

WE  
CAN DO  
SO MUCH  
TOGETHER

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# TECNALIA

## Inspiring Business

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# About US

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in 2017

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# TECNALIA

## RESEARCH AND TECHNOLOGICAL DEVELOPMENT

SINCE 2011  
TECNALIA is a benchmark Research  
and Technological Development Centre  
in Europe.

\_MULTISECTORAL

\_MULTI-TECHNOLOGY



A model  
**ANTICIPATING  
THE FUTURE** ▶

A COMBINATION  
OF TECHNOLOGY,  
TENACITY,  
EFFICIENCY, COURAGE  
AND IMAGINATION



## CORPORATE GOVERNANCE

### BOARD OF TRUSTEES

25



**PATRON  
TRUSTEES**  
(Companies)

10



**INSTITUTIONAL  
TRUSTEES**  
(Basque Government,  
Regional Councils,  
UPV/EHU)

08



**APPOINTED  
TRUSTEES**  
(Persons of  
recognised  
standing)

06



**NUMERARY  
TRUSTEES**  
(Town Halls  
and Trade  
Associations)

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EN CÁSCARA, S.A.

GRUPO AERNNOVA

GRUPO IGUALMEQUISA, S.A.

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GUASCOR POWER INVESTIGACIÓN  
Y DESARROLLO, S.A.U.

HEIDELBERGCEMENT HISPANIA

HÉROUX-DEVTEK SPAIN

HIDROELÉCTRICA DEL  
CANTÁBRICO (EDP ESPAÑA)

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S.L.

SIEMENS GAMESA RENEWABLE  
ENERGY INNOVATION AND  
TECHNOLOGY, S.L.

TECMAN, SERVICIOS DE VALOR  
AÑADIDO, S.L.

TRADEBE, S.A.

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POLÍMERO, S.COOP.

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VICINAY CADENAS, S.A.

VIUDA DE SAINZ, S.A.

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S.L.

BILBAO CITY COUNCIL

DONOSTIA - SAN SEBASTIÁN  
CITY COUNCIL

VITORIA - GASTEIZ  
CITY COUNCIL

UNIVERSITY OF DEUSTO

UNIVERSITY OF THE BASQUE  
COUNTRY (UPV/EHU)

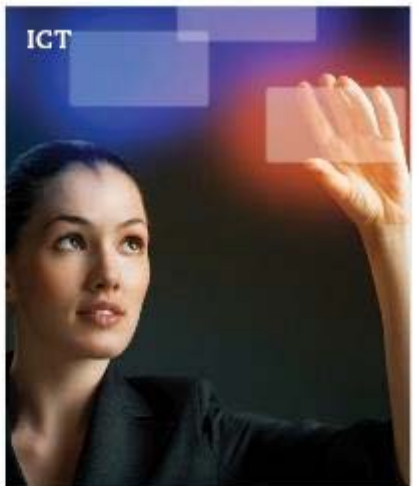
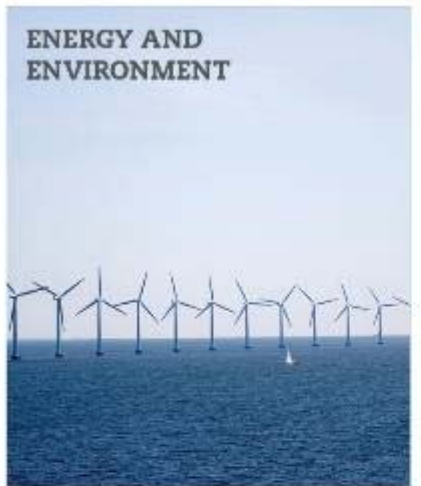
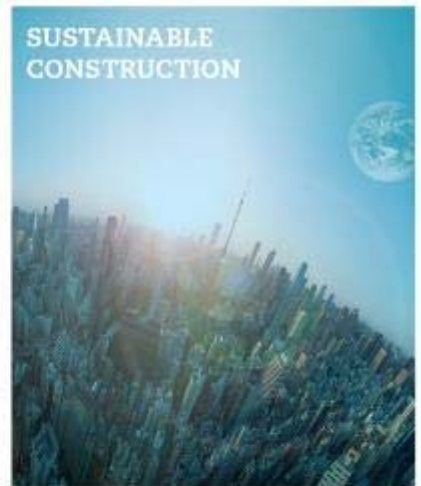




## 6 INTERCONNECTED BUSINESS DIVISIONS

This way of working is the best example of our innovative spirit applied to an operational model, where cooperation works thanks to the transversality of teams, projects and clients.

+ EMERGING BUSINESSES



Main figures  
in 2017

## PEOPLE IN TECNALIA

**1,445** STAFF

 **57** %  
MEN

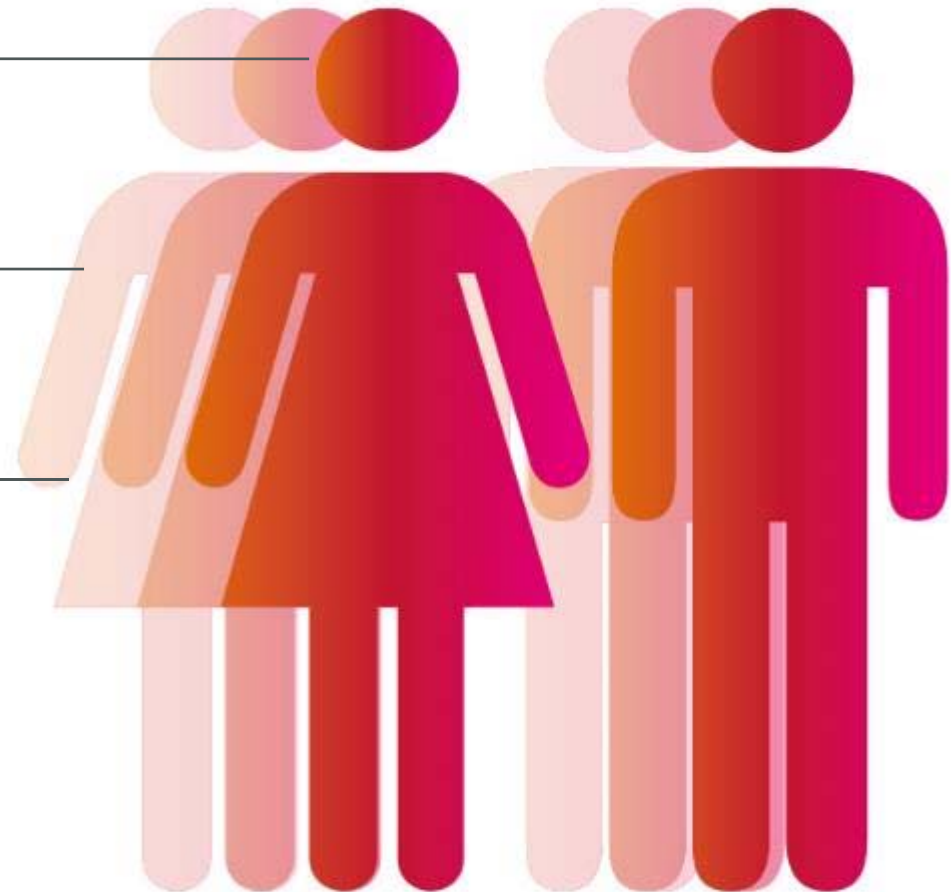
 **43** %  
WOMEN

 **27** DIFFERENT  
NATIONALITIES

**43** AVERAGE  
AGE

**249** NUMBER OF  
PhDs

*Figures on 31 December 2017.*

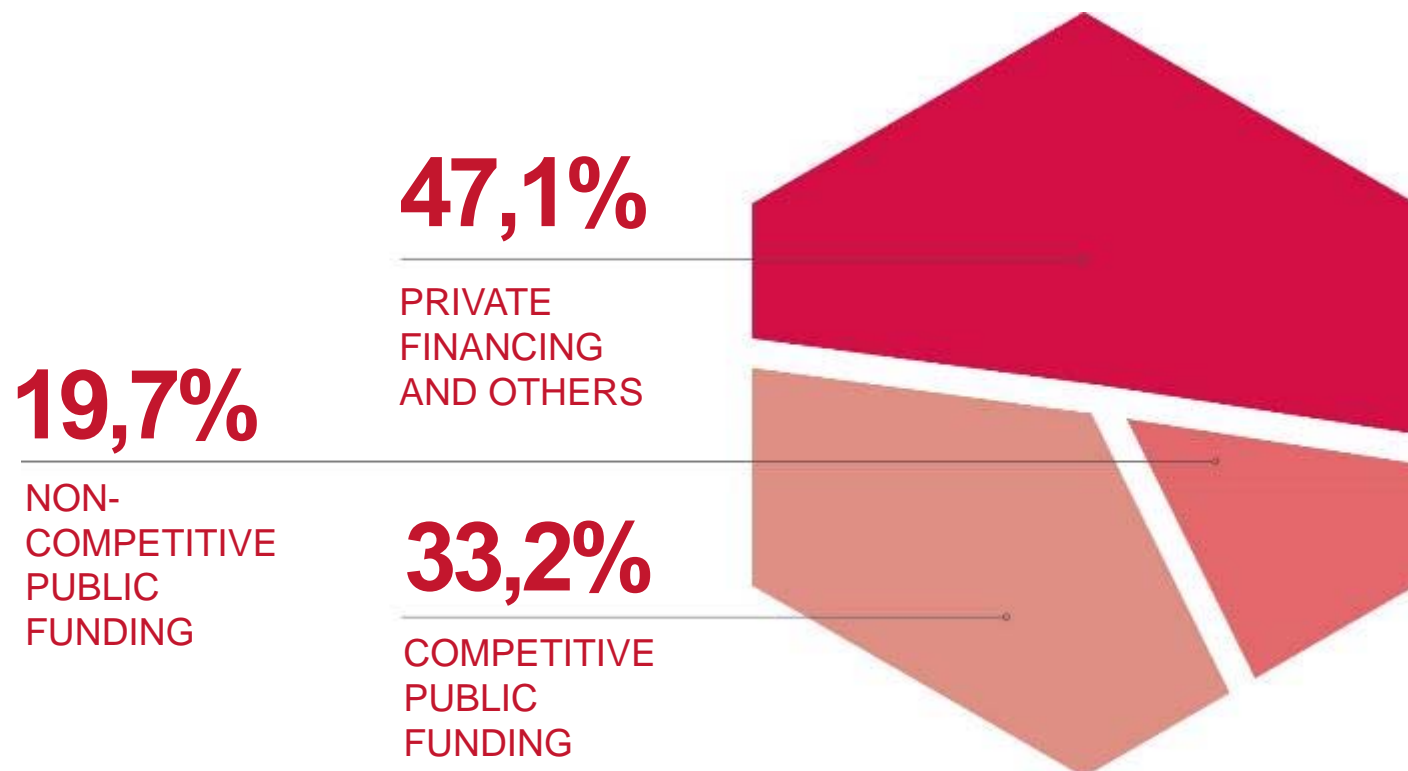


# BALANCE OF ACTIVITIES AND FUNDING

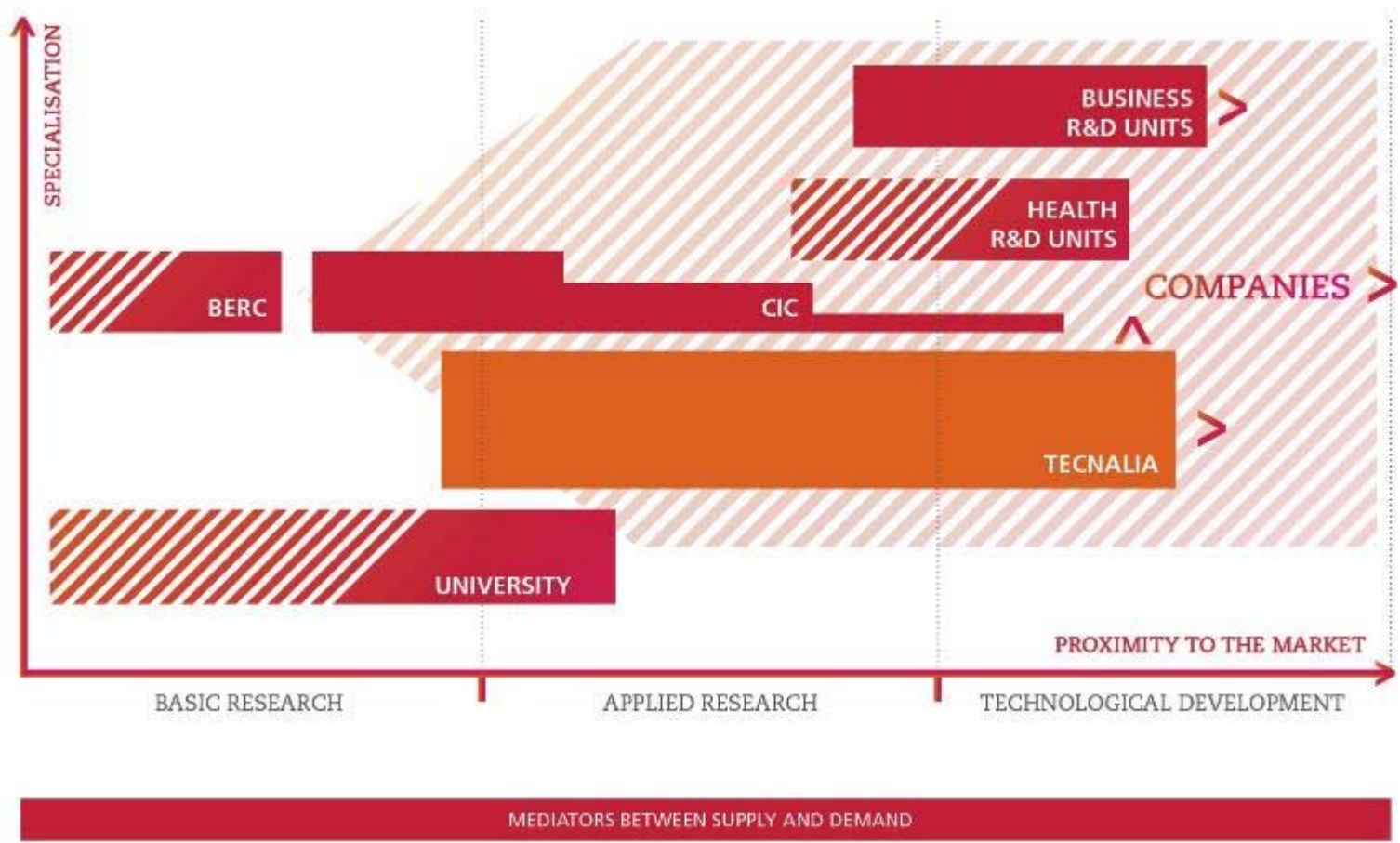
FIGURES ON 31 DECEMBER 2017

## INCOME

**104** MILLION EUROS



# VALUE CHAIN



# What we do

Inspiring  
Business

Specialisation

Type of  
services

Excellence

6 global challenges  
6 opportunities

TECNALIA  
Ventures

**WE DEVELOP  
TECHNOLOGIES  
THAT  
TRANSFORM  
THE PRESENT**

From Technology...  
To Market

# INSPIRING BUSINESS

A commitment to **Research & Technological Development**  
to identify & develop business opportunities.

## FROM TECHNOLOGY...

At TECNALIA we anticipate future challenges to view, identify and implement technological, imaginative and creative solutions providing added value and producing real results.



## TO MARKET

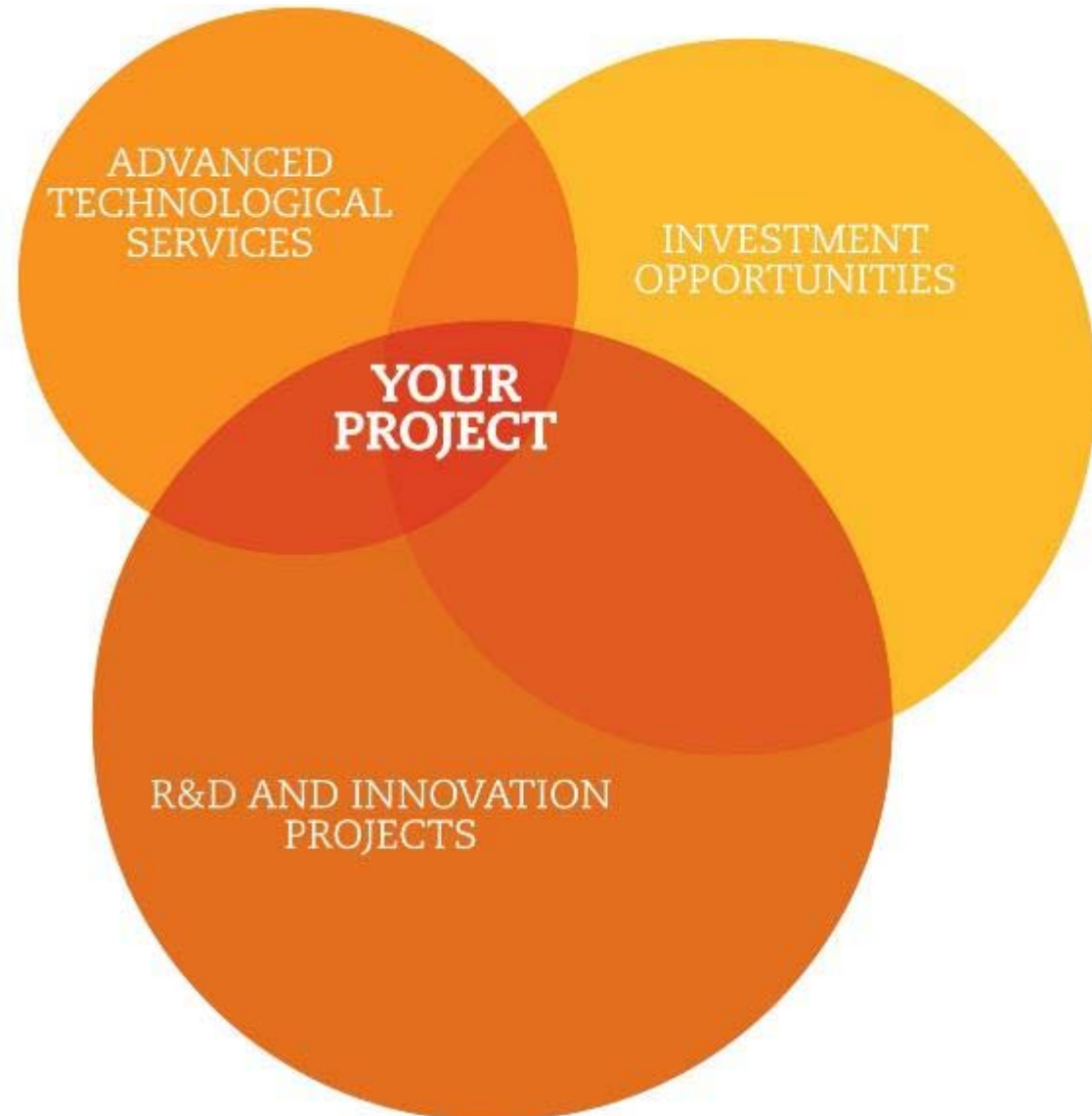
With our global presence, we transform technology into GDP to improve people's quality of life by generating business opportunities for companies.



Type of  
services

## TECNALIA OFFER

Our business offer  
oriented to the needs of  
companies.

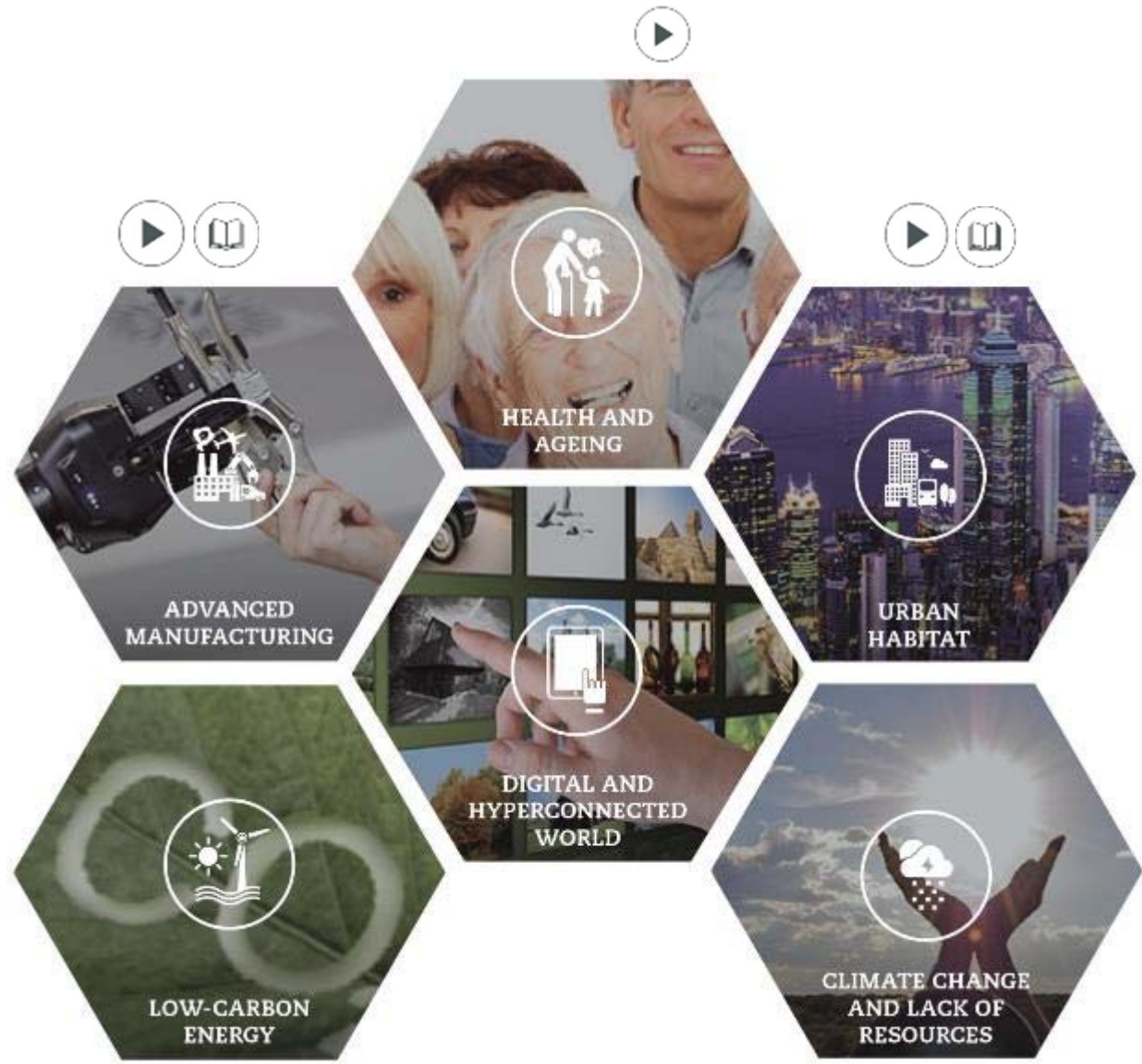






6 global challenges  
6 opportunities

# WE RESEARCH TO OVERCOME CHALLENGES FACED BY MANKIND



Specialisation

TECNALIA specialisation is aligned to the Basque Country RIS3 Strategy.



Advanced Manufacturing



Energy



Biosciences / Health

## GEI, EXCELLENCE RESEARCH TEAMS

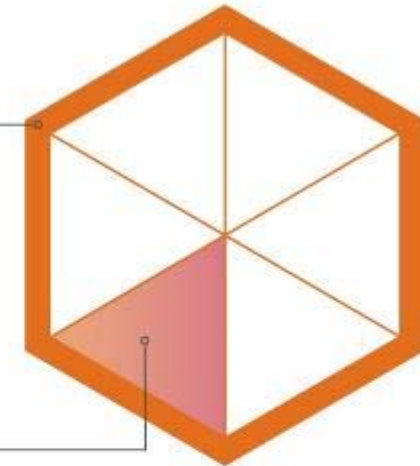
GEIs are teams made up of over 15 members who have focused their activity on Scientific- Technological specialisation, achieving and obtaining accreditation in technology at excellence levels with international recognition. Therefore, these **are reduced selective research teams**.

### GEI CURRENTLY IN OPERATION

- Big Data
- Computer Vision
- Cyber Security & Safety
- Efficient & Automated Driving
- Offshore Renewable Energy
- Green Concrete Design
- Neurorehabilitation
- Robotics
- Advanced Surfaces

### GEI CANDIDATES BEING ASSESSED TO ACHIEVE THE "EXCELLENCE STAMP"

- Ingredients - Bioprocesses

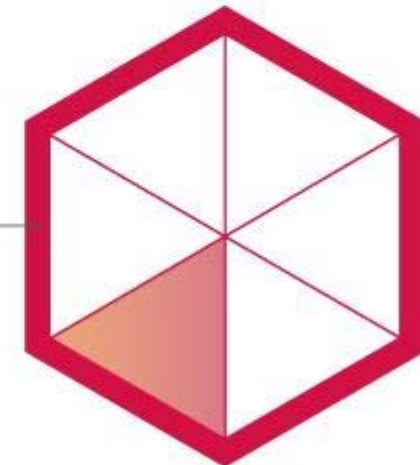


## ERT, TECHNOLOGICALLY RELEVANT TEAMS

These are research teams, generally oriented to a business or market segment and who, due to their technical know-how that is highly relevant to our customers, demonstrate excellent results in their R&D and Innovation activities.

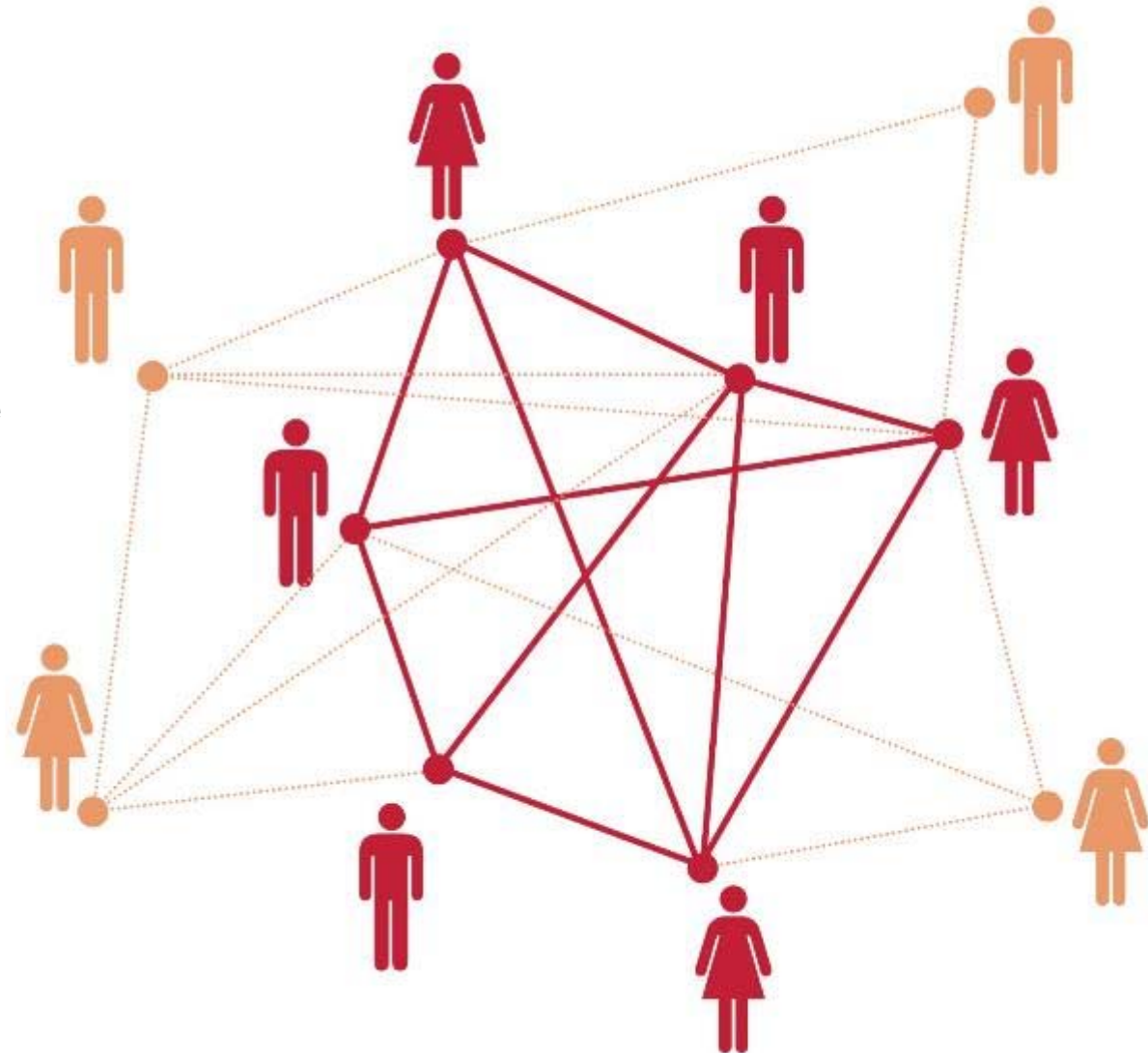
### ERT CURRENTLY IN OPERATION

- Maintenance 4.0



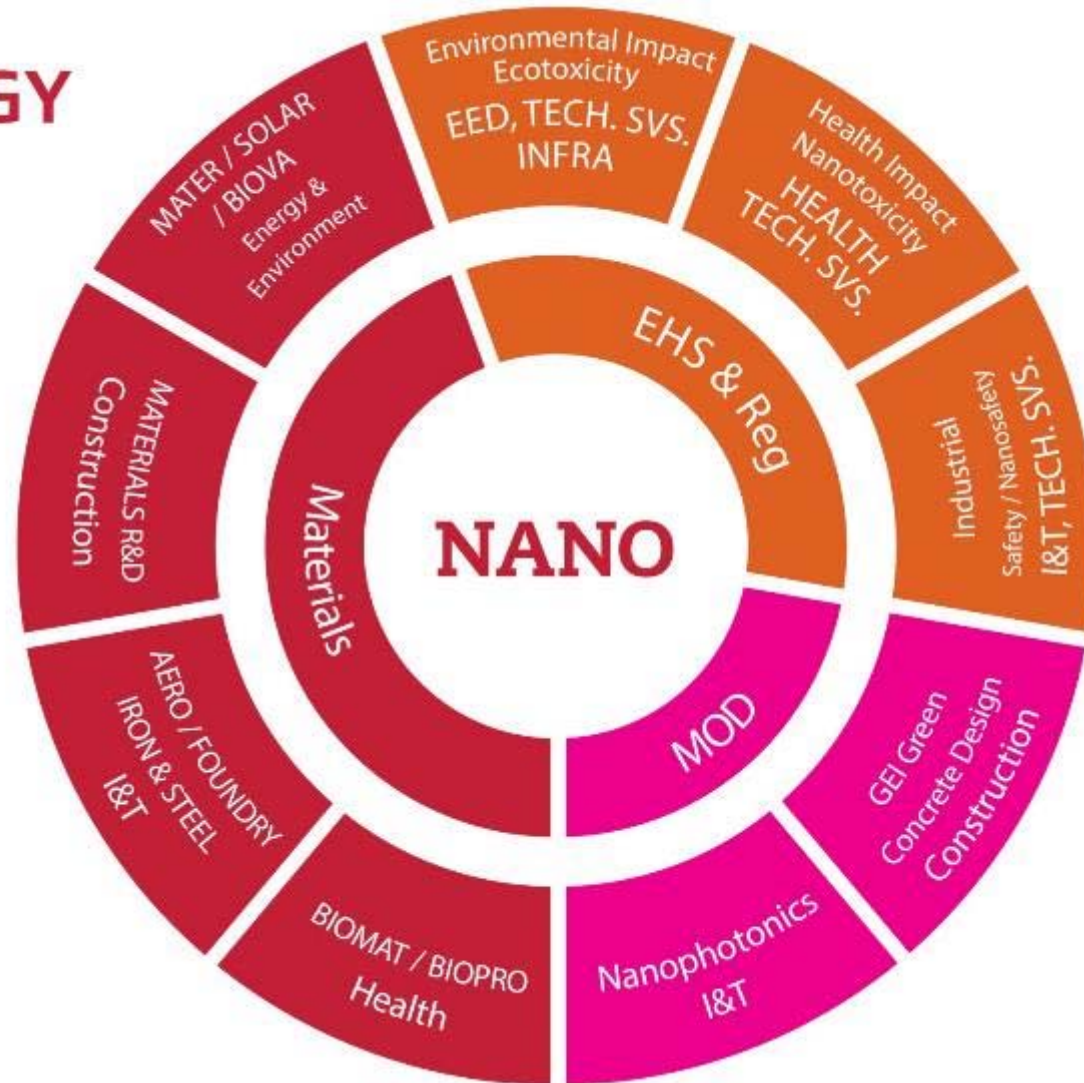
## KNOWLEDGE CLUSTERS

Are specialist communities including all TECNALIA skills in **KETs** (Key Enabling Technologies). Three Knowledge Clusters are currently in place: **Nanotechnology, Digital Technology and Strategy.**



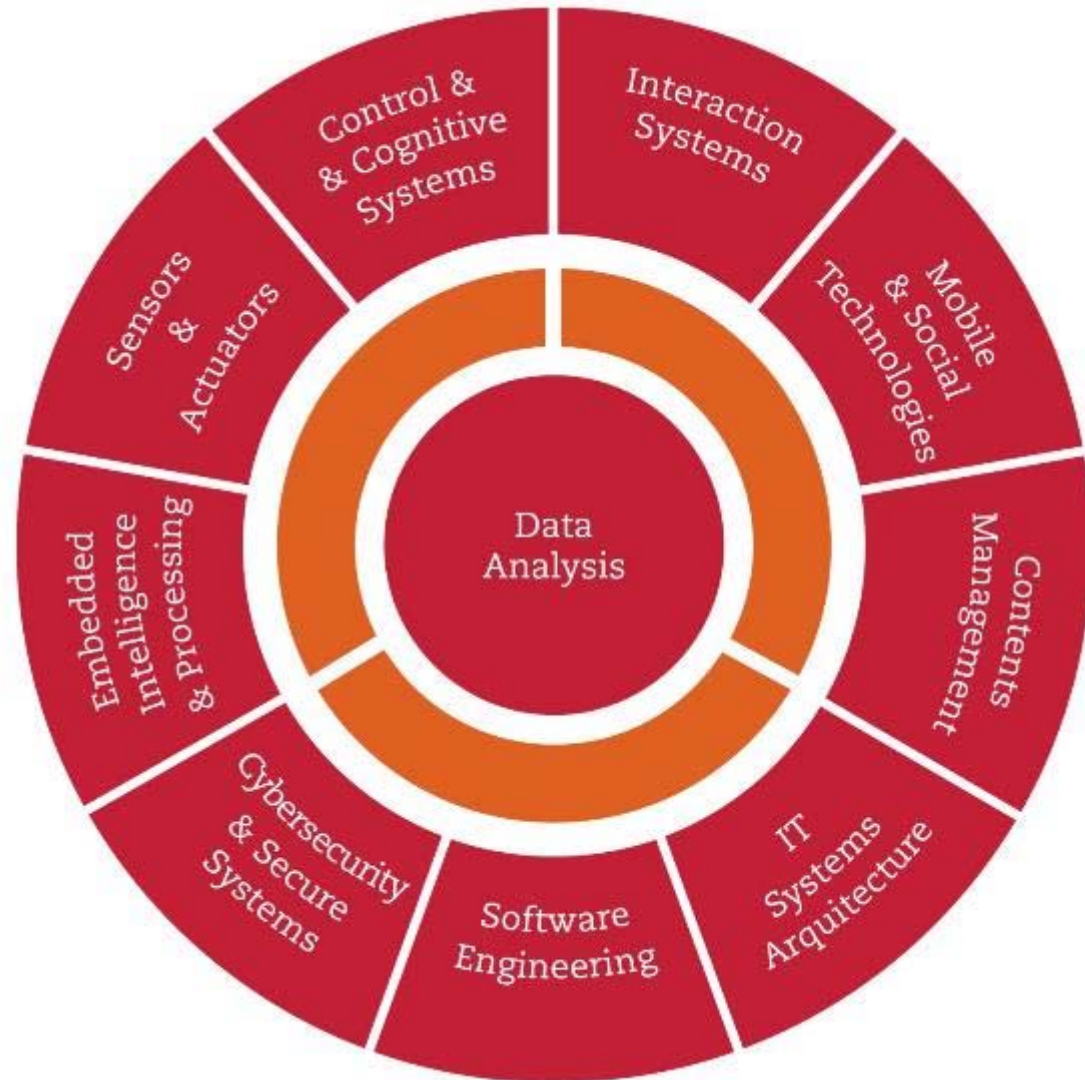
# NANOTECHNOLOGY KNOWLEDGE CLUSTER

Over 110 specialists developing new applications based on nanotechnology for the following sectors: Industry, Construction, Energy, Environment, Transport or Health.



# DIGITAL TECHNOLOGY KNOWLEDGE CLUSTER

Over 350 experts with the mission of maximising and increasing TECNALIA ICT potential endeavour to conduct business efficiently and effectively.



# STRATEGY CLUSTER

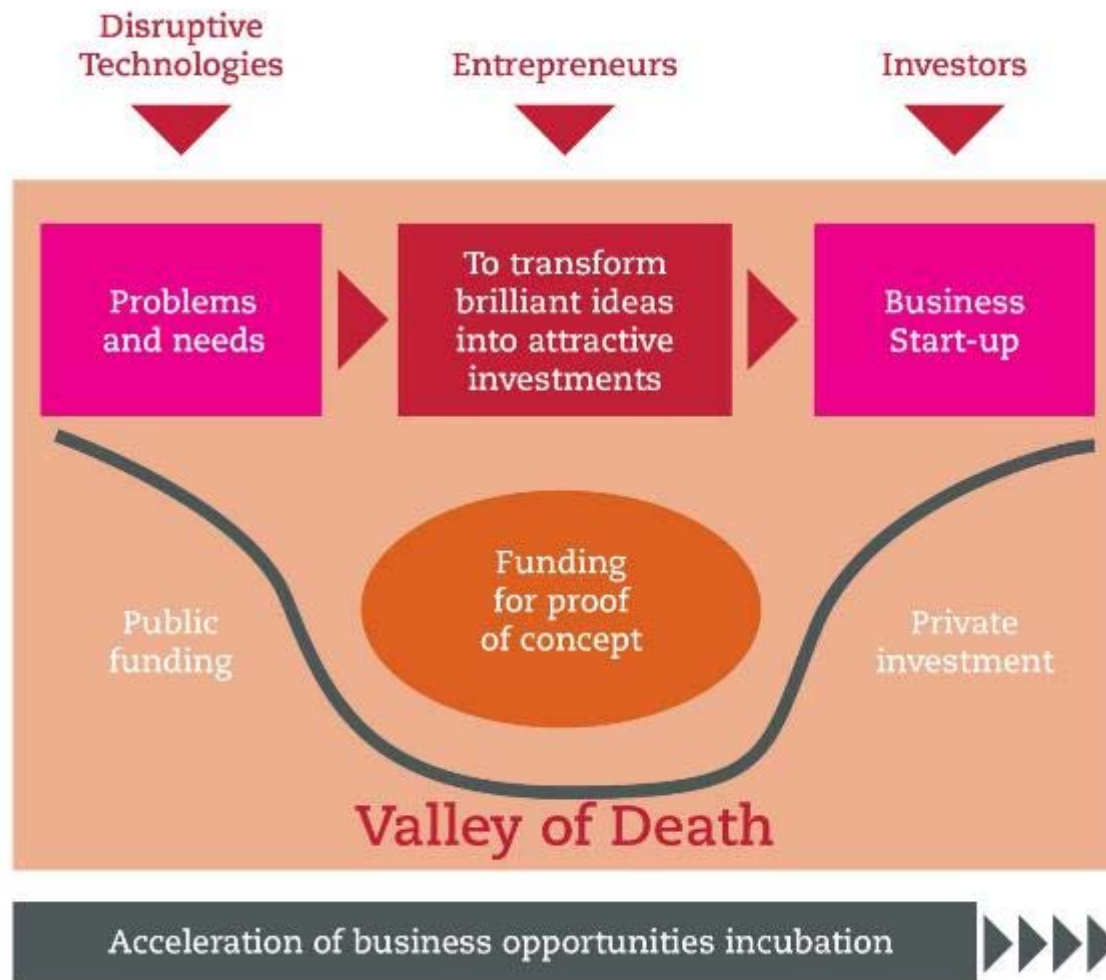
The “STRATECH” Strategy Cluster is TECNALIA’s tool to meet its client’s diversification and growth needs, based on technological solutions that have been developed under “Open Innovation”.





Through TECNALIA Ventures, TECNALIA develops an entrepreneurship ecosystem in order to **commercialise and maximise the value of its technological assets**. To do so, it focuses its efforts on connecting the three **main pillars of any innovation eco-system**:

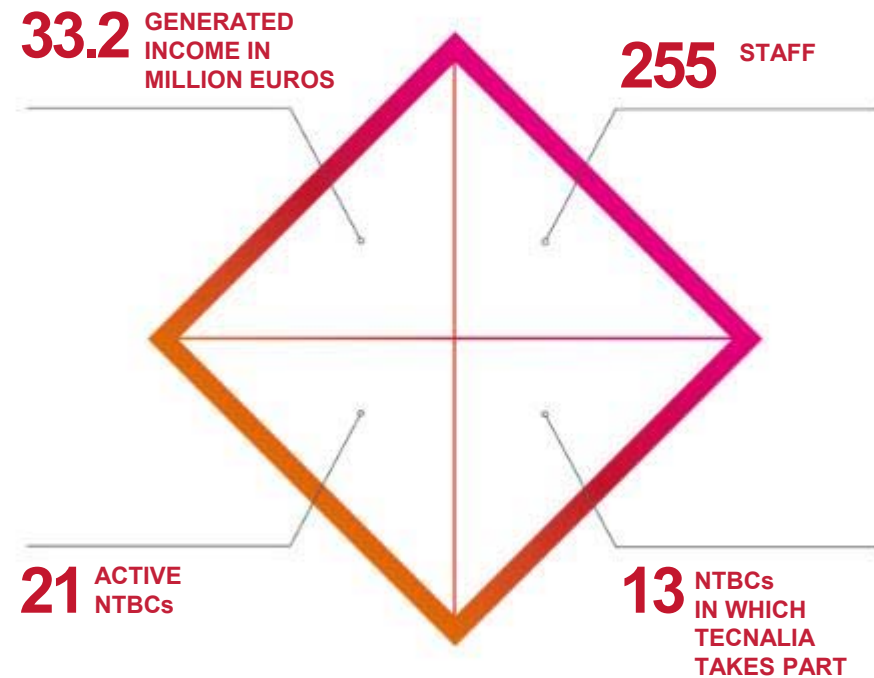
- **Minds:** People/Organisations focused on the generation of technology-based ideas.
- **Management:** People with an entrepreneurial profile who are capable of generating business opportunities.
- **Money:** Investors who undertake to provide support in the development of the company, in addition to providing financial muscle.







## NTBCs



Figures on 31 December 2017.



# How we do it



Open



Global  
presence



Connectivity

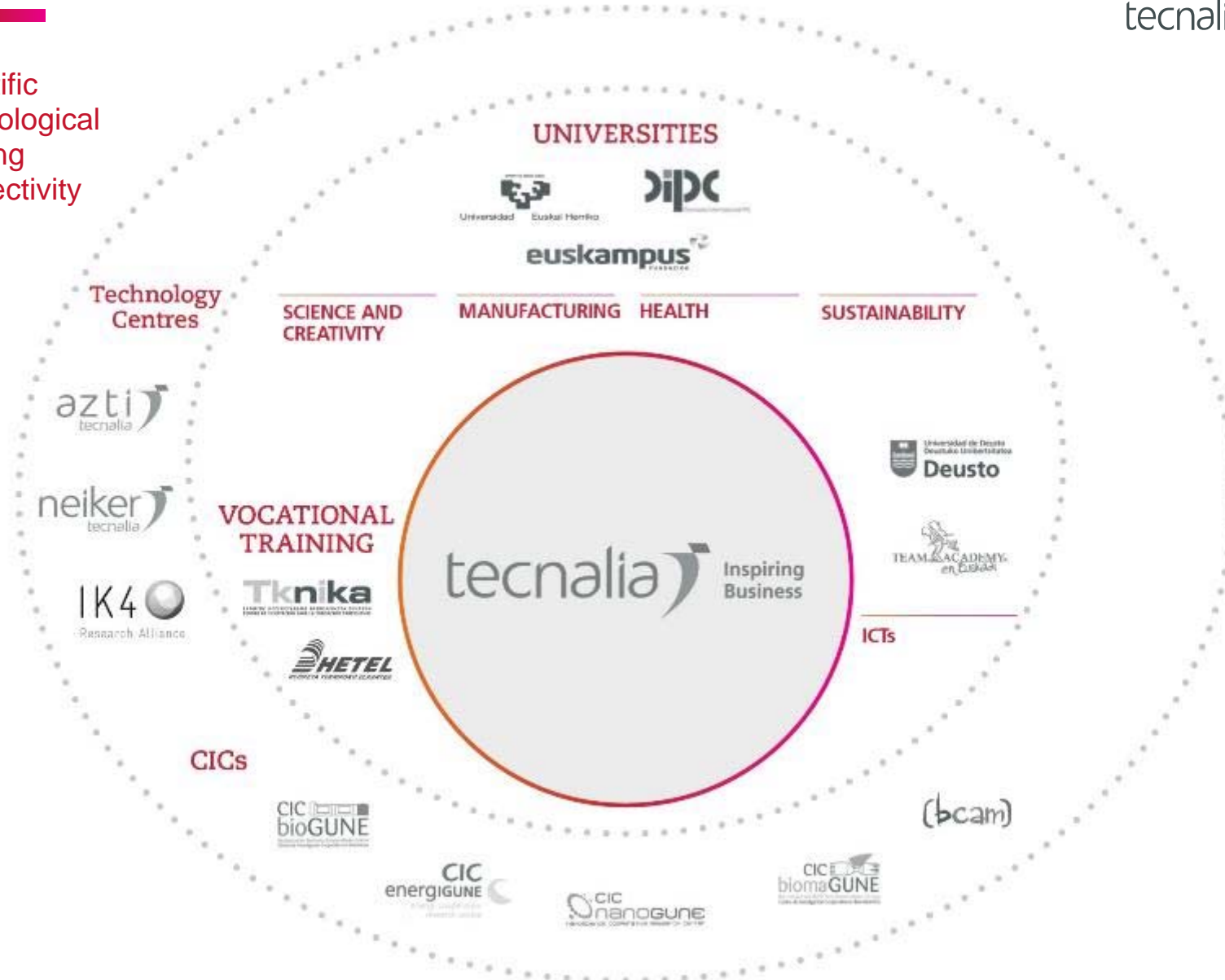


A European  
benchmark

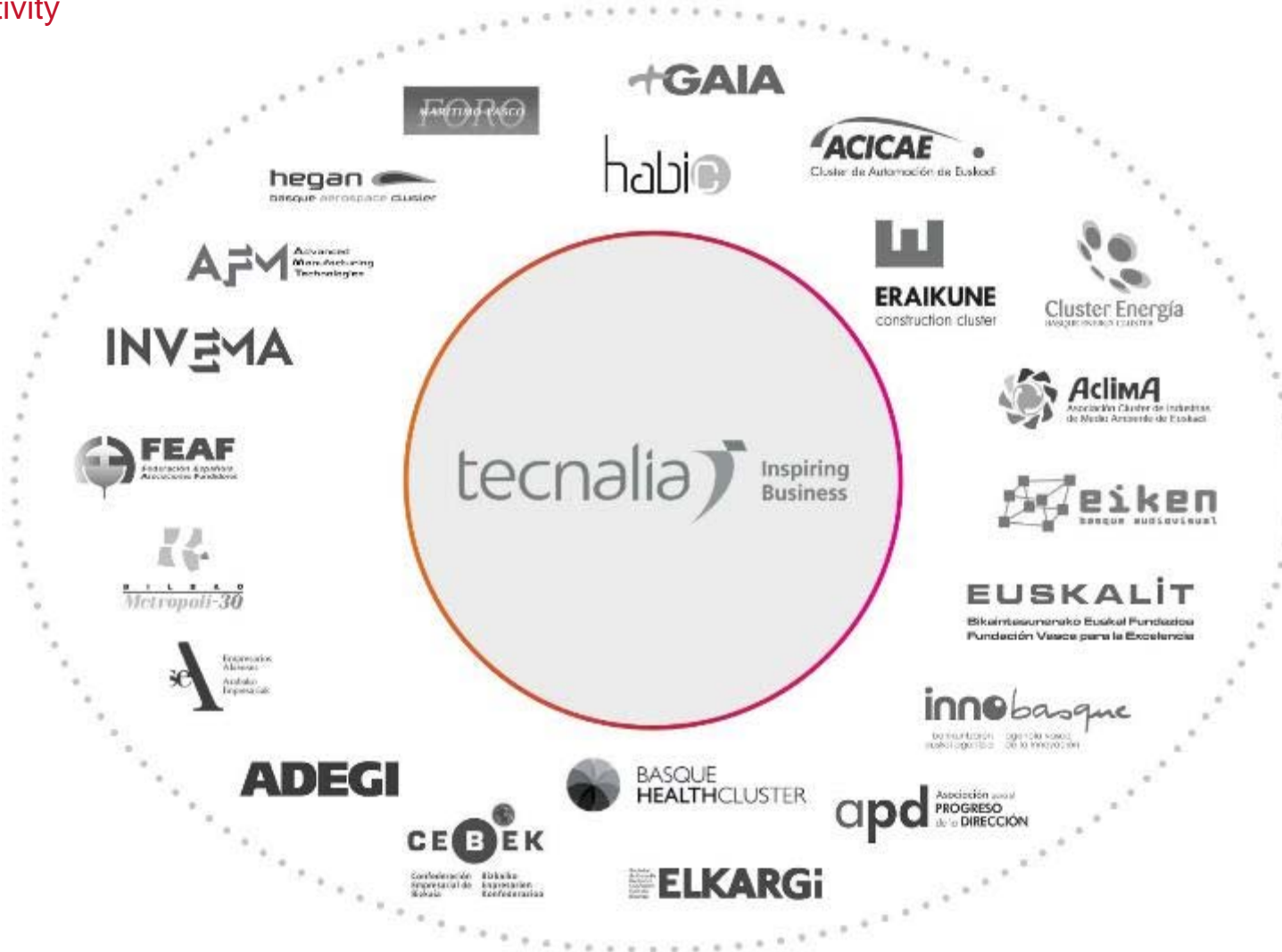
# OPEN

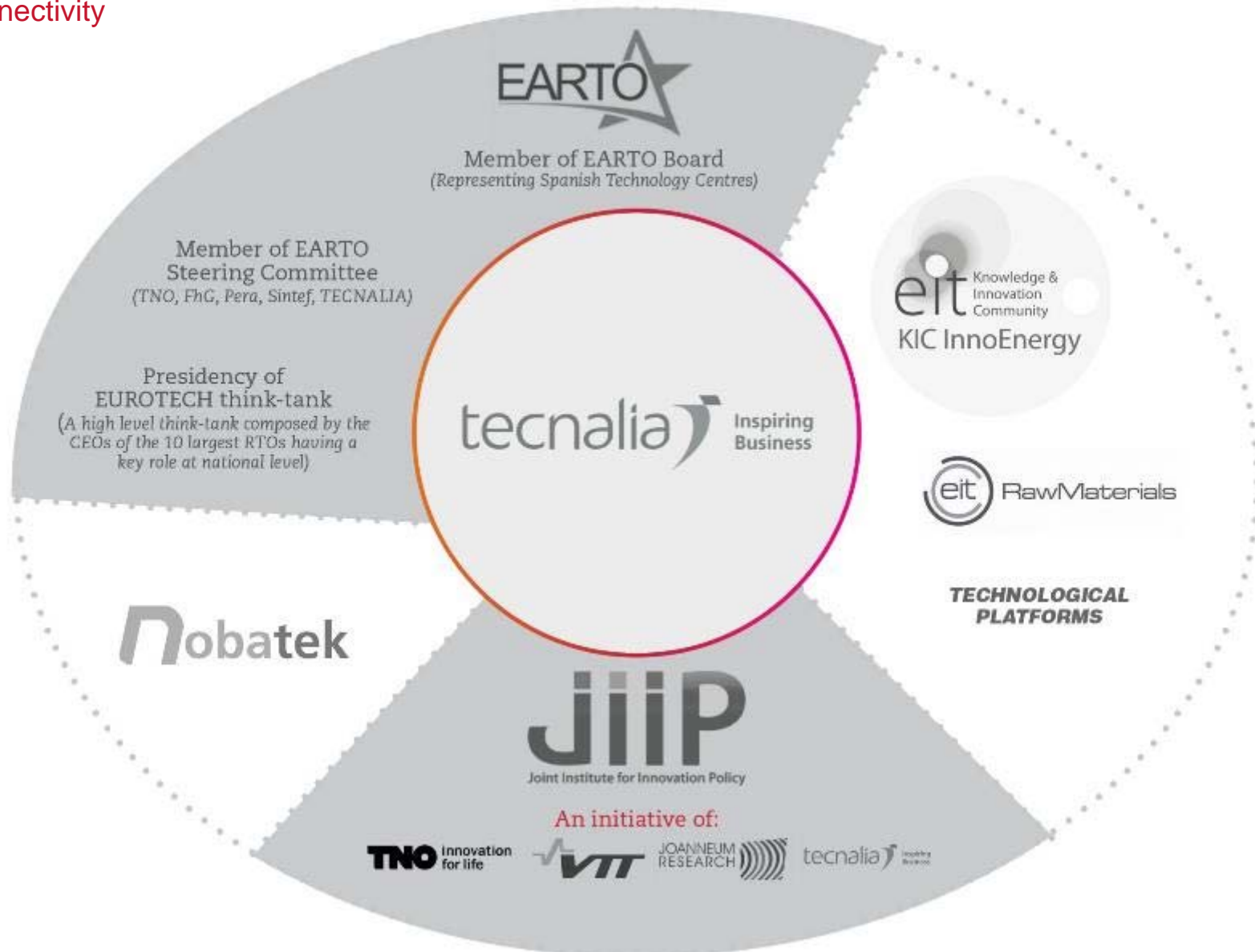
INNOVATION

Local  
Scientific  
Technological  
Training  
Connectivity

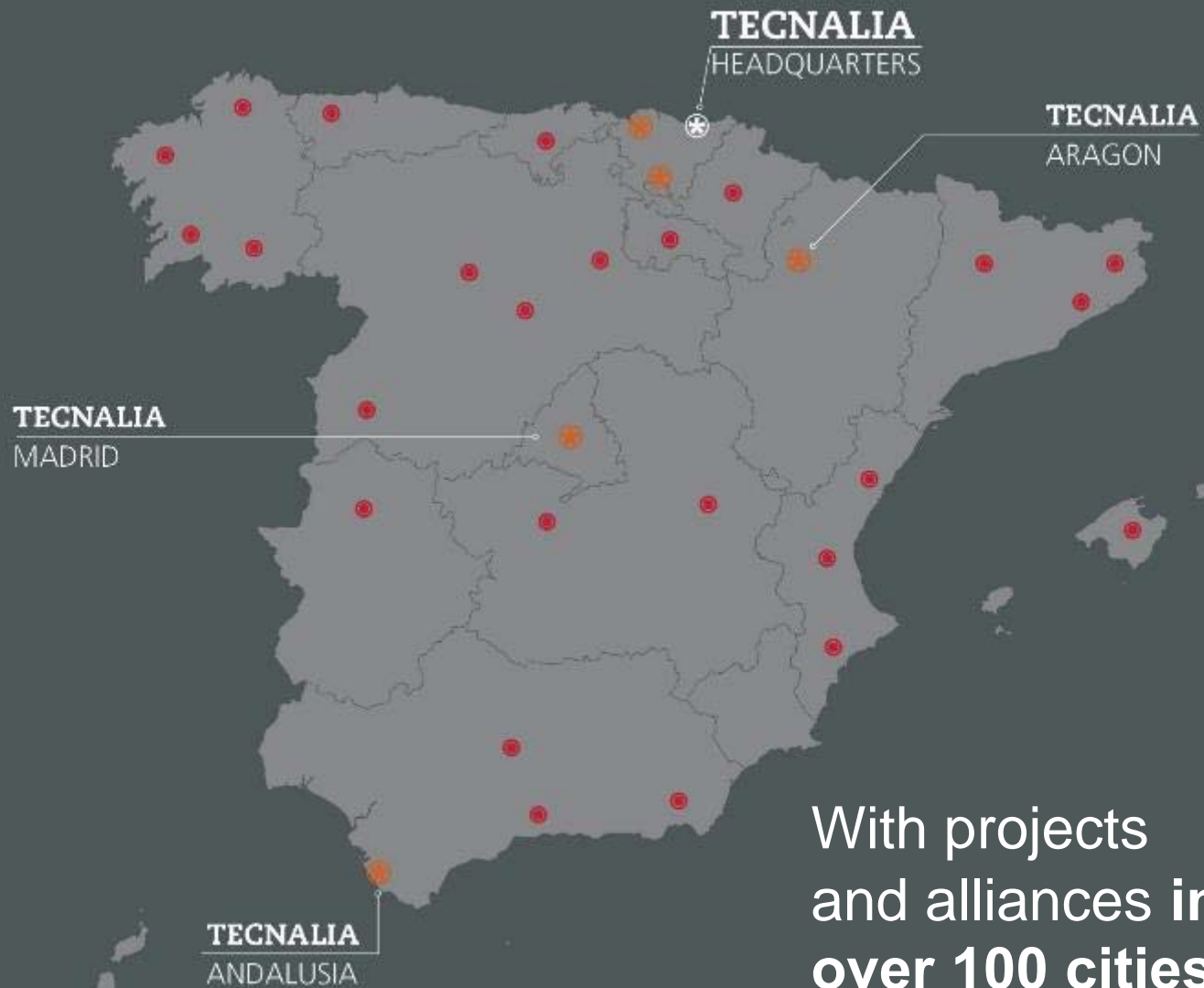


A RELATIONSHIP MODEL IN THE BASQUE COUNTRY INNOVATION SYSTEM.



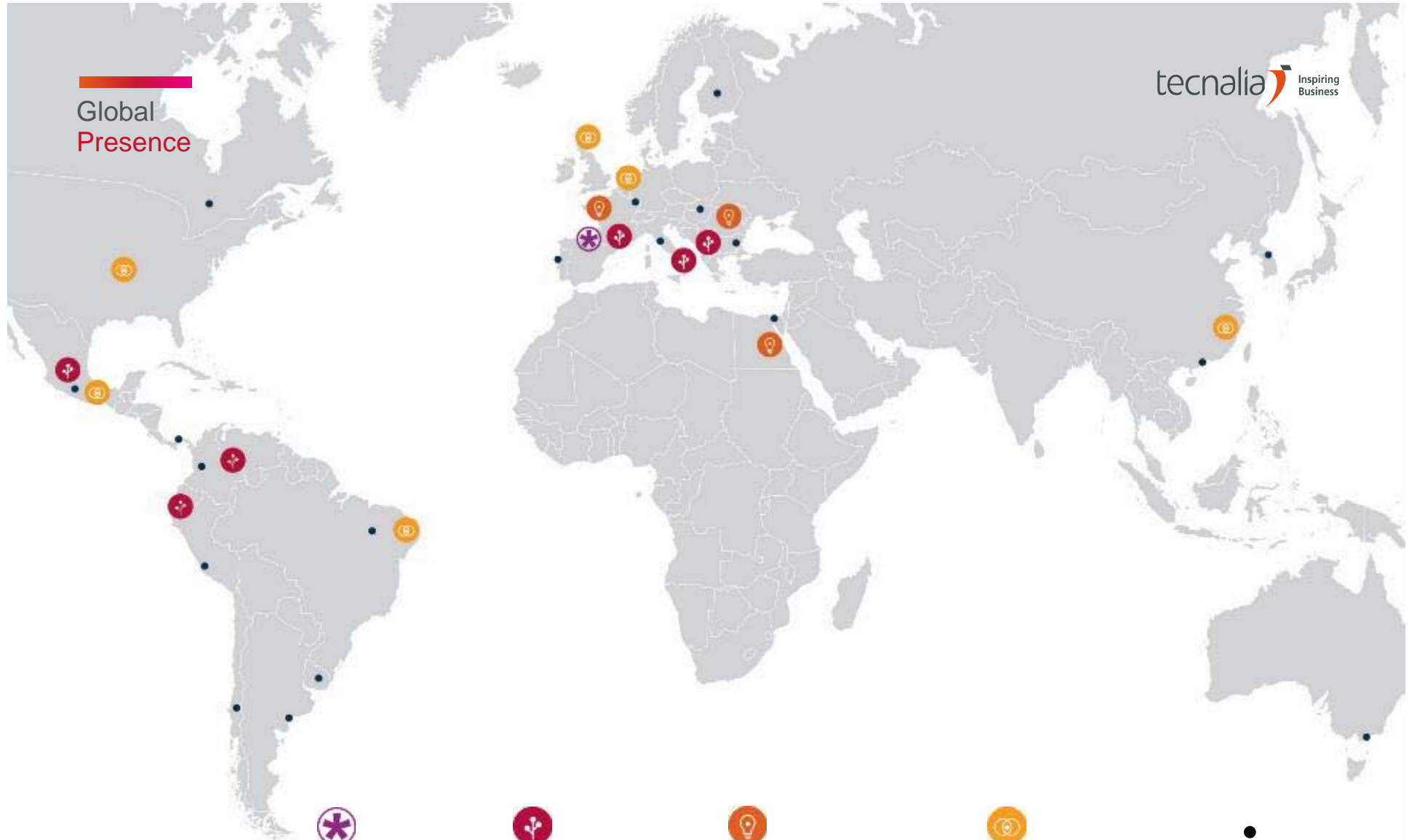


Global  
Presence



With projects  
and alliances in  
**over 100 cities**  
nationwide.

Global Presence



**HEADQUARTERS**  
San Sebastian, Gipuzkoa (Spain)



**BRANCHES ABROAD**

- Colombia (Bogotá and Medellín)
- Ecuador (Quito)
- France (Montpellier)
- Italy (Pisa)
- Mexico (Mexico City and Monterrey)
- Serbia (Belgrade)



**ASSOCIATED INNOVATION CENTRES**

- Bulgaria (Sofia) | ESICenter Eastern Europe
- Egypt (El Cairo) | ESICenter SECC
- France (Anglet) | Nobatek



**ALLIANCES**

- CAAM: China
- CIDESI: Mexico
- CLAUT: Mexico
- JIIP: Belgium
- NUTES: Brazil
- SEI: USA
- UNIVERSITY OF STRATHCLYDE: Scotland

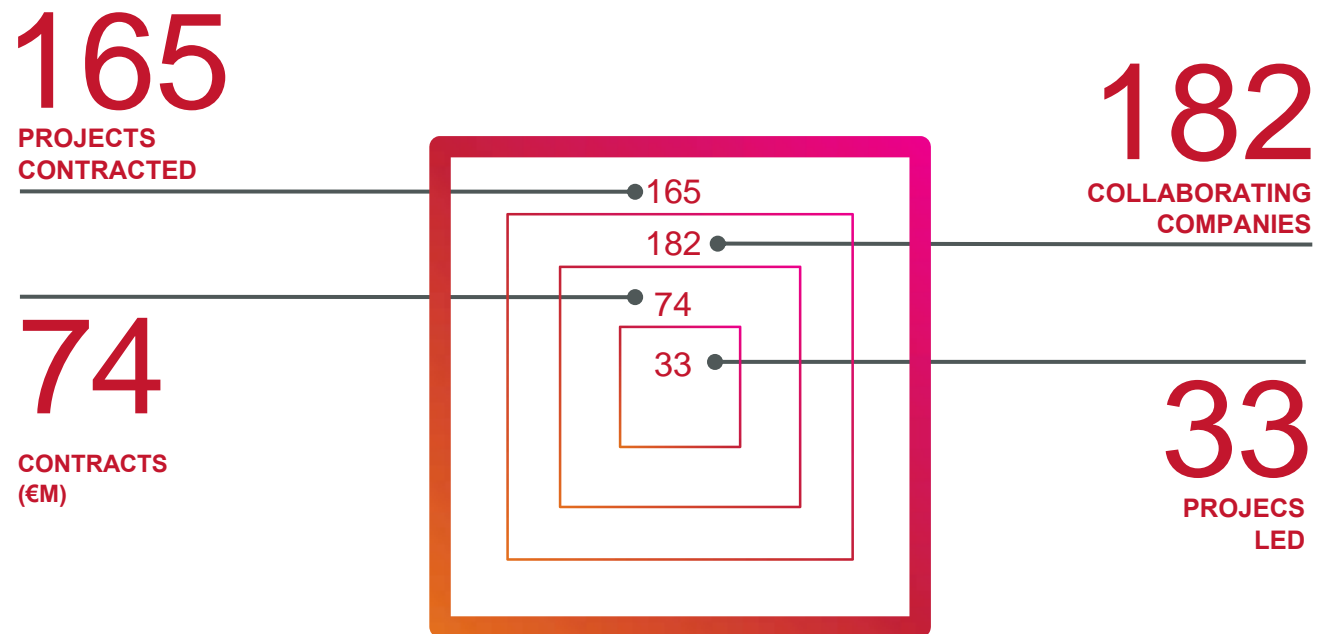


**SALES NETWORK**



**1<sup>st</sup>**  
**national private  
organisation in project  
contracting, participation  
and leadership within  
the EU Horizon 2020  
Programme.**

## PARTICIPATION IN HORIZON 2020



Figures on 31 December 2017

# 1<sup>st</sup> NATIONAL PRIVATE ORGANISATION IN PROJECT CONTRACTING, PARTICIPATION AND LEADERSHIP FOR THE EU 7<sup>th</sup> FRAMEWORK PROGRAMME FOR R&D AND INNOVATION.



Summary of Spanish participation in the EU 7th Framework Programme for R&D and innovation (2007 - 2013)

## RANKING PER INVESTMENT RETURN

Organisation	Activities	
	No.	Led
AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS	693	271
<b>FUNDACIÓN TECNALIA RESEARCH &amp; INNOVATION</b>	<b>377</b>	<b>85</b>
UNIVERSIDAD POLITÉCNICA DE MADRID	256	70
INDRA SISTEMAS, S.A.	58	11
UNIVERSIDAD POMPEU FABRA	137	71
UNIVERSIDAD DE BARCELONA	150	69
TELFÓNICA INVESTIGACIÓN Y DESARROLLO S.A.	112	15
ATOS SPAIN, S.A.	148	35
UNIVERSIDAD POLITÉCNICA DE CATALUÑA	169	42
FUNDACIÓ CENTRE DE REGULACIÓ GENÓMICA	66	42
UNIVERSIDAD AUTÓNOMA DE BARCELONA	157	52
BARCELONA SUPERCOMPUTING CENTER	72	17
UNIVERSIDAD POLITÉCNICA DE VALENCIA	117	30
ACCIONA INFRAESTRUCTURAS, S.A.	110	11
FUNDACIÓN CENTRO NACIONAL DE INVESTIGACIONES ONCOLÓGICAS CARLOS III	47	21
INSTITUT DE CIENCIES FOTÒNIQUES	61	39
UNIVERSIDAD AUTÓNOMA DE MADRID	86	32
UNIVERSIDAD DEL PAIS VASCO	90	29
ENTE PÚBLICO AEROPUERTOS ESPAÑOLES Y NAVEGACIÓN AÉREA	23	0
UNIVERSIDAD COMPLUTENSE DE MADRID	93	17
FUNDACIÓN TEKNIKER	65	11
UNIVERSIDAD DE ZARAGOZA	76	28
UNIVERSIDAD CARLOS III DE MADRID	66	17
UNIVERSIDAD DE SANTIAGO DE COMPOSTELA	65	18
UNIVERSIDAD DE VALENCIA	68	21

The above table includes 25 Spanish institutions which have obtained a greater return from FP7 sorted by funding-

The first three Spanish bodies listed by return are among the top hundred having obtained greater funding from the 7FP throughout the EU.

A European  
Benchmark

**PARTICIPATION IN THE EU  
7th FRAMEWORK PROGRAMME (2007-2013)**

Position	Organisation	Type	Country
1	CNRS - CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	REC	FR
2	FRAUNHOFER-GESELLSCHAFT	REC	DE
3	CEA - COMMISSARIAT A L'ENERGIE ATOMIQUE	REC	FR
4	THE UNIVERSITY OF CAMBRIDGE	HES	UK
5	THE UNIVERSITY OF OXFORD	HES	UK
6	CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS	REC	ES
7	CONSIGLIO NAZIONALE DELLE RICERCHE	REC	IT
8	MAX PLANCK GESELLSCHAFT	REC	DE
9	IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY AND MEDICINE	HES	UK
10	UNIVERSITY COLLEGE LONDON	HES	UK
11	EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH	HES	CH
12	KATHOLIEKE UNIVERSITEIT LEUVEN	HES	BE
13	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE	HES	CH
14	VTT	REC	FI
15	DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV	REC	DE
16	TNO	REC	NL
17	INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE	REC	FR
18	DANMARKS TEKNISKE UNIVERSITET	HES	DK
19	TECHNISCHE UNIVERSITEIT DELFT	HES	NL
20	THE UNIVERSITY OF EDINBURGH	HES	UK
21	KOBENHAVNS UNIVERSITET	HES	DK
22	THE UNIVERSITY OF MANCHESTER	HES	UK
<b>23</b>	<b>FUNDACIÓN TECNALIA RESEARCH &amp; INNOVATION</b>	<b>REC</b>	<b>ES</b>
24	JRC - JOINT RESEARCH CENTRE- EUROPEAN COMMISSION	REC	EU
25	KARLSRUHER INSTITUT FUER TECHNOLOGIE	HES	DE

SOURCE: SEVENTH FP7 MONITORING REPORT 2013 (EUROPEAN COMMISSION)

\* REC: RESEARCH ORGANISATION

\* HES: HIGHER OR SECONDARY EDUCATION ORGANISATION

TECNALIA ranks **23<sup>rd</sup>** out of  
**32,000** European organisations  
involved.

SOME FIGURES

**377** PROJECTS  
APPROVED

**85** PROJECTS  
LED (21.5%)

**131** CONTRACTS (€M)  
4% OF CONTRACTS WON IN SPAIN

IN CO-OPERATION WITH

**2,890**  
EUROPEAN  
ORGANISATIONS

**570**  
SPANISH  
ORGANISATIONS

**406**  
SPANISH COMPANIES

**109**  
BASQUE COMPANIES

## Positioning in public-private initiatives

The EU is increasingly outsourcing the management to Public-Private Organisations with greater independence to influence R&D and innovation. One of TECNALIA's key success factors is its **strategic positioning in over 60 major European public-private initiatives and Associations.**

21 ETP: European  
Technology Platforms  
**Manufuture,  
Artemisia or  
SmartGrids**

10 PPP: Public Private  
Partnerships  
**Factories of the  
Future, Green Cars  
or Energy Efficient  
Building**

3 JTI:  
Joint Technology  
Initiatives  
**Clean Sky, Artemis  
and Hydrogen &  
Fuel Cell**

2 EIP: European  
Innovation Partner  
**Raw Materials  
& A.H. Ageing**

2 KIC: Knowledge and  
Innovation Communities  
**Innoenergy,  
Raw Materials**

1 JPI:  
Joint Programming  
Initiative  
**Cultural Heritage**

Over 15 leading  
Associations  
**EARTO...**

# Examples of our activity

(TECNALIA Value)



R&D and  
innovation  
projects



Investment  
opportunities



Advanced  
technological  
services



# R&D AND INNOVATION PROJECTS

## **TIME FOR ACTION**



## ADVANCED MANUFACTURING

### OUTSTANDING PROJECTS



### MOBILE ROBOTICS

Robotic solution for automation of fuselage panel orbital joints, including drilling, sealant application and blind rivet installation processes as well as computer vision reference system. In co-operation with AIRBUS GROUP, among others.



### 3D PRINTING TOOL FOR INDUSTRY

This is a unique machine-tool nationwide which facilitates the creation of large metal parts from scratch with high precision finishes, as well as for the repair of high value parts in sectors such as the automotive and aeronautical sectors. It achieves material and energy savings of up to 60% compared to conventional methods. IBARMIA, the University of the Basque Country (UPV/EHU) and TECNALIA have developed this solution in co-operation, within a record time of 9 months.





## ADVANCED MANUFACTURING

### OUTSTANDING PROJECTS



### AUTONOMOUS VEHICLES

AUTOMATION DEVELOPMENT for Autonomous Mobility is a cross-cutting initiative led by BOEING RESEARCH & TECHNOLOGY Europe to develop critical technologies for autonomous mobile systems. As part of land application (as well as air and sea applications), TECNALIA in association with AZKAR, MASER, FICOSA and ELECENOR-DEIMOS is developing technology for autonomous land vehicles.



### INFRASTRUCTURES PROMOTING THE ADOPTION OF ELECTRIC VEHICLES

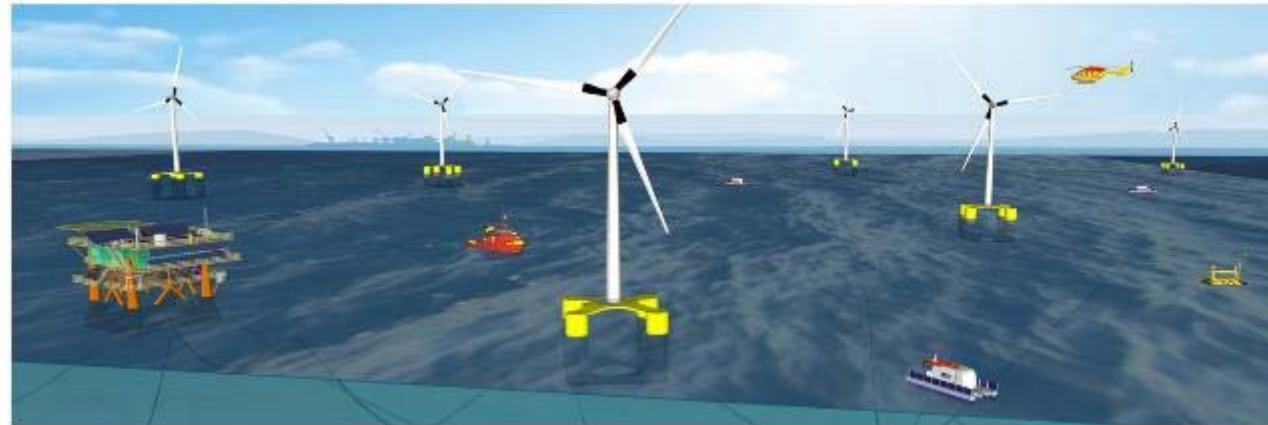
New planning tools for European distribution operators focused on massive roll-out of optimised electro-mobility and maximising distributed power generation integration. The aim is to develop structures and capabilities to ensure conformity, interoperability and performance of smart charging systems of electric vehicles.





## LOW-CARBON ENERGY

### OUTSTANDING PROJECTS



### NAUTILUS FLOATING SOLUTIONS

An industrial and technological consortium made up by four leading companies in cutting-edge technology with a strong presence on international markets (ASTILLEROS DE MURUETA, TAMOIN, VELATIA and VICINAY MARINE INNOVACIÓN) and TECNALIA. It aspires to become the world leader in the development of floating platforms for the off-shore wind power market.

### ENERGY TRANSMISSION IN HVDC

Aiming to make feasible installations for the generation of high power off-shore renewable energy. Developing models and control algorithms for the analysis of multi-terminal High Voltage Direct Current (HVDC) systems applied to energy transmission in wind farms and offshore interconnections. Such developments are carried out within the European Best Paths framework.





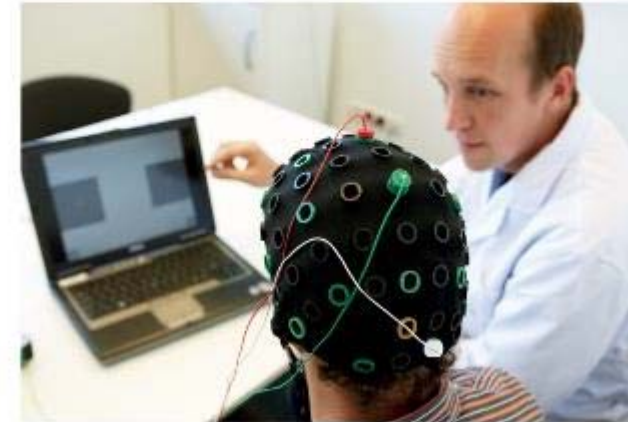
## HEALTH AND AGEING

### OUTSTANDING PROJECTS



#### **DISEASE DETECTION AT HOME**

Development of initiatives based on assistive technology such as sensors enabling monitoring a person's activities and habits, and identifying any changes which may be symptoms of disorders related to neurodegenerative disorders such as Alzheimer's disease.



#### **RECOVERY OF STROKE PATIENTS**

Motor recovery of upper limb paralysis as a result of a cerebrovascular accident (CVA) using the brain-machine interface. The aim is for the patient to be able to move and control movements in the paralysed limb naturally, recovering autonomy and functional independence levels.



## DIGITAL AND HYPERCONNECTED WORLD

### OUTSTANDING PROJECTS



### TOWARDS SOFTWARE INDUSTRIALISATION

FAST enables optimisation of the software factory code on the basis of re-using it but without generating dependency. This makes "reversibility" possible at any time. This is a multi-language tool adaptable to the needs of each factory, providing control and traceability of the code generated. Towards software industrialisation.



### SMART DESTINATION

QING SOLUTIONS is an initiative initially created by TECNALIA for Grupo Palladium hotels, offering innovative technological solutions for the tourist sector. Through our "smart bracelets" we have created a safe ecosystem for transactions, accesses and identification in a customisable way to enhance the customer's services experience and for easy integration with information and CRM systems.





## URBAN HABITAT

### OUTSTANDING PROJECTS



### RETROFITTING AND INTEGRATED URBAN REGENERATION

The Mogel district in Eibar and Sestao are good examples of how retrofitting and integrated urban regeneration have achieved Integral Sustainable Urban Development with the collaboration of TECNALIA, which benefits numerous families and residents in both municipalities generating employment and social cohesion, reducing CO<sub>2</sub> emissions and integrating accessibility, environmental and ICT criteria.



VIDEO OF INTEGRAL RETROFITTING PROJECT OF MOGEL DISTRICT



ZENN - MOGEL DEMO SITE VIDEO, CITY OF EIBAR



### SMART CITIES

Vitoria-Gasteiz and Donostia-San Sebastián, with the collaboration of TECNALIA, will develop smart city models regarding energy efficiency, sustainable mobility and ICT application.

Actions related to this initiative were implemented in the Coronación and Vega del Urumea districts respectively and over 1,200 families will benefit from the results.



## CLIMATE CHANGE AND LACK OF RESOURCES

### OUTSTANDING PROJECTS



### LOW ENERGY/ EMBEDDED GHG EMISSIONS ECOLOGICAL CONCRETE

Based on optimising thermal energy used in the manufacturing process, optimising electric power and recovering heat as a source of energy to generate electricity using an Organic Rankine Cycle (ORC).



### CLIMATE RESILIENCE OF CITIES AND VITAL INFRASTRUCTURES

Procedures to determine vulnerability of cities and infrastructures against climate change and determine the efficiency of adaptation measures. Paris, Bilbao, Manchester and Bratislava have been configured as “Field Labs”.



# ADVANCED TECHNOLOGICAL SERVICES

## **ASSESSMENT AND DIAGNOSIS**

**CONSTRUCTION**



Quality and Safety Assessment of Construction Materials



Quality and Safety Assessment of Construction Systems and Products



Quality Control and Project Management of Singular Works



Certification and Assessment of Innovative Products

**ELECTRICAL ENERGY**



Low, Medium and High Voltage Electrical Equipment Assessment



Conformity Assessment and Certification of Electrical Equipment



On-Site Commissioning, Diagnosis and Maintenance Tests of Electrical Equipment

**PHARMACY AND HEALTH**



Pharmaceutical Development: Galenic, Analytical and Stability Studies



Drug Manufacture Batches for Clinical Trials, Pilot, Registration, Industrial and Industrial Scaling



Clinical Trials: Bioequivalence, Phase I, II, III and IV, Clinical Nutrition, Clinical Validation, Bioanalysis and Management of External Studies



Personalised Therapies: Diagnosis, Prognosis and Prediction of Response (Companion Diagnostics)

**MATERIALS**



Failure Analysis and Prevention



In-service Performance and Selection of Materials



Welding and Metal Construction



Analysis, Testing and Assessment of Materials (Mechanical, Metallography, Chemical Analysis, Corrosion and NDT)



Structural Integrity and Extension of Life

**SUSTAINABILITY**



Water Quality



Control of Discharges



Waste Characterisation



Air Quality and Emission Control



Urban Pests and Biocidal Efficacy





# INVESTMENT OPPORTUNITIES

## **NEW BUSINESSES**

Spin-offs  
incubated at  
TECNALIA



WIMI 5  
[www.wimi5.com](http://www.wimi5.com)



Textia Solutions  
[www.textiasolutions.com](http://www.textiasolutions.com)



Oceantec  
[www.oceantecenergy.com](http://www.oceantecenergy.com)



Neos Surgery  
[www.neosurgery.com](http://www.neosurgery.com)



Nautilus  
[www.nautilusfs.com](http://www.nautilusfs.com)



Fesia  
[www.fesiatechnology.com](http://www.fesiatechnology.com)



Vixion  
[www.spyroerp.com/soluciones/industry-40](http://www.spyroerp.com/soluciones/industry-40)



ILT Plasma  
[www.iltplasma.com](http://www.iltplasma.com)



Aurea Pay&Pass  
[www.myaurea.es](http://www.myaurea.es)



Go4IT Solutions  
[www.go4it.solutions](http://www.go4it.solutions)



Digimet  
[www.digimet.es](http://www.digimet.es)



Ingredalia



Biokemik  
[www.biokemik.eu](http://www.biokemik.eu)

## Headquarters

### TECNALIA

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E-20009 Donostia - San Sebastián  
(Gipuzkoa)

**T 902 760 000\***

## Other Locations

### ÁLAVA

#### PARQUE TECNOLÓGICO DE ÁLAVA

Albert Einstein, 28  
Leonardo Da Vinci, 11  
E-01510 Vitoria - Gasteiz

### BIZKAIA

#### PARQUE CIENTÍFICO Y TECNOLÓGICO DE BIZKAIA

Ibaizabal Bidea, Edificio 101  
Laida Bidea, Edificio 204  
Laida Bidea, Edificio 413  
E-48170 Zamudio  
Astondo Bidea, Edificio 700  
E-48160 Derio

### CÁDIZ

CENTRO TECNOLÓGICO  
Loma de Sancti Petri, s/n.  
E-11139 Chiclana de la Frontera

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### Área Anardi, 5

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**T +57 1 236 7968**

Carrera 43A No. 19-17  
Edificio Block Centro Empresarial,  
Oficina 303  
C.P. 050021 - Medellín  
**T +57 4 403 1968**

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Colonia Juárez, Delegación Cuauhtémoc  
C.P. 06600 - Ciudad de México  
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