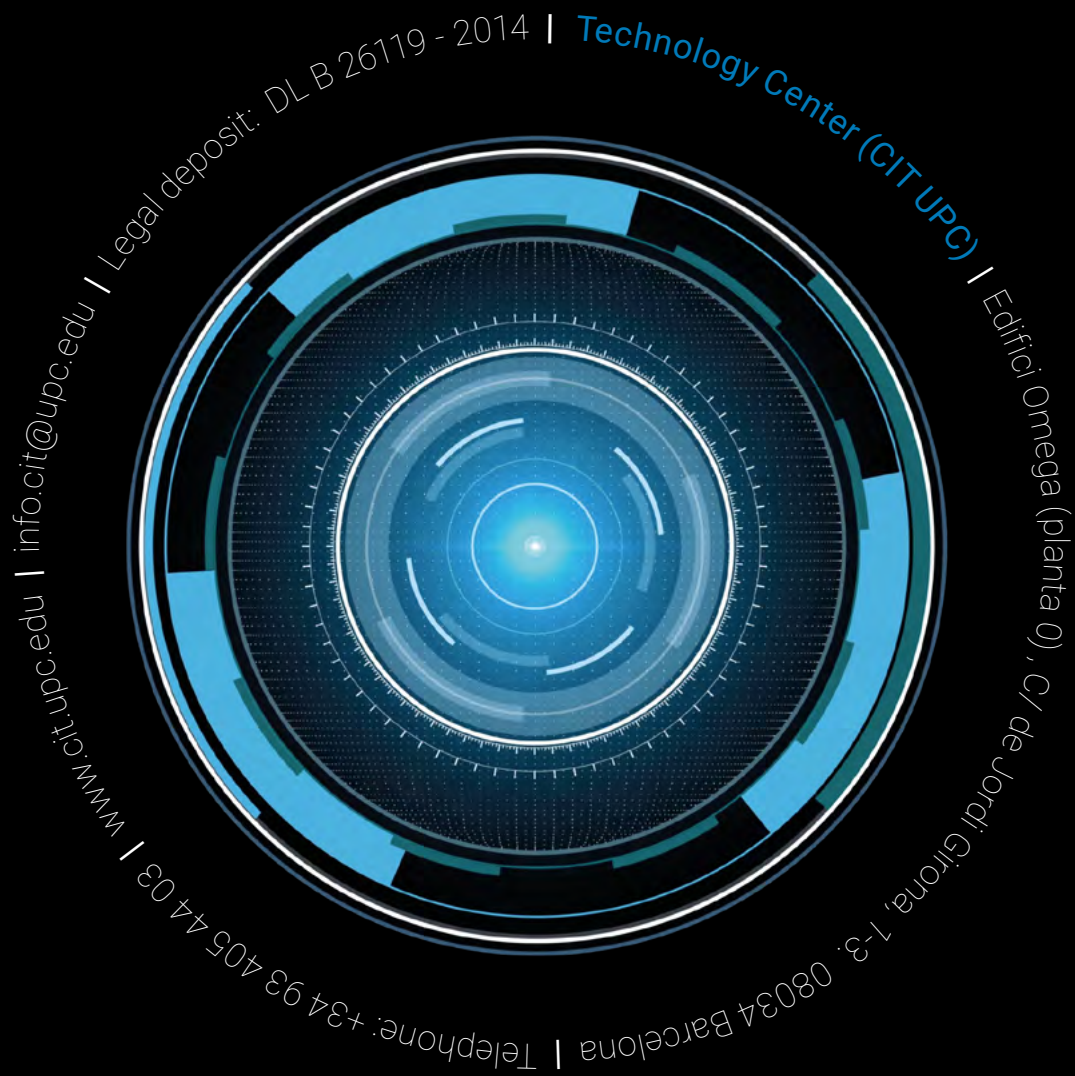


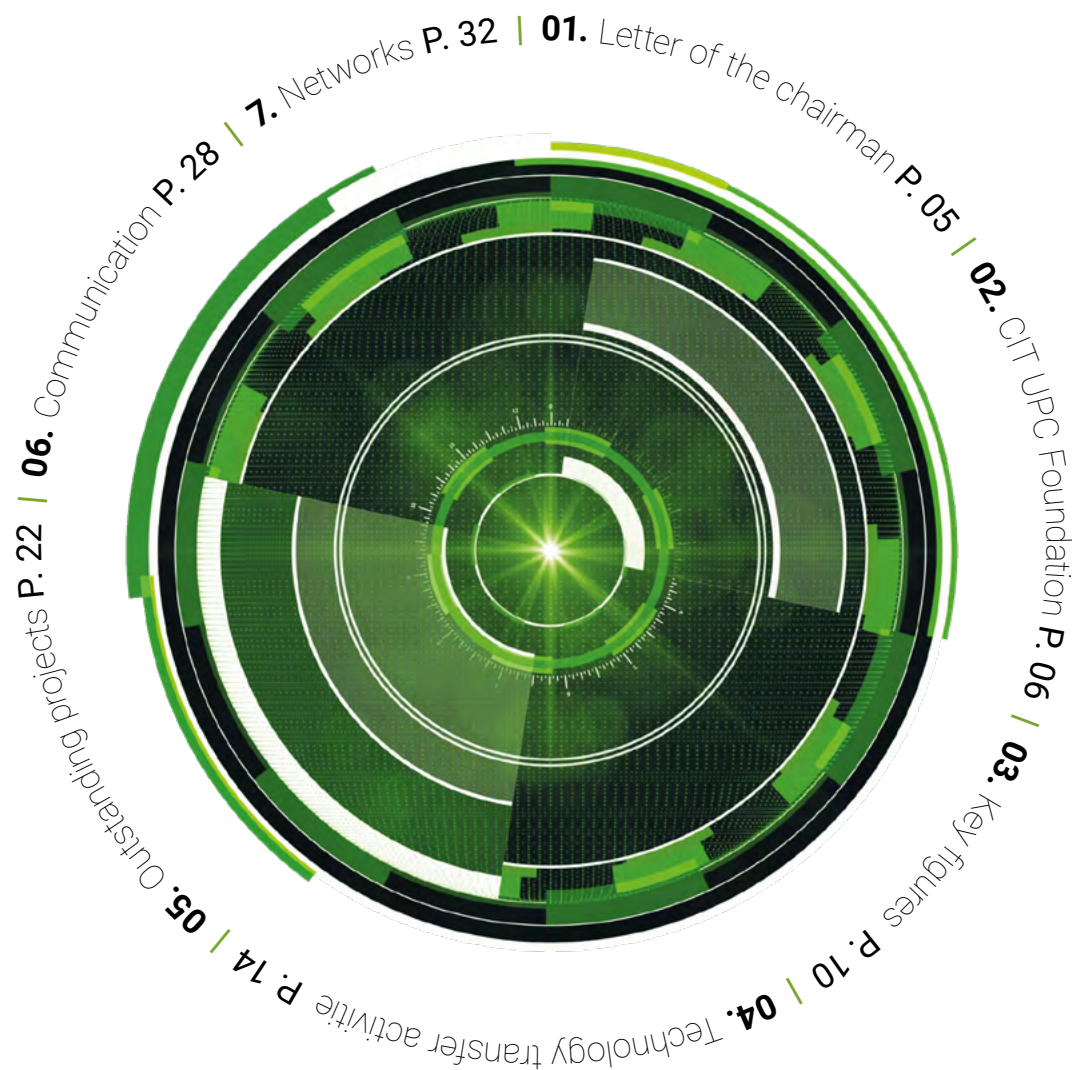


ANNUAL  
REPORT  
2022

We are driving our economy  
towards a more sustainable model,  
based on knowledge,  
based on innovation.



# Summary



# 01. Letter of the chairman



## 01. Letter of the chairman



### **Prof. Daniel Crespo**

RECTOR OF THE UPC AND  
CHAIRMAN OF CIT UPC

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The Universitat Politècnica de Catalunya - BarcelonaTech (UPC) is the leading university in Spain in knowledge transfer and territorial development, according to the CyD Ranking.

We are a university that has deep roots in the territory and a close and continuous relationship with the productive sector.

Technology is a strategic element of our society and a driver of economic and social progress. It makes our lives easier and permeates almost all of our daily activities. We know this well at the UPC, an eminently technological university and the cradle of many of these improvements, which have resulted from our schools and research groups collaborating with companies and organisations.

We are determined to fulfil our mission. We are responding to the fundamental and urgent need to push our economy towards a more sustainable model based on knowledge and innovation. That is why we have a very competitive research system and excellent science that are capable of generating an economic and social impact.

The Innovation and Technology Centre of the UPC (CIT UPC) helps us to facilitate the transfer of technology from the public research system to the productive fabric, to transform our economic model and to contribute to our society's progress. This is our commitment.

# 02. CIT UPC Foundation



# The UPC and technology transfer



The Universitat Politècnica de Catalunya - BarcelonaTech (UPC) is a public institution of research and higher education in the fields of engineering, architecture, sciences and technology, and one of the leading technical universities in Europe.

Just after its foundation, **the UPC made an institutional commitment to technology transfer and subsequently to spin-offs and patents.** The UPC research model consists of **creating technology based on science and offering knowledge-based technological solutions for the production system.**

This commitment over time explains why the UPC is the **leading university in Spain in terms of knowledge transfer according to the Ranking CYD 2023**, the top university in Spain and Latin America in Computer Sciences, among the 15 best in the world and the leading university in Spain in Architecture according to SIR 2023, and the leading university in Spain in Engineering according to the Best Global University Rankings 2023.

# CIT UPC'S objectives



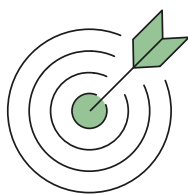
The UPC Technology Center Foundation (CIT UPC) works with the UPC research and technology transfer centres. They carry out excellent research and, as a result, are highly active in technology transfer to companies and seek to provide comprehensive technology and innovative solutions **based on scientific output and frontline research.**

Building on this situation and these strengths, the UPC aims to contribute to Catalonia's economic and social growth through knowledge transfer, which is the bridge between science in general and companies' technology needs. Given the available critical mass and the capacity and range of innovative knowledge provided by the UPC research centres, we can provide solutions to complex technical problems that require a cross-cutting approach.

We work to be a key player on the map of technology centres in southern Europe in terms of research, technology and knowledge-based transfer, that is, **innovation.** A technology centre that can do this job is clearly one that can provide the greatest added value and help to **increase the competitiveness of the companies** that put their trust in it. We are committed to bringing more and better technology to the market by transforming knowledge into marketable technologies.

## Mission, vision and values

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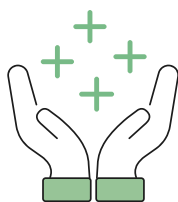
### Mission

CIT UPC helps to build business competitiveness through the generation, development and application of exceptional technological knowledge to business. This process is carried out in the UPC's research and development of technology of the UPC.



### Vision

CIT UPC aims to become a global leader in research excellence, technology transfer and innovation, and technological areas that have an impact on companies and economic growth.



### Values

CIT UPC bases its activity on efficiency and sustainability in order to bolster its credibility and trustworthiness, while at the same time meeting the needs and expectations of its various stakeholders and complying with current regulations, in particular those related to environmental protection and occupational health and safety.

The collective values of CIT UPC include the following:

- Participation and cooperation.
- Independence, prestige and social outreach.
- Sustainable development.
- Commitment to people's well-being.
- Equal opportunities and no discrimination.

# Organisation

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## Board

### CHAIRMAN

**Dr Daniel Crespo Artiaga**

Rector of the Universitat Politècnica de Catalunya - BarcelonaTech (UPC)

### DEPUTY PRESIDENT

**Ms Montserrat Guàrdia Güell**

Chair of the Board of Trustees of the Universitat Politècnica de Catalunya - BarcelonaTech (UPC)

### SECRETARY (NON-BOARD MEMBER)

**Ms Anna Serra Hombravella**

Secretary of the Board of Trustees of the Universitat Politècnica de Catalunya - BarcelonaTech (UPC)

### BOARD MEMBERS

**Dr Climent Molins Borrell**

Vice-rector for Transfer, Innovation and Entrepreneurship of the UPC

**Dr Jordi Llorca Piqué**

Vice-rector for research of the UPC

**Dr Imma Ribas Vila**

Vice-rector for Quality and Language Policy of the UPC

**Mr Ivan Planas Miret**

General Manager of the UPC

**Dr Josep Lluís Larriba Pey**

Delegate of the rector attached to the Vice-Rector for Transfer, Innovation and Entrepreneurship of the UPC

**Mr Carles Sumarroca Claverol**

Appointed by the Board of Trustees of the UPC, COMSA Corporación de Infraestructuras

**Mr David Marin Casanovas**

Member of the Board of Trustees of the UPC and Inaccés CEO

**Mr Albert Gallart Pasias**

Director of Grupo Pulso

**Mr Xavier Marcet i Gispert**

President of Lead To Change

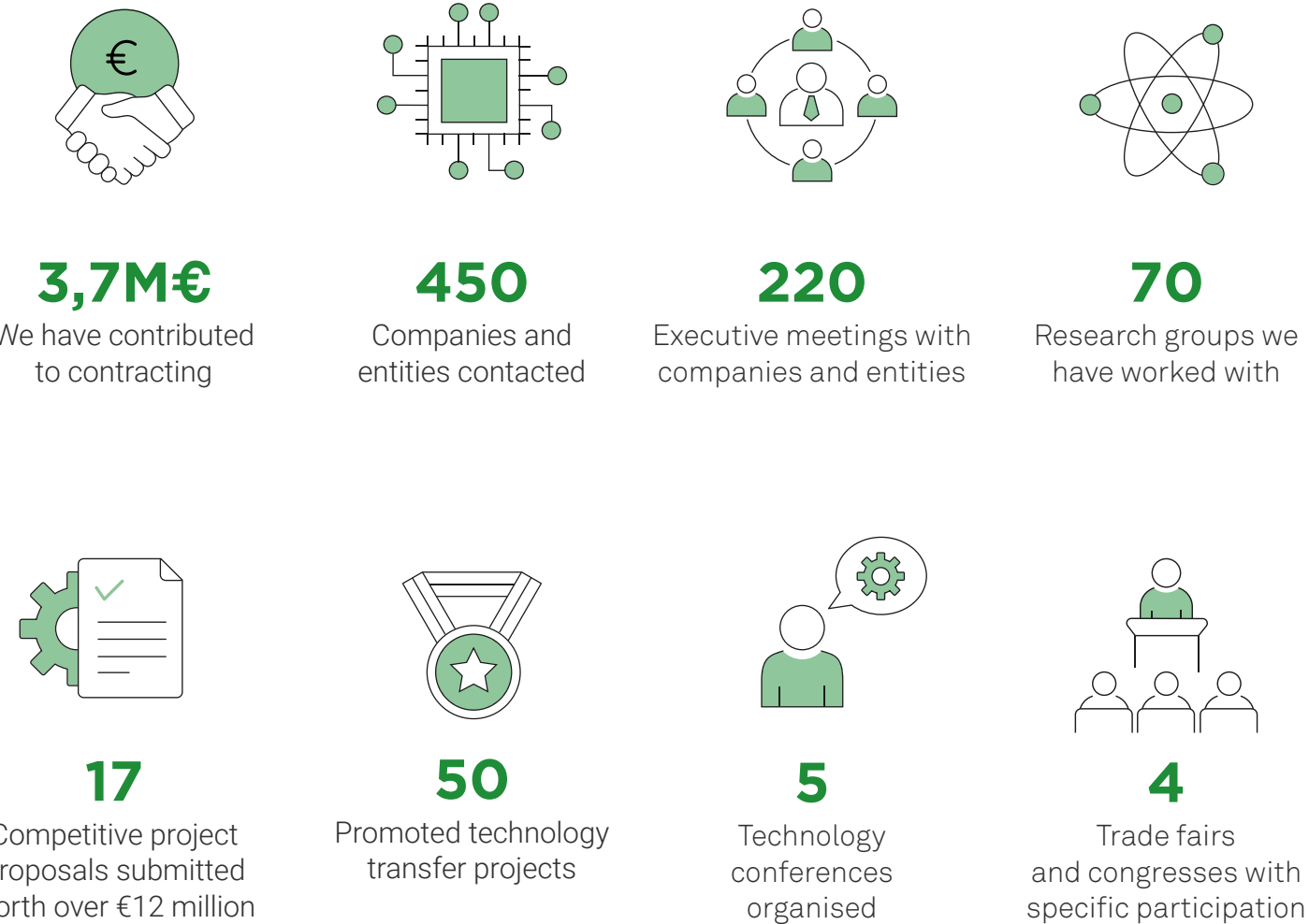
**Mr Miquel Martí Pérez**

CEO of Tech Barcelona

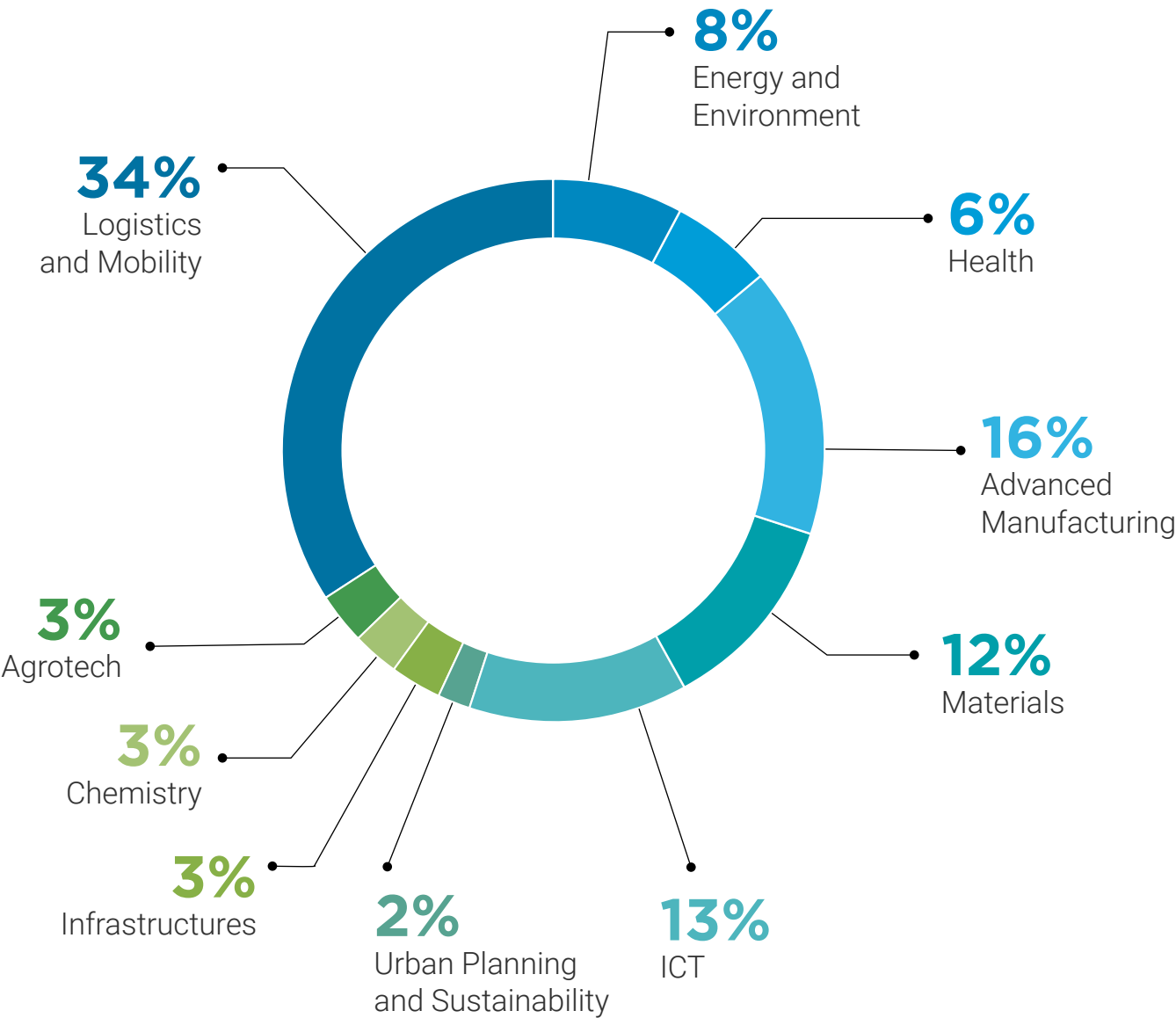
# 03. Key figures of CIT UPC activity



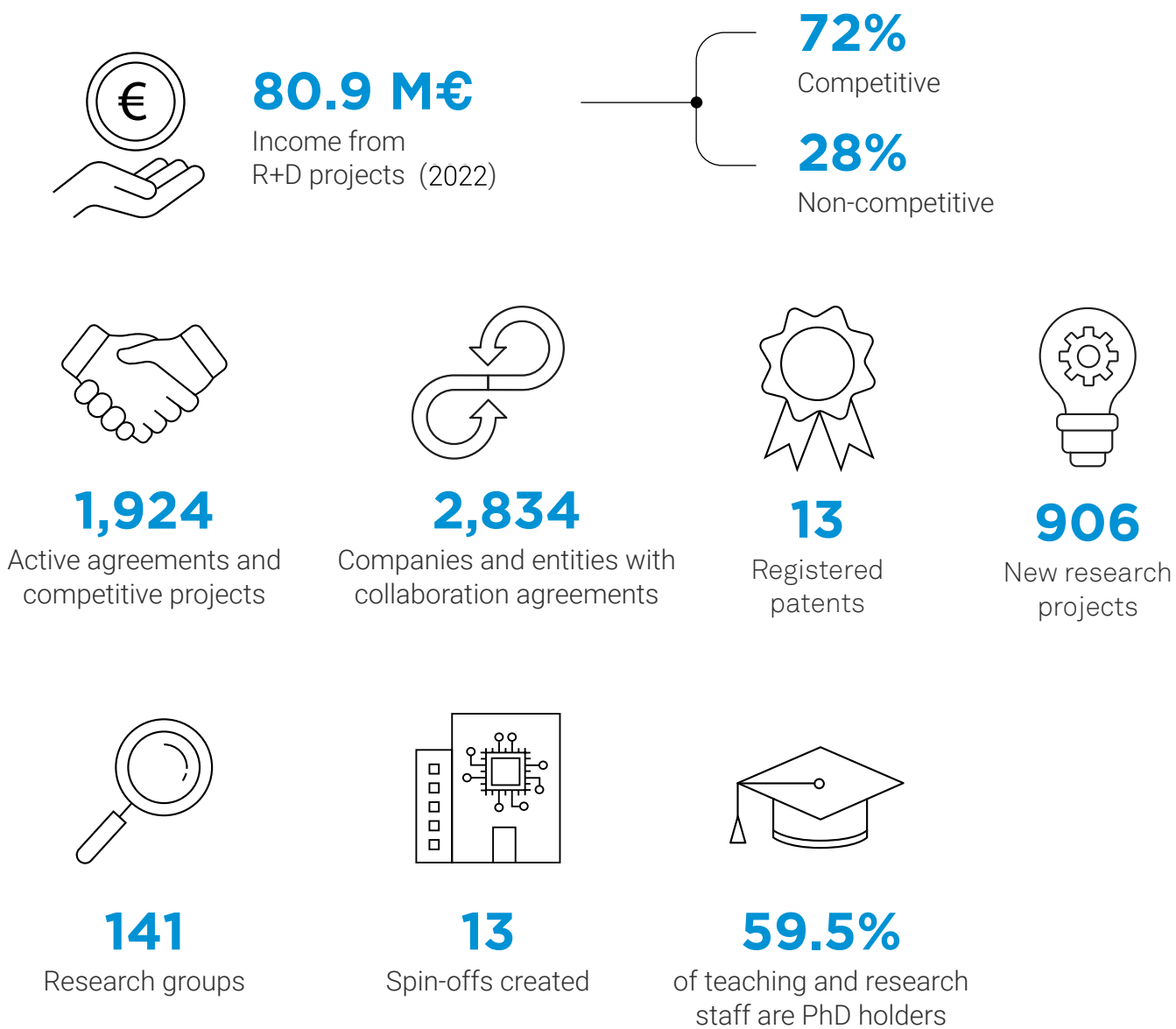
# 2022 Technology transfer figures



# Technological field of the projects that CIT UPC has contributed to promoting



# 2022 UPC technology transfer figures



# 04. Technology transfer activities



04. Technology transfer activities

- TECHNOLOGY CONFERENCES
- DISSEMINATION AND PROMOTION ACTIVITIES
- OTHER TECHNOLOGY TRANSFER ACTIVITIES OF THE UPC
- CLUSTERS AND ASSOCIATIONS
- SPECIFIC PROJECTS
- FAIRS AND CONGRESSES

January 2022

February 2022

25/01/2022  
TECHNOLOGY CONFERENCES  
SESSION | Frontier materials for health



16-17/02/2022  
FAIRS AND CONGRESSES  
UPC Technology at the  
Transfiere 2022 Forum

04. Technology transfer activities



29-31/03/2022  
**DISSEMINATION AND PROMOTION ACTIVITIES**  
CIT UPC, supporting partner  
of Advanced Factories 2022



26/04/2022  
**TECHNOLOGY CONFERENCES**  
Recap of the conference Advanced  
materials for construction

March 2022

April 2022

May 2022

04. Technology transfer activities



10-12/05/2022  
FAIRS AND CONGRESSES

UPC Technology at the sixth edition of the IoT Solutions World Congress



31/05/2022  
TECHNOLOGY CONFERENCES

User-centric technology at the 'Door-to-door mobility' conference

17/05/2022  
OTHER TECHNOLOGY TRANSFER  
ACTIVITIES OF THE UPC

Technological innovation agreement in the field of hospital engineering



June 2022

04. Technology transfer activities



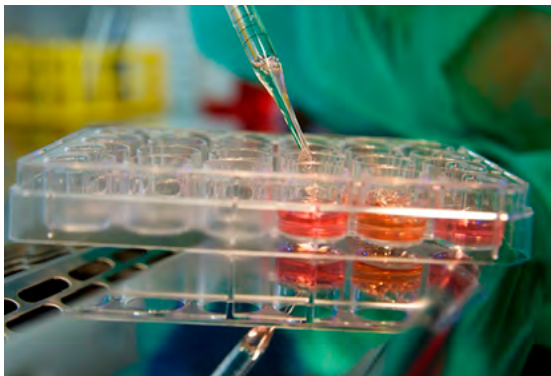
20/06/2022  
**TECHNOLOGY CONFERENCES**  
“The automobile industry and sustainable mobility at the UPC”  
meeting at CFPAM Martorell

July 2022

28/07/2022  
**OTHER TECHNOLOGY TRANSFER  
ACTIVITIES OF THE UPC**  
The Consortium and the UPC will  
develop research projects together



04. Technology transfer activities



10/08/2022  
**OTHER TECHNOLOGY TRANSFER  
ACTIVITIES OF THE UPC**  
Impetus for new cancer treatments  
based on plasma gas



19/10/2022  
**CLUSTERS AND ASSOCIATIONS**  
UPC participates in the First TECNIO  
Congress to discuss the knowledge  
transfer model that Catalonia needs

August 2022

September 2022

October 2022

17/10/2022  
**SPECIFIC PROJECTS**  
Fifth edition of the Open Innovation  
Forum 2022

**Terrassa**

**Open**

**Innovation**

**Forum**

*Solucions a reptes d'innovació*

Organitza:

**Ajuntament de Terrassa**

En col·laboració amb:

**blocat**

**UNIVERSITAT DE BARCELONA**

**Bosch i Gimpera**

**UAB**

**Parc de Recerca UAB**

**CIT**

**UPC**

**CONSEJO DE INNOVACIÓN Y TECNOLOGÍA**

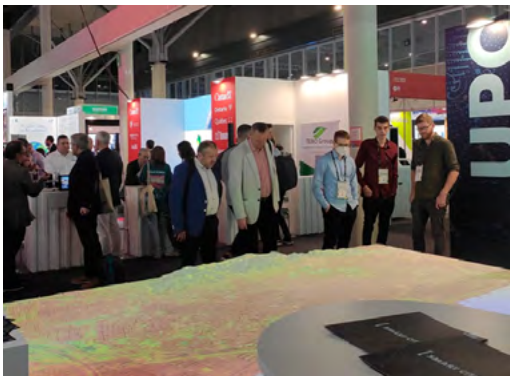
**UNIVERSITAT POLITÈCNICA DE VALÈNCIA**

04. Technology transfer activities



25-26/10/2022  
DISSEMINATION AND PROMOTION  
ACTIVITIES

CIT UPC participates in the Ambassador  
programme of the International Mobility  
Congress 2022



16/11/2022  
TECHNOLOGY CONFERENCES

SESSION | People-centred solutions  
to make cities more liveable and  
resilient

November 2022

15-17/11/2022  
FAIRS AND CONGRESSES

UPC innovations to improve life in  
cities, at the Smart City Expo World  
Congress 2022



04. Technology transfer activities



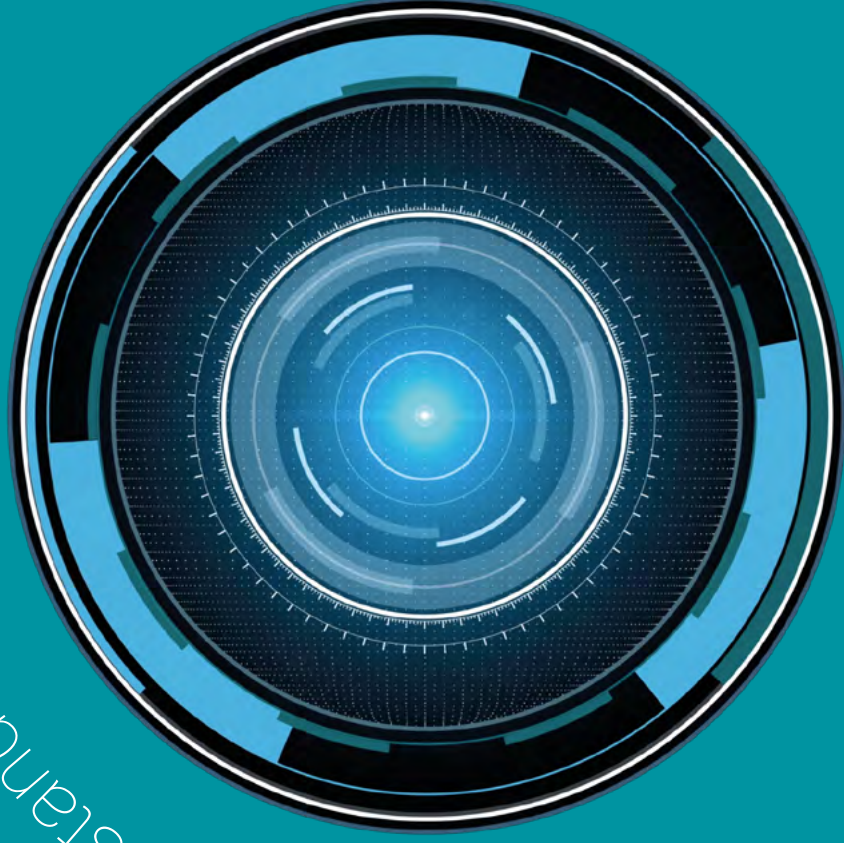
23/11/2022  
**OTHER TECHNOLOGY TRANSFER  
ACTIVITIES OF THE UPC**  
AIRA, the Artificial Intelligence Research  
Alliance in Catalonia, is founded



15/12/2022  
**SPECIFIC PROJECTS**  
CIT UPC, at the fifth edition of the  
Open Innovation Forum

December 2022

# 05. Outstanding projects



05. Outstanding projects



AGROTECH

**AgroMOBY:** A multipurpose, all-terrain, omnidirectional, autonomous vehicle for agricultural applications



AGROTECH

**GroPeRBot:** An autonomous robotic system to detect soil humidity using georadar technology



AGROTECH

**SOPHOS:** Natural, sustainable solutions to capture and recycle phosphorus in the agricultural sector



ENERGY AND ENVIRONMENT

**iPLUG:** Power electronics solutions to modernise the distribution grid



ENERGY AND ENVIRONMENT

**MARLIT:** Improve protection, monitoring and prevention in the face of risks of ocean storms with a high impact on the coast



ENERGY AND ENVIRONMENT

**GIRASOL:** Digital twin of photovoltaic power stations

05. Outstanding projects



INFRASTRUCTURES

**NEUROCRETE:** New cementitious neuromorphic materials for civil engineering applications



INFRASTRUCTURES

**ASHVIN:** Digital twins with applications in the constructions sector



INFRASTRUCTURES

**CREEF:** Use of synthetic macrofibres to reinforce concrete for elements of structural importance in marine environments



LOGISTICS AND MOBILITY

**UPC and CARNET** create a prototype of an autonomous vehicle for delivering goods that will be tested in Esplugues de Llobregat



LOGISTICS AND MOBILITY

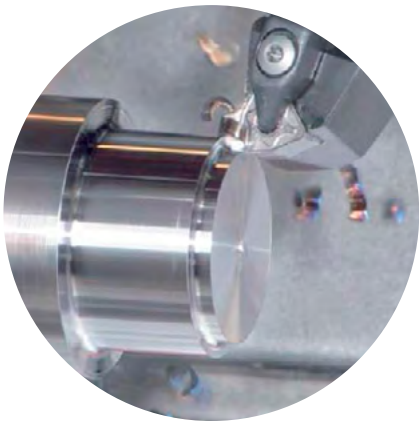
**ARIADNA:** A European project to promote the use of GALILEO satellite technology applied to urban mobility



LOGISTICS AND MOBILITY

**RideSafeUM:** A project to improve safety and encourage the use of micromobility

05. Outstanding projects



MATERIALS

**AVINT:** Machining strategies and prediction of roughness for optimal surface integrity



MATERIALS

**SLAGREEF:** Solutions for the 3D manufacture of marine biotopes through steel slag recycling



MATERIALS

New materials to **improve the useful life of pipes** for collecting urban solid waste



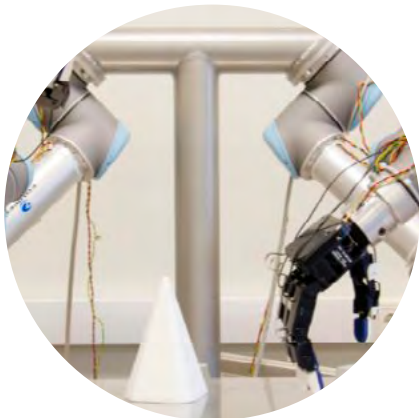
ADVANCED MANUFACTURING

**TRICK:** Blockchain technology to boost the circular economy in the textile sector



ADVANCED MANUFACTURING

**TOFMAN:** Towards future smart manufacturing systems



ADVANCED MANUFACTURING

**CaRo:** Core capabilities for co-workers Robots

## 05. Outstanding projects



### CHEMISTRY

**Bio2Coat:** A functional, edible coating to prevent the deterioration of grapes



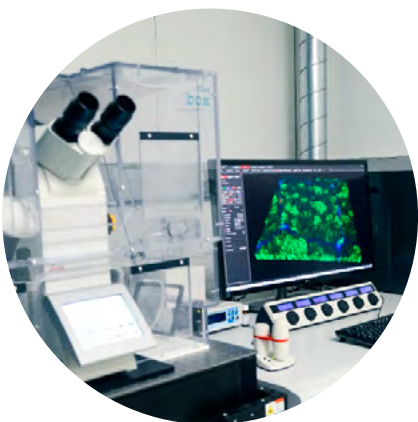
### CHEMISTRY

**RevalPET'UP:** New high-value materials based on recycled PET



### CHEMISTRY

**PROTECT:** Manufacture of fabrics and antimicrobial devices with ultrasound at industrial scale



### HEALTH

**BIOPHOCH:** Photonic technologies and machine learning to improve the diagnosis of visual, neurological and haematological diseases



### HEALTH

**SARAS:** Autonomous robotic arms with a cognitive system to assist surgeons in the operating room



### HEALTH

**Hospitals 4.0 with more effective management** due to machine learning algorithms

## 05. Outstanding projects



### ICT

CIT UPC participates in the **INDUSAC** project to improve collaboration between business and university



### ICT

**LEONARDO:** Remote supervision, management and maintenance of professional coffee machines through IoT technologies



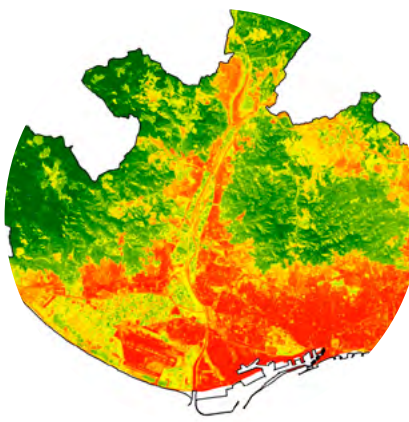
### ICT

**MERIT:** Development of a new pan-European educational ecosystem for the training of digital specialists



### URBANISM AND SUSTAINABILITY

**SAVASCO:** Minimise the environmental impact of construction with walls of corn and sunflower stalks



### URBANISM AND SUSTAINABILITY

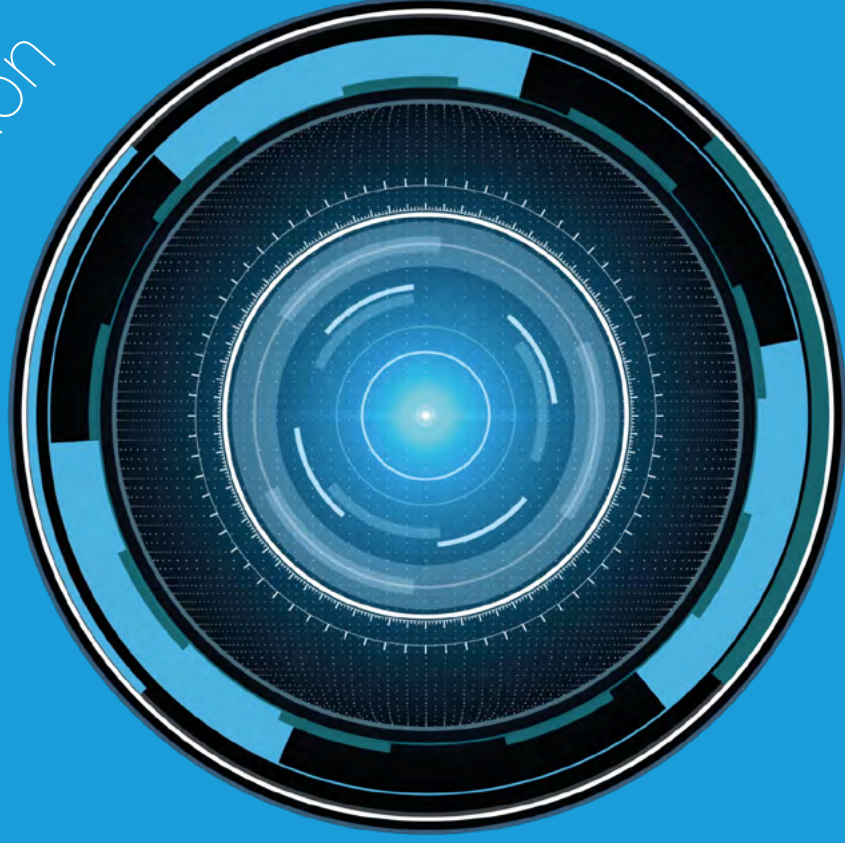
**X-ClimPlan:** Urban heat islands and heat waves. How to adapt our cities to climate change?



### URBANISM AND SUSTAINABILITY

**REV-TER:**  
Revive the rooftops

06. Communication



# Publications

We use various channels to inform about projects developed as examples of university-company collaboration and the results and developments achieved.

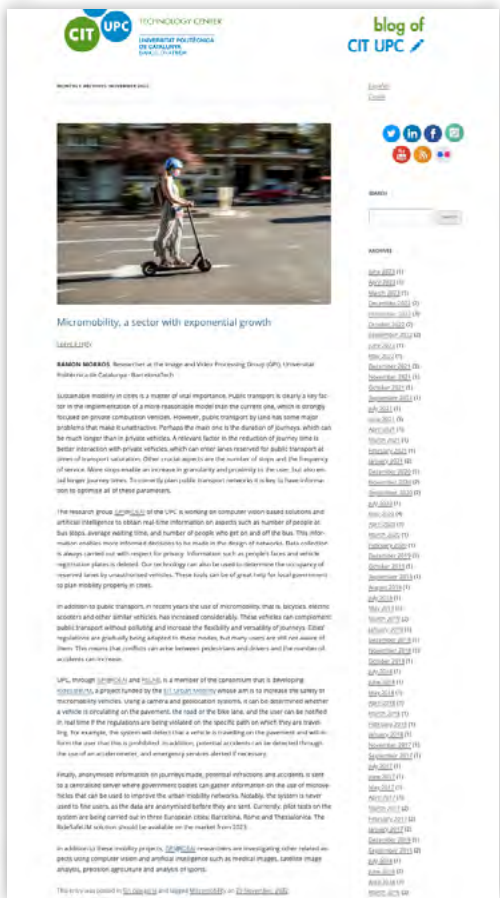
## Newsletter

We publish a bulletin of news in three languages.



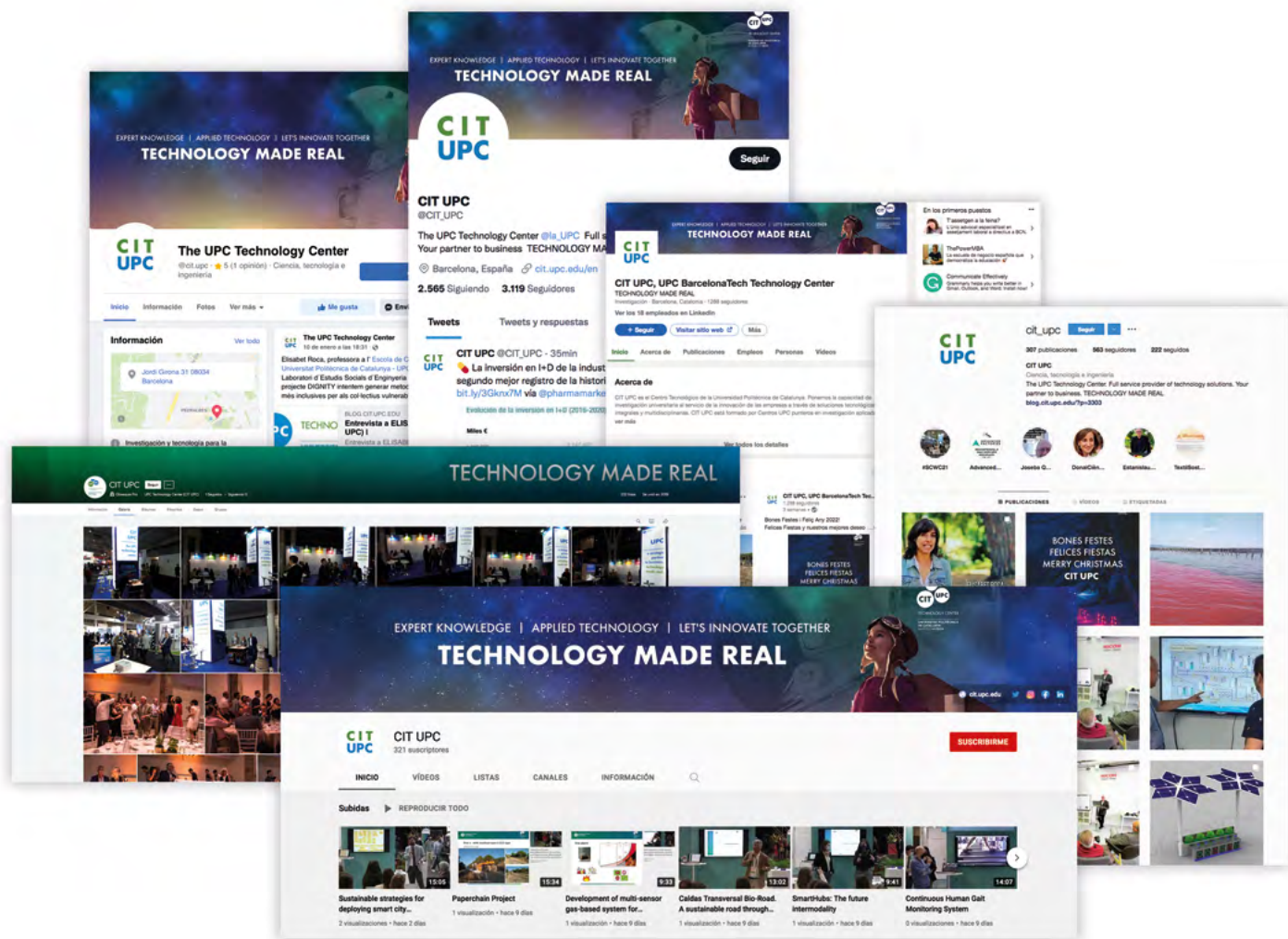
## Blog

We publish a technology blog to share experiences and provide information on knowledge, technology and innovation. The blog is open to participation and aims to bring companies and the University into contact.



# Social Media

We reach a community of over **6,100 users** in all our networks.  
In 2022, we gained **631 followers**.

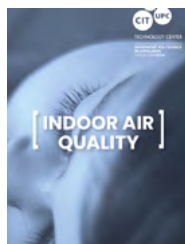


# Cross-cutting technological approach

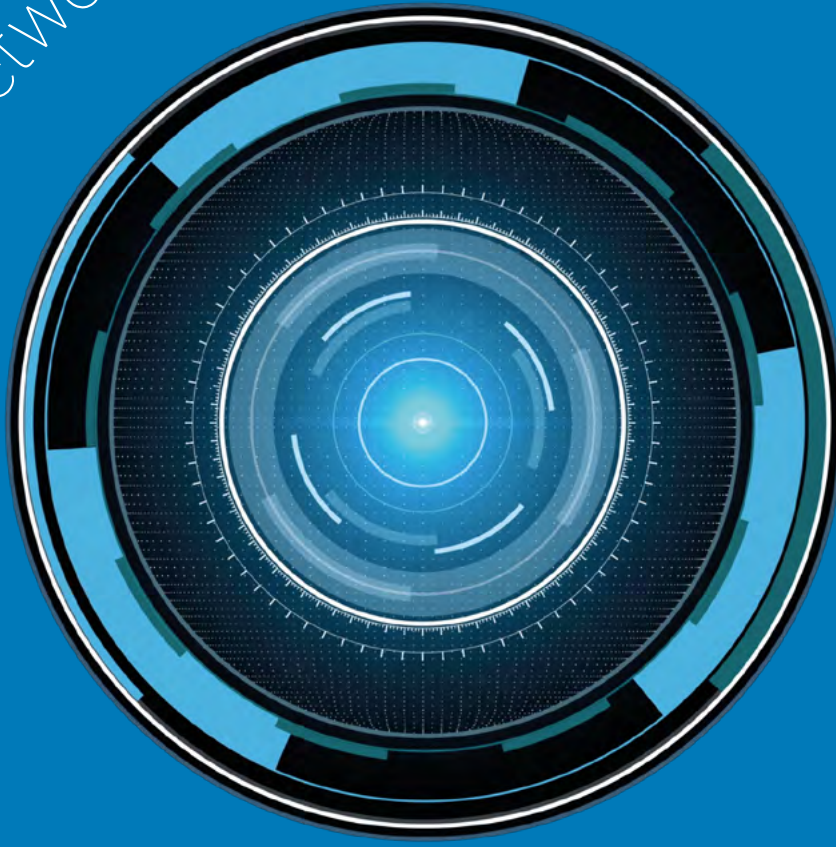
## 2022 Editions



## Other editions

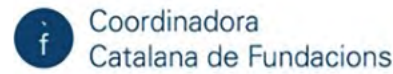


# 07. Networks



07. Networks

Organisations



Clusters



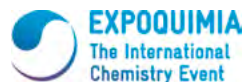
Technical coordination of



We are a partner of



We are partners of the following events



# Technology

We are driving our economy towards a more sustainable model,





based on knowledge, based on innovation.

made real



Technology made real

[www.cit.upc.edu](http://www.cit.upc.edu)



UNIVERSITAT POLITÈCNICA  
DE CATALUNYA  
BARCELONATECH



Unió Europea  
Fons Europeu  
de Desenvolupament Regional



Generalitat de Catalunya  
Departament de Recerca i Universitats  
**Secretaria General**