components and critical raw materials before recycling.

TARGET MARKET

E-waste treatment plants and recyclers, then smelters and refiners that buy certified feedstock for critical raw materials.

Technology Readiness Level: TRL 6 Technology demonstrated in industrially relevant environment
Patent: No, but the patent application has been filed
Funding needed: Between 500.000 Euros and 2.000.000



R2A Labs

R2A Labs
Particle performance, without persistence.

Project and company

Name of the project/company: R2A Labs- Particle performance, without persistence.
Contact email address: mark@r2alabs.com
Website: www.r2alabs.com

SHORT DESCRIPTION OF THE PROJECT

R2A Labs designs and develops biodegradable functional particles to replace the synthetic microplastics intentionally added to industrial and consumer products.

EXTENDED DESCRIPTION OF THE PROJECT

R2A Labs designs and develops functional, bio-degradable particles to replace the synthetic microplastics intentionally added to industrial and consumer products, which are now being restricted across the EU on fixed dates between 2027 and 2035. We combine digital and physical technology. First we explore particle structures computationally against the performance an application requires, shortlisting the strongest candidates for physical validation. We then produce them through a clean, low-environmental impact mechanochemical conversion process that sets the particle architecture and surface chemistry. Experimental results feed back into the model with every cycle, improving its predictive capability and building a proprietary dataset linking process to structure to function. Each new application compounds the intelligence and dataset, making new market entry faster and cheaper. We take the technology to market two ways. We license the conversion process to biomass processors who convert their own feedstock, earning a licence fee and a royalty per tonne. And we sell designed particles directly to formulators who need a compliant, high-performing replacement for the synthetic particle in their product. The technology is live in a paid industrial pilot with an agri-processor handling 1,000 tonnes of feedstock a day, applying both halves of the technology to a customer-defined target. The first application targeted is microencapsulation, beginning with controlled-release agrochemicals. Beyond this, we are in discussion with formulators across personal care, home care and fragrances. R2A owns the IP wholly although is collaborating with Universities and private partners on the development of the technology. The company has completed the B4i accelerator, is starting a programme with the Henry Royce Institute and has raised £375,000 to date.

NEED ADDRESSED

Synthetic microparticles need to be replaced. Primary microplastics are added deliberately to products to deliver active ingredients, stabilise formulations, coat surfaces and provide colour. They are derived from fossil carbon, and they are designed into products that wash off, disperse or are spread on land. ECHA estimate 145,000 tonnes are used annually in the EU and EEA and around 42,000 tonnes released into the environment. Although their functionality is only used for a fleeting moment, they are released and are persistent, not breaking down. They have been detected across the atmosphere, hydrosphere and biosphere, they bioaccumulate through the food chain, and they have been found in human blood, lungs, placenta and breast milk. We are only beginning to understand the consequences. Formulators are being forced to reformulate, on a date. Commission Regu-



lation (EU) 2023/2055 restricts synthetic polymer microparticles sector by sector; rinse-off cosmetics in 2027, detergents and fertilisers in 2028, leave-on cosmetics and encapsulated fragrances in 2029, crop protection in 2031 and colour cosmetics in 2035. ECHA estimates the restriction will cost affected industries €9.4 billion over twenty years. Formulators are forced to replace a component that was engineered for its job, without losing the function it provided. The replacement has to perform, degrade to EU testing standards, and be commercially viable. Biodegradable alternatives have struggled against all three. R&D costs are high, timelines are long, outcomes are uncertain, and results are frequently more expensive and lower performing than the incumbent. Biomass processors hold the raw material but cannot access the value. Agri-processors in starch, paper and pulp sell tonnes at commodity margins, exposed to price shocks they do not control. The decline of markets such as paper, combined with recent extreme weather, has put many into survival mode. Their feedstock and residues are capable of solving this issue. Converting them into functional materials requires IP and process technology they do not hold, and building it in-house means a materials R&D programme costing hundreds of thousands over several years against uncertain outputs, creating an innovation gap. The material that could replace synthetic microparticles sits upstream, held by businesses without a route to convert it, while the formulators who need it downstream are under regulatory, and consumer pressure to change today.

SOLUTION PROPOSED

R2A Labs produces biodegradable functional particles that replace the synthetic microplastics used across delivery, stabilisation, coating and colour applications. Our approach couples the digital and physical worlds, bridging smart design with green chemical conversion.

Design. A computational pipeline screens and optimises particle structures in silico, working across particle architecture, surface chemistry and degree of chemical modification, and simulating the material properties those structures produce. Screening thousands of candidates computationally before taking a shortlist to the laboratory targets a 2x reduction in development timeline and a 10x reduction in experimental cost.

Manufacture. Shortlisted candidates are then produced through our conversion process, which modifies particle architecture and surface chemistry in a single integrated step. It is solvent-lean and mechanically driven, where conventional routes produce the particle first and functionalise it in a separate downstream operation, adding reagents, solvents and an entire second set of unit operations. Against conventional routes we are targeting significant reductions in chemical input, water use and carbon intensity.

Integration. Experimental data feeds back into the pipeline, connecting process conditions to particle structure to functional performance in a single traceable chain. This turns the platform from a design tool into a material development engine, able to address successive application spaces with compounding speed and lower cost per entry.

Our first application targeted is controlled-release fertiliser encapsulation.

TARGET MARKET

Our target markets are formulated products where synthetic microparticles are being restricted; agrochemicals, home care and cosmetics. Formulators in these sectors need compliant replacements on fixed dates.

Our first application is microencapsulation, a global market valued at €13.3bn in 2024 and projected to reach €20.7bn by 2029.

Within that, we sequence entry by regulatory urgency. Controlled-release fertilisers, a €2.3bn global market in 2025, face restriction from 2028 and are our first commercial target. From that foundation the platform extends into controlled-release crop protection, estimated at €450m to €715m in 2025 and restricted from 2031. The



process-structure-function knowledge accumulated in fertilisers accelerates entry here at lower cost and higher starting performance.

The same logic then carries into home and personal care, where detergents face restriction from 2028 and encapsulated fragrances and leave-on cosmetics from 2029. Particle specifications shift, but the underlying intelligence transfers.

Our technology is not limited to regulated applications. Biodegradable functional particles can compete on performance and cost wherever synthetic microparticles currently operate. Emulsion stabilisation is one such opportunity, addressing a global emulsifiers market valued at approximately €8.5bn in 2025 and projected to exceed €15bn by 2035.

Technology Readiness Level: TRL 3 Experimental Proof of Concept
Patent: No, but I plan to apply for a patent
Funding needed: Between 500.000 Euros and 2.000.000

RarEarth

Project and company

Name of the project/company: RarEarth
Contact email address: lorenzo.ghettini@rarearth.it
Website: https://www.rarearth.it/

SHORT DESCRIPTION OF THE PROJECT

RarEarth manufactures high-performance Neodymium (NdFeB) permanent magnets by processing end-of-life electrical equipment and industrial waste. The integrated short-loop process delivers 100% recycled magnets.

EXTENDED DESCRIPTION OF THE PROJECT

RarEarth is building a sovereign, fully European supply chain for Neodymium (NdFeB) permanent magnets. Europe currently faces severe supply risks, import dependencies, and extreme price volatility due to foreign market dominance. Moving from e-waste directly to finished components, RarEarth manufactures 100% recycled high-performance magnets that match virgin material standards. The integrated end-to-end process combines automated e-waste disassembly, demagnetization, and mechano-chemical purification to remove resins and metallic coatings without degrading the magnetic alloy. By eliminating foreign supply bottlenecks, RarEarth provides European OEMs in key sectors, such as e-mobility, wind energy, and medical devices, with stable, price-resilient, and strategic local magnet supplies, while simultaneously reducing CO2 emissions by up to 90% and water usage by over 99%.

NEED ADDRESSED

Europe faces extreme supply chain vulnerability, price volatility, and geopolitical dependency on foreign monopolies for Neodymium (NdFeB) permanent magnets, which are essential for electric mobility, wind energy, and medical applications.

SOLUTION PROPOSED

RarEarth manufactures 100% recycled, high-performance Neodymium (NdFeB) permanent magnets through an integrated, end-to-end “short-loop” process operating entirely within the European value chain. RarEarth directly collects magnetic waste and end-of-life components from partner producers and recyclers (including Haiki Cobat), extracting NdFeB magnets using proprietary automated dismantling units. Recovered magnets undergo demagnetization followed by patented chemical and mechano-chemical purification to completely eliminate resins and metallic coatings while preserving the original alloy structure. In the short-loop phase, RarEarth performs precise powder formulation and grain-boundary phase engineering, blending powders to deliver custom magnetic grades matching exact client specifications. Operated at RarEarth’s pilot plant with a capacity to scale toward a 30 ton/year production facility, this process yields virgin-grade sintered magnets with over 90% reduced GHG emissions and 99% reduced water consumption.

TARGET MARKET

European OEMs and Tier-1 suppliers in electric mobility, wind energy, medical devices, industrial pumps, and robotics, alongside magnet distributors and component manufacturers seeking traceable, sustainable Critical Raw Materials to ensure strategic autonomy and long-term supply chain security.

Technology Readiness Level: TRL 6 Technology demonstrated in industrially relevant environment
Patent: Yes
Funding needed: Between 500.000 Euros and 2.000.000

Renovo recycling technology

Project and company

Name of the project/company: Renovo recycling technology
Contact email address: info@renovo-recycling.it
Website: https://www.renovo-recycling.it/

SHORT DESCRIPTION OF THE PROJECT

Renovo is redefining photovoltaic recycling through a modular, plug-and-play robotic technology that selectively disassembles end-of-life solar panels instead of shredding them. By preserving the purity and value of glass, aluminium, copper, silicon and polymer fractions, Renovo turns PV waste into valuable secondary raw materials for new circular value chains. Our decentralized urban-mining approach connects solar waste with the chemical, materials and manufacturing industries, reducing dependence on virgin resources and enabling a scalable, traceable and higher-value circular economy.

EXTENDED DESCRIPTION OF THE PROJECT

Renovo is developing a modular, plug-and-play robotic solution for the selective disassembly of end-of-life photovoltaic (PV) panels, designed to transform a rapidly growing waste stream into a local source of valuable secondary raw materials.
Conventional PV recycling processes often rely on shredding or highly centralized treatment systems, which can mix or contaminate material fractions and reduce their potential for high-value recovery. Renovo introduces a different paradigm: selective robotic disassembly before downstream material treatment. Through automation, advanced sensing and controlled mechanical operations, the system separates the main components of PV modules and enables the recovery of glass, aluminium, copper, silicon and polymer fractions such as EVA and Tedlar. The objective is not simply to increase the quantity of recycled material, but to preserve its purity, integrity and economic value, creating higher-quality input streams for subsequent purification, transformation and reuse. This opens opportunities for collaboration with the chemical, materials and manufacturing industries, enabling new applications for recovered silicon, metals, glass and polymers and supporting closed-loop value chains.
A key differentiator is Renovo's decentralized and scalable architecture. Instead of requiring large dedicated recycling plants, the compact robotic units are designed to be deployed close to waste-generation and collection points, including recycling operators and industrial hubs. Each unit is designed for a capacity of approximately 1,000 tonnes per year, allowing treatment capacity to grow progressively by replicating units according to local demand. Digitalization and material traceability further support the model, enabling monitoring of recovered material streams and providing data relevant to circularity and ESG objectives. Renovo therefore aims to create a bridge between PV waste management and green chemistry, turning end-of-life solar panels into an urban mine for materials that can re-enter European production systems. By combining robotics, circular economy and material valorisation, the project contributes to reducing dependence on virgin resources, strengthening European secondary raw-material supply chains and enabling new models of industrial symbiosis and high-value circular manufacturing.

Chimica verde Lombardia per un futuro sostenibile 2026



NEED ADDRESSED

Europe is facing a rapidly growing stream of end-of-life photovoltaic panels, while conventional recycling processes often focus on bulk material recovery through shredding, limiting the purity, value and reuse potential of recovered fractions.

SOLUTION PROPOSED

Renovo proposes a modular, plug-and-play robotic system for the selective disassembly of end-of-life photovoltaic panels, designed to shift PV recycling from bulk waste treatment towards high-value material recovery and circular reuse.

Unlike conventional shredding-based processes, Renovo combines robotics, automation, advanced sensing and controlled mechanical separation to dismantle PV modules and recover distinct fractions such as glass, aluminium, copper, silicon, EVA and Tedlar, while preserving their purity and economic value.

The compact and scalable units can be deployed close to waste collection and recycling hubs, enabling a decentralized urban-mining model and reducing the need for large centralized infrastructures.

By generating cleaner and more homogeneous material streams, Renovo creates a bridge between PV recycling and green chemistry, enabling downstream partners to further purify, transform and reintroduce recovered materials into new industrial applications. The result is a scalable circular solution that turns solar waste into valuable secondary raw materials, reduces reliance on virgin resources and enables new closed-loop industrial value chains.

TARGET MARKET

Renovo targets the European photovoltaic end-of-life and circular materials value chain, with an initial focus on Italy and subsequent expansion across Europe.

Primary customers include WEEE and PV recycling operators, environmental utilities, EPR/collective systems, PV manufacturers, energy operators and industrial recycling hubs managing significant volumes of end-of-life solar panels.

The solution also addresses downstream chemical, materials and manufacturing companies interested in high-quality secondary raw materials, including recovered glass, aluminium, copper, silicon and polymer fractions.

Renovo therefore operates at the intersection of PV recycling, green chemistry, secondary raw materials and circular manufacturing, connecting waste holders with industries capable of transforming recovered fractions into new products and enabling scalable closed-loop and industrial-symbiosis value chains.

Technology Readiness Level: TRL 5 Technology validated in industrially relevant environment
Patent: No, but the patent application has been filed
Funding needed: Between 500.000 Euros and 2.000.000

SIEVE

Project and company

Name of the project/company: SIEVE
Contact email address: info@sie-ve.it
Website: https://www.sie-ve.it

SHORT DESCRIPTION OF THE PROJECT

SIEVE develops regenerable circular materials from metallurgical slags for industrial wastewater polishing.

EXTENDED DESCRIPTION OF THE PROJECT

SIEVE develops Oxirion, a regenerable granular material produced from metallurgical slags for industrial wastewater polishing. Integrated into modular treatment units, Oxirion combines ion exchange and catalytic oxidation to remove residual metals and organic contaminants after conventional treatment or before membrane systems. The material can be regenerated on site, reducing replacement frequency, waste, logistics and operating costs. SIEVE is at TRL 5, approaching TRL 6, with validation on real wastewater and paid PoCs. The business model combines treatment modules with recurring revenues from Oxirion and the XR200 regeneration solution, scaling through EPCs and system integrators.

NEED ADDRESSED

Industrial effluents still contain metals and organics after conventional treatment, making final compliance and water reuse costly.

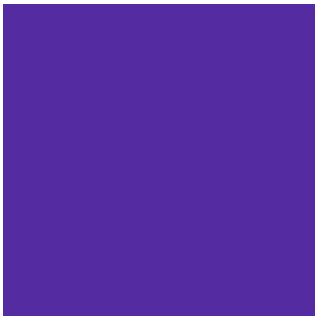
SOLUTION PROPOSED

SIEVE develops regenerable advanced materials for wastewater polishing, enabling metals and organics removal in one modular treatment step with up to 87% OPEX savings.

TARGET MARKET

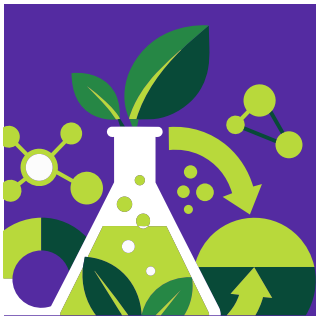
Industrial plants, utilities and EPCs needing wastewater polishing for discharge compliance or water reuse.

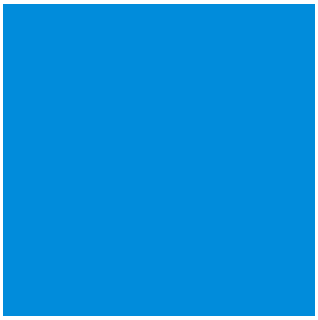
Technology Readiness Level: TRL 5 Technology validated in industrially relevant environment
Patent: No, but the patent application has been filed
Funding needed: > 2.000.000










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