July 2025. Technological report.

Exponential Leaders in Catalonia, 2025

ACCIÓ Catalonia Trade & Investment

Generalitat de Catalunya
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Generalitat de Catalunya (Government of Catalonia)

Preparation
ACCIÓ Strategy and Competitive Intelligence Unit
ACCIÓ Innovation and Technological Transformation Unit

Barcelona, July 2025

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Prologue

Prologue

We live in a time when major social, environmental and economic challenges cannot be addressed with conventional solutions. So more than ever, we need leaders who think and act beyond the limits of established ideas. Leaders who question the status quo, who take risks and who find a key tool in technology —whether what we already have or what is just emerging— for transforming sectors and building new horizons.

Exponential Leaders represents this new generation of companies and startups that not only adapt to change, but in fact generate it. These are organisations that act with vision, speed and courage, and that are not afraid to unlearn things in order to reinvent themselves. Their disruptive spirit is, today, a necessity. Their ability to provide answers to complex problems is a source of hope. These companies don't work just for business profit; they work to imagine a better future and make it possible. A future in which technology, put at the service of people and the planet, opens up paths that were previously unthinkable.

That's why we celebrate and support projects like this. Because we believe in talent that breaks moulds, in innovation with true purpose and in the transformative power of collaboration between institutions, companies and entrepreneurs.

The future is written through disruption with a positive impact.

JAUME BARÓ TORRES

SECRETARY FOR BUSINESS AND COMPETITIVENESS AND CEO OF ACCIÓ. MINISTRY OF BUSINESS AND LABOUR OF THE GOVERNMENT OF CATALONIA

The motivation behind the Exponential Leaders 2025 initiatives

Businesses serving as functions in an ecosystem of interconnected flows

The 2025 edition of the **Catalonia Exponential Leaders** boot camp has shown rapid adoption of AI among the 30 participating companies, with generative AI in incipient growth. For these organisations, value depends on the systemic view of data. Business models are conceptualised as information flows, grouped into five critical functions:

- **Capturing**: generating value at the beginning of the flow (CO_2, heat or waste) with the challenge of certifying capture and developing financing models distributed where the elements to be captured are located.
- **Increasing**: they contribute value to existing flows by enriching information and improving the user experience (images, tests, etc.). They integrate non-intrusively into existing processes and aim to grow driven by the emergence of new systems.
- **Computing**: they generate value by processing data with more powerful and efficient chips, with lower consumption and through interoperability. The challenge is gaining access to a limited number of large chip manufacturers and data centre operators.
- **Acting**: they produce value by controlling connected devices in a defined context (factories, farms or exhibition spaces) to maximise their performance. The challenge is to ensure interoperability between all the critical elements of each facility.
- **Orchestrating**: optimising the use and availability of elements which are not controlled directly (renewable energy, shared vehicles or logistics), with the challenge of anticipating demand and modulating their use through frictions and dynamic incentives.

This systemic vision helps to understand key challenges and design specific strategies to address them.

JAVI CREUS
FOUNDER OF IDEAS FOR CHANGE
COLLABORATOR OF THE CEL PROGRAMME
CataloniaConnects

Contribution of collaborating entities

Tech Barcelona

The economic, social and technological future of Catalonia is built on the vision, talent and determination of its entrepreneurs and innovative companies. The Catalonia Exponential Leaders programme gives visibility to these projects and makes them a source of inspiration for all those organisations aspiring to offer solutions to the great challenges facing today's society.

MIQUEL MARTÍ
CEO

LAB 30 40
CONNECTAR PER INNOVAR

The current context of complexity and uncertainty constitutes a significant challenge not just for the business sector but for Catalan society as a whole. At the same time, however, it has become a strategic opportunity for those actors capable of projecting and anticipating the future scenarios of our country. Initiatives such as Catalonia Exponential Leaders or Lab3040 must contribute to the promotion of transformative projects that could become vital for the progress and development of Catalonia.

VICENTE ATIENZA
Head of Innovation and Entrepreneurship

Mobile WorldCapital Barcelona

The Mobile World Capital Barcelona Foundation, in collaboration with ACCIÓ, continues to drive the growth of the Catalonia Exponential Leaders. In 2025 we are taking a decisive step: thanks to a new strategic agreement with the DeepTech Alliance (the European network that connects scientific and technological startups with investors and international corporations), the selected projects will have preferential access to a high-level innovation ecosystem.

This privileged access opens a fast lane to the main technological hubs in Europe and multiplies opportunities for funding and international collaboration. In addition, their prominent presence at 4YFN within MWC Barcelona will place them on the radar of major global decision-makers, thus turning Catalan talent into an engine with an international impact.

ALBERT MASCARELL
CHIEF OF TECH TRANSFER

ACCIÓ Catalonia Trade & Investment

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1. Definition of disruptive innovation

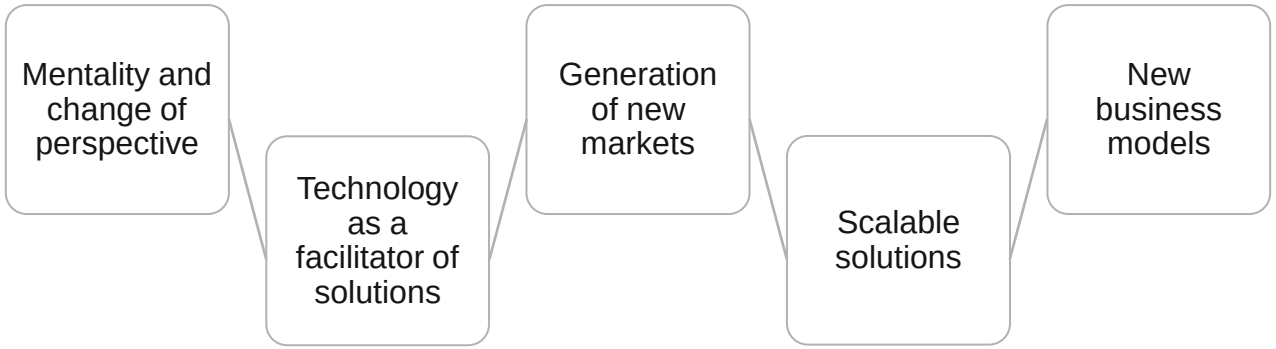
Disruption [/dɪsˈrʌpʃn/]

disruptio (‘break’, ‘fracture’)

Disruptive innovation

Disruptive innovation is a type of innovation based on the creation of new products, services or business models that render obsolete what was being done up until now, and which achieve a change in consumer habits.

- Disruptive innovation focuses on improving the customer experience and generating new value. It tends to destabilise markets.
- It goes far beyond sustainable innovation and can revolutionise an industry in such a way that it changes it completely, to the extent that products and services that were part of the market before its emergence actually disappear.



Methodologies and frameworks

Disruptive innovation can be accelerated by using different frameworks, tools and innovation methodologies to generate new initiatives and facilitate their arrival to the market.

1. ***Design thinking***
2. ***Customer discovery***
3. ***Lean startup***
4. ***Scrum***
5. ***ExO sprint***
6. ***Business evolution***
7. ***Pentagrowth***
8. ***Fast Business Prototyping***
9. ***Business Model Canvas***
10. ***Open Innovation***

Design thinking

In this methodology, the user is prioritised and innovative solutions are generated that respond to their needs.

It is divided into a series of **stages**, which can be returned to iteratively:

Empathising: identifying the user's main desires and needs.

Defining: organising all the information collected to identify all the areas of opportunity from which relevant solutions can be offered to the user.

Conceiving: coming up with the maximum number of possible ideas that can respond to the challenge being addressed.

Prototyping: shaping the ideas so that they can be shown to the user, who can offer their feedback and say to what extent the solution meets their needs.

Validating or testing: showing the solution to the user, with the aim of finding out whether it answers their problems and connects with their needs.

Source: IDEO

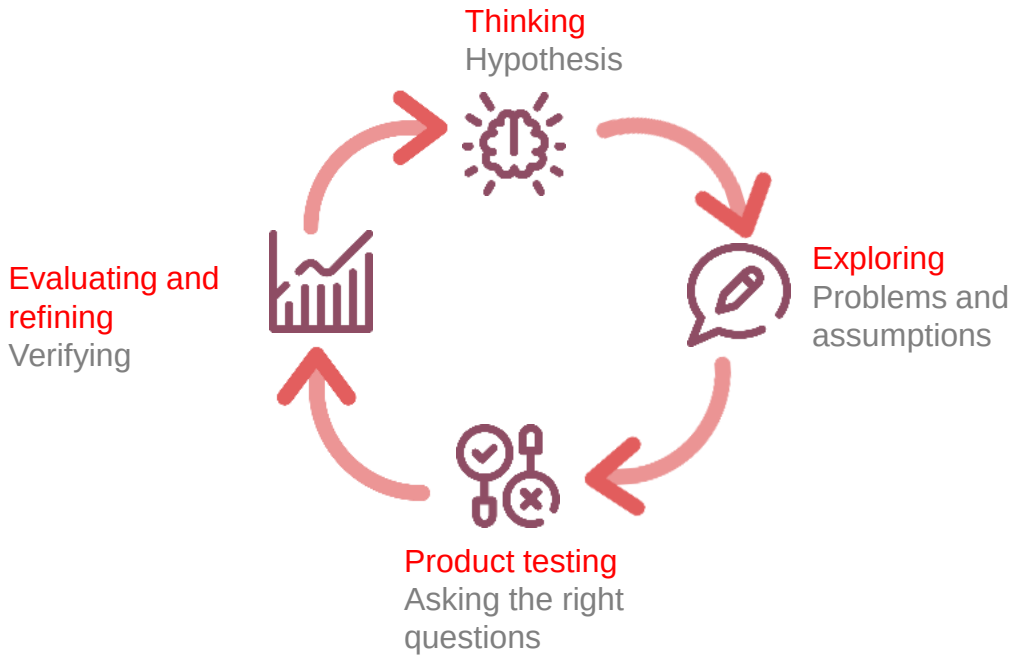
Customer discovery

Customer discovery is the initial, iterative process of understanding customers' situations, needs and pain points.

Customer discovery involves defining and prioritising people, and is applicable to both start-up companies and large companies as they develop new products, seek to target new people, or enter new markets. The process encompasses the entire customer journey.

It is based on **four stages**:

1. **Defining the hypothesis**. The first step is to form a hypothesis that defines both the problem and the proposed solution.
2. **Checking the problems and assumptions of the hypothesis**. A good way to lay out these assumptions is to create a hypothetical persona that represents a customer. This needs to be specific: give this person a name, age, career, hobbies, interests and perspectives.
3. **Asking the right questions**. In this phase, we check with customers whether the service or product designed indeed solves their problem and whether it has a real market.
4. **Evaluating and refining**. This phase allows concepts to be reaffirmed and new aspects to be discovered that had not been considered in the hypothesis, and that can now be incorporated to reformulate it and thus improve the product or service.



Source: Steve Blank

Lean startup

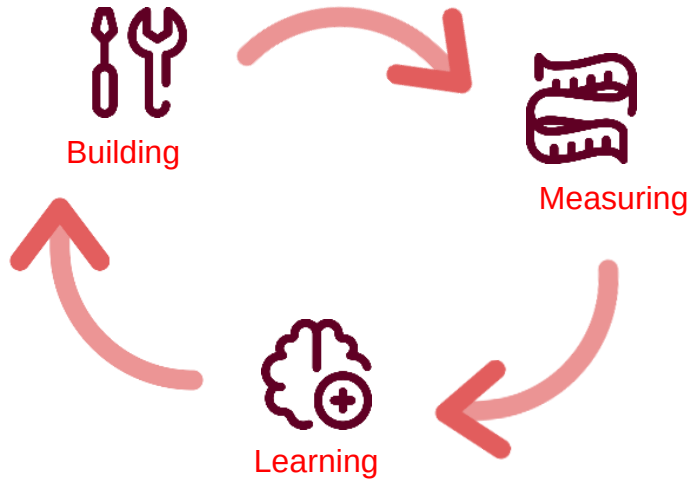
Lean startup focuses on the customer's needs and relies on their feedback to modify the product until the final version is developed.

The lean startup methodology allows checking of the validity of the product throughout the entire creation process. Setting out from a prototype, the needs of the customers are learnt and, since it is not yet a finished product, this allows the level of investment to be lower.

The main **objective** of this methodology is to create a scalable business model through an iterative process, from which the functional, social and emotional needs required to reach the target audience are discovered.

The lean startup method is applied in three steps: **building, measuring and learning**. These steps allow us to be in constant motion, as the product created is tested with customers and, once the results have been analysed, it can be rebuilt.

- **Building**: in this initial phase, it is necessary to transfer the idea to a material product. The result obtained is a minimum viable product (MVP).
- **Measuring**: information is requested about the product and consumer reactions.
- **Learning**: in this last step, the company learns from the results collected throughout the process. Now the cycle starts all over again to produce the final product.



Source: The Lean Startup, Eric Ries

Scrum

This tool offers a collaborative framework between teams to find adaptive solutions to complex problems.

Scrum is based on ***empirical evidence*** and on ***lean thinking.*** It uses an iterative and incremental approach in order to optimise predictability and control risk.

It involves groups of people who, collectively, have all the skills and knowledge to do the work and share it.

Using scrum, partial and regular deliveries of the final product are made, prioritised according to the benefit they bring to the recipient of the project. For this reason, scrum is especially suitable for projects in complex environments, where results need to be obtained quickly, where requirements are changing or poorly defined, and where innovation, competitiveness, flexibility and productivity are fundamental.

Scrum is also used to resolve situations in which the customer does not receive what they need, when deliveries take too long, costs skyrocket or quality is not acceptable, and also when the ability to react to the competition is needed, when team morale is low and turnover is high, when it is necessary to identify and solve inefficiencies systematically or when the aim is to work on product development using a specialised process.

Source: Scrum

ExO sprint

The process of ExO sprint includes various techniques and methodologies that help an organisation, when faced with disruptive changes in the environment, to transform its current business and generate new initiatives.

In the process of ExO sprint, organisations are preparing to combat the corporate immune system, which prevents innovation and change. They also learn to use a practical and continuous learning approach that allows them to develop the organisation's internal capabilities.

Within the process of executing an ExO sprint, which lasts ten weeks, **two groups** can be generated:

- **Building:** this will generate initiatives focused on innovation when it is not desirable to change the company model to deal with external disruptions.
- **Measuring:** this will generate initiatives which differ from the company's current business model.

Source: ExO Sprint, Francisco Palao

ExO sprint: the 10 attributes to become an exponential organisation

ExO organisations are characterised by expressing a Massive Transformative Purpose (**MTP**) and 10 attributes that allow you to connect and manage abundance.

MTP: The Massive Transformative Purpose is a reflection of the organisation's aspiration and describes the change it aims to achieve in the world. This goes beyond the company's mission and vision.

***SCALE*. These are the attributes that allow the organisation to connect with external assets to grow exponentially in a framework of high uncertainty.**

Staff on Demand: pool of qualified workers hired on an as-needed basis to carry out operational elements of the core business.

Community: group of people passionate about the MTP.

Algorithms: set of step-by-step instructions for automating a task.

Leveraged assets: assets that are used on demand to deliver the value proposition.

Engagement: use of techniques such as reputation systems, gamification, loyalty programmes and incentive prizes to keep the community active.

***IDEAS*. These are the attributes that allow the organisation to manage exponential growth.**

Interface: users' digital experience with products and services and interaction with other systems.

Dashboards: they provide real-time information needed to run the business.

Experimentation: techniques for evaluating new ideas and hypotheses in an agile way.

Autonomy: self-organised units operating with decentralised authority. This can be applied internally and externally.

Social Technologies: use of technologies to accelerate and facilitate communications between the team and the community.

Source: Salim Ismail, Singularity University

Business Evolution

This methodology helps entrepreneurs and organisations develop an idea from the initial stage to have a massive impact in a purpose-driven organisation and achieve a positive impact.

The methodology is based on **three phases** (exploration, validation and growth) and around **eight pillars**:

Purpose: this is the reason why the initiative exists.

People: this encompasses both the external communities related to the purpose and the people who make up the internal work team.

Customer: these are the people or organisations that use or pay for the solutions. It is necessary to understand their problems, which will be the challenges related to the purpose, and also the way in which they behave and relate to the initiative throughout the different stages of the market.

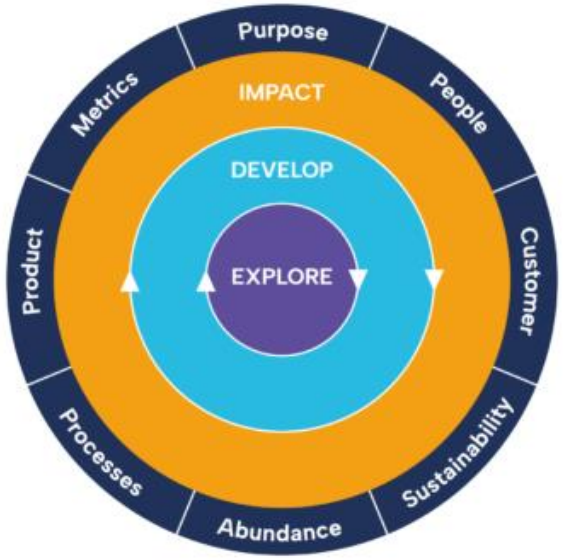
Abundance: this is the proper identification of sources of abundance and exponentiality, which should allow the organisation to adopt faster growth.

Sustainability: this pillar involves triple sustainability: planet, people and profit.

Processes: this is the way the initiative is organised to explore possibilities and build the right solution, and to execute daily operations efficiently.

Products: this is the process of defining and building the right solution for different customer segments. It foresees different approaches for each of the phases: low-fidelity prototypes for the exploration phase, minimum viable product for the evaluation phase, and optimised products for the impact phase.

Metrics: these are the indicators that need to show how the business is evolving.



Source: Evolution Alliance

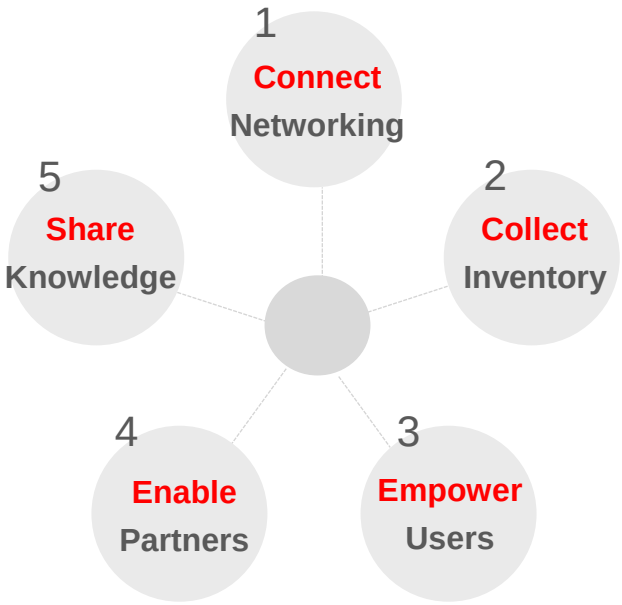
Pentagrowth

The Pentagrowth methodology helps organisations visualise and create accelerated growth strategies, generated from the recombination of their internal assets with other elements available in the ecosystem.

It is based on **five levers**:

1. Connect - networking: the number of nodes to which a company or organisation is connected is directly proportional to its growth potential.
2. Collect - inventory: the lower the internal effort an organisation makes to expand its available offering, the greater its growth potential.
3. Empower - users: the more user capabilities the organisation leverages, the greater its growth potential.
4. Enable - partners: the more an organisation enables third parties to develop their own commercial proposals around its business, the greater its growth potential.
5. Share - knowledge: the larger the community that considers the shared resources as its own, and if the organisation enables third parties to develop their own commercial proposals around its business, the greater its growth potential.

The methodology consists of combining the elements available in each lever until finding a structure that can grow and generate value.



Source: Pentagrowth

Fast Business Prototyping

The methodology consists in designing and building a prototype to validate business hypotheses and the market before actually launching the product or service.

- It is a process that allows quick testing and iteration of new business ideas before investing too much time and money into them.
- A prototype is created, which allows the viability of the business model to be assessed, whether a market exists, the main hypotheses and the necessary adjustments to be made before launching the product or service.
- Rapid business prototyping helps identify potential flaws or weaknesses in the business model early on and allows for changes to be made and strategy to be guided before investing a lot of time and money into a product that may not be successful.
- It also allows you to obtain feedback from potential customers at the beginning of the process, so it can help improve the product or service.
- The methodology allows companies to validate their ideas in a few weeks.

Phases of Fast Business Prototyping

Prototype design and construction

- Digital simulations and simple models to test customer reactions quickly and inexpensively
- Setting of goals
- Creation of a name and logo
- Architecture of the landing

Experiment design and planning

- Selection of channels
- Definition of the benchmark
- Creative design of ads

Experimentation and learning

- Digital campaigns
- Optimisation of the prototype
- Conclusions

Source: Liquid Lab

Business Model Canvas

The Canvas model is a tool that allows you to design, analyse and optimise business models in a visual and simple way, providing a comprehensive and structured vision. In the context of disruptive innovation, it is a useful tool to generate new business models from new disruptive initiatives generated and also visualise how they reach the market.

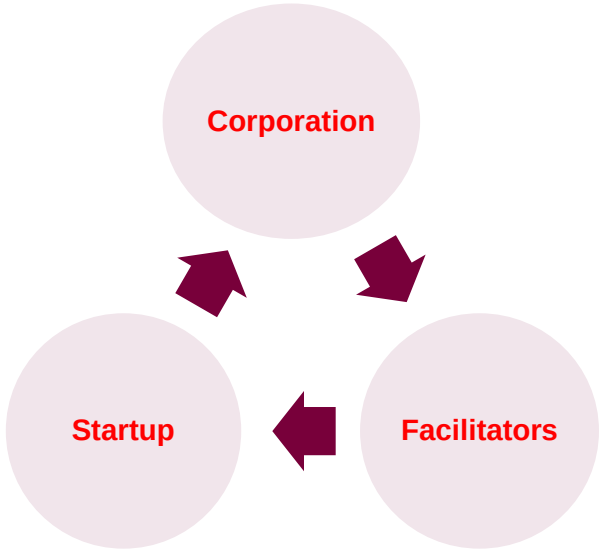
- The Canvas model is a strategic tool that allows you to visualise and develop business models on a single page.
- The canvas is made up of nine boxes:
  1. Key activities
  2. Partners
  3. Resources
  4. Customer segments
  5. Communication channels
  6. Customer relationships
  7. Value proposition
  8. Cost structure
  9. Revenue streams
- Advantages: agility and simplicity.
- Limitations: lack of focus on competitive strategy, need to complement it with more quantitative tools.

Source: Asana, Strategyzer

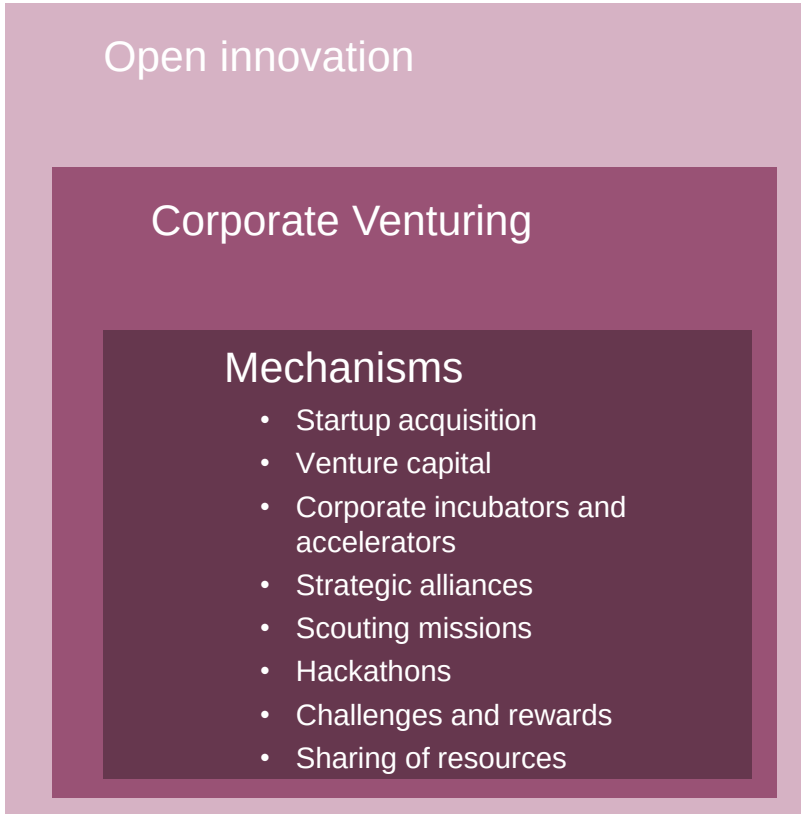
Open Innovation. Corporate Venturing

Corporate Venturing is a tool to attract and adopt innovations, with the open innovation paradigm, which assumes that companies can and should use external ideas to advance their technology.

Corporate Venturing Ecosystem



- Corporate venturing is the means through which corporations participate in the success of external innovation to help them obtain market information and access to capacity, offering a collaborative framework that acts as a bridge between innovative startups and established corporations.
- It includes mechanisms such as challenges with rewards, hackathons, search missions, resource sharing, strategic partnerships, corporate incubators and accelerators, corporate venture capital and acquisition of emerging companies.
- To create the ecosystem, the figure of the facilitator is also necessary, which can be other companies, the public administration, universities and research centres, among others.



Source: Open Innovation. IESE

2. Catalonia Exponential Leaders 2025 programme

Catalonia Exponential Leaders

The **Catalonia Exponential Leaders** are the most disruptive Catalan companies with the greatest positive impact on society, selected from among all the participants in the programme.

With this initiative we are looking to demonstrate that in Catalonia there are pioneering companies in **transformation and adaptation to disruption**, which become an inspiring example and a reference for the entire Catalan business fabric.

www.accio.gencat.cat/ca/serveis/innovacio/catalonia-exponential/catalonia-exponential-leaders

ACCIÓ Open and Disruptive Innovation Programme

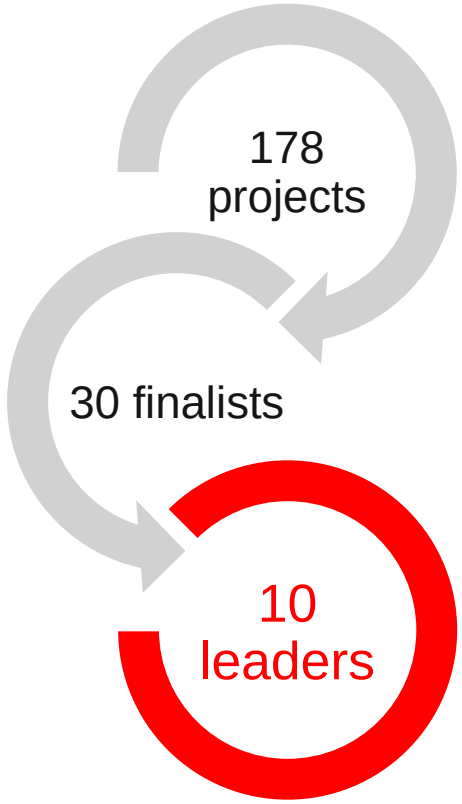
The Open and Disruptive Innovation Area of ACCIÓ and the Agency for Business Competitiveness of the Generalitat of Catalonia seek to connect Catalan companies with the most innovative trends, exponential technologies and transformative business models to help them be more competitive in the face of disruptive challenges.

How do we do it?

1. **Awareness-raising** and promoting a new business culture prepared for change.
2. **Disseminating pioneering methodologies** for business transformation.
3. **Connecting with international trends** through our network of offices.
4. **Supporting unique initiatives** in the innovation ecosystem.
5. **Helping companies** to collaborate with startups and promote open innovation.

Catalonia Exponential Leaders 2025

The **Catalonia Exponential Leaders** programme recognises Catalan companies that create disruptive solutions and generate new markets with a positive impact.



In this 5th edition, two categories have been established: **consolidated companies** and **emerging companies** (**spin-offs** and **startups**). They have presented **178 projects** (65% startups and 35% consolidated).

Out of all of them, the following have been selected: the **30 most disruptive companies** and, finally, the **10 selected as Catalonia Exponential Leaders**.

They are **inspiring benchmarks** from differential projects, with great growth potential, which today mark the future of Catalonia.

Characteristics of Catalonia Exponential Leaders

1. Imagining futures with a **positive impact**.
2. Daring to **generate new markets** based on disruptive ideas.
3. Incorporating **exponential technologies** to their projects.
4. Having a **scalable business model** that impacts many users.
5. Inspiring and **generating community** around you.
6. Using **external assets** and allowing them to grow.
7. Making use of **collaborative tools** and encouraging **autonomy**.
8. Applying **experimentation** with a customer focus.
9. Making way for an **innovative culture** in the company.

www.accio.gencat.cat/ca/serveis/innovacio/catalonia-exponential/catalonia-exponential-leaders

3. The 30 finalists of Catalonia Exponential Leaders 2025

The 30 finalists of Catalonia Exponential Leaders 2025

The 30 finalists of the Catalonia Exponential Leaders 2025: consolidated companies

Aizon drives digital transformation in the biopharmaceutical industry by applying artificial intelligence to improve the efficiency, quality and safety of production processes.

Casa Batlló is transforming the museum experience with augmented reality, AI and digital immersion, becoming a global benchmark for sustainable and inclusive cultural innovation.

Celavista is the business angel of Aircure Tech, that has a technology that uses the atmosphere as an unlimited source of reactants to generate products for industry, agriculture, and the oceans, without waste.

Connecthink is digitalising justice with generative AI, reducing the time for drafting sentences by up to 80% and decongesting courts with scalable solutions.

Cooltra is leading shared mobility with electric motorbikes and bicycles in Europe, improving air quality and reducing more than 10,000 tonnes of CO_2 in cities.

Evarm manufactures heavy trucks in Catalonia with hydrogen batteries, offering an alternative to diesel for sustainable and competitive transport.

Estabanell Group has created Energy in the Cloud, a startup that develops power electronics solutions, and promotes ERIA, its open innovation platform.

Mat Holding promotes Vegga, a digital platform that optimises agriculture with IoT and AI to make it more efficient, sustainable and adapted to the climate challenge.

Sequentia Biotech is leading bioinformatics with MICK, a platform that transforms microbiome data into solutions applicable to health and agriculture.

Urbannext is promoting the first AI expert in architecture and urban planning, which organises exclusive knowledge to transform more sustainable and inclusive cities.

Witeklab monitors infrastructure corrosion with unique IoT sensors that extend its useful life, reducing costs and emissions in construction.

The 30 finalists of Catalonia Exponential Leaders 2025: startups (I)

4Bluetech is leading the capture of CO_2 with modular bioreactors that generate biomass for biofuels, committed to decarbonisation and the circular economy.

Admit Therapeutics has developed a pioneering blood test that allows predicting of the progression to Alzheimer's dementia, improving early diagnosis and the efficiency of treatments.

Alinia AI helps companies deploy generative AI in a safe, controlled and regulatory-compliant manner, empowering experts and ensuring alignment with corporate values.

Aridditive is revolutionising construction with 3D printing of concrete, reducing costs, materials and emissions, and allowing free designs without formwork.

Dapibus converts agri-food waste into flour, fats and fertilisers through insect breeding, promoting sustainability and the circular economy.

D-Sight has developed the first eye drops to treat diabetic retinopathy in its early stages, improving the quality of life of millions of people affected.

Enkitek is digitalising farms with SaaS solutions that integrate IoT and AI, improving agricultural productivity with fewer resources and reducing environmental impact.

Grasshopper Air Mobility is developing hybrid autonomous drones for air cargo logistics, eliminating bottlenecks and reducing emissions with green propulsion technology.

Tesai Care is developing Heecap, a medical device that prevents respiratory muscle atrophy in intubated patients, improving their recovery and reducing stays in the ICU.

Into Reality is transforming streaming with interactive and immersive 360° experiences, bringing sports and culture closer to the whole world in an inclusive and sustainable way.

The 30 finalists of Catalonia Exponential Leaders 2025: startups (II)

Miwendo is improving early detection of colorectal cancer with a device that integrates microwaves and AI, increasing the accuracy of colonoscopies.

Protofy is democratising industrial automation with an open AI-based platform that allows you to create processes without code, only with natural language.

Secrets Vault is revolutionising cybersecurity with visual passwords, allowing access to systems and data protection with simple but highly secure images.

Submer is revolutionising data centres with immersive liquid cooling, eliminating the use of water and reducing energy consumption in digital infrastructure elements by 40%.

Sycai Medical improves early detection of abdominal cancer with AI that analyses medical images, allowing faster, more accurate and personalised diagnoses.

Tailor Surgery personalises medical implants and surgical guides with 3D printing, improving results and making customised surgery accessible in public hospitals.

Cyranlab has developed Tarranix, the first three-dimensional photonic chip, which multiplies the calculation speed and reduces energy consumption in AI and supercomputing by 95%.

Uniscool is optimising the cooling of advanced electronic equipment with direct-to-chip liquid technology, reducing data centre energy consumption by up to 70%.

Yplasma applies plasma technology to improve aerodynamics, cooling and disinfection, offering efficient and sustainable solutions for various industries.

4. The 10 Catalonia Exponential Leaders 2025

The 10 Catalonia Exponential Leaders 2025

4BlueTech: nothing changes if nothing changes

Scope of action:

Blue economy

Decarbonisation

Energy, chemistry and resources

Technologies:

Artificial intelligence

DLT/Blockchain

Biotechnology

Sustainable and frontier materials

Decarbonisation

www.4BlueTech.com

#CCU #SustainableFuture #Decarbonisation

Disruptive project

4BlueTech develops modular bioreactors for CO_2 capture, NOx and highly volatile organic compounds (HVOC) using microalgae. They currently have reactors with capacities of between 10 and 1,000 litres and are innovating portable modules of up to 10,000 litres.

Their reactors absorb 99.98% of CO_2 in closed circuits.

This technology is highly scalable, which allows its implementation in a wide range of environments, from urban areas to industrial sites, closed environments such as hospitals, train or metro stations, or port terminals and airports. In addition, they are leading projects to transform CO_2 captured in new materials, fuels, etc., applying the principles of the circular economy.

Differentiating factors

- Improving air quality through bioreactor technology.
- Use of microalgae for CO_2 capture to generate high-value products such as hydrogen and eFuels (Marine and eSAF).
- Advanced digital technologies that allow real-time traceability of carbon capture that guarantee certification and the possibility of offsetting emissions.
- Senior team of researchers headquartered in Barcelona and based in Finland, California and India.

Future

Circular economy at scale, without the need for CO_2 storage, based in Barcelona.

Democratise carbon capture credits (CaaS).

Circular innovation in agriculture, food, energy and water.

ADmit Therapeutics: every memory matters

Disruptive project

ADmit Therapeutics is a company dedicated to generating and commercialising tools for the early diagnosis of Alzheimer's and other neurodegenerative disorders, which adopts a comprehensive approach within the framework of personalised and precision medicine, with a strong emphasis on the social component.

It has developed the MAP-AD Test, a disruptive in vitro prognostic solution based on the first epigenetic biomarker of mitochondrial DNA for dementia caused by Alzheimer's.

Scope of action:

Health

Technologies:

- Artificial intelligence
- Biotechnology

https://admit-therapeutics.com/es

Differentiating factors

- Pioneer in the prognosis of Alzheimer's dementia in blood.
- It tackles the incurable Alzheimer's disease from a holistic view of the disease.
- It helps identify Alzheimer's dementia in early stages.
- It uses novel blood biomarkers that predict cognitive decline.

Future

Leaders in personalised and precision medicine in Alzheimer's disease.

Promoting the emergence of new therapies.

Improving the quality of life (patients and environment).

Undertaking detection from primary care.

#Healthcare #AlzheimerDisease #DementiaAwareness

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Casa Batlló: the essence of Gaudí in an immersive experience that fuses heritage, art and technology

CASA BATLLÓ
GAUDÍ BARCELONA

Scope of action:

Culture

Technologies:

- Artificial intelligence
- Immersive technologies

www.casabatllo.es/ca

#CasaBatllo #AugmentedReality #Gaudi

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Disruptive project

Casa Batlló has redefined the museum experience with a disruptive innovation that integrates immersive technology, digital interaction and social inclusion, allowing a personalised digital story for each visitor. The Gaudí Cube, the first immersive LED room in a World Heritage Site, and the Gaudí Dome, a multisensory audiovisual experience, have transformed the way we experience heritage. This project uses exponential technologies such as artificial intelligence, augmented reality and big data.

The initiative has received several awards such as the AV Award for the best augmented reality project and the Museums + Heritage Award for the best use of immersive technology in museums.

Differentiating factors

- A unique gamified and multisensory experience that encourages active visitor participation.
- Project scalability thanks to a flexible data-based platform.
- Implementation of digital technologies in real time without losing the essence and authenticity of the heritage.
- Advanced use of collaborative tools and data analysis to design and continuously improve cultural experiences.

Future

It is committed to the expansion and adaptation of its technological and museum-related model, promoting a scalable and replicable digital legacy.

Active promotion of the Neurodiversity Employment and Dissemination Programme, promoting cultural spaces and experiences designed for all cognitive and sensory capacities, thus guaranteeing authentic and enriching participation for diverse audiences.

Innovative application of advanced technologies that allow the experience to be adapted and personalised for each visitor, without losing the essence of the heritage property.

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Estabanell: disruptive energy for the future

Scope of action:

Energy, chemistry and resources

Technologies:

- Batteries
- Clean Energy

www.estabanell.com
https://eriainnohub.com
www.energyinthecloud.com

#StartupAcceleration #Energy #SustainableEnergy

Disruptive project

Estabanell is a leading business group in Catalonia in the energy and telecommunications sector with a long history linked to the energy sector and a pioneer in the use of hydroelectric energy.

In 2021, Estabanell launched Energy in the Cloud, a startup that develops power electronics solutions to stabilise the electrical distribution network, which adds value to the electrical system, generates new sources of income and configures a new business model for the company.

With the desire to continue exploring and integrating new technologies, Estabanell in 2024 set up ERIA, a platform for corporate venturing to detect, validate and incorporate new innovative products and services, while positioning Estabanell as a benchmark for innovation in the energy sector.

Differentiating factors

- Group with over a hundred years of history in the energy and telecommunications sector that combines experience with a commitment to innovation, sustainability and digitalisation.
- Energy in the Cloud is a spin-off which develops power electronics solutions to stabilise the electrical grid.
- ERIA is the corporate venturing unit of Estabanell, created to promote open innovation through the acceleration of startups, venture clients, venture building and intrapreneurship.

Future

Transformation of the energy sector to move towards more sustainable, digital and intelligent systems.

Promote new innovative products and services in demand flexibility, renewables, electrification, storage, digitalisation, smart grids and self-consumption.

Vegga by MatHolding: cross-cutting digitalisation for more profitable and sustainable agriculture

MatHolding

VEGGA

Scope of action:

Energy, chemistry and resources

Agriculture

Technologies:

Artificial intelligence

Internet of Things

https://veggadigital.com/ca

#Sustainability #CropOptimisation

Disruptive project

VEGGA was born in 2022, driven by the leading companies MatHolding and Sistemes Electrònics Progrés. It is a comprehensive crop management platform that makes the most advanced technologies (awareness-raising-IoT, artificial intelligence) available to agricultural professionals so that they can optimise their farms in a more efficient, intelligent and sustainable way.

Vegga incorporates solutions developed by IRTA, BASF or ModpoW that facilitate key decision-making in areas such as irrigation, fertilisation, plant health, agrodynamic analysis and economic control.

Differentiating factors

- More than 6,000 farmers integrated into Vegga, control of 15,000 irrigation equipment and presence in 25 countries.
- Business sustainability of the project itself and of the farms.
- Environmental sustainability of crop management: direct measurement of plant indicators will save 30% of water, 40% of fertilisers and 30% of human intervention time.

Future

Maintain the spirit of open collaboration and build alliances to scale global and measurable innovation.

Identify mature companies that have measurement technology at a TRL 6-7 and look for producers that can integrate the sensors to test and deploy the technology.

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Protofy: democratisation of industrial automation

protofy.xyz®

Scope of action:

Industry

Technologies:

- Artificial intelligence
- Internet of Things

https://protofy.xyz

#Automation #OpenSource

Disruptive project

Through an open platform (Vento) and using AI, Protofy allows you to create processes using only natural language, democratise the automation process, facilitate the integration of existing code, and combine visual, natural and traditional programming. Similarly, it allows the discovery of autonomous agents to optimise processes in real time and is extensible to the community, encouraging innovation and constant adaptation.

Vento eliminates the main barriers to adoption of automation in industrial SMEs as it reduces technical barriers, has rapid integration and costs are lower. The platform is already being used in innovation projects with companies, and its open source approach allows for rapid iteration and accelerated adoption.

Differentiating factors

- High scalability capacity as it allows you to impact thousands of users through a B2C2B model.
- The use of LLMs allows for exponentially faster automation than traditional systems.
- They work with an open source philosophy and Agile and Scrum methodologies to ensure agility and keep user needs at the centre.

Future

Massive automation of the physical and digital environment with natural language instructions, without the need for technical knowledge.

Reduction of technological barriers, facilitating the quick and efficient optimisation of processes.

Creation of a community that allows sharing knowledge and collaborating in the creation of technological projects.

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Sequentia: transforming omics data into real solutions

SEQUENTIA
DECODE • DISCOVER • DISRUPT

Scope of action:

Nutrition

Health

Technologies:

Omics

Biotechnology

Supercomputing

www.sequentiabiotech.com

#Bioinformatics #Omics #MedTech #BiotechInnovation

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Generalitat de Catalunya
Government of Catalonia

Disruptive project

Sequentia Biotech has developed a comprehensive suite of cloud-based omics tools that transforms large volumes of genetic reads into clear and actionable clinical, nutritional and industrial information. This allows the application of omics sciences beyond the laboratory, providing real value in various fields.

Its solutions, such as MICK (which brings the study of the microbiome to the clinical field) and GAIA (with functional metagenomic analysis), are part of a modular ecosystem of state-of-the-art bioinformatics tools. This model allows simple integration into hospitals, laboratories and industrial environments, without the need for specialised software or advanced technical equipment.

Differentiating factors

- The MICK and GAIA platforms allow autonomous access to analysis by simply uploading data, thus eliminating the need for complex infrastructure.
- They offer a portfolio of cross-sectional omics analyses (microbiome, transcriptomics and genomics) ideal for multiple sectors, from health to agri-food.
- The use of cloud technology and the SaaS model ensures scalability and easy integration into clinical and industrial processes.

Future

Expand MICK to new clinical and industrial applications thanks to the round of €10 million promoted by Seventure and the EIC Fund.

Scale your bioinformatics infrastructure globally, positioning yourself as a leading platform in automated and accessible omics services.

Strengthen the ecosystem of alliances, such as the recent collaboration with BatchX, to make bioinformatics more collaborative, open and effective.

CataloniaConnects

Sycai Medical: safe AI for early detection of pancreatic cancer

Scope of action:

Health

Technology:

Artificial intelligence

https://sycaimedical.com

#AIinHealth #EarlyDiagnosis

Disruptive project

Sycai Medical has developed a CE certified software product (MDR 2024) that acts as a silent screening tool, automating the analysis of medical images to detect lesions with the potential to become pancreatic cancer. The technology is based on AI algorithms trained with thousands of clinical cases, capable of identifying patterns in images, facilitating the detection of lesions, even in early stages. This is crucial for early diagnosis and more effective treatment. Applicable to all computed tomography scans, it offers non-invasive, automated and affordable detection. In addition, it facilitates monitoring by automating the comparison of injuries over time and generating detailed reports, which saves professionals time and improves treatment and follow-up planning.

Differentiating factors

- The system automatically analyses all images, detecting lesions even if no active search has been made.
- It is capable of identifying lesions that are still benign, preventing the development of cancer.
- It has demonstrated very high clinical sensitivity, surpassing that of radiologists in clinical practice.
- The device already has CE certification and is ready to scale to Europe and the USA with planned functional expansions.

Future

The company has secured a round of €3 million to consolidate the commercial launch in Europe, extend detection to liver and kidney (currently focused on the pancreas), and initiate regulatory processes in the US.

It is becoming a standardised solution in several countries and contributing to the reduction of late diagnoses.

The tool's main purpose is to integrate into clinical flows, freeing up professional resources for tasks with greater added value.

UniSCool: liquid cooling solutions for advanced electronics

UniSCool
Universal Smart Cooling

Disruptive project

UniSCool was set up in Lleida in 2022 and has patented an adaptive and direct-to-chip liquid cooling technology which allows savings of up to 70% of energy in servers and electronic devices. The company has invested more than €500,000 in R&D and has been recognised by the European Commission's Innovation Radar for being a highly disruptive proposal to address the cooling of data centres and high-power devices.

They are working on the design of new chips with integrated cooling that incorporate liquid channels within the chip itself, improving thermal efficiency and allowing more power with less consumption. They are running pilots with Open Chip, Copreci and Borgwarner and have received awards such as EmprendeXXI from CaixaBank or Eco-Disruptive Award from Bupa (Sanitas).

Scope of action:

Semiconductors

Technologies:

Microelectronics and nanoelectronics

Semiconductors

https://uniscool.tech

#Sustainability #Semiconductors #DTCRefrigeration

Differentiating factors

- Patented and intelligent adaptive cooling system directly in the chip.
- Adaptability and variability of heat flows applied in time and space.
- Optimisation of energy consumption based on thermal load.
- Technology that allows the total consumption of HPC servers to be reduced by up to 30% and cooling consumption by 70%.

Future

Key product development for the deployment and scalability of AI and data centres of the future.

Solution with positive impact to address challenges such as energy and natural resources, CO_2 reduction and environmental protection.

Work on future integration of in-chip cooling in silicon.

YPlasma: driving the future with plasma innovation

YPlasma
ACTUATORS TECH

Scope of action:

Semiconductors

Technologies:

Batteries Supercomputing

Quantum

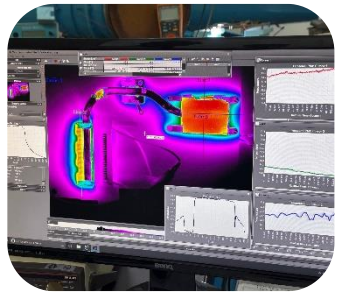
https://yplasma.tech

#PlasmaActuators #Aerodynamics #HardTech

Disruptive project

YPlasma is a spin-off from INTA that uses plasma technology to create actuators without moving parts, applicable to improving aerodynamics (wind turbines, automotive and aeronautics), cooling (also of computer equipment), disinfection, and even in the aerospace sector. It was recognised as Startup of the Year in Catalonia in 2024, and has been accelerated by programmes such as HAX and ESA BIC.

The company's proposal is a radically new and much more efficient alternative to traditional mechanical systems. It has clients such as Intel, Lenovo, Total Energy and Airbus, among others.



Differentiating factors

- Technological disruption: plasma-based solutions that outperform traditional technologies.
- Energy efficiency: significant reduction in energy consumption and cost optimisation.
- Versatility and scalability: applications in multiple industries.
- Competitive differentiation: integration of plasma actuators into high-performance products.

Future

YPlasma promotes cleaner, more competitive and advanced industries, and wants to lead the transition towards a sustainable future.

New opportunities unlocked in the fields of engineering and design as a result of plasma actuators that allow key processes to be optimised.

Great scalability of the technology, available on the market in approximately 1-2 years after 12-month pilot testing.

ACCIÓ Catalonia Trade & Investment

Generalitat de Catalunya
Government of Catalonia

CataloniaConnects

5. Global trends

Introduction

In a constantly evolving world, emerging technologies continue to transform organisations. 2025 is being a key year in the adoption and maturation of several technologies that redefine business models, such as artificial or quantum intelligence.

This analysis provides a vision of the emerging technological landscape and identifies the **10 trending technologies in 2025**, with the desire to help organisations and individuals to anticipate changes, identify opportunities and prepare to lead in a technologically disruptive future. Likewise, the **10 Catalonia Exponential Leaders** become concrete examples of how to apply these emerging technologies to generate real solutions, drive change and lead the transformation.

ACCIÓ's selection of technology trends for 2025

Artificial intelligence
Productivity and automation at the service of companies and users

Cybersecurity
Constant challenge in an increasingly connected world

Quantum
The new frontier of technology

New space
The democratisation of outer space

Hydrogen
Energy vector for the decarbonisation of the economy

Decarbonisation
A global challenge with great opportunities

Advanced manufacturing
Innovations that drive the industry of the future

Semiconductors
Without semiconductors there is no innovation

Health technologies
Innovation that saves lives and transforms medical care

Blockchain
Security and immutability of data at the service of everyone

Technology trends in 2025 (I)

#1 Artificial intelligence

Productivity and automation at the service of companies and users

Artificial intelligence is already part of everyday life in all areas of society. In the business world it will facilitate decision-making and help automate tasks, which will boost economic growth and multiply productivity.

We'll be hearing about...

- Generative AI
- AI ethics
- Responsible AI
- Adaptive AI
- Multimodal models
- Large Language Models (LLM)

#2 Cybersecurity

Constant challenge in an increasingly connected world

With increasing connectivity, digitalisation and automation, cybersecurity is a concern and priority for governments, businesses and individuals, and will be necessary to protect vulnerabilities and develop new technologies.

We'll be hearing about...

- Ethical hacking
- Cybercrime and cyberterrorism
- One-time passwords (OTPs)
- Quantum cryptography
- Cyberresilience
- Data encryption

Technology trends in 2025 (II)

#3: Quantum

The new frontier of technology

Quantum technologies will open up a new range of possibilities with the resolution of problems in less time than conventional computers (in the field of quantum computing) or with more secure communications (with quantum encryption).

We'll be hearing about...

- Qbits
- Quantum algorithms
- Quantum annealing
- QKD and QRNG
- Quantum chips and semiconductors
- Quantum computer

#4: New Space

The democratisation of outer space

The new era of New Space will allow actors who until now did not participate in or benefit from the aerospace industry to do so, with a more accessible satellite infrastructure.

We'll be hearing about...

- Nanosatellites
- Microsatellites
- Picosatellites
- CubeSat
- Low-altitude orbits (LEO)
- Space junk

Technology trends in 2025 (III)

#5: Hydrogen

Energy vector for the decarbonisation of the economy

The extension of the use of clean hydrogen will allow its consolidation as an energy vector and as a raw material for heavy mobility and industry, contributing to the decarbonisation of the economy.

We'll be hearing about...

- Clean or low-carbon hydrogen
- Electrolysers
- Hydrogen storage
- Fuel cells
- Photocatalysis
- Hydrolines and hydroducts

#6: Decarbonisation

A global challenge with great opportunities

The use of alternative fuels, the redesign and electrification of industrial processes, the development of new, less carbon-intensive processes and materials, and the capture and reuse of CO_2 will be essential to decarbonise the economy and reduce emissions.

We'll be hearing about...

- Electrification and industrial hybridisation
- Carbon footprint
- CO_2 Capture, Utilisation and Storage (CCUS)
- Fossil material replacement
- Biorefineries and circular economy
- Carbon tax

Technology trends in 2025 (IV)

#7: Advanced manufacturing

protofy.xyz® MatHolding VEGGA

Innovations that drive the industry of the future

Advanced manufacturing continues to redefine many production processes, driving efficiency and competitiveness and moving towards the full implementation of Industry 4.0. The use and hybridisation of new technologies will allow products and services to be adapted to respond to new market needs.

We'll be hearing about...

- Collaborative and autonomous robotics
- Additive manufacturing or 3D printing
- Sensorisation and industrial IoT
- AI applied to production
- Advanced nanotechnology
- Customised production

#8: Semiconductors

UniSCool Universal Smart Cooling

Without semiconductors there is no innovation

Semiconductors are essential for the development of technologies such as artificial intelligence and quantum. The global technological struggle and the search for technological sovereignty in Europe are driving innovation in design and production.

We'll be hearing about...

- Advanced microprocessors
- Photonic and quantum chips
- New transistor designs
- Lithography and advanced packaging
- RISC-V
- Open and layered architectures

Technology trends in 2025 (V)

#9: Health technologies

Innovation that saves lives and transforms medical care

Health technologies combine medicine and technology to improve prevention, diagnosis, treatment and monitoring of diseases. It includes medical devices, mobile applications, telemedicine, electronic health records and data analysis to personalise treatments, as well as precision medicine.

We'll be hearing about...

- Genomics
- Personalised immunotherapy
- Predictive modelling in health
- Organ-on-a-chip
- Wearables
- Biomarkers

#10: Blockchain

Security and immutability of data at the service of everyone

Blockchain has the potential to transform the economy and society by making possible a decentralised system where transparency and efficiency prevail. It empowers society and businesses by giving them direct control over their assets and data, and increases privacy and security.

We'll be hearing about...

- DLT
- Cryptography
- Smart contracts
- Tokenisation
- Web3
- P2P architectures

Relationship of the Catalonia Exponential Leaders with the ACCIÓ technological trends in 2025

Artificial intelligence

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Cybersecurity

Quantum

YPlasma ACTUATORS TECH

New space

Hydrogen

H_2

Decarbonisation

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Advanced manufacturing

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Semiconductors

UniSCool Universal Smart Cooling

Health technologies

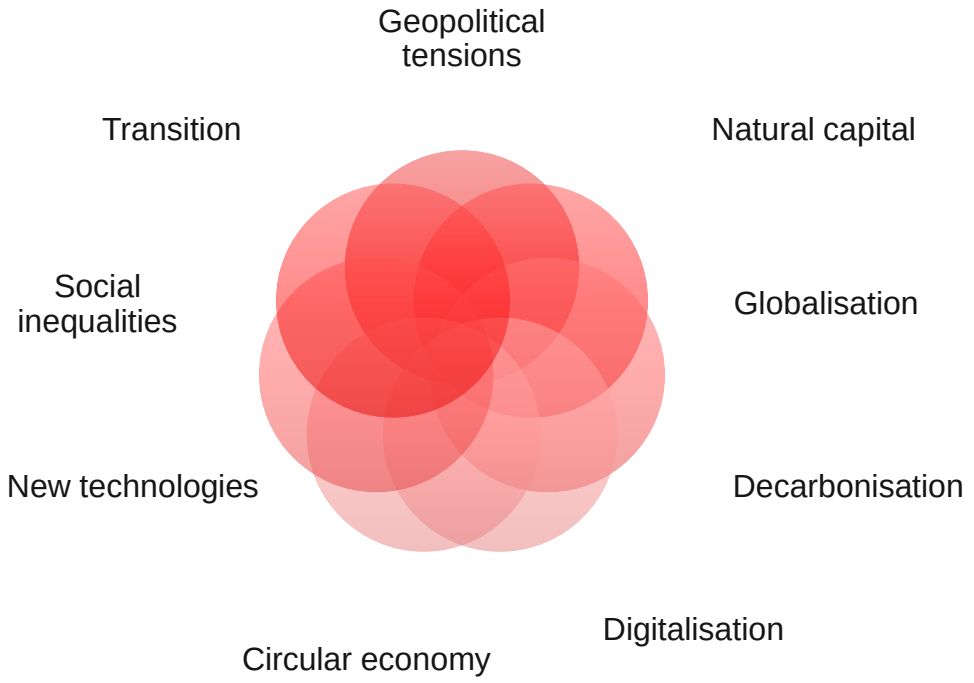
ADMIT THERAPEUTICS · SEQUENTIA DECODE · DISCOVER · DISRUPT · sycai medical

Blockchain

4BLUETECH

RIS3CAT 2030

RIS3 (Research Innovation Strategies For Smart Specialisation) are integrated agendas for territorial economic transformation. The aim is for innovation and knowledge to become drivers for progress towards a greener, more digital, more resilient and fairer socio-economic model.



Shared RIS3CAT 2030 agendas

- A sustainable, fair, equitable and healthy food system
- An emissions-neutral and environmentally-friendly energy and resource system
- A sustainable mobility and logistics system
- A universal, sustainable and resilient socio-health system
- A reflective, anticipatory, inclusive and responsive education and knowledge generation system
- A sustainable and competitive industrial system
- A cultural system integrating people, territory and history

Relationship of the Catalonia Exponential Leaders with the areas of RIS3CAT

- Sustainable, fair, equitable and healthy food system

MatHolding
VEGGA

- Universal, sustainable and resilient socio-health system

ADmit THERAPEUTICS

SEQUENTIA
DECODE · DISCOVER · DISRUPT

sycai medical

- Sustainable and competitive industrial system

protofy.xyz®

YPlasma
ACTUATORS TECH

- Cultural system integrating people, territory and history

CASA BATLLÓ
GAUDÍ BARCELONA

- Emissions-neutral and environmentally-friendly energy and resource system

4BLUETECH

UniSCool
Universal Smart Cooling

estabanell
ERIA ESTABANELL INNOVATION HUB
ENERGY IN CLOUD

From trend to reality: AI consolidates as the key technology in Catalonia

6 of the 10 Catalonia Exponential Leaders apply AI solutions to transform their products, processes and business models

- The sectoral impact is diverse: from health to the blue economy, including culture, energy, agriculture and industry.

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The Catalonia Exponential Leaders consolidate the use of AI, an upward trend in Catalonia

Catalonia has 488 companies who are dedicated to AI

AI is the technology most used by 2,285 Catalan startups

4 out of 5 technological hubs established in Catalonia develop AI

Catalonia Exponential Leaders 2021-2025 companies

Catalonia Exponential Leaders 2021-2025

2021

AAM AdvancedAirMobility · HumanITcare · PEPTOMYC · VEnvirotech · BitMetrics · Kilimanjaro Quantum Tech · Premium · Vottun · Heura · Natural Machines · Satelliot · X1 Wind · Honext · NBD Nostrum Biodiscovery · Seat:Code · Zyrcular Foods

2022

able human motion · bmat Music Innovators · Fregata Space · innovamat · Kave Home · allread · Flax&Kale · GPAinnova · Integra therapeutics · Uriach

2023

Aldoratech · Avinent · Concentrol Chemical Solutions · MIMARK · Boka Fura Dada · Aortyx · BUSUP · JOLT · Mitiga · sener

2024

blindstairs · magnetika · Ocean Ecostructures · UOBO · suara Cooperativa · CUATRECASAS · NAVOZYME · ONIRIA Therapeutics · ScentXP · timeisbrain

2025

4BLUETECH · ADMIT Therapeutics · establanell ERIA Energy in the Cloud · MatHolding VEGGA · protofy.xyz · SEQUENTIA Decode · Discover · Disrupt · sycai medical · CASA BATLLÓ Gaudí Barcelona · UniSCool · YPlasma Actuators Tech

Thank you!

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More information about the sector and related news:
https://www.accio.gencat.cat/en/serveis/innovacio/innovacio-oberta-disruptiva/catalonia-exponential-leaders/

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