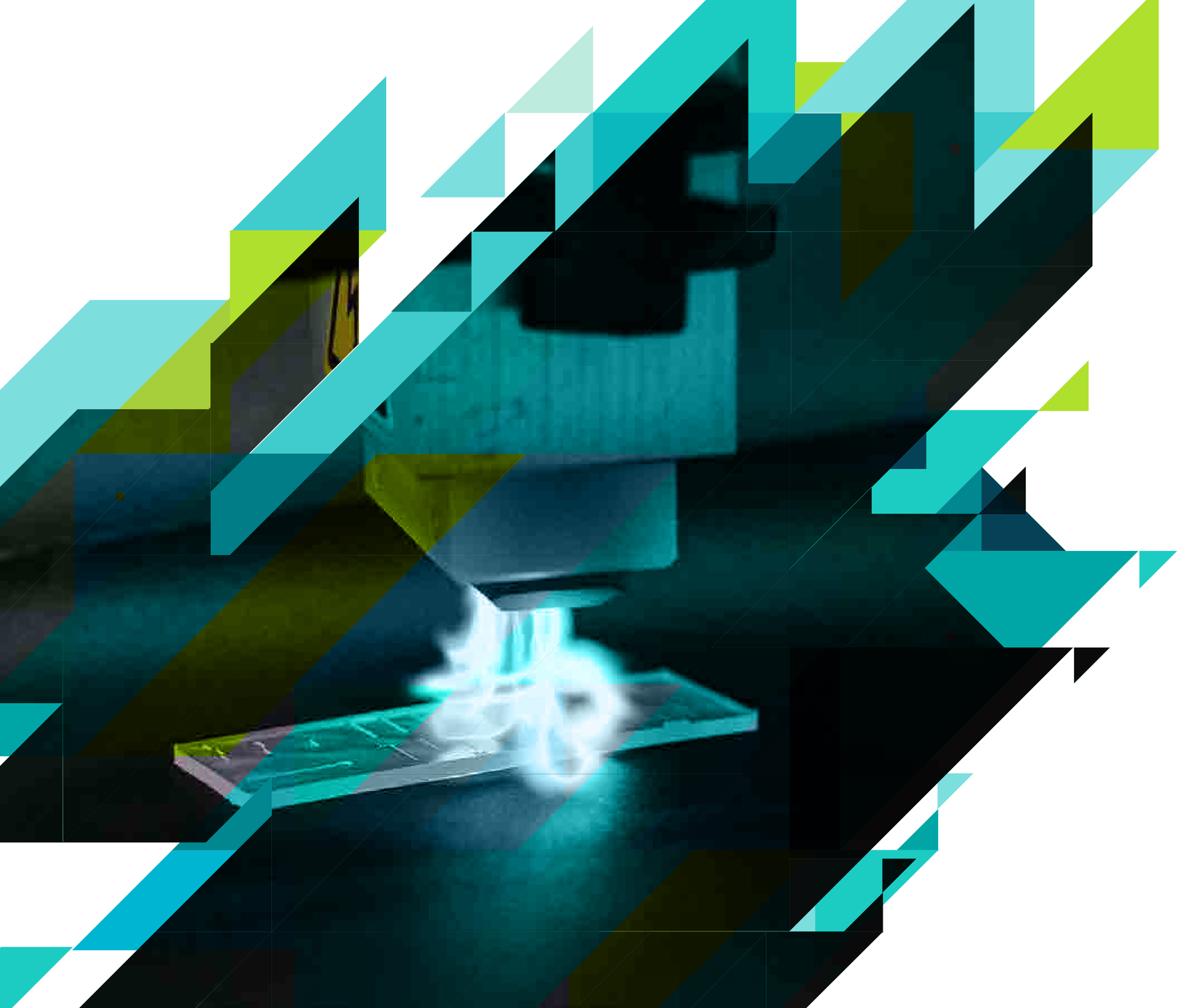

# 2023 ANNUAL REPORT

Leartiker

MEMBER OF BASQUE RESEARCH
& TECHNOLOGY ALLIANCE

HUMANITY AT WORK | MONDRAGON

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

# Message
## from the President and the Managing Director

At a time when there is too much scientific data telling us that we need to shift away from the kind of development we have inflicted on our planet and society, we need to move together towards a global economy that is based on the Sustainable Development Goals. Climate change, rising pollution, declining biodiversity... we need to implement changes in all industries (including food). And these changes need to be compatible with sustainable economic development, which is why the mission of the various organisations dedicated to research, development and innovation seems to be more important and urgent than ever. **We need to be able to deliver results that promote innovation that will benefit the planet and the communities in which we live.**

At Leartiker, our R&D activity continues to pursue our founding purpose of enabling society to meet the sustainable development goals, creating jobs and adding value for economic growth, while respecting our culture and way of life. For this reason, every day we strive to ensure that our partners, customers and the rest of the network with which we collaborate **can see first-hand the proximity, dedication, positivity and problem-solving capacity that we regard as the intrinsic values of our Centre.**

*Iosu Ogiza (President) and Jon Anakabe (Managing Director).*

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

# Message
## from the President and the Managing Director

Once again, this year we have continued to generate new knowledge and develop proprietary technology, and we are continuing to strengthen our lines of research in **polymeric material modelling, the development of sustainable polymers, microfluidic medical devices, tissue engineering and the optimisation of food production processes.**

It is worth highlighting our **two patent applications and eight protected trade secrets**, assets that we will endeavour to promote and transfer to the business sector. We have also published **9 new scientific articles, 6 of them in first quartile journals (Q1)**. Furthermore, we have continued to carry out R&D projects under contract to improve the competitiveness of companies in the fields of sustainable transport, healthy food and personalised health.

> The continued success over the years has been made possible by all of the people and organisations involved in Leartiker. It is thanks to their passion for science and technology, their commitment and their daily efforts.

**Despite a year of internal restructuring, our turnover has grown at a faster rate than in recent years, reaching the 4.5M we had targeted for the year 2025 in our current Strategic Plan. We have also managed to achieve a turnover of 3.8M in R&D, which is 23% higher than in 2022.**

# Message
## from the President and the Managing Director

As a result, we have further strengthened our team and its commitment to Leartiker, with another person joining our cooperative. Additionally, thanks to the support of the Basque Government with the AZPITEK programme and of the Provincial Council of Bizkaia with the Technology Transfer programme, we have been able to set up **cutting-edge facilities in the fields of advanced polymer characterisation and tissue engineering (and lab-on-a-chip devices)**, which have become key levers for the advancement of knowledge in our respective lines of research. Finally, it is worth mentioning that together with Elika and Tolosa City Council, in 2023 we once again organised Esneki Azoka, a key event for the dairy sector in the Basque Country, as well as the Dynaelast international meeting, with leading figures from the automotive sector, focusing on thermoplastic elastomers in the automotive industry.

We would like to finish by thanking all of the people and organisations involved in Leartiker, especially our collaborating partners and the whole of our staff, as the continued success over the years has been made possible by their passion for science and technology, their commitment and their daily efforts. We are a cooperative, and cooperation is the foundation for developing scientific and technological knowledge. We have the know-how to do it.
**BAGOAZ!**

*Iosu Ogiza, President of Leartiker, y Jon Anakabe, Managing Director of Leartiker.*

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Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

# Leartiker
## about us

mission

We are a technology centre located in MARKINA-XEMEIN (Bizkaia), specialising in **Food Technology and Polymers Technology** and our mission is to add value to the business sector through our R&D&I activities and the appropriate transfer of their results.

We belong to the **Basque Science, Technology & Innovation Network** (RVCTI) (as a multi-focus technology centre) and the **Basque Research & Technology Allience** (BRTA). We are also a non-profit cooperative that is part of the **MONDRAGON Corporation**, the foremost Basque business group and the largest cooperative in the world.

> The Leartiker project is based on a collaborative model, turning knowledge into added value, facilitating diversification processes and creating new jobs, mainly locally.

# Leartiker
## about us

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

## vision

A team of People who are proud to be part of the Leartiker project, a leader in our areas of technology with a global outlook, adding value to the business sector and the sustainable transformation of the environment.

## values

- INVOLVEMENT
- CONFIDENCE
- SERVICE ORIENTATION
- POSITIVISM
- SCIENTIFIC RIGOR

## KNOWLEDGE

**International research**

Leaders in Food Technology and Polymers Technology.

## PEOPLE

**Value & Values**

A team of People who are committed to sustainable value creation.

## CUSTOMER FIRST

**Result oriented R&D+I**

We are agile transferring technology to meet our Customers' needs.

# Leartiker
## our trajectory

**2000**

### R&D&I
Polymers Technology and Food Technology

**2002**

### REGIONAL DEVELOPMENT MODEL
Training, R&D&I and business promotion

**2005**

### RVCTI ACCREDITATION
Intermediate Innovation Organisation

**2015**

### RVCTI REACCREDITATION
Industry Technology Centre

**2016**

### LTK 2020
Definition of the Strategic Plan

**2020**

### LTK 2020 LTK 2025
Objectives achieved and new Strategic Plan

**2021**

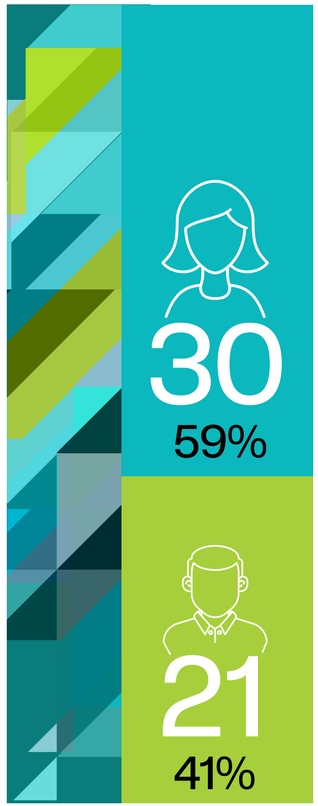
### ESNEKI ZENTROA DAIRY CENTRE
The first dairy centre in the Basque Country is created

### RVCTI REACCREDITATION
Multifocalised Technology Centre

### BRTA
Basque Research and Technology Alliance

**2023**

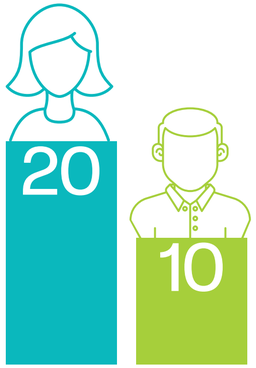
# Leartiker
## team




51 People

12 PhDs

5 Doctoral students




30 Graduates

4 Other

Average age of the team: 39 years old

Age range: 23-58 years old

# Leartiker
## figures

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

### Turnover

4.50 M€
4.47 M€

### Private funding (R&D)

%39,42
%38

### Turnover (R&D)

3.78 M€
3.74 M€

### International public funding (R&D)

%9,54
%15

### International projects

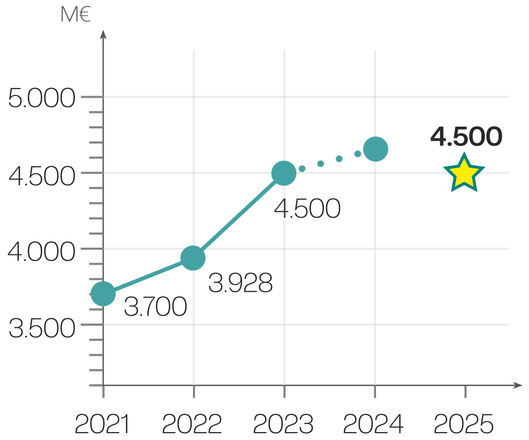
### Scientific articles

### Patents applied for

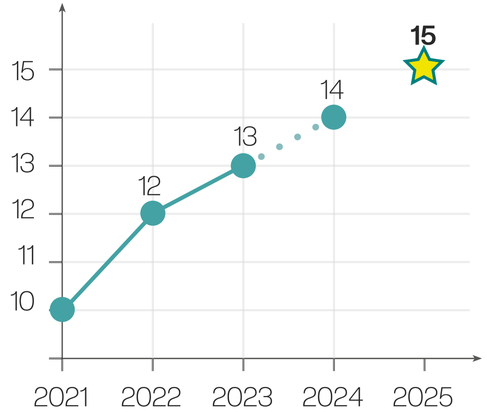
# Leartiker
## forecast



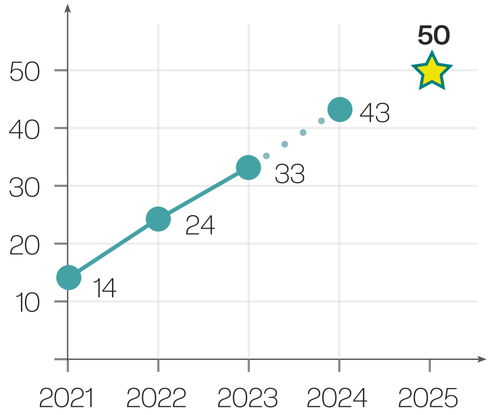
### Turnover



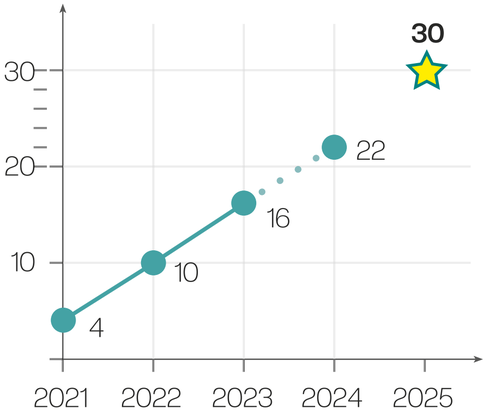

### PhDs




### Scientific articles




### Q1 Scientific articles



# Leartiker
## partnerships

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MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

### Collaborating partners

ausolar · BATZ · cikautxo GROUP · EROSKI zurekin · KauTenik · lea artibai · eika · MAIER

### Hospitals

Clínica Universidad de Navarra · IBMM Institut des Biomatériaux · Ramsay Santé Clinique Belharra · Hôpitaux de Toulouse

### Public institutions

EUSKO JAURLARITZA GOBIERNO VASCO · Bizkaia · Osakidetza

### Universities and technological and research centres

aimen · astar · basque culinary center · UNIVERSIDAD DE GRANADA · ikerlan · INRAE · IPPE · ITAINNOVA · UNIVERSITAT JAUME I · cidetec · cima · CTAG · KU LEUVEN · LIÈGE université · LONDON METROPOLITAN UNIVERSITY · MONS · DIKER · DSM · Endurica · MONDRAGON UNIBERTSITATEA · CIC nanoGUNE · NEIKER · UNIVERSITÉ DE PAU ET DES PAYS DE L'ADOUR · Fraunhofer · Gaiker · GHENT UNIVERSITY · IDEKO · POLYMAT · RESCOLL · tecnalia · Tekniker

### Associations and companies

ADDIMAT · ADDITIVALLEY · AEMAC · Leartibai · eit Manufacturing · eit RawMaterials · ENKARTERRIALDE · elika · BASQUE FOOD CLUSTER · BASQUE HEALTHCLUSTER · bihartean · eit Food · Bexen medical · LEA ARTIBAI · hazi · bioef · Biolur · CENTRO ESPAÑOL DE PLÁSTICOS · materplat · PTEPA · QUESERÍAS DE CAMPO Y ARTESANAS · EKOLBER · REGEMAT · INNOMEDICA

# Leartiker
## for equality

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

8 March:

On 8 March 2023 the Leartiker Equality Committee introduced its first **Leartiker Equality Plan for Women and Men**.

International Day of Women and Girls in Science / 11 February:

3 Leartiker researchers took part in the **1st Meeting of Women Researchers** organised by BRTA.

TALENTATU - academic year:

This is the Lea-Artibai Cooperatives Committee's programme to attract, retain and create talent and is promoted by Leartibai Fundazioa. Leartiker has been involved in this initiative since its inception, taking part in talks, tours, events and trips with pupils from the Lea-Artibai region. It also engages in initiatives aimed specifically at showcasing women scientists in the region.

# Areas of technological specialization

## POLYMERS TECHNOLOGY

**Sustainable Transport**
**Health**

## FOOD TECHNOLOGY

**Food Design**
**Dairy Centre - Esneki Zentroa**

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

# FOOD TECHNOLOGY

## FOOD DESIGN

## DAIRY CENTRE
Esneki zentroa

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

# FOOD TECHNOLOGY

At Leartiker Food Technology we focus on innovation as our main strategy to help improve the competitiveness of agri-food businesses through R&D&I projects that are closely linked to product diversification and/or process improvement.

To achieve this, we work closely with our customers, meeting their technological and knowledge needs in order to launch new innovative products onto the market: technology forecasting, identifying consumer trends, managing the company's knowledge and creativity, making product prototypes and conducting pilot tests in our pilot plant facilities and identifying industrialisation needs, always seeking to support and work alongside the customer.

66

Leartiker Food Technology's main objective is to develop innovative, healthy and sustainable products by promoting the use of local raw materials and using natural (unprocessed) manufacturing processes. In the field of dairy products, we continuously strive to stand at the forefront of the Basque Country's artisan dairy sector.

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# DAIRY CENTRE ESNEKI ZENTROA

esneki zentroa Leartiker

# Leartiker
## FOOD TECHNOLOGY

# DAIRY CENTRE ESNEKI ZENTROA

## FOOD TECHNOLOGY

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The Dairy Centre offers a range of services including the development of new cheeses and dairy products, research into raw materials and production technologies, advanced t echnical consulting, specialised training and much more.

66 Our milk, our farmers, our health.

Our challenge is to promote the diversification and competitiveness of small farmers, and to pass along our passion for innovation.

DEVELOPMENT OF INNOVATIVE PRODUCTS

TECHNOLOGICAL CONSULTING

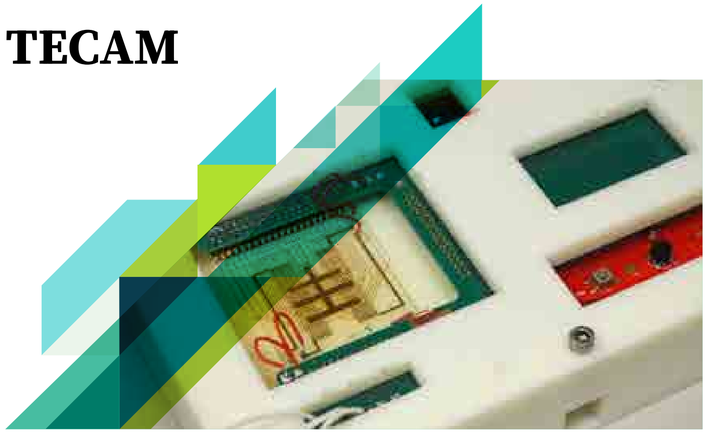
SPECIALISED TRAINING

# Dairy Centre - Esneki Zentroa

## PROJECTS 2023

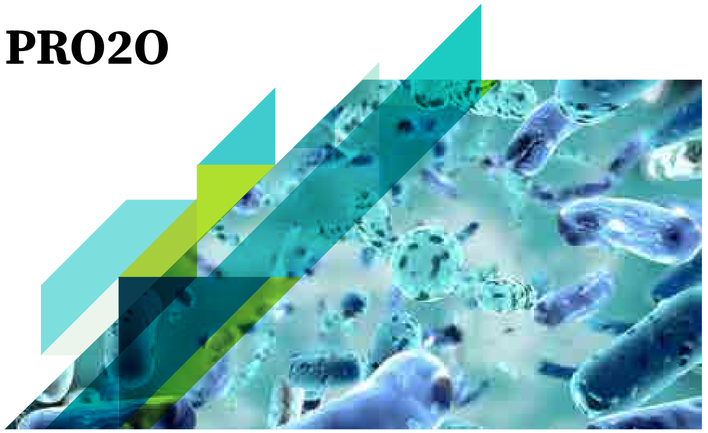
Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

### TECAM



### ELAMINA

### PRO2O



### ESNEA2

### EGOT

### BLUECARE

# Dairy Centre - Esneki Zentroa

## PROJECTS 2023

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

### ONDTEK

### GAZTANOLA

### OTHER INNOVATION PROJECTS

GAZTAGORRI (Sukalberri 2023 – GFA/DFG)

2 BERRI (Berriker 2023 programa, EJ-GV)

BATZALDI (Berriker 2023 programa, EJ-GV)

GAKE (Berriker 2023 programa, EJ-GV)

BEHIAR (Berriker 2023 programa, EJ-GV)

CAPRITXO (Berriker 2023 programa, EJ-GV)

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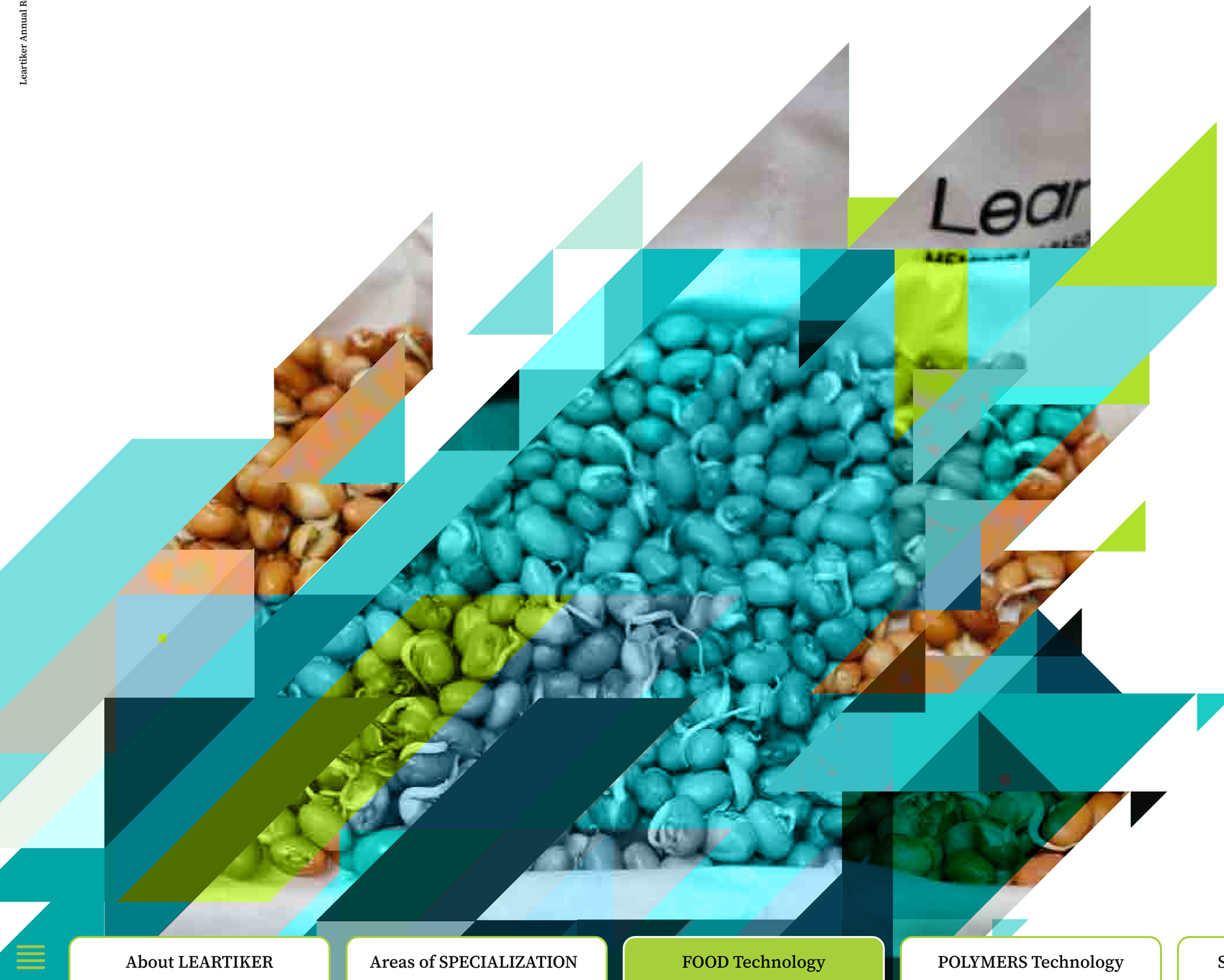


# FOOD DESIGN

# Leartiker
## FOOD TECHNOLOGY

# FOOD DESIGN

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

## FOOD TECHNOLOGY

We develop new healthy and sustainable products produced using local raw plant- or animal-based materials with added value.

66 FROM IDEA TO MARKET.

We understand, design, develop and test.

Areas of research:

### NEW PRODUCTS

New product ideas, product definition and design, product and process development.

### PROTEIN SOURCES

Obtaining and characterising new sustainable protein sources, new food concepts with the incorporation of proteins, study of health properties.

### FERMENTED PRODUCTS

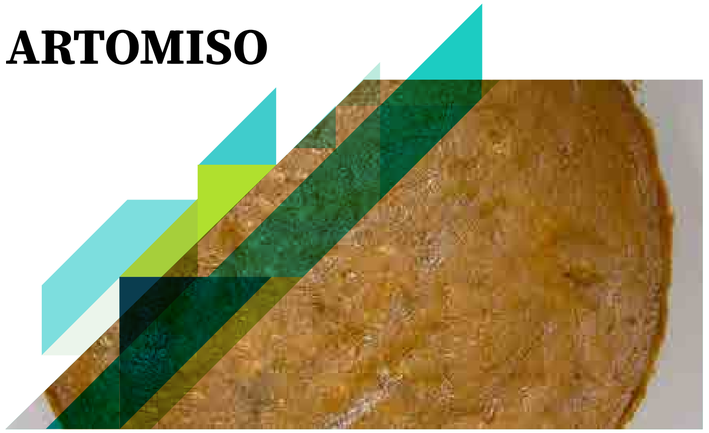
Studies of fermentation processes, research into healthy compounds generated during fermentation and development and diversification of fermented products.

# FOOD DESIGN
## PROJECTS 2023

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

### MUSKA

### ARTOMISO



### BASABERRI

### BASATXERRI ETORKIZUNA'23

### LEKALEAK

### EKO-BKGTxerria

# FOOD DESIGN
## PROJECTS 2023

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

### GARAUBERRI MISIOAK

### GARAUBERRI SUKALBERRI

### HEZUR EZ GEZUR

### PROTEFUNGI

### LANDETXO

### DIGESLEK

# FOOD DESIGN
## PROJECTS 2023

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### BEHIKIHEALTH

### LANDOLABE

### CIRCULARFERM

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# POLYMERS TECHNOLOGY

## SUSTAINABLE TRANSPORT

## HEALTH

# POLYMERS TECHNOLOGY

Leartiker Polymer Technology focuses on design concepts for manufacturing with polymeric materials, from the development of different materials to their manufacturing processes, including material and product characterisation and their static and dynamic simulation.

Leartiker Polymer Technology offers the following specializations: **HEALTH and SUSTAINABLE TRANSPORT**

Leartiker transfers value to its customers through its expertise in these areas of specialization. To this end, it works with a wide range of national and international partners, harnessing the power of highly qualified professionals, facilities and machinery to take on R&D&I projects with a view to scaling up the results to industrialisation.

> In this age of digitalisation and technological innovation, together with sustainability requirements, our polymers team is deepening its commitment to advanced research and sustainable development in order to create knowledge and viable solutions.

# SUSTAINABLE TRANSPORT

Leartiker
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## POLYMERS TECHNOLOGY

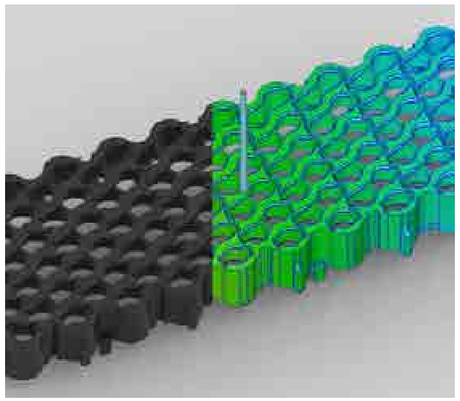
Development of polymeric components for the transport sector; from material design to the end of its useful life.

66 TURNING CHALLENGES INTO OPPORTUNITIES FOR MOBILITY.

END-TO-END coverage of the value chain.

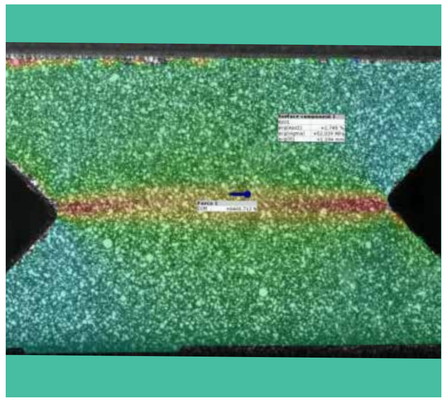
**Design and development of new sustainable polymeric materials**

(compounding)



**Product and process development**

(components, designing moulds, injection and compression moulding)



**Thermo-mechanical performance assessment and prediction**

(static, dynamic, impact)

**Durability assessment and prediction**

(fatigue, creep)

# SUSTAINABLE TRANSPORT
## PROJECTS 2023

Leartiker
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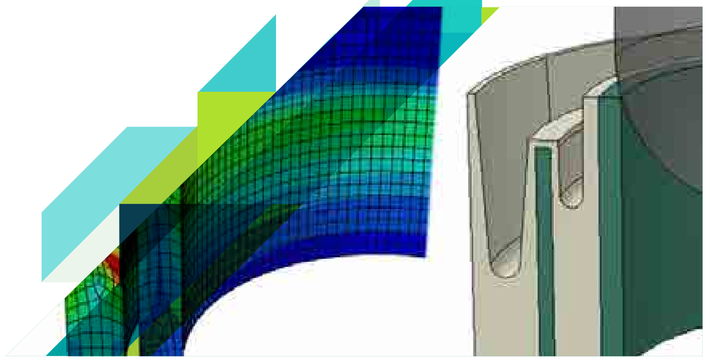
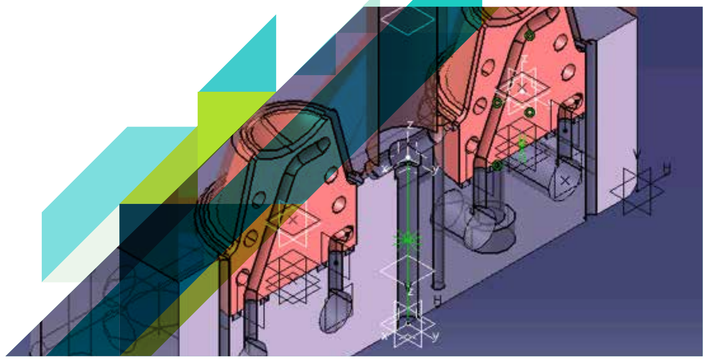
### FUTURE FAST FORWARD



### INYECCIÓN X.O.



### POLITA

### CARBOBRAKE

### SERA

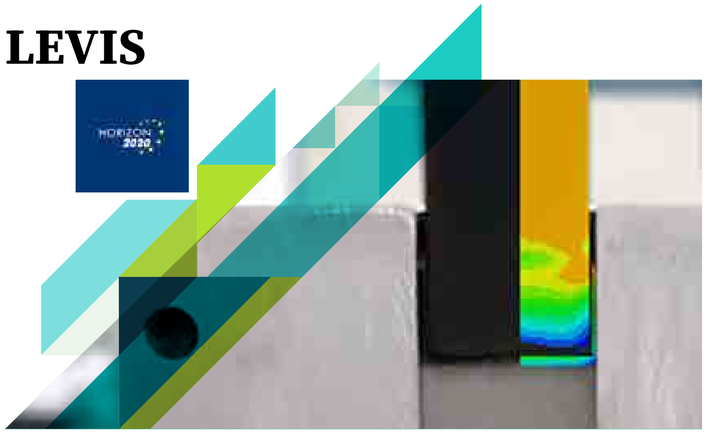
### CICE2023

# SUSTAINABLE TRANSPORT
## PROJECTS 2023

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

### KAIROS

### LEVIS



### BIRSARE

### CRITERION

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# HEALTH

# Leartiker
## POLYMERS TECHNOLOGY

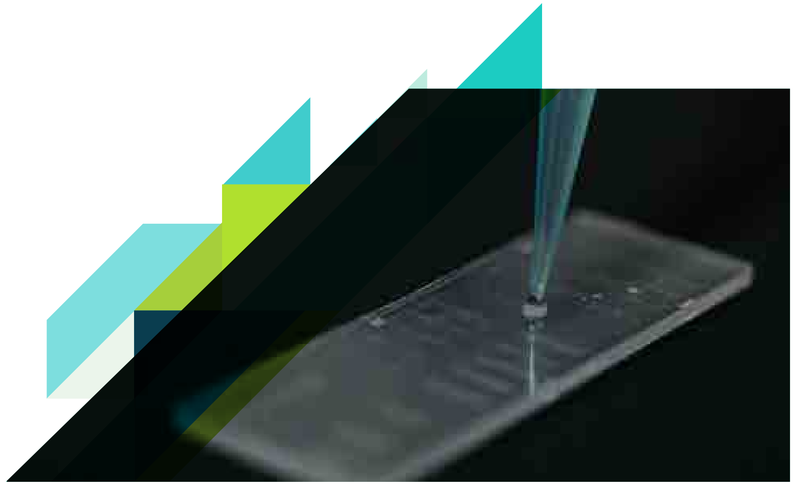
# HEALTH

## POLYMERS TECHNOLOGY

**New biocompatible polymeric materials designed for the bio-health sector.**

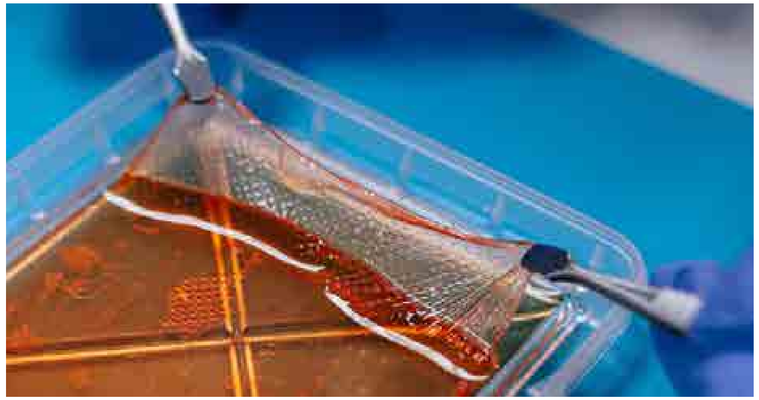
66 FROM IDEA TO PATIENT.

Working closely with hospitals and health research institutes.



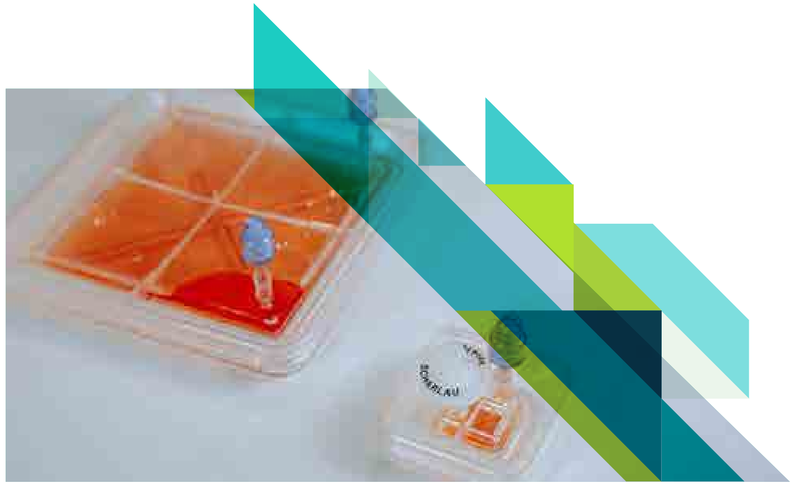
### MICROFLUIDICS

PoC, LoC and OoC devices using injection moulding technologies: from prototype to mass production.



### TISSUE ENGINEERING

Manufacture of 3D structures (hydrogels and thermoplastics) using (bio)printing technologies according to the target tissue, and development of microgels for cell therapies.



### MEDICAL DEVICES

Polymeric devices for medical professionals; medical imaging, patient personalisation.

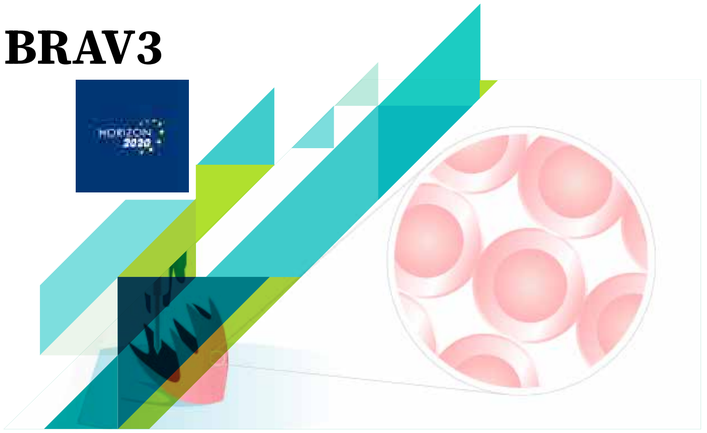
# HEALTH
## PROJECTS 2023

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

### CARDIOPATCH

### LAIKA

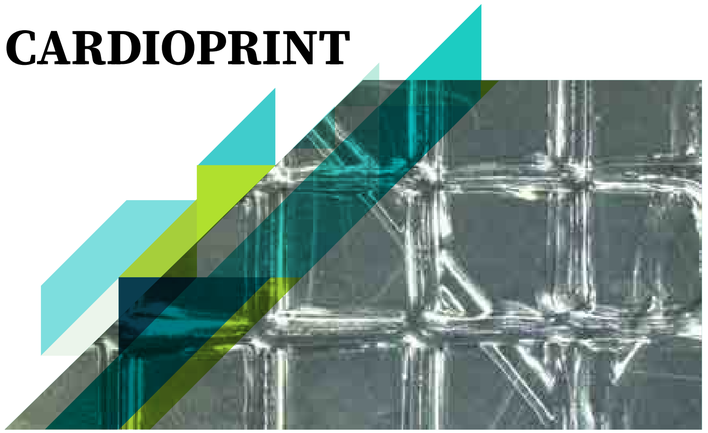
### BRAV3



### BIHOBEAT

### SIMINSITU

### CARDIOPRINT



# HEALTH
## PROJECTS 2023



### BILCHIP

### LAMIPoC

### imiTEM

### CAPTECGEL

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# STRATEGIC INNOVATION

# CHALLENGES

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MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

## 1 TO DESIGN AND DIGITALISE THE PROCESS OF PLANNING, APPROVING AND MONITORING ANNUAL MANAGEMENT PLANS, INCLUDING THE MONITORING OF SCIENTIFIC AND TECHNOLOGICAL PLANS:

- Designing the process for generating annual management plans.
- Traceability with respect to the objectives of the current Strategic Plan.
- Creating a digital monitoring tool.
- Launch.

## 2 TO CREATE A NEW TECHNOLOGY COMPANY

Building on Leartiker's range of protected assets, to showcase our key assets by transferring them to a new start-up after securing public-private backing.

## 3 TO REDEFINE THE ANALYSIS METHOD FOR EACH OF LEARTIKER'S ACTIVE LINES OF RESEARCH

Defining the variables to be analysed and the assessment method used to measure the "health" of each line of research, with the aim of making appropriate decisions with a 360º perspective, based on the current business model.

## 4 TO MAKE LEARTIKER THE BEST PLACE IN THE WORLD TO WORK THROUGH INNOVATION;

both for employees and for the company's local area, by attracting talent and preserving our unique and distinctive characteristics (culture, identity and essence).

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

# LEADING FACILITIES

Leartiker
MEMBER OF BASQUE RESEARCH & TECHNOLOGY ALLIANCE

# FOOD TECHNOLOGY

## PILOT PLANT

800 m$^2$

Pilot plant divided into different areas and fully equipped with all the equipment needed to process, package and preserve food and to meet the needs of different sectors.

Leartiker
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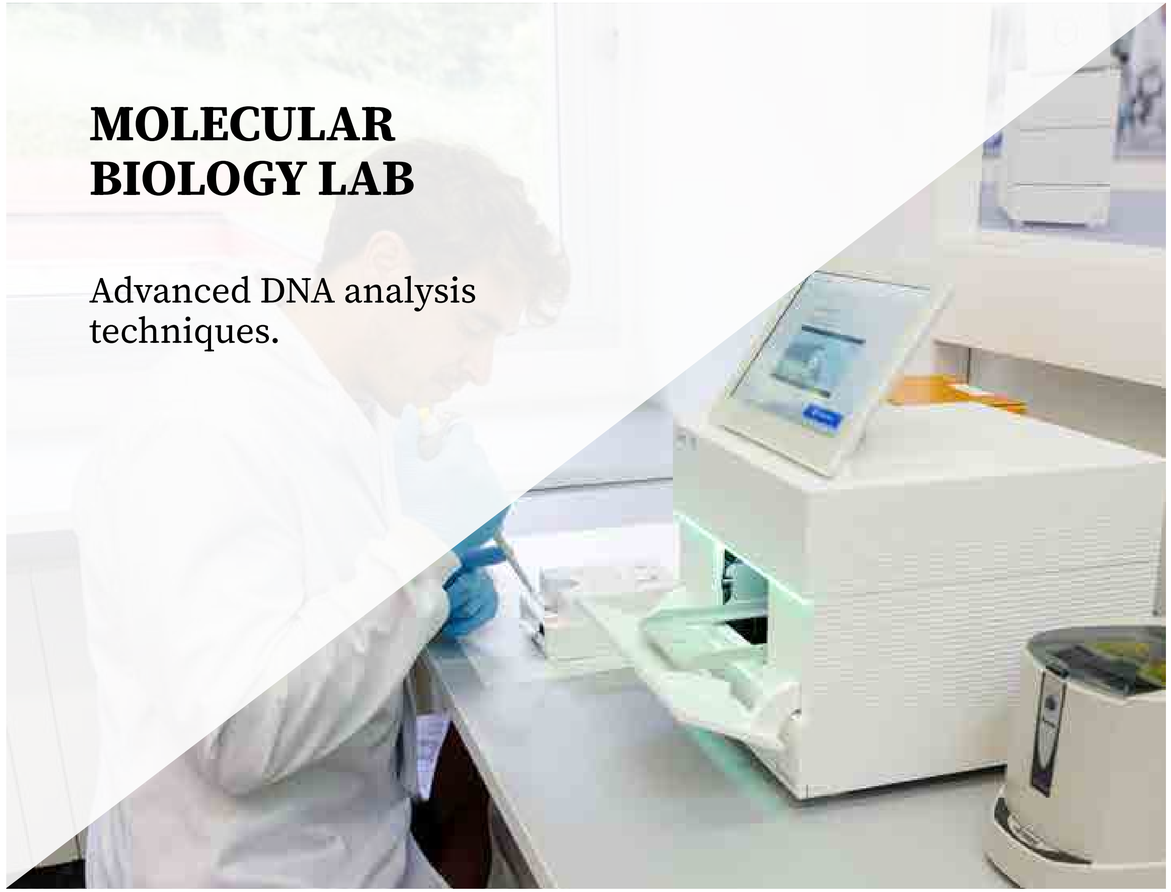
# FOOD TECHNOLOGY

## MICROBIOLOGY LAB

Top-of-the-line equipment and highly qualified staff to guarantee food and water safety and quality.

## MOLECULAR BIOLOGY LAB

Advanced DNA analysis techniques.



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# FOOD TECHNOLOGY

## PHYSICAL-CHEMICAL LAB

It is equipped with a broad range of equipment for process control analysis and the detection of compounds in food products.

## TASTING ROOM

Eight individual booths for conducting consumer research.

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# POLYMERS TECHNOLOGY

## POLYMER AND COMPOSITES TRANSFORMATION WORKSHOP

Fully equipped facilities for developing new materials:

- Creation of new materials (compounding),

- Designs for characterisation projects (ad hoc material digitisation)

- Prototype part injection with design support (product development).

All this supported by a wide range of peripheral equipment (IR furnace, presses, etc.) for developing functional materials: bi-components, organosheets, etc.

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# POLYMERS TECHNOLOGY

## PHYSICO-CHEMICAL AND RHEOLOGICAL CHARACTERISATION LABORATORY

Techniques for the physico-chemical characterisation of polymeric materials and composites.

## VIBRATION AND MECHANICAL DURABILITY LAB

Advanced equipment for the dynamic characterisation, fatigue and creep of polymeric materials.

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# POLYMERS TECHNOLOGY

## ADVANCED MECHANICAL CHARACTERISATION LABORATORY

A wide range of equipment and technologies for comprehensive mechanical characterisation.

## MATERIALS MICROSCOPY LAB

Microscopy laboratory with equipment for analysing polymeric materials, including the ZEISS LSM 900 confocal materials microscope and the NIKON i80 optical microscope.

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# POLYMERS TECHNOLOGY

## ISO7 CLEAN ROOM

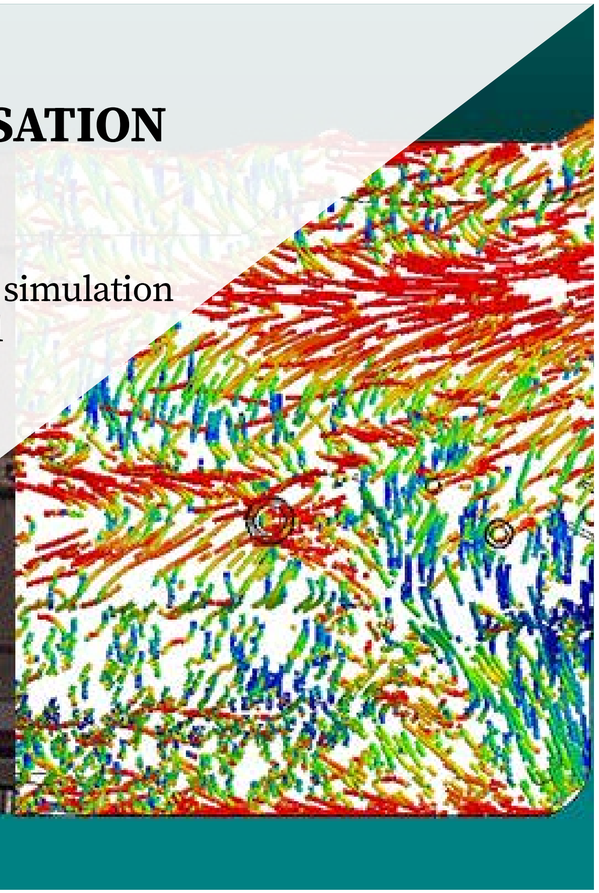
70 $m^2$

Designed for the development and manufacture of medical devices with a range of equipment for transforming polymeric medical devices in controlled environment conditions.

## INTEGRATIVE DIGITISATION TOOLS

Licences for various commercial simulation programmes related to material modelling, process simulation, structural simulation and product design.

Scripting skills with Phyton programming language.



# 2023 ANNUAL REPORT

Leartiker

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*#TechnologyforPeople*


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