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RIS3CAT Monitoring

11. Monitoring Report on the RIS3CAT 2015-2020 Action Plan (2020)

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Monitoring Report on the RIS3CAT 2015-2020 Action Plan (2020)
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1. Introduction

In 2014, the Government of Catalonia approved the Research and Innovation Strategy for the Smart Specialisation of Catalonia (RIS3CAT), which sets out the priorities for public R&D&I policies and the actions that will receive support from the ERDF Operational Programme Catalonia 2014-2020 (hereafter, ERDF OP).

The RIS3CAT Action Plan, which was published in November 2015 and updated in May 2017, describes the RIS3CAT instruments, which contribute to meeting the plan's four strategic objectives. These are:

1. To enhance the competitiveness of the business fabric by improving the efficiency of production processes, promoting internationalisation and reorienting established sectors towards activities with greater added value.

2. To promote new emerging economic activities through research, creativity and innovation in order to create and exploit new market niches.

3. To consolidate Catalonia as a European knowledge hub and connect the country's technological and creative capabilities with both sectors that already exist in the territory and any that may emerge.

4. To make global improvements to the Catalan system of innovation, enhancing the competitiveness of companies, particularly SMEs, and guiding public policies towards the promotion of innovation, internationalisation and entrepreneurship.

RIS3CAT and its Action Plan establish actions based on four priority pillars:

- **Pillar 1.** Promoting the seven leading sectoral areas that, due to their importance and potential, can help to generate economic recovery and reorient the Catalan economy towards a growth model that is smarter, more sustainable and more inclusive. These priority sectors are: food and drink; chemicals, energy and resources; industrial systems; design-based industries; industries related to sustainable mobility; health industries, and cultural and experience-based industries.

- **Pillar 2.** Identifying and promoting new economic opportunities in emerging sectors, based on technological capabilities (new activities generated by technological change and cutting-edge innovation) and synergies between different but related sectors.

- **Pillar 3.** A commitment to cross-cutting enabling technologies as the main instrument for transforming the production system and generating new scientific, technological and economic opportunities. The six priority cross-cutting enabling

technologies in the RIS3CAT strategy are: ICTs, nanotechnology, advanced materials, photonics, biotechnology and advanced manufacturing.

- **Pillar 4.** Improving the innovation environment through public policies implemented by the Government that affect the research and innovation system. These policies concern the digital agenda, entrepreneurship, ecoinnovation, non-technological innovation, and training and talent.

The RIS3CAT Monitoring System establishes the monitoring indicators and the system for evaluating RIS3CAT projects and instruments. This report analyses the RIS3CAT projects selected as a result of the 18 competitive calls for proposals resolved up to 31 March 2020:

- Two calls for proposals for RIS3CAT communities (2015, 2016 and 2018).
- One call for proposals for territorial specialisation and competitiveness projects (2016).
- One call for proposals for business associations dealing in emerging tecnologies (2019).
- Three calls for proposals for technology clusters (2015, 2016 and 2017).
- Two calls for proposals for knowledge transfer: one for grants for knowledge valorisation and transfer projects at universities (2018), the other for grants for R&D&I networks (2019).
- Knowledge Industry Programme (2014 and 2016).
- Two calls for proposals for R&D&I infrastructure (2015).
- One call for proposals for funding the public procurement of innovation (2018).
- One call for proposals for funding projects for the valorisation and transfer of knowledge at universities (2018).
- Three calls for proposals for the Knowledge Industry Programme (2014, 2016 and 2018).
- One call for proposals for public procurement in the field of health (2018).
- Four calls for proposals to reinforce R&D&I infrastructure: one for large scientific and technological infrastructure (2015), one for singular R&D&I infrastructure projects (2015), and two for cooperative projects for the acquisition of scientific equipment (2015 and 2019).

This report analyses global data on RIS3CAT calls for proposals and information relating to each of the RIS3CAT instruments. The Annex contains descriptions of projects financed through RIS3CAT calls for proposals.

2. Global data on RIS3CAT calls

This section is devoted to analysing the main indicators for the projects selected in the RIS3CAT calls for proposals resolved up to the 31st February 2019:

- Two calls for proposals for RIS3CAT communities (2015, 2016 and 2018).
- One call for proposals for specialisation and territorial competitiveness projects (2016).
- One call for proposals for business associations dealing in emerging technologies (2019).
- Three calls for proposals for technology clusters (2015, 2016 and 2017).
- Two calls for proposals for knowledge transfer: one for grants for knowledge valorisation and transfer projects at universities (2018), the other for grants for R&D&I networks (2019).
- Knowledge Industry Programme (2014 and 2016).
- Two calls for proposals for R&D&I infrastructure (2015).
- One call for proposals for funding the public procurement of innovation (2018).
- One call for proposals for funding projects for the valorisation and transfer of knowledge at universities (2018).
- Three calls for proposals for the Knowledge Industry Programme (2014, 2016 and 2018).
- One call for proposals for public procurement in the field of health (2018).
- Four calls for proposals to reinforce R&D&I infrastructure: one for large scientific and technological infrastructure (2015), one for singular R&D&I infrastructure projects (2015), and two for cooperative projects for the acquisition of scientific equipment (2015 and 2019).

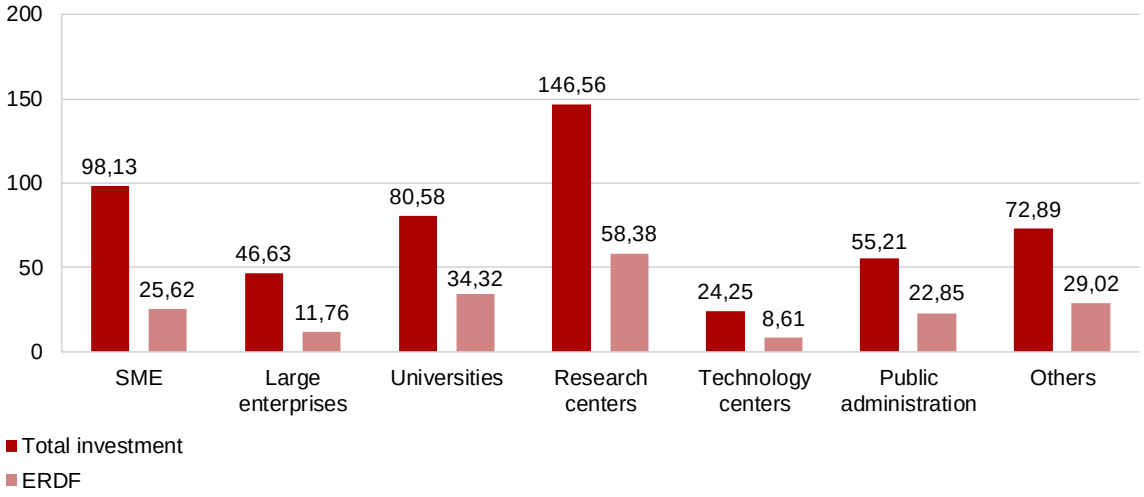
2.1. Investment

Expected investment in projects selected through calls for proposals for RIS3CAT up to 31st March 2020 is nearly 525 MEUR, with eligible investment of over 443 MEUR. The ERDF finances 36% of the total investment, just over 109 MEUR.

Of the 525 MEUR total investment in these projects, 57% (300.04 MEUR) is devoted to the public sector (mainly research centres, universities and public administrations), which receives 121.72 MEUR from the ERDF. The remaining 43% (224.23 MEUR) goes to private entities (companies, technology centres and other private players in the R&D&I system), which receive ERDF financing of 68.86 MEUR.

Research centres and companies account for over 55% of the total investment, and receive 50.25% of ERDF support in the calls studied. Technology centres account for 4.63% (24.25 MEUR) of total investment and 4.52% (8.61 MEUR) of ERDF funds. Finally, the public administration accounts for around 14% of the total investment (72.89 MEUR) and 15.23% (29.02 MEUR) of ERDF investment.

Graph 1. Investment submitted to calls for proposals (million euros)

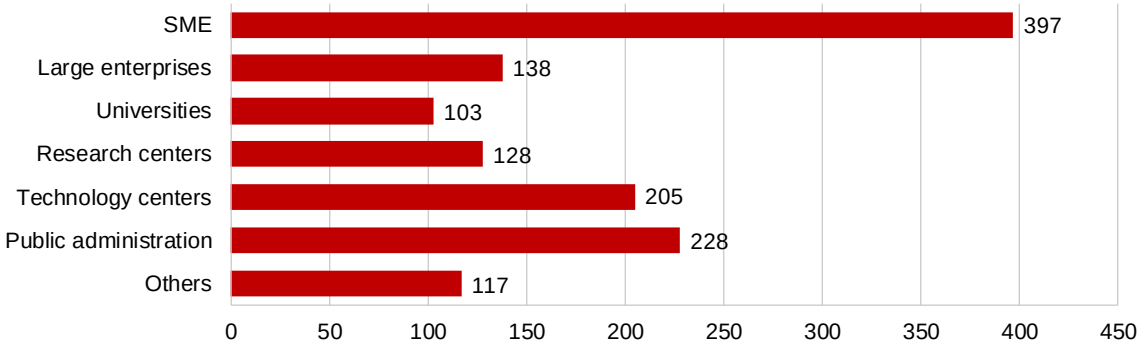


Source: Directorate-General for Economic Promotion, Competition and Regulation.

2.2. Beneficiary entities

As regards the beneficiaries of the projects, SMEs stand out particularly, accounting for the largest share (approximately 30%), followed by large companies (14%). As a consequence, the business sector accounts for over 40% of participation in the calls for proposals studied.

Graph 2. Number of projects by beneficiary entity (total)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

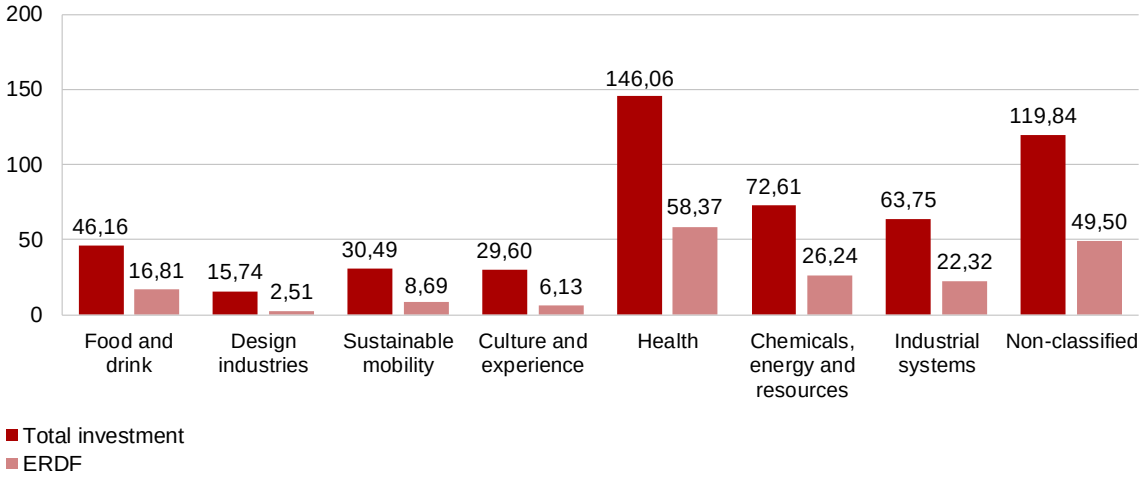
Research centres are the beneficiaries of 9.73% of the total number of projects adjudicated; technology centres, 15.58%; universities, 7.83%, and the public administration, 8.89%. Other private entities in the Catalan R&D&I system account for just over 17% of the projects.

2.3. RIS3CAT priority sectors and technologies

By sector, the fields of health, and chemistry, energy and resources lead the way, accounting for 27.86% (146.06 MEUR) and 13.85% (72.61 MEUR) of the total, respectively. These sectors are followed by industrial systems, with 12.16% (63.75 MEUR), sustainable mobility and food and drink, with 11.81% (44.20 MEUR). Industries related to sustainable mobility, with 5.82% (53.21 MEUR), and food and drink, with 8.80% (46.16 MEUR). The cultural and experience-based industries and design industries account for the lowest proportion, with 5.65% (29.60 MEUR) and 3% (15.74 MEUR) of total investment, respectively.

Some 22.86% of the investment (119.84 MEUR) is not classified in any sectorial area. This percentage corresponds mainly to projects selected in calls for specialisation and territorial competitiveness projects (hereafter, PECT) R&D&I infrastructure and clusters of emerging technologies.

Graph 3. Investment by sector (MEUR)

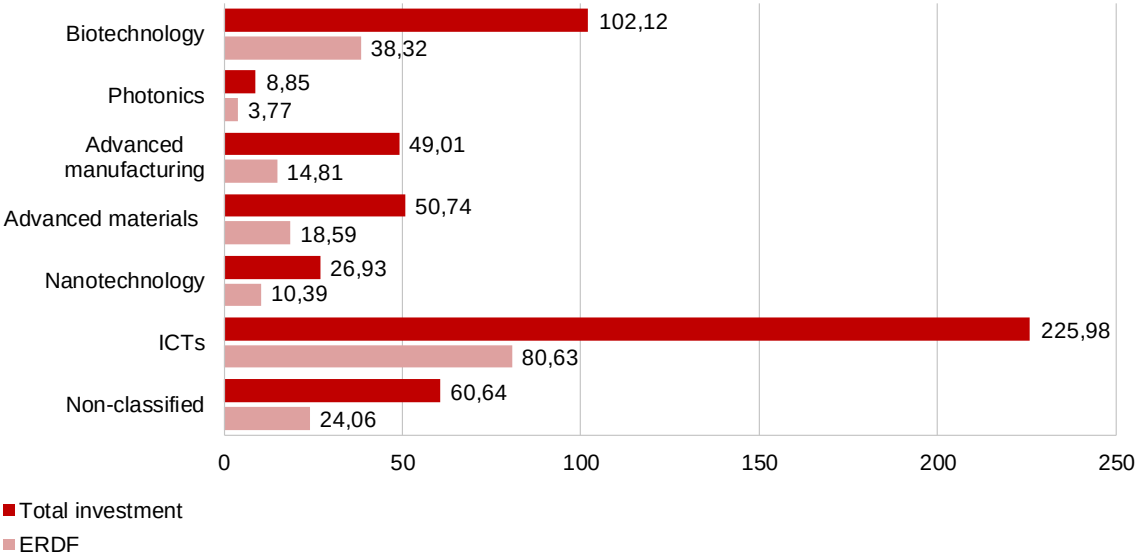


Source: Directorate-General for Economic Promotion, Competition and Regulation.

As regards the enabling technologies, ICT and biotechnology account for the most investment, with 43.10% (225.98 MEUR) and 19.48% (102.12 MEUR), respectively. Advanced materials account for 9.35% of total investment, and advanced manufacturing, 8.69%. Nanotechnology and photonics are the technologies with the lowest investment (5.14% and 1.69%, respectively).

Some 11.57% of the total investment (60.64 MEUR) does not correspond to any particular enabling technology. Similarly to the case of investment not classified in any sectorial area, this investment is devoted, in the main to calls for proposals for PECT, R&D&I infrastructure and clusters of emerging technologies.

Graph 4. Investment in enabling technologies (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

2.4. Other indicators

The RIS3CAT Monitoring System establishes a series of indicators common to all RIS3CAT projects. Since the beneficiaries of projects are those that report this data to SIFECAT, it should be interpreted as forecasts that may be modified during the project implementation period.

Box 1 shows the aggregate values of implementation indicators on projects successful in calls launched by RIS3CAT communities, tech hubs and PECT resolved up to March 2020. These instruments are those with the greatest direct impact on the business fabric.

Within the framework of the projects resulting from these first calls for proposals, it is expected that 170 new companies will be established, 528 patents applied for, 220 brands registered, and 2,500 jobs created. Most of the companies that take part in these projects estimate that their international positioning will improve as regards exports and the generation of new business opportunities.

Box 1. RIS3CAT Indicators

Indicator	Value
Expected number of spin-off and other technology-based companies created within the framework of the projects	170
Expected number of patents applied for or registered by R&D&I actors and companies linked to projects	528
Expected number of brands created or registered by R&D&I actors and companies within the framework of the projects	220
Expected number of companies innovating within the framework of the projects	1.915
Expected number of jobs generated linked to the projects	2.496
Expected number of companies increasing revenue as a result of taking part in projects	1.448
Expected number of companies increasing exports as a result of taking part in projects	709
Expected number of companies with new international business opportunities as a result of taking part in projects	1.098
Expected number of companies increasing productivity (reducing costs) as a result of taking part in projects	841
Expected number of companies taking part in projects that have implemented innovations to reduce water consumption	612
Expected number of companies taking part in projects that have implemented innovations to reduce energy consumption	440
Expected number of companies taking part in projects that have implemented innovations to reduce CO_2 emissions	427
Expected number of companies taking part in projects that have implemented innovations to reduce waste (recycling and eco-design)	436

Source: Directorate-General for Economic Promotion, Competition and Regulation.

3. RIS3CAT communities

RIS3CAT communities are groups of companies and actors in the research and innovation system that promote R&D&I plans for the economic transformation of production activities. These communities, formed by at least eight members, including both companies and research and innovation system actors, submit R&D&I action plans for one of the leading RIS3CAT smart specialisation sectors. These actions may be:

- Major industrial research and experimental development projects.
- Technical and scientific facilities.
- Interregional cooperation projects in the field of innovation.
- Innovation projects in the spheres of processes and organisations.

RIS3CAT communities should contribute to:

- Increasing public and private investment in R&D&I, and the impact of this investment on the production system.
- Improving the competitiveness of RIS3CAT leading sectors.
- Increasing the participation of Catalan R&D&I companies and entities in EU competitive programmes and European networks, both in quantitative terms (finance attracted and participating entities) and in terms of quality (strategic projects).

The aggregate data shown in the sections below refer to projects at the implementation stage that were successful in the three calls. However, the last call by the instrument is not co-financed by the ERDF. The annex at the end of the report contains descriptions of the RIS3CAT communities, the projects and the beneficiary entities.

3.1. Investment

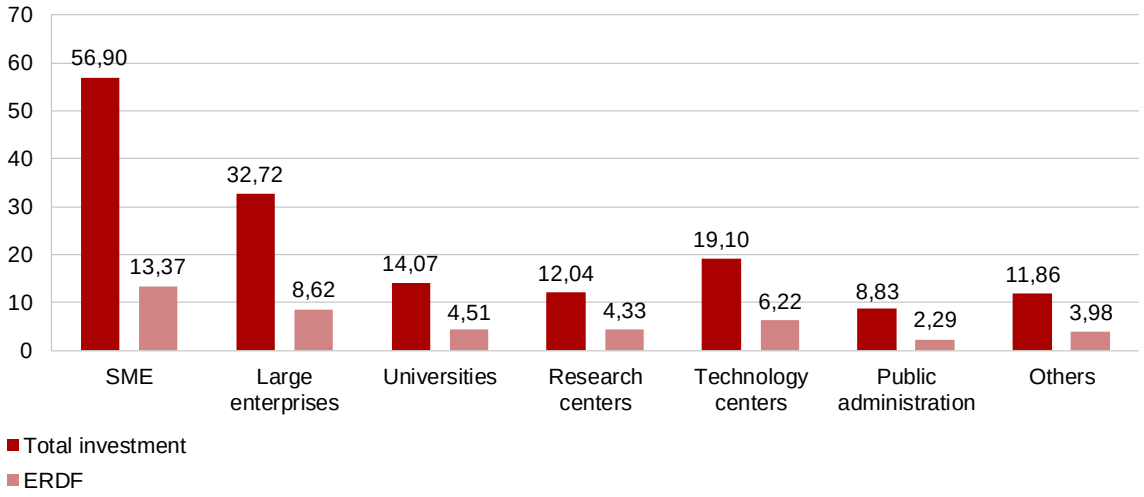
As a result of calls for proposals in 2015, 2016 and 2018, 13 RIS3CAT communities have been accredited (5 in the first call, 6 in the second and 2 in the last). RIS3CAT community projects generate investment of 155 MEUR nearly 28% of this amount financed by the ERDF. This figure is less than 50% because the third called is not co-financed by the ERDF.

57.63% of the total investment corresponds to the business sector and 34.75% to public investment (universities, research centres, technology centres and public administrations). The remaining 7.62% is accounted for by other private entities related

to the Catalan R&D&I system.

Total investment by SMEs is 56.90 MEUR; large companies invest just over 32 MEUR, and technology centres, 19.10 MEUR. Catalan universities invest just over 14 MEUR, and research centres, 12.04 MEUR.

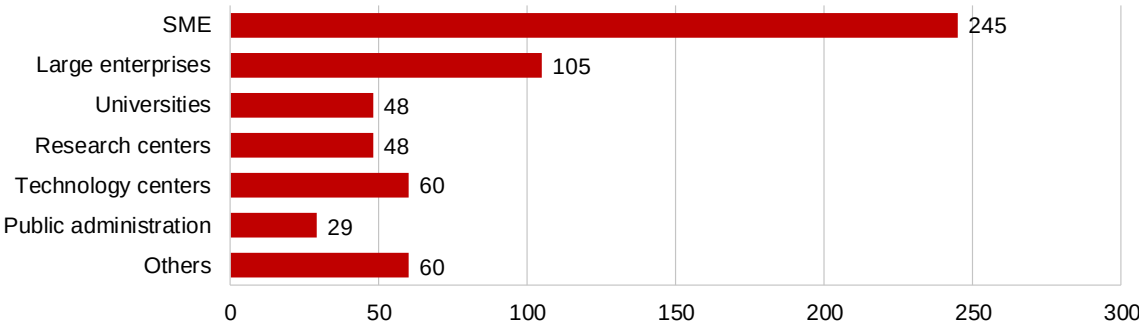
Graph 5. Investment by type of beneficiary entity (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

The private sector accounts for 74.30%% of ERDF funding. Of this, 30.86% goes to SMEs, 19.90% to large companies 14.36% to technology centres and 9.19% to other private entities in the R&D&I system. The public sector accounts for another 10.42% of ERDF funding, universities, 10.42%, research centres, 10%, and public administrations, 9.19%.

Graph 6. Number of projects by beneficiary entity (total)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

3.2. Beneficiary entities

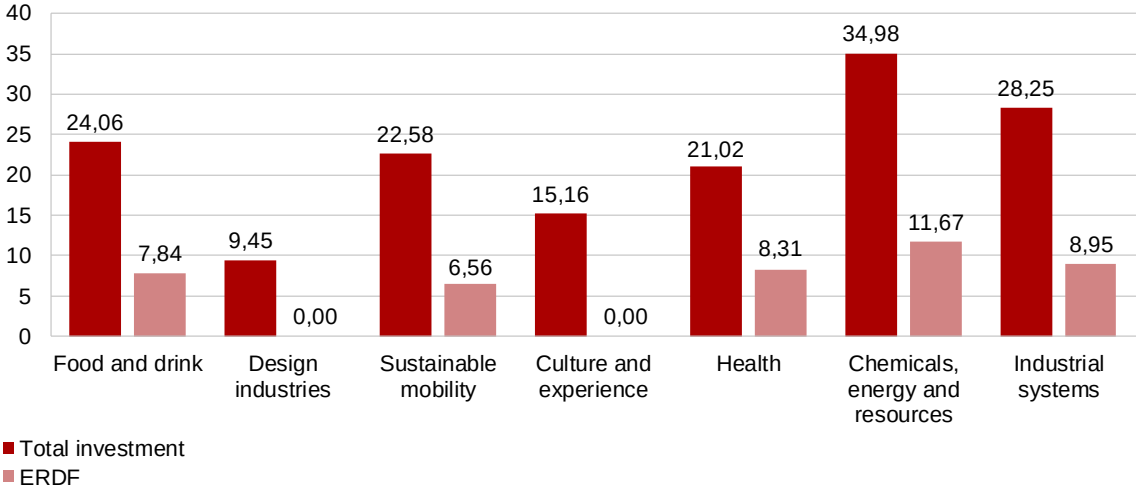
More than 58% of beneficiary entities are companies, and 41% of these companies are SMEs. Technology centres represent 10% of beneficiaries, research centres, another 10%, universities, 8%, and public administrations, just under 5%.

3.3. RIS3CAT priority sectors and technologies

The 13 communities promoted are broken down by sector as follows: one in the design industry; one in the cultural and experience-based industries; two in the health and life sciences industries; two in the food and drink industry; three in the chemicals, energy and resource industries; two in industrial systems; and two in the sustainable mobility industry.

The sectors that account for the largest investment are: chemicals, energy and resources, with 22.50% of total investment (34.98 MEUR); and industrial systems, with 18.16% of total investment (28.25 MEUR). The food and drink sector accounts for 15.47% (24.06 MEUR) of total investment; sustainable mobility, 14.52% (22.58 MEUR); health, 13.52% (21.02 MEUR); and the cultural and experience-based industries, 9.75% (15.16 MEUR). Finally, the design industries account for the lowest investment, with 6.08% of the total (9.45 MEUR).

Graph 7. Investment by sector (million euros)

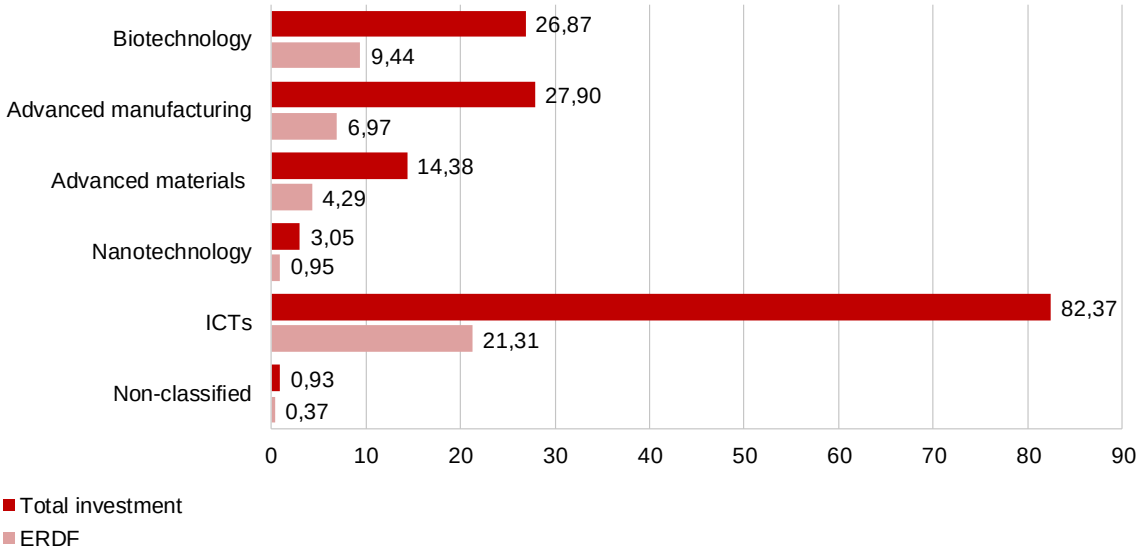


Source: Directorate-General for Economic Promotion, Competition and Regulation.

Design and the cultural and experience-based industries are the only sectors that do not receive ERDF funding, as they are among the projects with successful bids in the third call for RIS3CAT communities. These projects are co-financed by funds from the body managing the call for proposals (ACCIÓ).

As regards enabling technologies, investment was particularly high in ICT, which accounted for 52.97% of the total. Biotechnology, accounted for 17.28%, advanced manufacturing, 17.94%, biotechnology, 17.28%, advanced materials, 9.25%, and nanotechnology, 1.96%.

Graph 8. Investment in enabling technologies (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

3.4. Other indicators

Some 70 new technology companies, 273 patents and 132 brands are expected to be created within the framework of RIS3CAT communities projects. Over 300 companies are expected to innovate, and more than 1,300 jobs will be created.

The projects are also expected to contribute to improving the competitiveness of participating companies. More specifically, the indicators expected to improve are company revenue, exports and productivity, as well as opportunities in new markets.

RIS3CAT communities projects also contribute to sustainable growth, as they introduce numerous innovations for reducing water and energy consumption, CO_2 emissions and waste generation.

Box 2. RIS3CAT Indicators

Indicator	Value
Spin-off and other technology-based companies created within the framework of the projects	73
Patents applied for or registered by R&D&I actors and companies linked to projects	273

Indicator	Value
Brands created or registered by R&D&I actors and companies within the framework of the projects	132
Companies innovating within the framework of the projects	933
Jobs generated linked to the projects	1.384
Companies increasing revenue as a result of taking part in projects	732
Companies increasing exports as a result of taking part in projects	428
Companies with new international business opportunities as a result of taking part in projects	556
Companies increasing productivity (reducing costs) as a result of taking part in projects	383
Companies taking part in projects that have implemented innovations to reduce water consumption	389
Companies taking part in projects that have implemented innovations to reduce energy consumption	340
Companies taking part in projects that have implemented innovations to reduce CO_2 emissions	345
Companies taking part in projects that have implemented innovations to reduce waste (recycling and eco-design)	338

Source: Directorate-General for Economic Promotion, Competition and Regulation.

4. Specialisation and territorial competitiveness

Territorial **specialisation and competitiveness projects** (hereafter, PECT) are initiatives launched by players in the territory and led by local public entities to promote actions that can contribute to the economic transformation of the territory and include a strong component of innovation. Local entities, universities, technology and research centres, companies and other agents in the territory all take part in PECT projects.

PECT actions conform to a territorial strategy that has achieved broad consensus in the territory. They have specific, consistent objectives and exercise multiple impact on the territory of action. These actions may revolve around such activities as:

- Support for research and innovation driven by companies.
- Support for the creation and consolidation of innovative companies.
- Transfer and dissemination of knowledge.
- Development of entrepreneurial ecosystems.
- Development of ICT products and services.
- Promotion of energy efficiency and use of renewable energies (both at SMEs and in public infrastructures).
- Promotion and dissemination of sectoral and intersectoral innovation structures in the territory, or structures for the protection, promotion and development of natural and cultural heritage and enhancement of the training and knowledge environment.

Within its territorial scope of action, each PECT must contribute to the following:

- Improve the competitiveness of the production system.
- Create employment
- Create links with the international value chain.

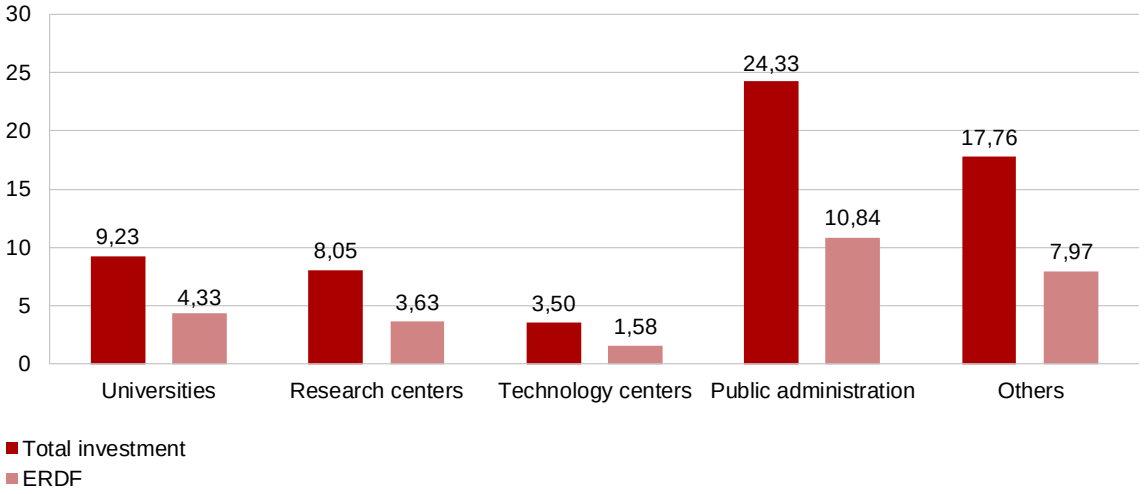
The Annex at the end of this report contains a description of the projects in the first PECT call for proposals, and of the beneficiary entities.

4.1. Investment

Twenty-three projects were approved in the first PECT call for proposals, with a total of 134 operations. Total investment in the projects is 62.87 MEUR, 28.36 MEUR of which (45% of the total investment) are financed by the ERDF.

The Public Administration accounts for 38.70% (24.33 MEUR) of total investment.

Graph 9. Investment by type of beneficiary entity (million euros)

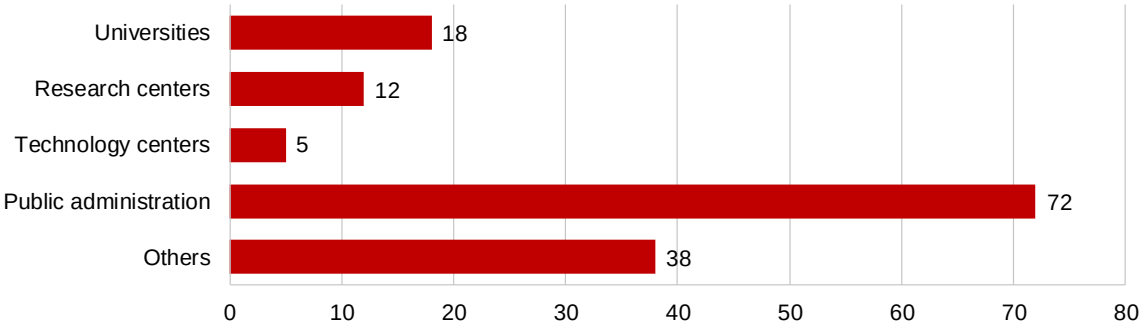


Source: Directorate-General for Economic Promotion, Competition and Regulation.

4.2. Beneficiary entities

Public administrations (local authorities, provincial councils, county councils and other local bodies) represent 46% of the beneficiaries; private centres (private non-profit organisations), 28%; universities, 13%; research centres, 9%, and technology centres, 4%.

Graph 10. Number of projects by beneficiary entity (total)

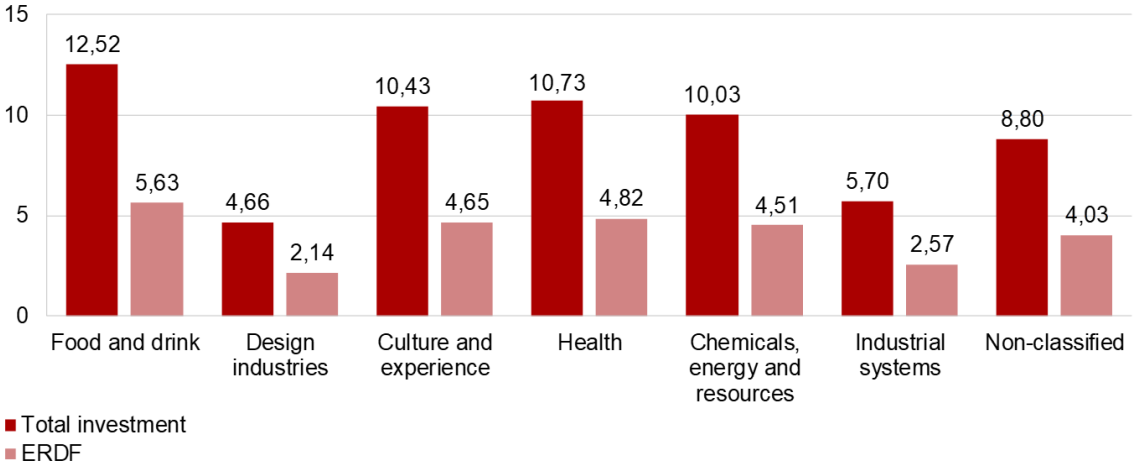


Source: Directorate-General for Economic Promotion, Competition and Regulation.

4.3. RIS3CAT priority sectors and technologies

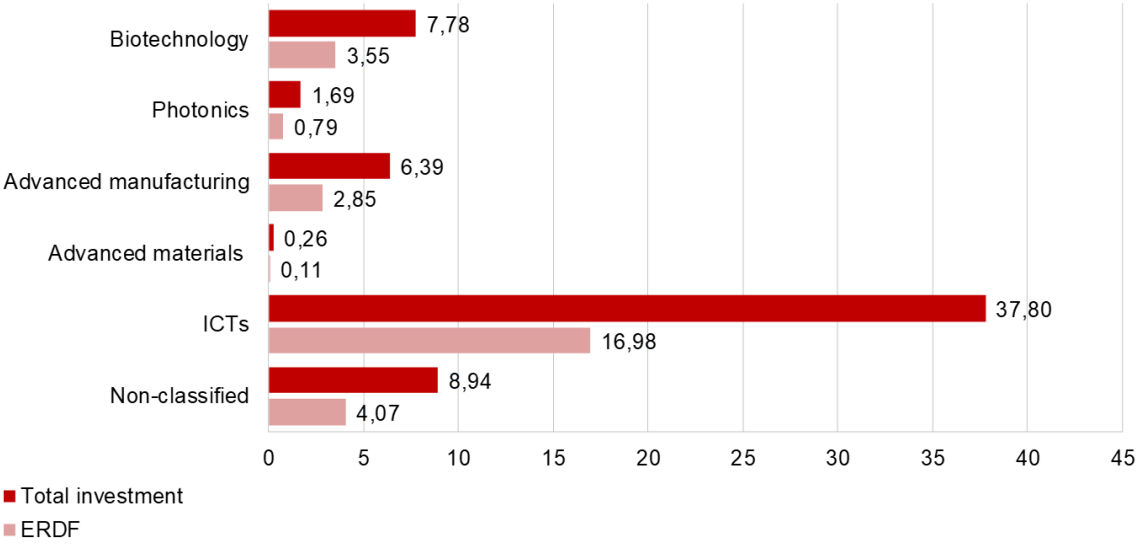
The distribution of investment in PECT by sector is as follows: food and drink, 12.52 MEUR (20% of the total investment); cultural and experience-based industries, 10.43 MEUR (17%); health, 10.73 MEUR (16%); chemicals, energy and resources, 10.03 MEUR (16%); industrial systems, 5.7 MEUR (9%); and the design industries, 4.66 MEUR (7%). The remaining 14% of investment is not assigned to any particular sector. Sustainable mobility is the only sector not represented in PECT projects under this call for proposals.

Graph 11. Investment by sector (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 12. Investment in enabling technologies (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

As regards enabling technologies, investment was particularly high in ICT, which accounted for 60% of the total (37.80 MEUR). Biotechnology accounts for 12% of investment (7.78 MEUR); advanced manufacturing, 10.2% (6.39 MEUR); photonics, 2.7% (1.69 MEUR); and advanced materials, 0.4% (0.26 MEUR). 14.2% (8.94 MEUR) of the investment is not assigned to any specific of the investment is not assigned to any specific enabling technology.

4.4. Other indicators

Box 3 shows the values of the indicators reported by the beneficiaries of projects in the first PECT call for proposals. These figures should be interpreted as forecasts, as they may be modified during the project execution periods.

Applications are expected to be made for more than 50 patents by 2020, while more than 60 companies and 352 jobs linked to the projects will be generated. Most of the participating companies expect to improve their international position in terms of exports and new business opportunities.

Box 3. RIS3CAT Indicators

Indicador	Value
Expected number of spin-off and other technology-based companies created within the framework of the projects	69
Expected number of patents applied for or registered by R&D&I actors and companies linked to projects	58
Expected number of brands created or registered by R&D&I actors and companies within the framework of the projects	22
Expected number of companies innovating within the framework of the projects	813
Expected number of jobs generated linked to the projects	352
Expected number of companies increasing revenue as a result of taking part in projects	572
Expected number of companies increasing exports as a result of taking part in projects	166
Expected number of companies with new international business opportunities as a result of taking part in projects	481
Expected number of companies increasing productivity (reducing costs) as a result of taking part in projects	372
Expected number of companies taking part in projects that have implemented innovations to reduce water consumption	163
Expected number of companies taking part in projects that have implemented innovations to reduce energy consumption	20

Indicador	Value
Expected number of companies taking part in projects that have implemented innovations to reduce CO_2 emissions	13
Expected number of companies taking part in projects that have implemented innovations to reduce waste (recycling and eco-design)	69

Source: Directorate-General for Economic Promotion, Competition and Regulation.

5. Emerging technologies

The Emerging Technologies Programme promotes the development of new emerging activities in Catalonia based on innovative, disruptive technologies or processes and aimed at opening up new markets or transforming existing ones.

The programme focuses on graphene, the human brain, fusion energy, Big Data in omic technologies, quantum technologies, the Internet of Things, Industry 4.0 and 3D technologies. These are new technologies and technological applications with great potential to generate new economic activities that are a priority in the research and innovation policies of both the Government of Catalonia and the Horizon 2020 programme, and to which the European Union is firmly committed as part of the Community's future strategy.

The programme is articulated around a call for proposals for grants to R&D&I stakeholders that participate in European initiatives and provide support for new emerging activities based on innovative and disruptive technologies or processes, with the goal of opening up new markets or transforming existing ones. The key element behind the initiative is the creation or expansion of demonstration platforms for new technologies aimed at the production system.

The programme objectives are as follows:

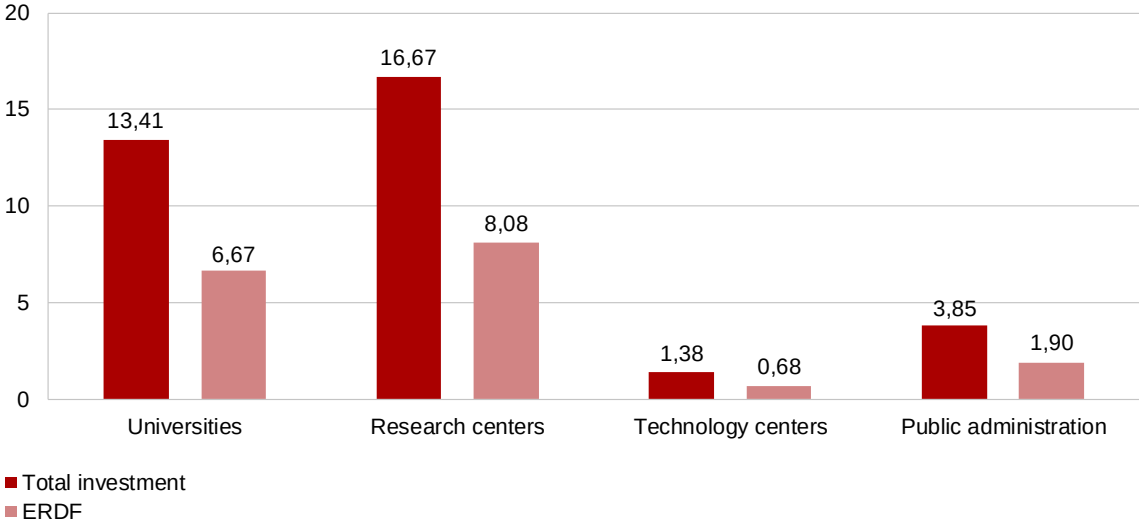
- Based on new technologies and technological applications, to enable the development and growth of emerging activities in the industrial system, driving economic growth and the creation of highly qualified jobs.
- To promote the creation and consolidation of new areas of knowledge that can provided the basis for emerging industrial activities.
- To generate new economic activities or the transformation of existing ones that can increase the long-term competitiveness of the production system.

The annex at the end of the report contains details on the emerging technology clusters, the entities that form part of them, and descriptions of the projects.

5.1. Investment

The nine emerging technology clusters account for a total of 82 projects, and planned investment of more than 35 MEUR with 17.33 MEUR ERDF funding.

Graph 13. Investment by type of beneficiary entity (million euros)

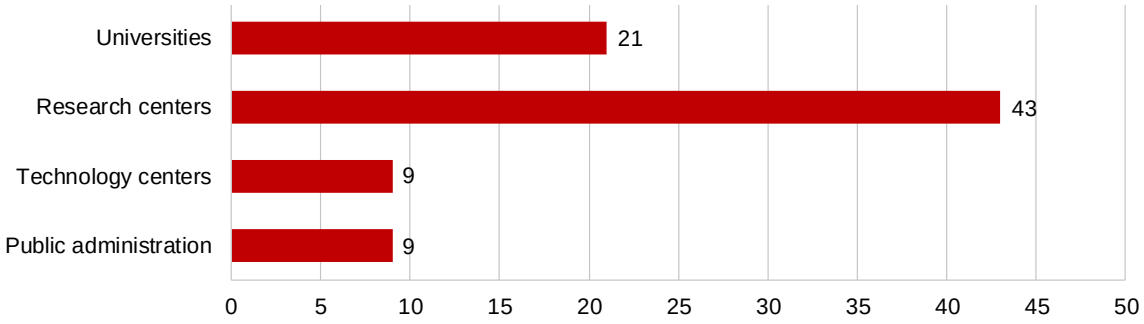


Source: Directorate-General for Economic Promotion, Competition and Regulation.

5.2. Beneficiary entities

Research centres and universities account for most of the projects approved (52.44% and 25.6%, respectively). Technology centres and public administrations each account for 9% of these projects.

Graph 14. Number of projects by beneficiary entity (total)

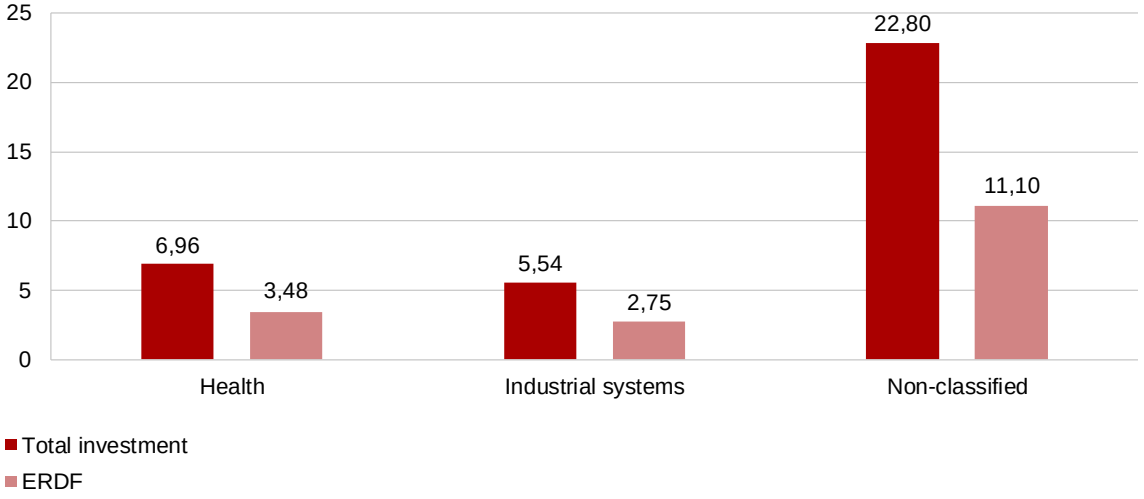


Source: Directorate-General for Economic Promotion, Competition and Regulation.

5.3. RIS3CAT priority sectors and technologies

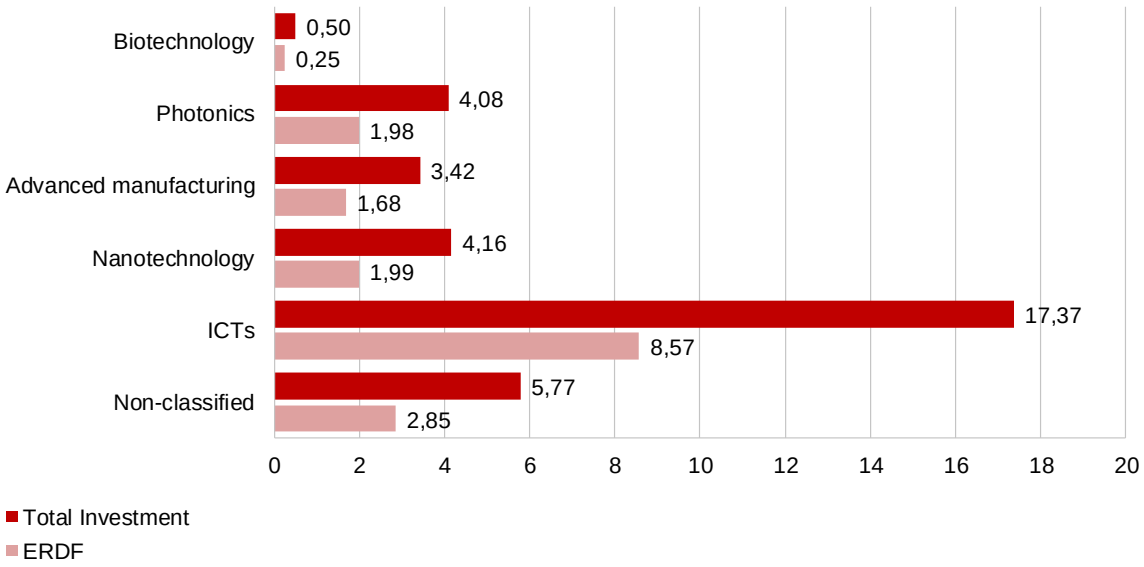
The sector most highly represented among approved projects is health, which accounts for 20% total investment in them (6.96 MEUR). Health is followed by industrial systems, with 16% of the total investment (5.54 MEUR). Some 65% of the investment is not assigned to any particular sector, as these are very much cross-cutting projects linked to different areas.

Graph 15. Investment by sector (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 16. Investment in enabling technologies (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

As regards enabling technologies, investment in ICT is particularly high, accounting for 49% of the total investment (17.37 MEUR). Nanotechnology and photonics account each account for 11% of the total investment (4.16 MEUR and 4.08 MEUR, respectively). Advanced manufacturing is the technology with the lowest investment among the enabling technologies: 9.68% (3.42 MEUR). 16.35% of the total investment is not assigned to any particular technology.

6. R&D cooperation

R&D cooperation projects are formed by companies that work with R&D&I system actors on projects involving technological innovation. These are research and development projects with high technological risk and great capacity to generate externalities in Catalonia, unlikely to be implemented exclusively in the private sector due to the high technological risk associated with them. The projects generate jobs and industrial investment, as well as maintaining scientific and production activity in Catalonia and promoting the participation of scientific and technological stakeholders in the R&D activities they include. R&D cooperation projects are coordinated and managed by ACCIÓ.

R&D cooperation projects must contribute to the following goals:

- Increasing private investment in R&D.
- Improving the technological capacity of companies in Catalonia, especially as regards cross-cutting key enabling technologies.
- Improving the positioning of companies in leading sectoral areas in the international market.
- Aligning the strategic actions of R&D&I actors and companies.

There are two types of technology cluster: local clusters, formed by Catalan companies with partners in Catalonia; and international clusters, made up of Catalan companies that cooperate with international partners with the aim of generating synergies and strategic complementarities with other countries and regions in RIS3CAT priority areas, both sectorial and technological, by establishing working groups and networks of clusters, particularly through collaborative projects and the development of pilot plants and large-scale demonstration plants.

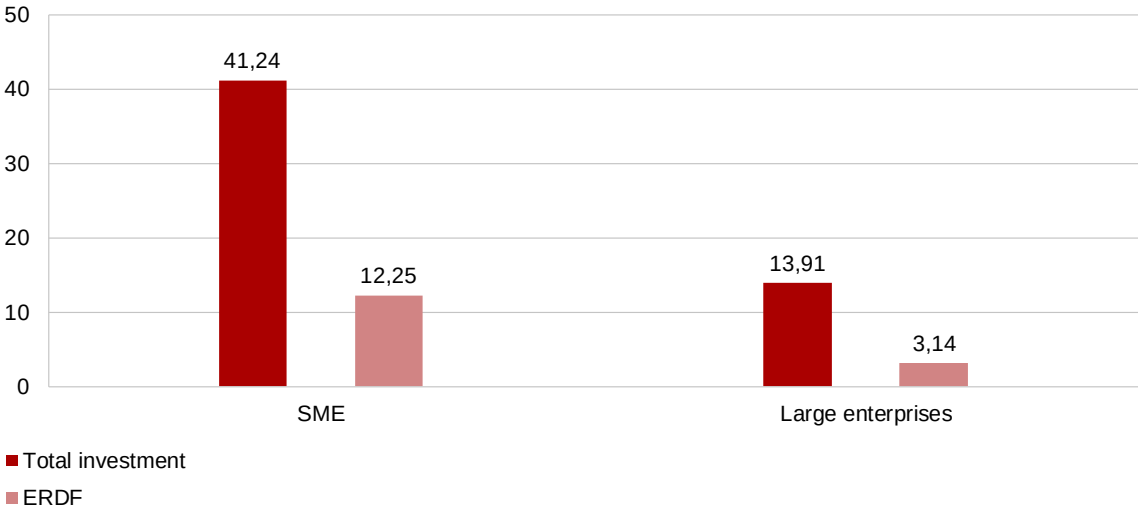
The following sections present the aggregate data on the two types of tech hub.

The Annex at the end of this report contains details on the projects and the beneficiary entities.

6.1. Investment

Some 185 operations were approved in the calls for tech hubs analysed, representing 97 projects, 53 of them collaborative and 132 individual. The approved projects account for total investment of more than 55 MEUR with ERDF funding rising to over 15 MEUR.

Graph 17. Investment by type of beneficiary entity (million euros)

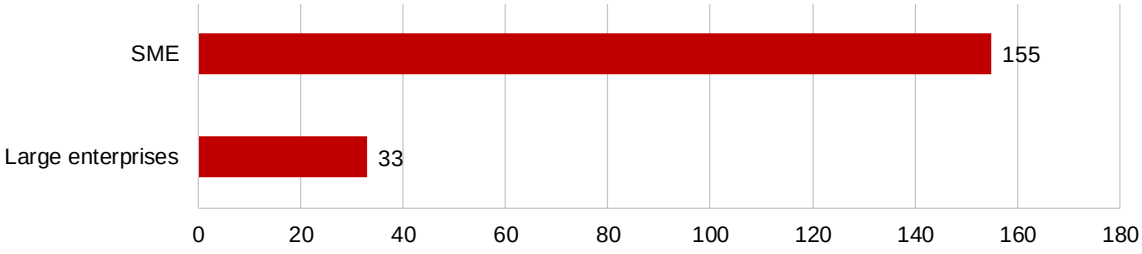


Source: Directorate-General for Economic Promotion, Competition and Regulation.

6.2. Beneficiary entities

Beneficiary entities in the calls for tech hubs are all companies. SMEs account for nearly 75% of total investment and receive 79% of total ERDF funding. Large enterprises account for just 25% of the total investment and receive approximately 20% of total ERDF funding.

Graph 18. Number of projects by beneficiary entity (total)

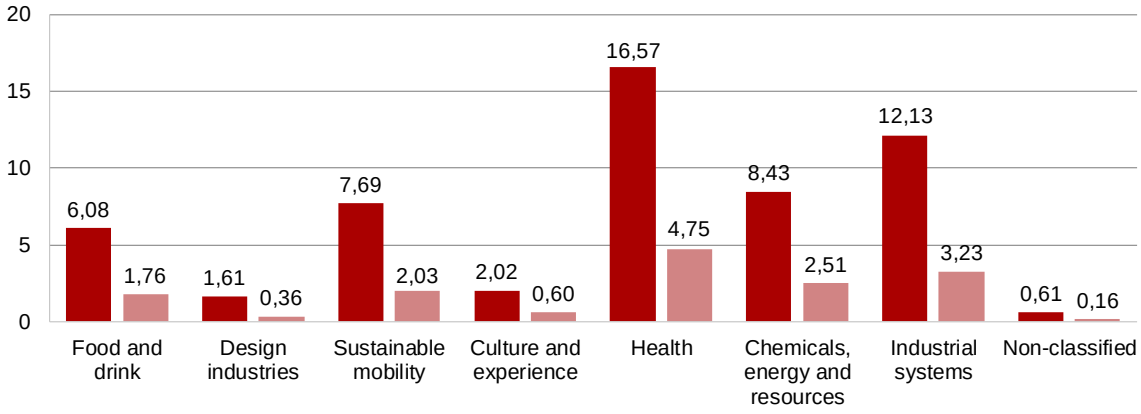


Source: Directorate-General for Economic Promotion, Competition and Regulation.

6.3. RIS3CAT priority sectors and technologies

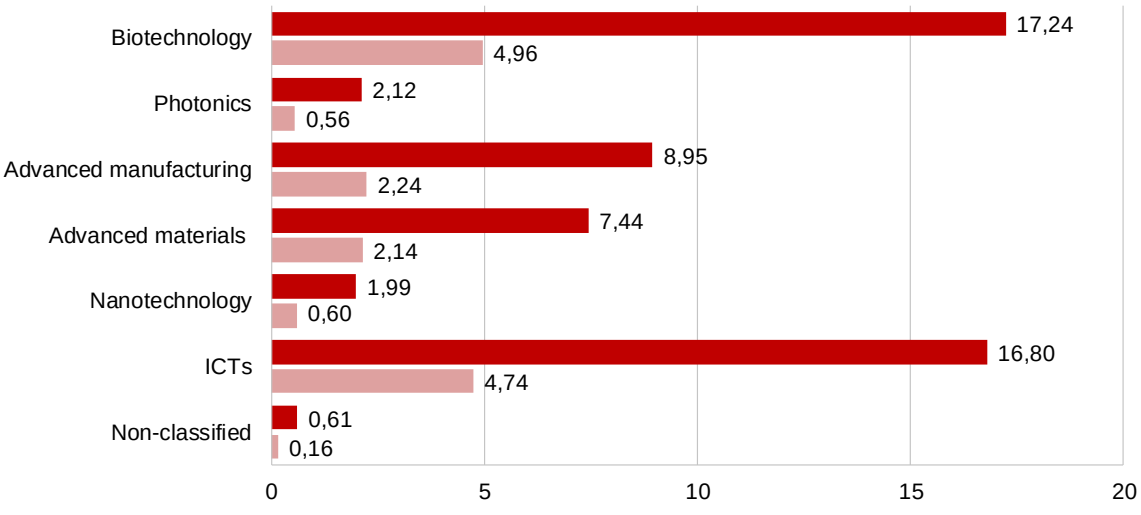
Some 30% of investment in tech hubs investment is concentrated in the areas of health (16.57 MEUR) and industrial systems (22% and 12.13 MEUR). Chemicals, energy and resources account for 15% of investment (8.43 MEUR), sustainable mobility, 14% (7.69 MEUR), food and drink, 11% (6.08 MEUR), cultural and experience-based industries, 4% (2.02 MEUR), and design industries, 3% (1.61 MEUR). Only 1% of the total investment is not assigned to any particular sector.

Graph 19. Investment by sector (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 20. Investment in enabling technologies (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

The leading enabling technologies in terms of investment in tech hubs projects are biotechnology and ICT, accounting for 31.26% and 30.47%, respectively, of total investment. Next come advanced manufacturing (16.22%), advanced materials (13.50%), photonics (3.84%) and nanotechnology (3.61%). Only 1% of the total investment in the projects is not assigned to any particular technology.

6.4. Other indicators

Within the framework of tech hub projects, 28 technology-based companies are expected to be created, and 197 patents and 66 trademarks generated. It is further estimated moreover, that 169 companies will innovate and approximately 760 jobs will be created within the framework of these projects.

Companies expect the projects to help improve their competitiveness, specifically as regards revenue, exports, productivity and opportunities in new markets.

The tech hub projects will also contribute to sustainable growth, as they introduce multiple innovations that reduce water and energy consumption, CO_2 emissions and waste generation.

Box 4. RIS3CAT Indicators

Indicator	Value
Expected number of spin-off and other technology-based companies created within the framework of the projects	28
Expected number of patents applied for or registered by R&D&I actors and companies linked to projects	197
Expected number of brands created or registered by R&D&I actors and companies within the framework of the projects	66
Expected number of companies innovating within the framework of the projects	169
Expected number of jobs generated linked to the projects	760
Expected number of companies increasing revenue as a result of taking part in projects	144
Expected number of companies increasing exports as a result of taking part in projects	115
Expected number of companies with new international business opportunities as a result of taking part in projects	61
Expected number of companies increasing productivity (reducing costs) as a result of taking part in projects	86
Expected number of companies taking part in projects that have implemented innovations to reduce water consumption	60

Indicator	Value
Expected number of companies taking part in projects that have implemented innovations to reduce energy consumption	80
Expected number of companies taking part in projects that have implemented innovations to reduce CO_2 emissions	69
Expected number of companies taking part in projects that have implemented innovations to reduce waste (recycling and eco-design)	34

Source: Directorate-General for Economic Promotion, Competition and Regulation.

7. Knowledge transfer

Through the instrument of knowledge transfer, the Government of Catalonia provides financial support for actions that increase and optimise processes of knowledge valorisation, technology transfer and protection of the knowledge generated, as well as support and guidance for creation of businesses and public-private cooperation.

The purpose of this instrument is to eliminate the barriers between science and business, enabling knowledge and technology transfer and creating environments and models for relations that promote fluid, dynamic collaboration.

The objectives of the knowledge transfer instrument are to:

- Promote instruments and processes of transfer valorisation and knowledge from the scientific institutions of Catalonia to the economic, business and social world.
- Promote direct, stable collaboration between scientific institutions and companies.
- Enable the transition from collaboration in projects to associations to develop joint lines of research.
- Facilitate cooperate between research groups and SMEs.

The instrument for knowledge transfer includes the following lines of action: **grants for university knowledge valorisation and transfer**, implementing plans to improve and optimise internal instruments and processes for knowledge valorisation and transfer at universities in Catalonia; and support for **R&D&I networks**, co-financing the creation of R&D&I networks formed by Catalan research centres that develop joint action programmes aimed at the valorisation and transfer of research results to the production sector.

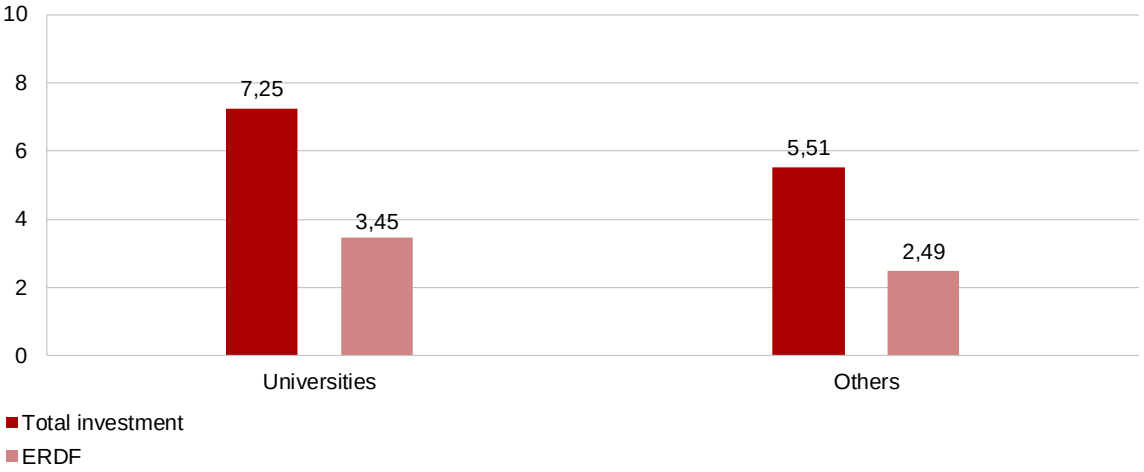
7.1. Grants for university knowledge valorisation and transfer

The following sections break down the two types of project supported, individual and collaborative. The Annex at the end of this report contains descriptions of the projects approved in calls for proposals, and lists the beneficiary entities.

7.1.1. Investment

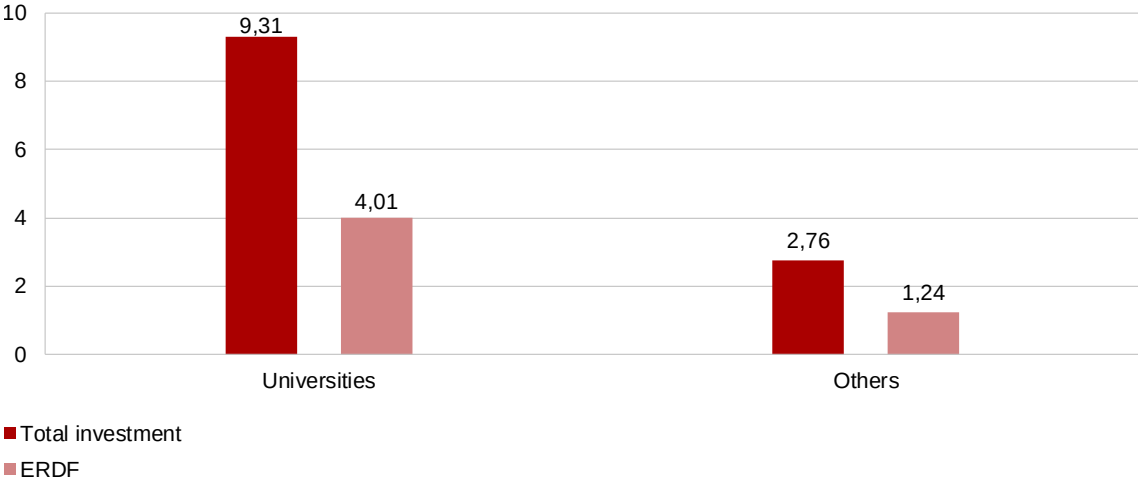
In the call for proposals for projects from university units of knowledge valorisation, six individual projects were approved. The total investment is 12.76 MEUR, 5.94 MEUR of which (46.5%) is financed by the ERDF. Seven collaborative projects were also approved, with total investment of 12.06 MEUR, 5.25 MEUR (43.5%) of which is financed by the ERDF.

Graph 21. Investment by type of beneficiary entity (million euros). Individual projects



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 22. Investment by type of beneficiary entity (million euros). Collaborative projects

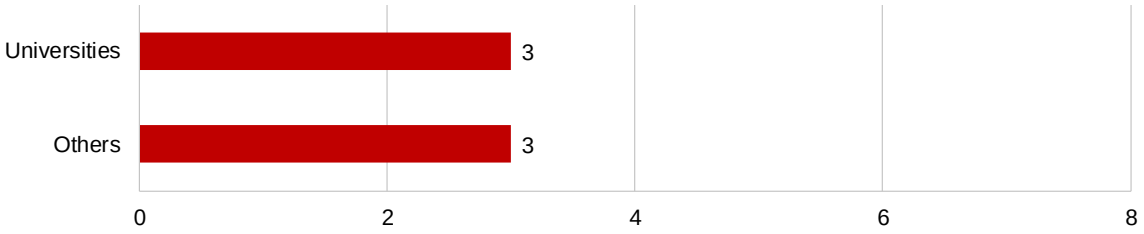


Source: Directorate-General for Economic Promotion, Competition and Regulation.

7.1.2. Beneficiary entities

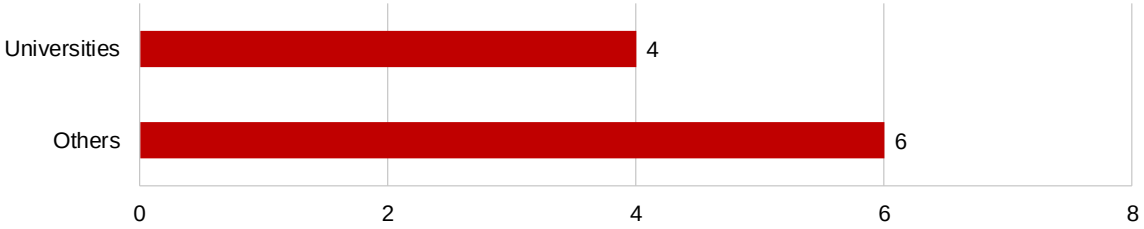
The universities account for 50% of the total investment in individual projects and 40% of that in collaborative projects. The other participating entities are private centres linked to the universities, which conduct knowledge transfer activities. These centres account for 50% of total investment in individual projects and 60% of investment in collaborative projects.

Graph 23. Number of projects by beneficiary entity (total). Individual projects



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 24. Number of projects by beneficiary entity (total). Collaborative projects



Source: Directorate-General for Economic Promotion, Competition and Regulation.

7.1.3. RIS3CAT priority sectors and technologies

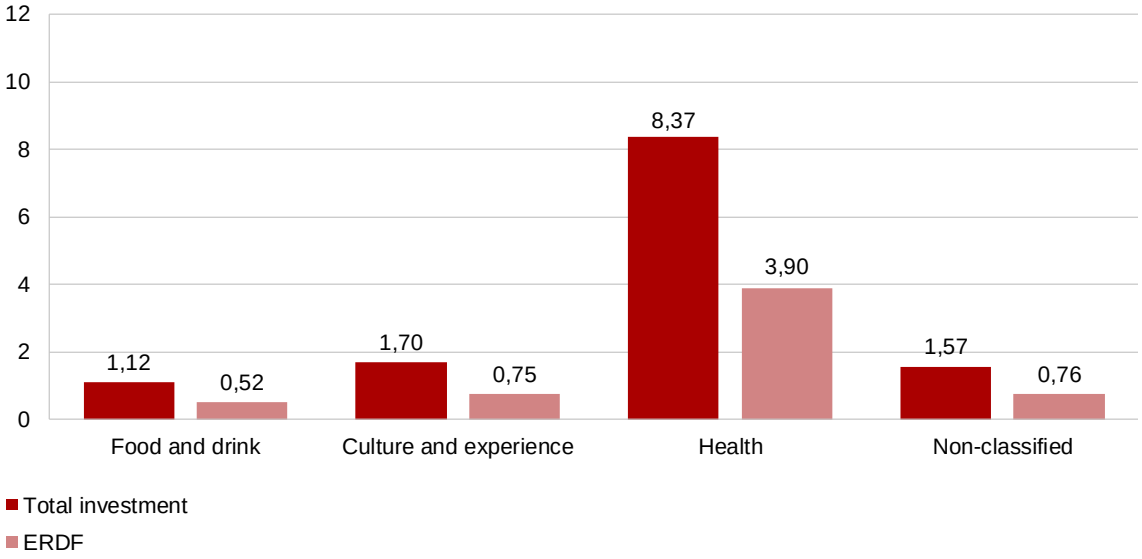
Most of the investment in individual projects is concentrated in the health sector (8.37 MEUR, 75% of the total). The cultural and experience-based industries account for 15% of total investment (1.70 MEUR), and food and drink, 10% (1.12 MEUR). Some 14% of the investment is not assigned to any sector.

Around 87% of the total investment in collaborative projects (10.47 MEUR) is not assigned to any specific sector. The health sector accounts for 7% of total investment, chemicals, energy and resources, 4%, and industrial systems, 3%.

With regard to enabling technologies, 12.3% of total investment in individual projects is not assigned to any enabling technology. ICTs account for 49% of investment, biotechnology, 38.6%.

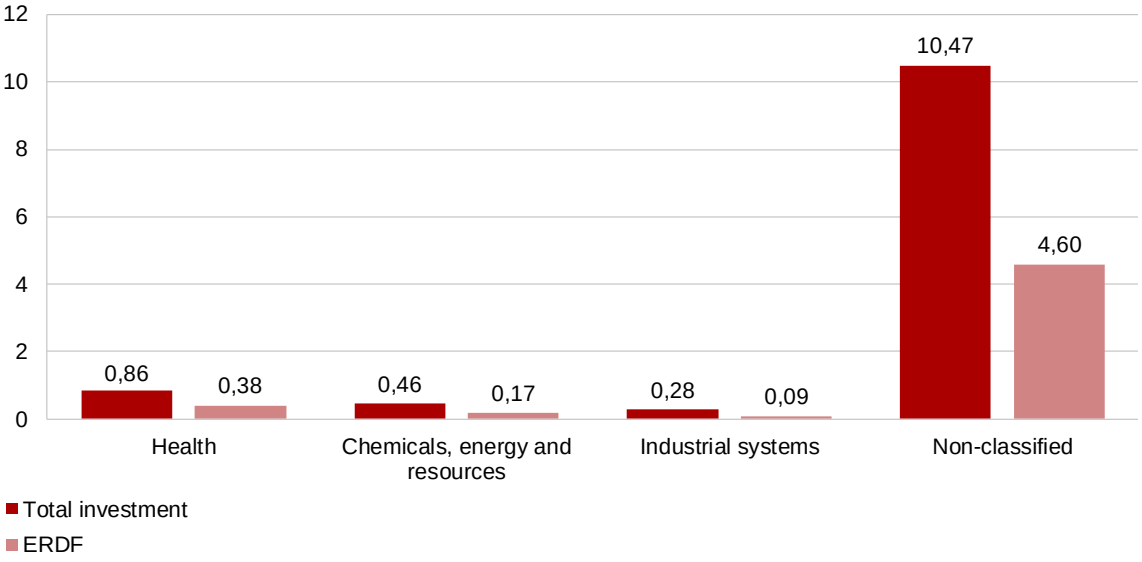
As regards collaborative projects, 86.8% of total investment in projects is not assigned to any specific enabling technology. Investment in ICT accounts for 9.4% of the total, and biotechnology, 4%.

Graph 25. Investment by sector (million euros). Individual projects



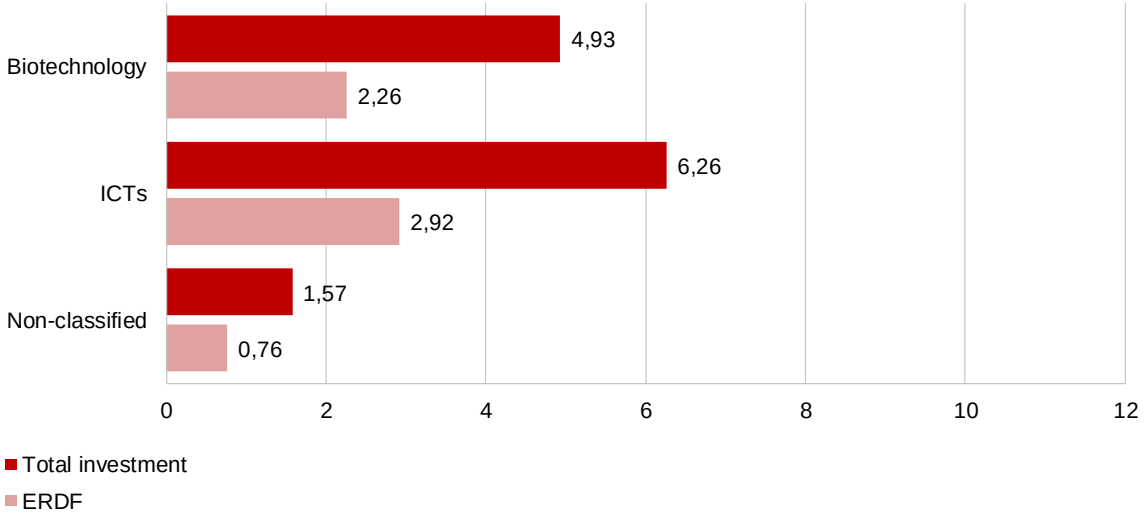
Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 26. Investment by sector (million euros). Collaborative projects



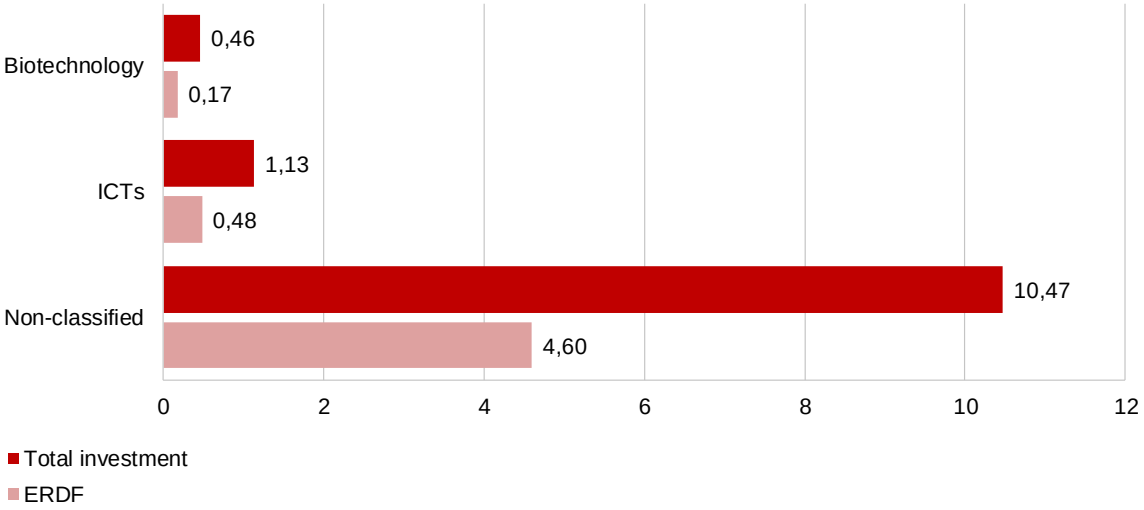
Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 27. Investment in enabling technologies (million euros). Individual projects



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 28. Investment in enabling technologies (million euros). Collaborative projects



Source: Directorate-General for Economic Promotion, Competition and Regulation.

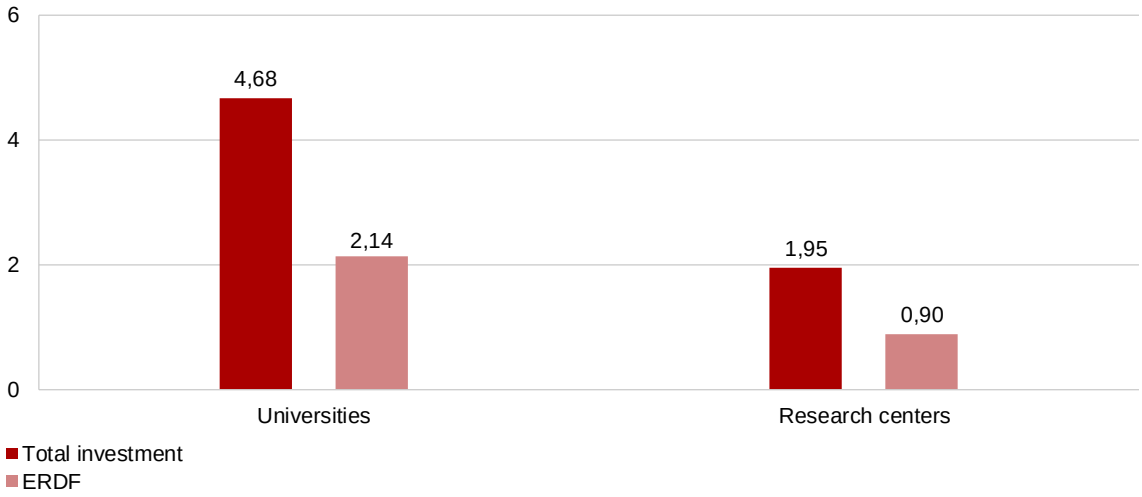
7.2. R+D+I networks

7.2.1. Investment

In the call for R&D&I networks, 7 networks were approved. These conduct activities worth 6.63 MEUR, 3.04 MEUR of which (45.68%) is financed by the ERDF.

The Annex at the end of this report contains a description of the seven R&D&I networks approved, as well as details on their coordinating entities.

Graph 29. Investment by type of beneficiary entity (million euros)

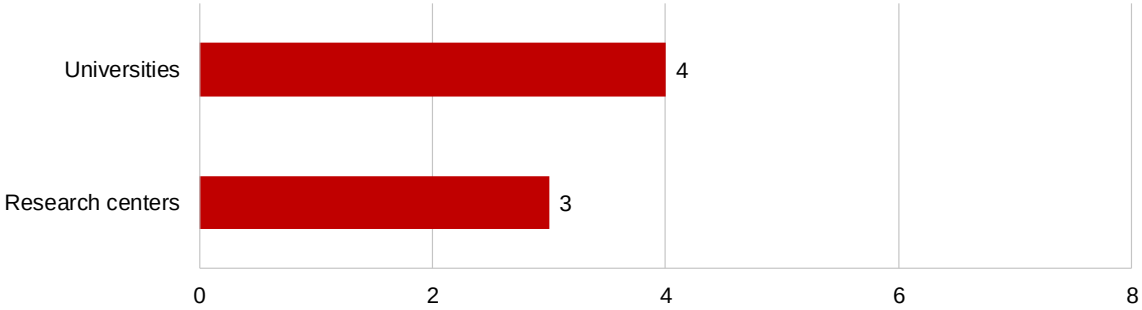


Source: Directorate-General for Economic Promotion, Competition and Regulation.

7.2.2. Beneficiary entities

Of the seven networks approved in the call, four are coordinated by public universities and three by research centres. The universities account for nearly 70% of the cost of the projects (4.68 MEUR), research centres, 30% (1.95 MEUR).

Graph 30. Number of projects by beneficiary entity (total)

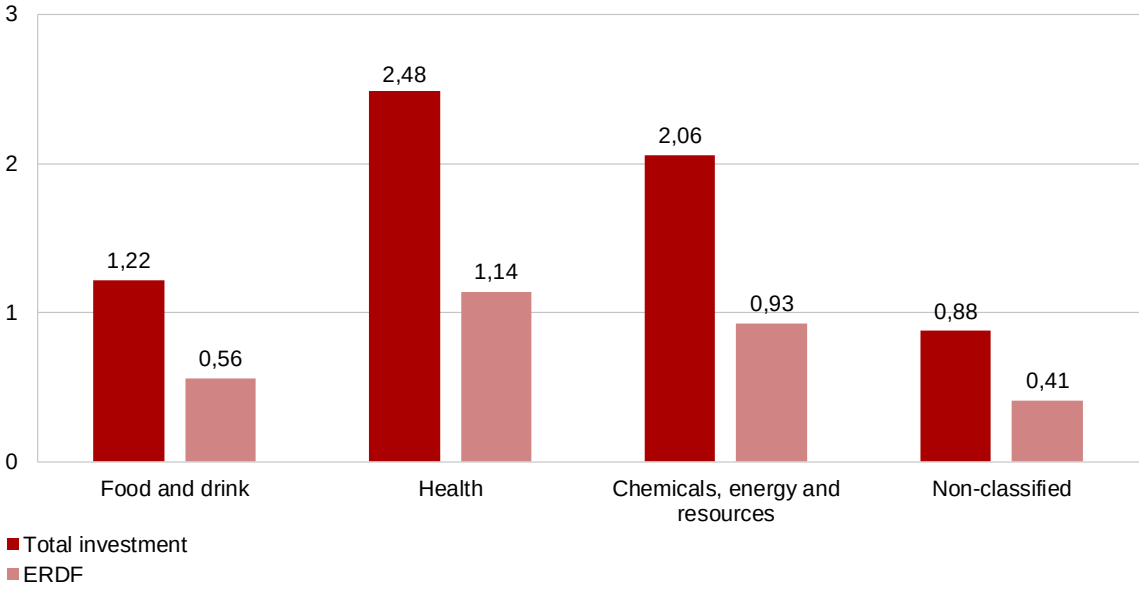


Source: Directorate-General for Economic Promotion, Competition and Regulation.

7.2.3. RIS3CAT priority sectors and technologies

Three networks have been established in the field of health (2.48 MEUR; 37% of the total). The field of chemicals, energy and resources has two networks, which account for 31% of project execution investment (2.06 MEUR). A single network has been established in the field of food and drink, representing 18% of project execution investment (1.22 MEUR). There is only one R&D&I network that is not assigned to any sector (accounting for 13% of project execution investment).

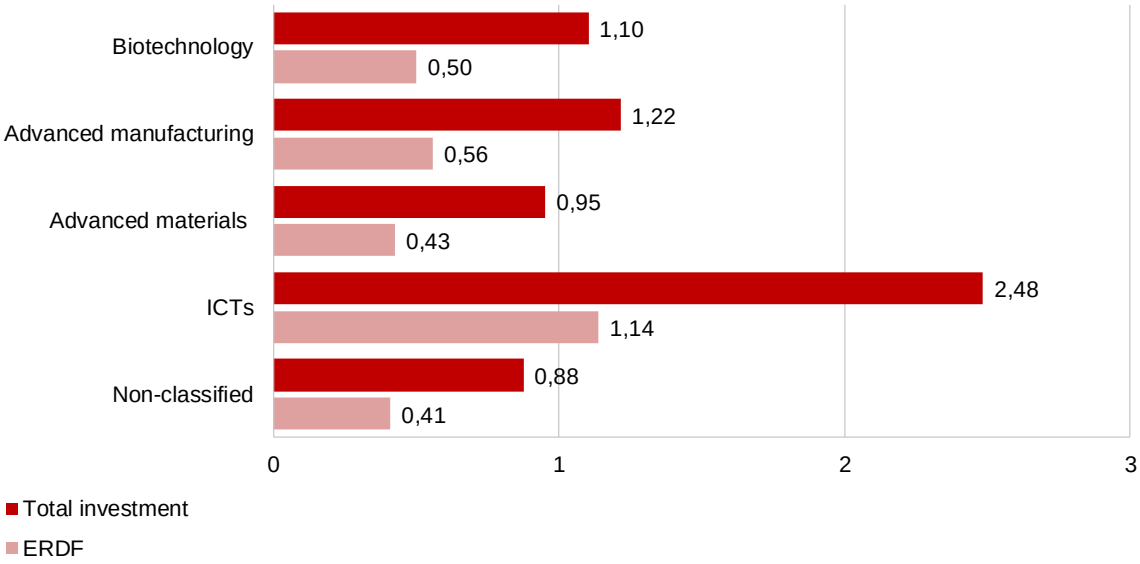
Graph 31. Investment by sector (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

As regards enabling technologies, three of these networks use ICT as an enabling technology, and account for 37% of total project execution investment (2.48 MEUR). Of the remaining networks, advanced manufacturing is present in one (18%, 1.22 MEUR), biotechnology in another (17%, 1.10 MEUR) and advanced materials in another (14%, 0.95 MEUR). The remaining network, which does not correspond to any specific enabling technology, accounts for 13% of total project execution investment.

Graph 32. Investment in enabling technologies (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

8. Knowledge Industry Programme

The **Knowledge Industry Programme** finances projects that support the valorisation and transfer of the results from research conducted at universities, research centres and technology centres.

The "**seed**" line of action of focuses on the first phase of valorisation (technological levels TRL 1-2). Within the framework of these projects, the first feasibility tests are implemented, knowledge generated is protected, and pre-prototype concept and design tests are planned.

The "**product**" line of action focuses on the concept and prototype test phase (technological level TRL 3-4-5-6-7). These projects are aimed at demonstrating the reliability and viability of the product or process through the design and construction of prototypes that enable the necessary trials and tests to be conducted.

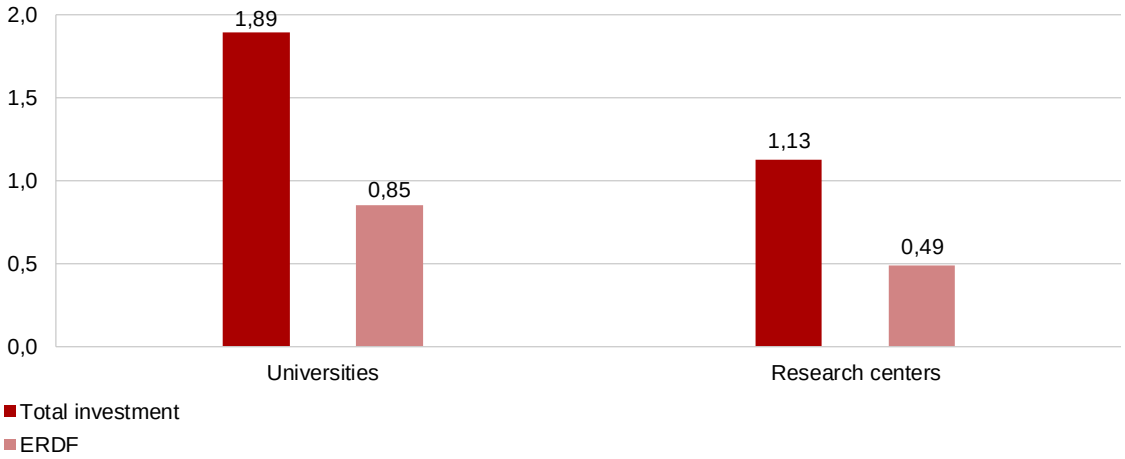
Information is broken down into two groups: "seed" projects and "product" projects.

The Annex at the end of this report contains the list of projects, classified by sector, and descriptions of the projects approved in both groups, as well as the names of the beneficiary entities.

8.1. "Seed" projects

8.1.1. Investment

Graph 33. Investment by type of beneficiary entity (million euros)



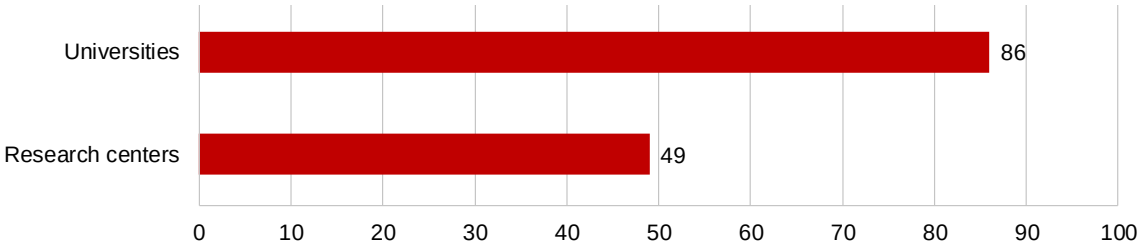
Source: Directorate-General for Economic Promotion, Competition and Regulation.

In the "seed" line of action 135 Projects were approved, with total investment of 3.02 MEUR. These projects receive 1.68 MEUR in funding from the ERDF. The universities account for 62% of total investment, research centres, 33%.

8.1.2. Beneficiary entities

Some 64% of the beneficiary entities are universities, the remaining 36% research centres.

Graph 34. Number of projects by beneficiary entity (total)

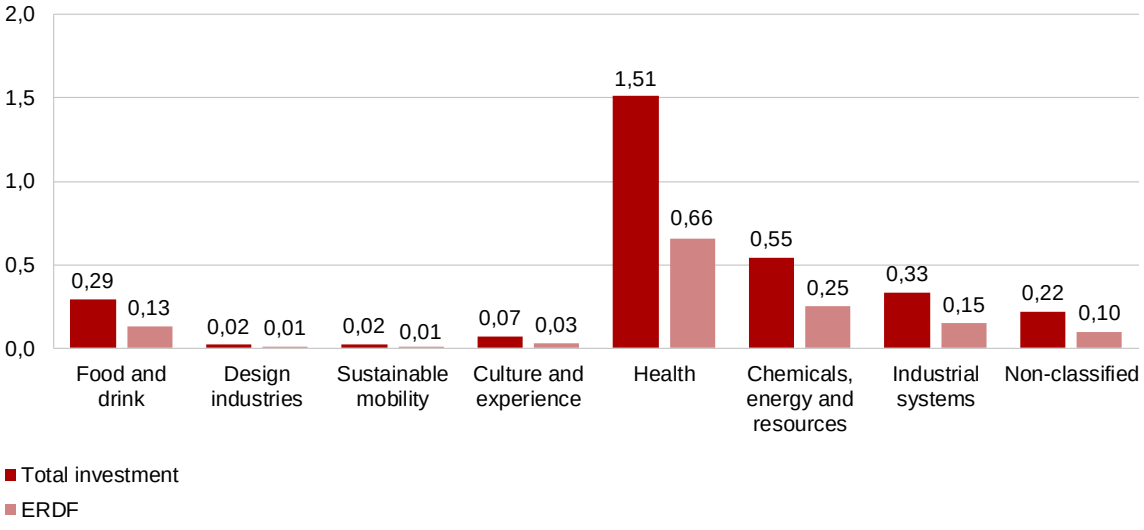


Source: Directorate-General for Economic Promotion, Competition and Regulation.

8.1.3. RIS3CAT priority sectors and technologies

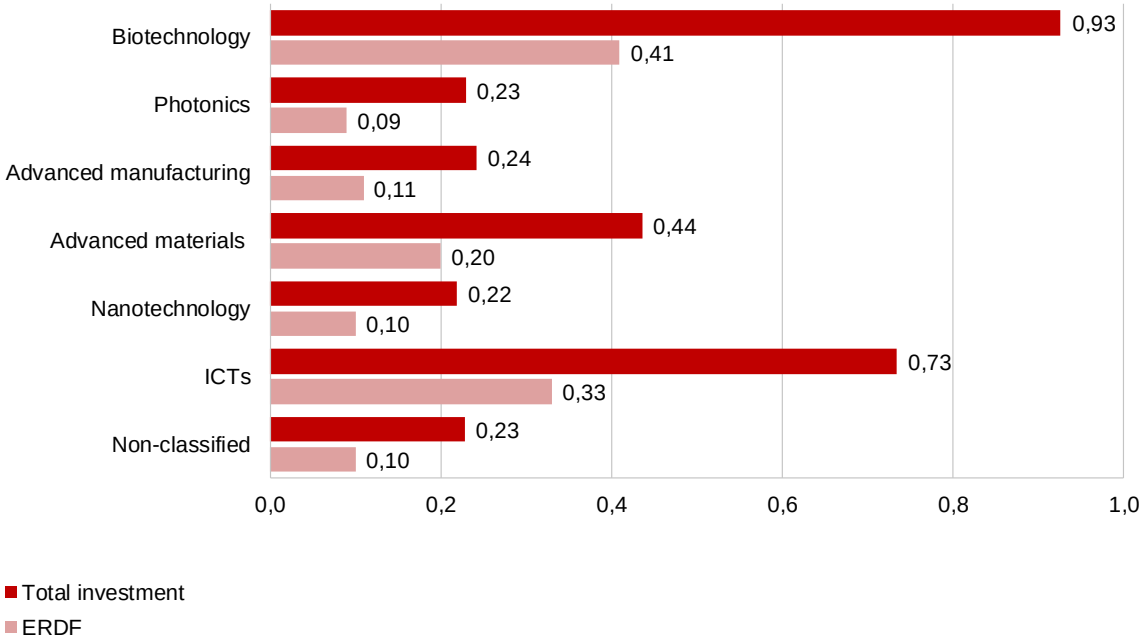
The health industries, accounting for 50.20% of total investment in projects, lead in the distribution by sector. Health is followed by chemicals, energy and resources (18.07%), industrial systems (11.10%), food and drink (9.63%) and the cultural and experience-based industries (2.36%). Finally, occupying the lowest places are sustainable mobility (0.75%) and the design industries (0.67%).

Graph 35. Investment by sector (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 36. Investment in enabling technologies (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

The leading enabling technologies are biotechnology (accounting for 30.72% of project investment), ICT (24.35%) and advanced materials (14.45%). Next come photonics (7.61%) and nanotechnology (7.27%). Finally, in last place is advanced manufacturing, which accounts for 8.03% of project investment.

8.2. "Product" projects

8.2.1. Investment

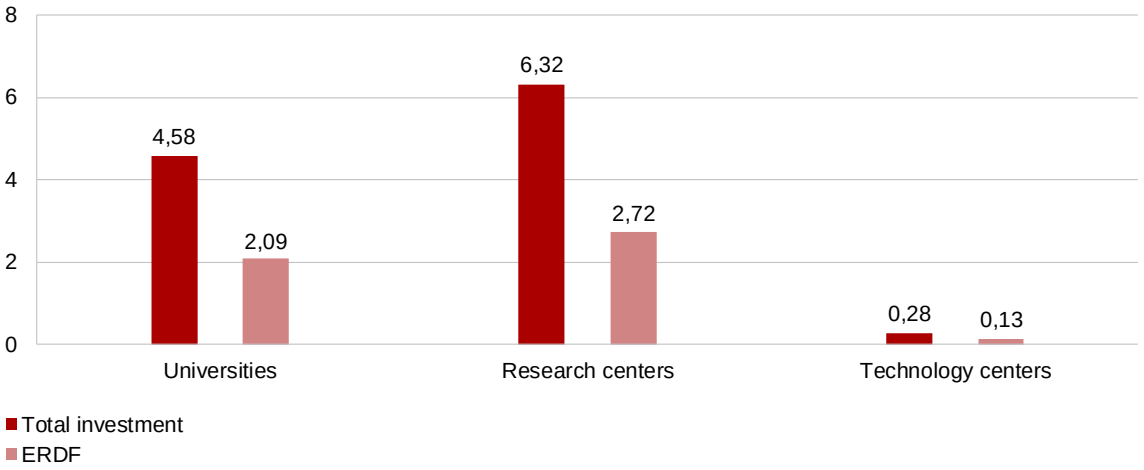
Projects in the "product" line of action account for total investment of more than 11 MEUR. The ERDF finances 44% of this investment (4.94 MEUR).

The investment is mainly concentrated in research centres (57%), while the universities account for 41% and technology centres the remaining 2%.

8.2.2. Beneficiary entities

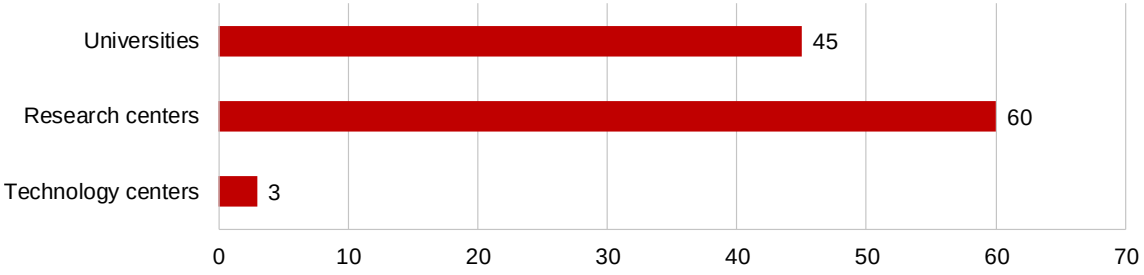
Some 51% of beneficiaries are research centres, 46%, universities. Technology centres account for the remaining 4%.

Graph 37. Investment by type of beneficiary entity (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 38. Number of projects by beneficiary entity (total)



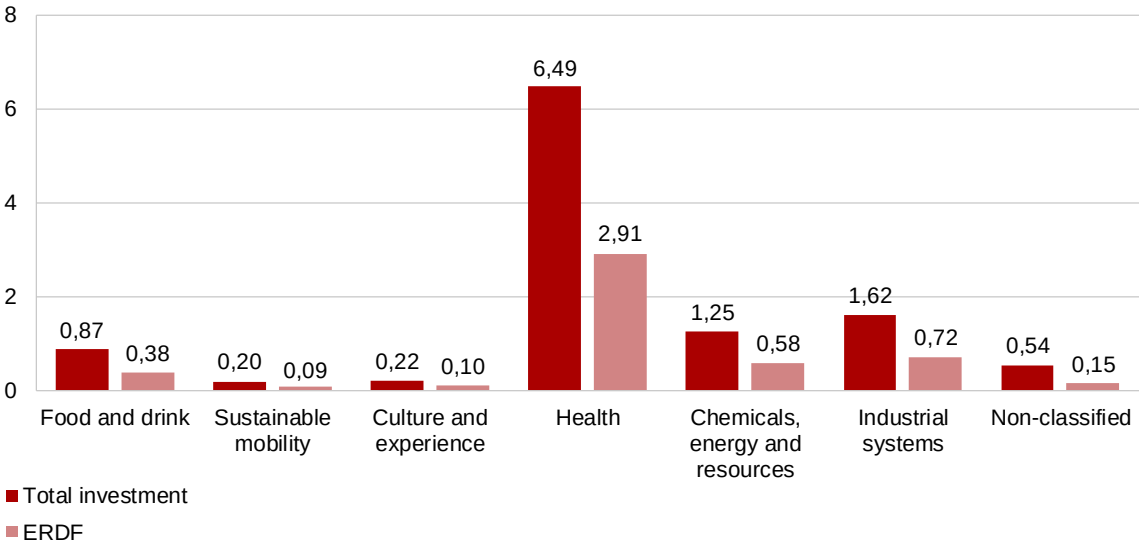
Source: Directorate-General for Economic Promotion, Competition and Regulation.

8.2.3. Prioritització d'àmbits sectorials i tecnologies de la RIS3CAT

The health industries account for 58.98% of total investment in the projects, industrial systems, 14.44%, chemicals, energy and resources, 11.17%, and food and drink, 7.82%. In last place are the cultural industries, with 1.92%, and sustainable mobility, with 1.72%. Some 4.81% of the total investment is not ascribed to any particular sector.

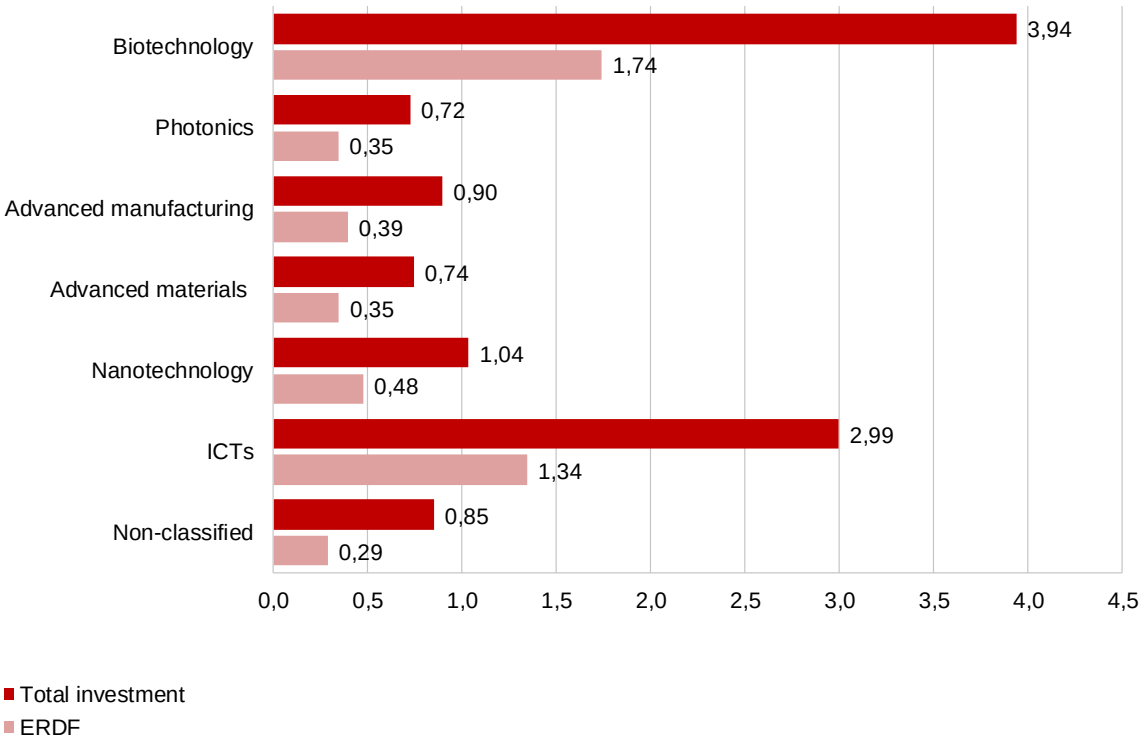
Biotechnology is the leading enabling technology, accounting for 35.21% of total investment in the projects. In second place are ICTs, with 26.78%. Third place is occupied by nanobiotechnology (9.26%). Advanced manufacturing accounts for 8%, and advanced materials, 6.65%. Some 7.60% of the total investment is not ascribed to any particular technology.

Graph 39. Investment by sector (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 40. Investment in enabling technologies (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

9. Public procurement of innovation

Through co-financing with the ERDF, the RIS3CAT programme of public procurement of innovation (hereafter, PPI) enables the Administration of the Government of Catalonia and its public sector to plan and implement purchases that promote innovation and transformation.

The main objectives of this instrument are:

- To develop new forms of collaboration between quadruple-helix players aimed at reinventing and redesigning public services and public policies.
- To improve public services by adopting more efficient, innovative solutions to respond to current societal challenges.
- To promote, through demand, the development of new business models that respond better to people's needs.

The call for proposals to promote **public procurement of innovation in the field of health**, launched by the Catalan Health Service and the Agency for Health Quality and Assessment of Catalonia (AQuAS), falls within the framework of the RIS3CAT Public Procurement of Innovation Programme and the Health Plan for Catalonia 2016-2020. The purpose of the call is to support projects (individual or collaborative) aimed at promoting the development of innovative solutions to respond to the needs and challenges of public health services.

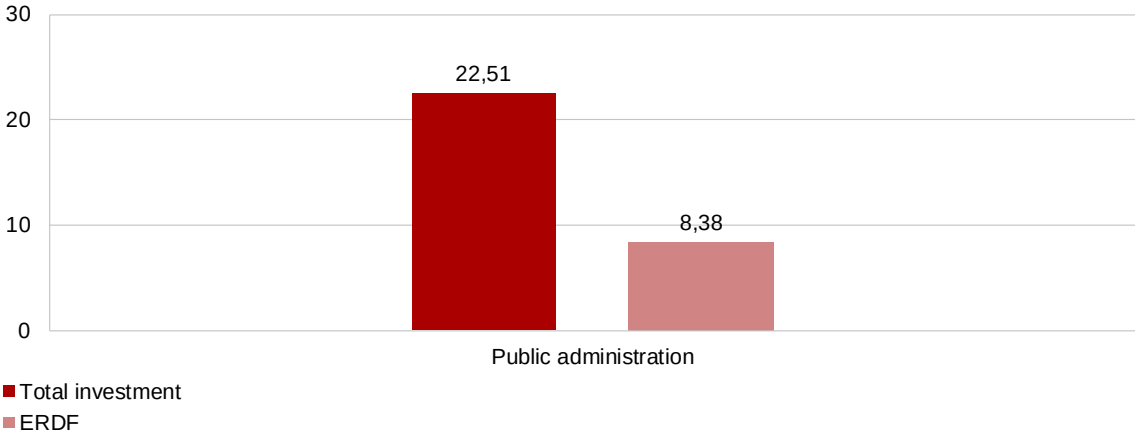
In the following sections, the data is broken down into individual and collaborative projects.

The project beneficiaries entities from SISCAT, the integral health system of public use of Catalonia, that manage care centres and services (except those for profit). In this report, these beneficiaries are considered to form part of the Public Administration.

9.1. Investment

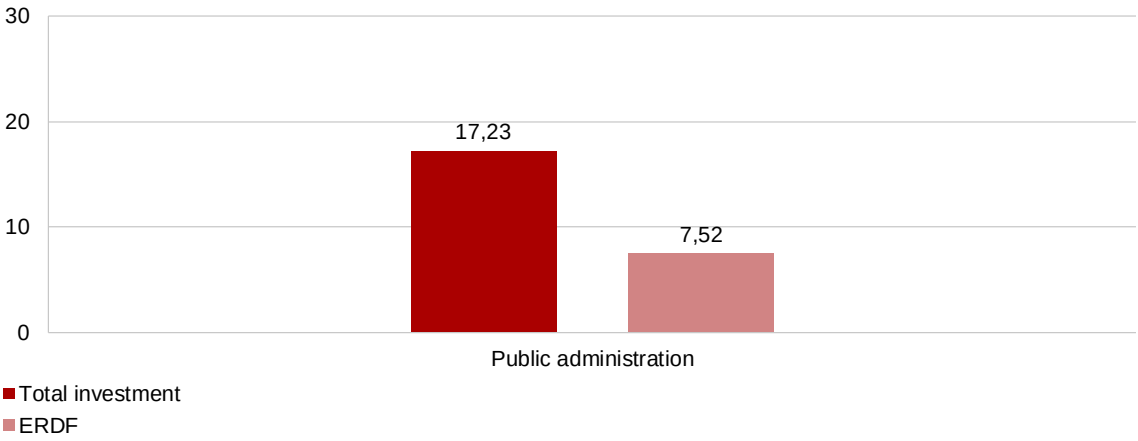
In the call for proposals for PPI in the field of health, 15 individual projects and 4 collaborative projects were approved. In the individual mode, total investment is 22.51 MEUR, 8.38 MEUR of which (37%) is financed by the ERDF. Total investment in collaborative projects is 17.23 MEUR, with ERDF co-financing of 7.52 MEUR (44%).

Graph 41. Investment by type of beneficiary entity (million euros). Individual projects



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 42. Investment by type of beneficiary entity (million euros). Colaborative projects



Source: Directorate-General for Economic Promotion, Competition and Regulation.

9.2. Beneficiary entities

The Public Administration accounts for 100% of total investment in the projects.

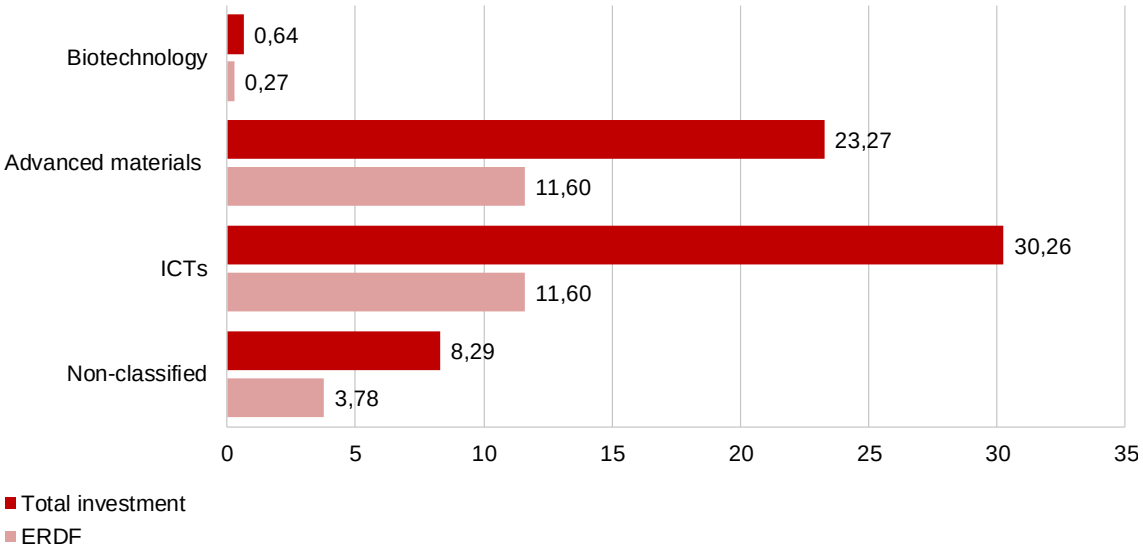
9.3. RIS3CAT priority sectors and technologies

Investment in projects, both individual and collaborative, is exclusively in the health sector.

As regards enabling technologies, ICT investment stands out in individual projects, accounting for 89% of the total. Some 2.84% of the investment is ascribed to biotechnology, 2.45%, to advanced materials. Some 5% of the investment not ascribed to any enabling technology.

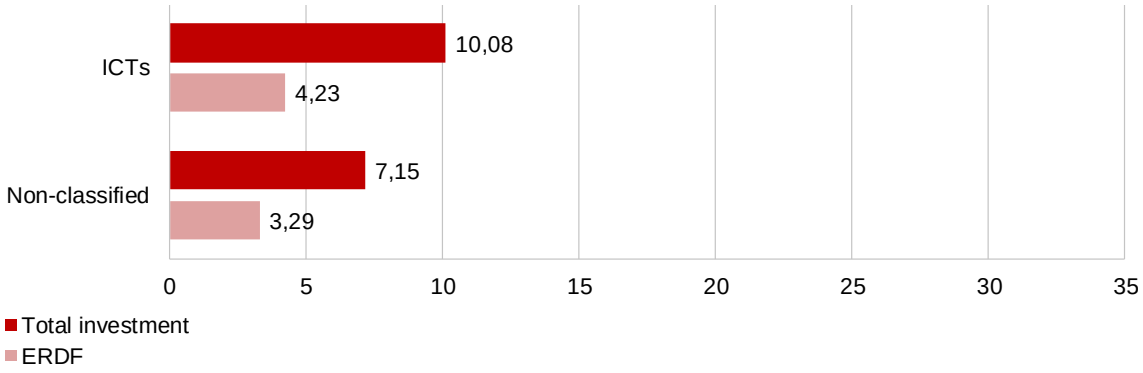
The main technology in the collaborative projects is ICT, which accounts for around 58.5% of total investment. Some 41.5% of the investment is not ascribed to any enabling technology.

Graph 42. Investment in enabling technologies (million euros). Individual projects



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 43. Investment in enabling technologies (million euros). Collaborative projects



Source: Directorate-General for Economic Promotion, Competition and Regulation.

10. R&D&I infrastructures

Calls for proposals for R&D&I infrastructure are aimed at financing investment in the development of research and innovation infrastructures to make them more competitive from the point of view of science, innovation and technology transfer. Priority is given to projects with the greatest potential to generate competitive advantages and impact on the socioeconomic development of the country. The objectives are as follows:

- To increase the participation of players in the R&D&I system in Catalonia in Horizon 2020 and ESFRI projects and in international European networks.
- To increase the impact of R&D&I infrastructures on the production system.

The actions planned under this instrument are:

- Measures to enhance the **singular scientific and technological infrastructures** shared between the General State Administration and the Government of Catalonia, of which there are three at present: the Alba Synchrotron-CELLS Consortium; the Barcelona Supercomputing Center-National Supercomputing Centre (BSC - CNS); and the National Genome Analysis Centre (CNAG).
- Grants for singular projects for the construction, acquisition, adaptation or substantial expansion of buildings for R&D&I infrastructure that increase the capacity of researchers to participate in Horizon 2020 projects, ESFRI projects and European and international networks.
- Grants for cooperative projects by R&D&I institutions to create, build, acquire and improve science and technology platforms and facilities, with the aim of sharing their use.

The Annex at the end of this report contains details on the projects and the beneficiary entities.

10.1. Actions to promote large scientific and technological infrastructure

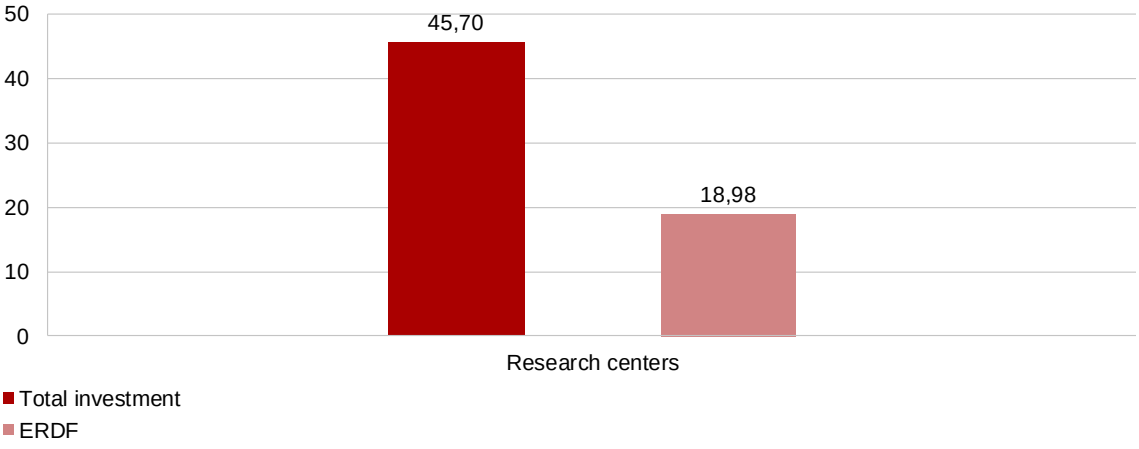
10.1.1. Investment

At the first call for proposals, the three major infrastructures presented nine expressions of interest: the CELLS Consortium presented six; the National Genome Analysis Centre, two; and Barcelona Supercomputing Center - National Centre for Supercomputing, 1. Total investment in these projects reaches over 45 MEUR, 41% of which (18.98 MEUR) is financed by the ERDF.

10.1.2. Beneficiary entities

All three major scientific and technological infrastructures beneficiaries of the support are research centres.

Graph 44. Investment by type of beneficiary entity (million euros)

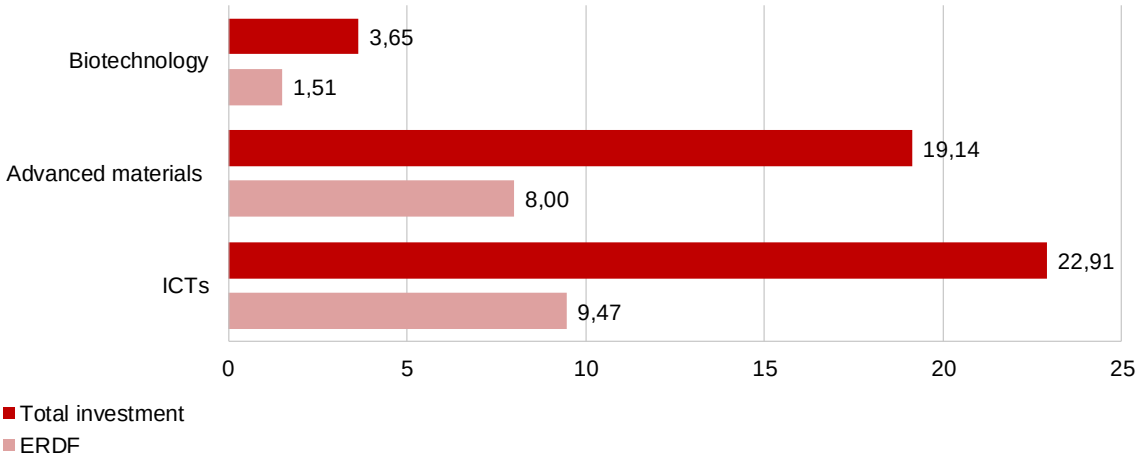


Source: Directorate-General for Economic Promotion, Competition and Regulation.

10.1.3. Prioritisation of RIS3CAT sectors and technologies

The projects approved are not ascribed to any sector, as they involve cross-cutting, multi-sector actions.

Graph 45. Investment in enabling technologies (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

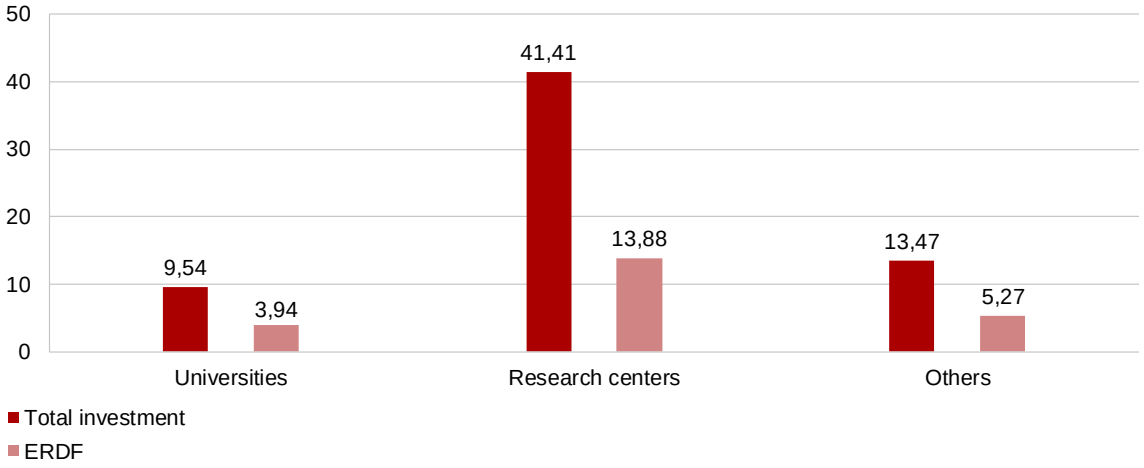
As regards enabling technologies, ICTs account for 40% of the total investment (22.91 MEUR), and advanced materials, 41% (19.14 MEUR). The remaining 8% corresponds to investment in biotechnology (3.65 MEUR).

10.2. Singulars infrastructures

10.2.1. Investment

Thirteen projects were approved at the first call for proposals, representing investment of over 64 MEUR, 36% of which financed by the ERDF (23.10 MEUR). Public and private R&D&I centres account for 85% of the total investment, the universities for the remaining 15%.

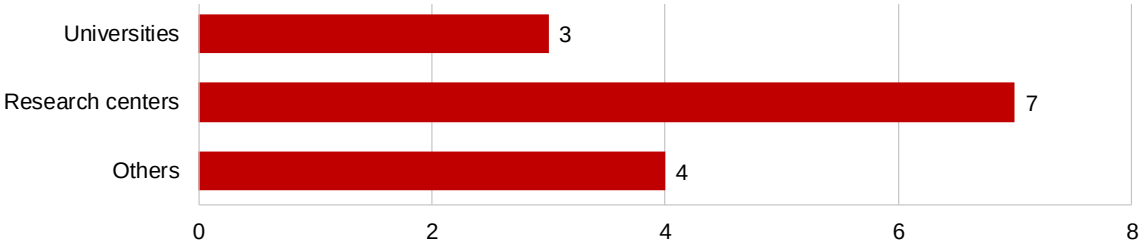
Graph 46. Investment by type of beneficiary entity (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

10.2.2. Beneficiary entities

Graph 47. Number of projects by beneficiary entity (total)



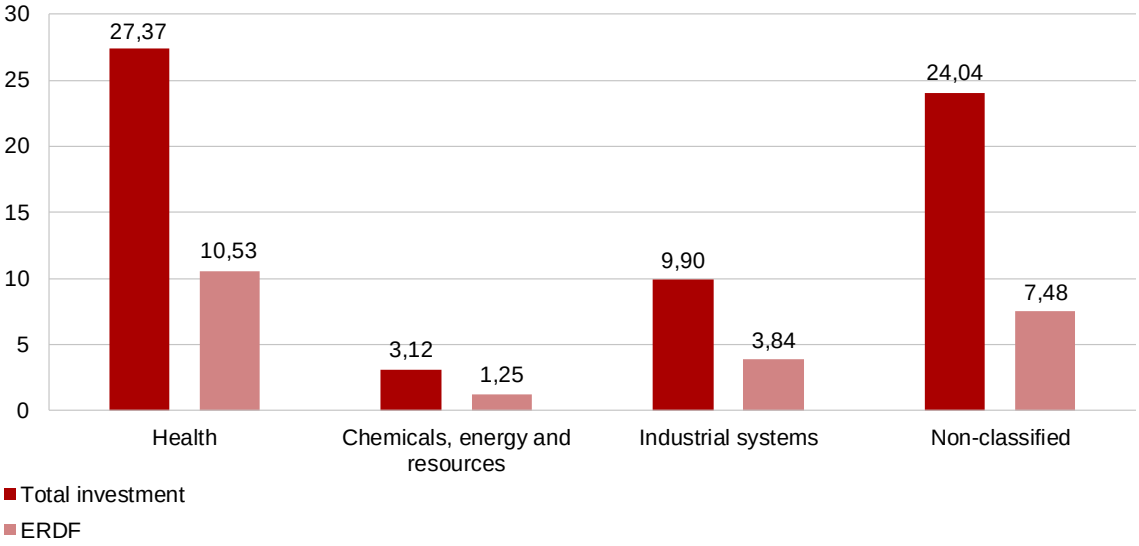
Source: Directorate-General for Economic Promotion, Competition and Regulation.

Of the 13 projects approved, public and private R&D&I centres account for 11, universities the remaining 3.

10.2.3. RIS3CAT priority sectors and technologies

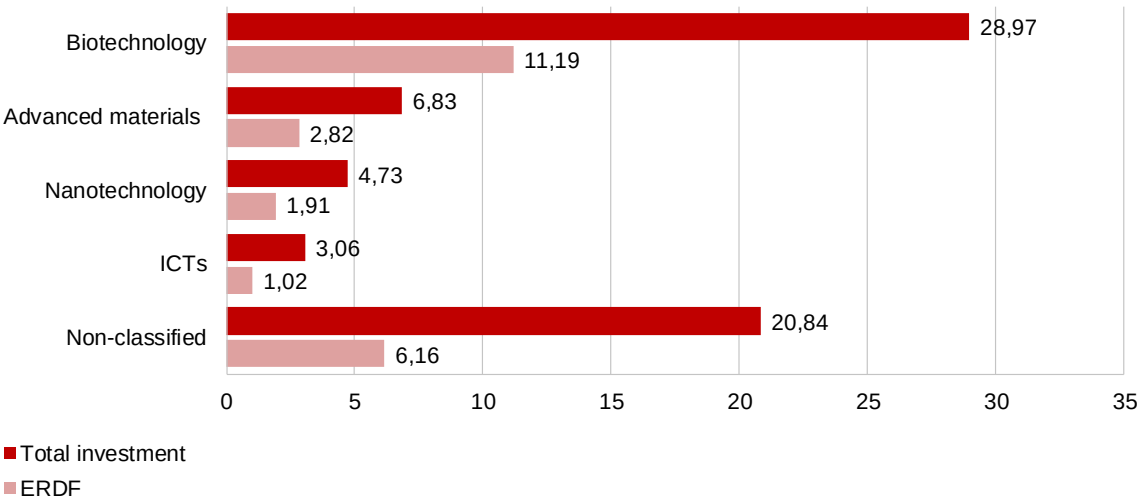
The health industry accounts for more than 42% of investment; industrial systems, 15.36%; and chemicals, energy and resources, 4.84%. The remaining 37.31% cannot be ascribed to any particular sector.

Graph 48. Investment by sector (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 49. Investment in enabling technologies (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

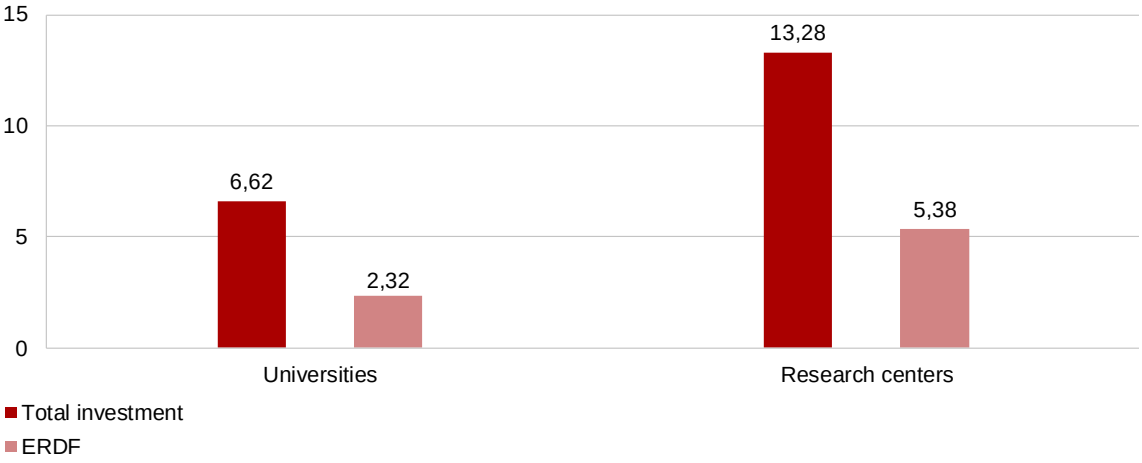
As regards enabling technologies, biotechnology accounts for about 45% of total investment, advanced materials, 10.61%, nanotechnology, 7.34%, and ICT, 4.76%. The remaining 32.34% cannot be ascribed to any particular technology.

10.3. Cooperative infrastructures

10.3.1. Investment

Eight projects were approved in the two calls for proposals for cooperative projects for shared science and technology equipment. Total investment is just under 20 MEUR, while ERDF funding amounts to 7.70 MEUR.

Graph 50. Investment by type of beneficiary entity (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

10.3.2. Beneficiary entities

Of the 8 projects approved, public and private R&D&I centres account for 6, universities the remaining 3.

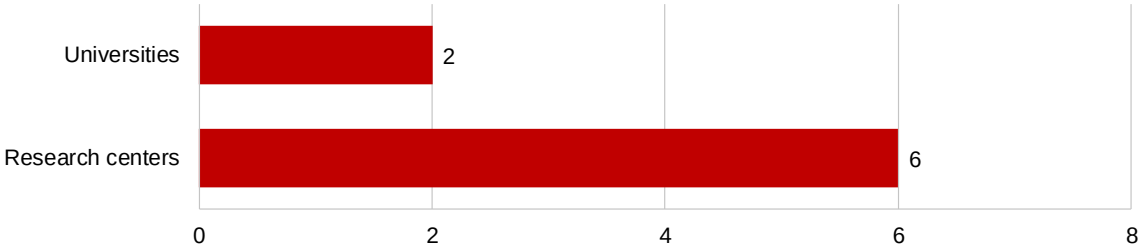
10.3.3. RIS3CAT priority sectors and technologies

The majority of the beneficiary entities are research centres, which account for 67% of the total investment. Universities account for the remaining 33%.

The projects approved are mostly in the field of the chemicals, energy and resources industry, which accounts for 59% of the investment. Health accounts for 20% of investment, while 21% is not ascribed to any particular sector, as these are cross-cutting projects.

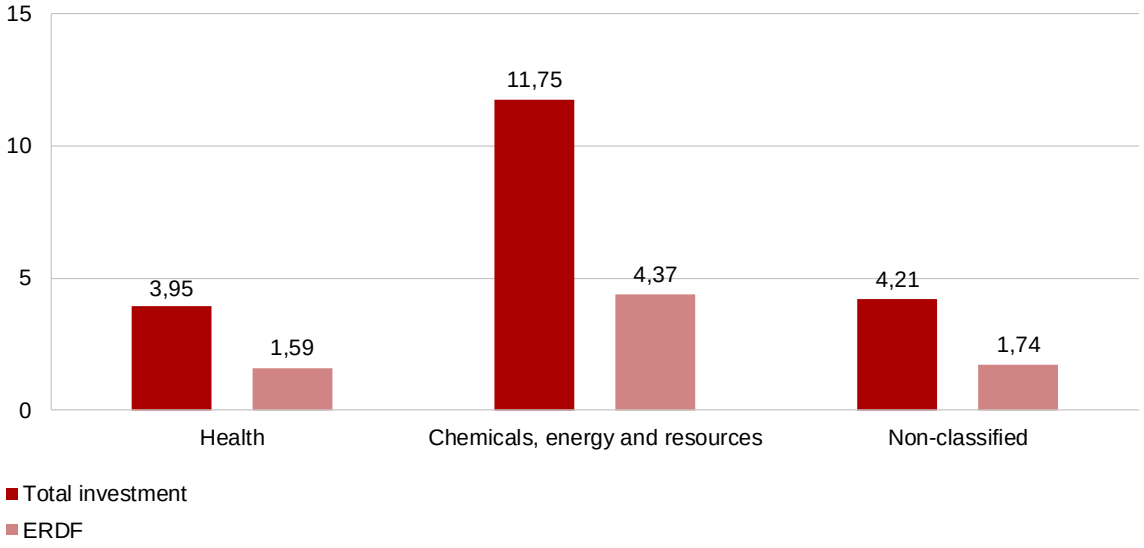
By enabling technology, nanotechnology accounts for 57% of investment, biotechnology, 27%, and ICT, 10%. Only 7% of the investment is not ascribed to any particular technology.

Graph 51. Number of projects by beneficiary entity (total)



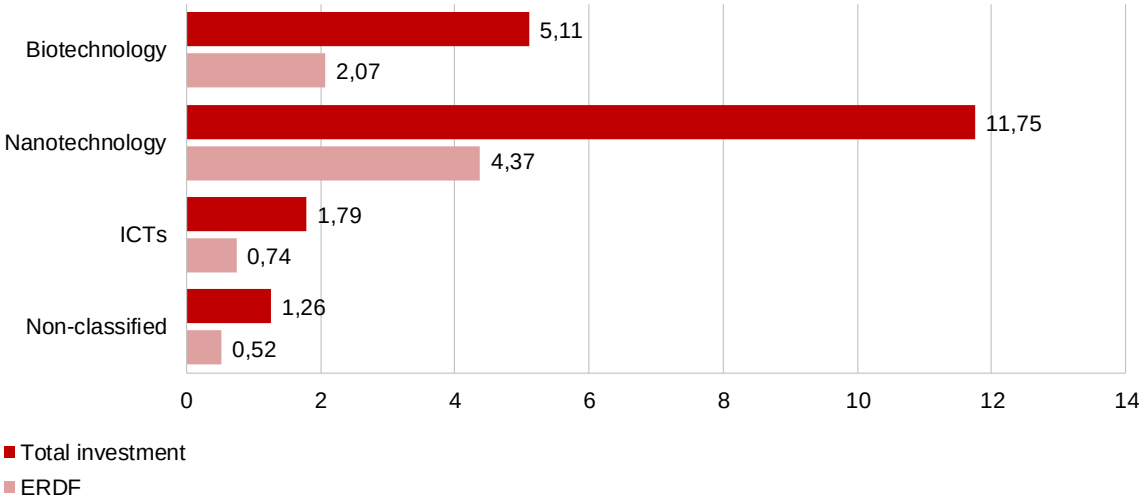
Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 52. Investment by sector (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Graph 53. Investment in enabling technologies (million euros)



Source: Directorate-General for Economic Promotion, Competition and Regulation.

Annex. Summary of the projects

A.1. RIS3CAT communities

A.1.1. Energy community

This community, coordinated by the Catalonia Institute for Energy Research, seeks to address the following challenges:

- Promoting R&D of excellence.

- Enabling the integration of ICTs into the energy industry.

- Promoting the growth of SMEs associated with the development of products and services linked to the energy sector.

- Strengthening the Catalan industrial system by creating easily-reproducible models that improve energy efficiency in various industries.

- Promoting the internationalisation of companies.

- Attracting and retaining talent, as well as enabling talented professionals to train to a high technical level and join the industry.

Projects	Description	Coordination
Refer	Energy Reduction and Flexibility Rehabilitating Buildings	COMSA Corporación
CoSin	Synthetic Fuels	Naturgy (Gas Natural Fenosa)
NAenCAT	Experimental development of new technologies for automation of the Catalan medium voltage electrical grid.	Electra Caldense Energia
MicroTIC	Basis to design an efficient and competitive ICT micro-solution for SMEs.	Armengol & Ros Consultors i Associats
Flexedinet	Active intelligent energy management in commercial buildings.	Inergy
LCAenerboost	Tool for eco-innovation energy technologies.	Inèdit Innovació
Estorelot	Tools for managing power plants with renewable sources.	iGrid T&D

Source: ACCIÓ.

A.1.2. Community for a healthy, safe, sustainable food chain

INNOÀPAT Community is coordinated by the Institute of Agrifood research and Technology. The goal of this community is to increase investment in R&D&I by Catalan food and drink industry companies in order to improve their competitiveness, taking into account the consumer demands related to the following three major challenges to the food chain:

- Food and its effect on health.
- Food safety.
- Sustainability of food industry processes.

Projects	Description	Coordination
Q-Pork	Alternatives to improve the pork meat quality and its derivatives.	Catalan Association for Innovation in the Pork Meat Sector
Ketrenovin	Biotechnology as a key KET in obtaining ingredients with high added value for the Catalan food sector.	Andrés Pintaluba
Microbiota	Identifying the novel modulators ingredients of human and animal microbiota using industrial biotechnology, OMIC technologies and Big Data technologies.	Laboratorios Ordesa
Perfils	Food with improved nutritional profile geared to the requirements of specific populations.	Grupo Carinsa
Smartprod	New products for the prevention, new vaccination strategies and sanitary tools to ensure the supply of quality animal protein, increasing profitability, competitiveness and food security.	Hipra Scientific
Umbilical	Creation of a new production line of calves with greater vitality, less mortality during the unweaned phase, from local dairy farms.	Corporació Alimentària Guissona
Autenfood	Authentication, traceability and food safety of food products for better detection of Catalan food fraud.	ERDFation of Farm Cooperatives of Catalonia

Source: ACCIÓ.

A.1.3. Eco-Mobility Community

Eco-Mobility Community is coordinated by Ficosa. The goal of this community is to integrate knowledge of sustainable mobility and promote cooperation among the main stakeholders in this sector, in order to optimise the specialisation of the industrial system in the field of reducing emissions in transport. To this end, we need to deploy advanced motor and transport technologies that reduce emissions by promoting two trends that are becoming more and more widespread: use of the electric vehicle electric; and use of alternative fuels to petrol and diesel oil. The Eco-Mobility Community aims to bring these technologies to the market by creating new products and services.

Projects	Description	Coordination
Greentronics	Manufacture electronic components for electric mobility.	Fico Triad
MiniBus	Sustainable advanced vehicle, optimal for the transport of people in urban environments.	Transports Metropolitans de Barcelona
Report	Conversion of diesel engines to Dual Fuel engines working with natural gas, and implementing a high-tech system of monitoring vehicles.	Barcelona Porth Authority

Source: ACCIÓ.

A.1.4. Community of multidisciplinary solutions for the next health challenges

The NextHealth RIS3CAT Community is coordinated by Biocat and it aims to implement an action plan of major projects in Catalonia that will help to articulate a competitive, sustainable Health system, promoting excellence in research, development and innovation through the multidisciplinary participation of different actors in the sector.

The ultimate goal is to provide a response to the challenges that the health sector faces today. The main objective of this community is to develop innovation projects with high economic and social impact (more economic activity and improved quality of life and health among citizens). This overall objective will be achieved by meeting other, more specific goals, the most important of which include:

- Resolving citizen's health challenges and improving the Catalan health system.
- Improving the cooperation and competitiveness of participating entities.
- Identifying and promoting new business opportunities and emerging activities.

Projects	Description	Coordination
ADVANCE.CAT	Accelerator of the development of therapeutic solutions for Advanced therapies in Catalonia.	University of Barcelona
AMMIC	ccelerator of the development of therapeutic solutions for rare diseases, from discovery stages to clinical stages.	University Institute of Science and Technology SA
HI3.0	Digital system expert assistance and comprehensive personalized paediatric patients.	Sant Joan de Déu Hospital
Nextcare	Personal care of the patient chronically ill within a digital health.	Eurecat, The Technology Centre of Catalonia
Innobrain	New technologies for innovation in rehabilitation and cognitive stimulation.	Guttmann Institute Foundation

Source: ACCIÓ.

A.1.5. Community for an applied technology to health

The TEC-SALUT Community is coordinated by Leitat and it seeks to create a space for collaboration and coworking to respond, through health technologies, to the demands and challenges of stakeholders in the health system. The goal is to improve the competitiveness of companies and centres in this system, taking an innovative, cross-cutting patient-centred approach.

Projects	Description	Coordination
BIOPSY 3D	3D biopsy by tomosynthesis	Idneo Technologies
Nanonafres	Preclinical and clinical studies of nanovesicles application (quatsomes) in chronic venous ulcers (EGF).	EAP Osona Sud Alt Congost, SLP
DIALCAT	Diabetes as accelerator of cognitive impairment and Alzheimer's disease	Parc Sanitari Pere Virgili
ACADOM	Ensuring continuity of home care.	Sant Joan de Déu Hospital

Source: ACCIÓ.

A.1.6. Smart, autonomous connected mobility community

The smart autonomous connected mobility community, coordinated by Idiada, addresses the following challenges:

- Development of new systems and technologies that can bring autonomous vehicles and the use of virtual design tools to the sector.

- Development of solutions (sensors, technology for connected, autonomous and cooperative driving and road maintenance) for smart, safer roads that are more efficient for the user.
- Development of a prototype for an autonomous vehicle and the software required to guarantee its utility and security
- Consolidation of the mobility ecosystem.

Projects	Description	Coordination
VAC	Development of ADAS and new-generation communications for the control of autonomous and cooperative cars	FICOSA ADAS
Smart road	Research and development of new technologies to implement the Smart Road concept	Abertis Autopistas España
VirtualMOB	New simulation tools and models to virtualise sustainable mobility processes	Idiada Automotive Technology

Source: ACCIÓ.

A.1.7. Community of industries of the future

The community of industries of the future, coordinated by the Eurecat technology centre, aims to consolidate a leading innovation hub in efficient and sustainable manufacturing in Catalonia. The community addresses this goal through a network of capacities and pilot plants aimed at consolidating the industrial R&D&I value chain and making it more adaptable by:

- Developing a modular, interoperable and scalable production environment through efficient, flexible information architectures within the industrial value chain.
- Introducing advanced manufacturing techniques such as collaborative robotic systems, in-mold electronics, customised metal powder equipment, and industrial ICT systems (I4.0)

Projects	Description	Coordination
IGNITE	Control and introduction of smart machinery	Eurecat Foundation
SIMBIOTS	Enable the introduction of robotics in new processes and applications in industry	Institute of Robotics and Industrial Computer Science (CSIC)
PLASTFUN	Pilot plant for plastic pieces with advanced functional surfaces	Eurecat Foundation

Projects	Description	Coordination
AVINT	Advanced strategies for surface roughness mechanisation and prediction	CTM Centre of Technology Foundation
FAMPAI	Advanced manufacture of materials in powder for industrial applications	CTM Centre of Technology Foundation
PIONER	Improved industrial production through energy optimisation of production processes	Institute of Energy Research of Catalonia Foundation

Source: ACCIÓ.

A.1.8. The Community of Agri-food Production Technologies

The objective of the Community of Agri-food Production Technologies, coordinated by the University of Lleida, is to contribute to innovation in the agri-food sector aimed at achieving sustainable agri-food intensification in response to the main challenges facing the sector. The Community groups its projects into three basic pillars:

- Progress in technology, automation and technological integration (CONNECT!)
- Integrating the circular economy into the sector agenda (APPROACH!)
- Integrating biotechnology as a resource for innovation (RESIST!)

Projects	Description	Coordination
IOE-CROPS	Internet of extensive crops	Eurecat Foundation
LISA	Reducing the application of agricultural input, guaranteeing economic and environmental sustainability	Catalan Cluster of Agricultural Production Means
SMARTFARM	Smart, profitable technification of Catalan farms	Autonomous University of Barcelona
LIPOXIFEED	Research and valorisation of fat and antioxidant by-products for animal production.	Industrial Técnica Pecuaria
REGEVA	New strategies for controlling the porcine respiratory and reproductive syndrome virus	Pinsos del Segre
FRUIT3CAT	New varieties of fruit, resistant to disease and with high quality flavour and aroma	Fruits de Ponent

Source: ACCIÓ.

A.1.9. Digital Transformation and Living Services Community

The Digital Transformation and Living Services Community, which is coordinated by the Altran company, pursues the following objectives:

- To transform the utilities sector (companies supplying services to the public), identifying the digitisation tools and solutions that can help to bring the Utilities 4.0 concept to fruition.
- To position Catalonia as a reference in the field of utilities.
- To create an industrial system through the development and application of these new solutions

Projects	Description	Coordination
ACTIV 4.0	Advanced operation and management of assets	Ferrovial Servicios
SENIX	Sensorisation and inspection of networks	Gas Natural SDG
MODEM	Predictive models and demand management	Gas Natural SDG
PERSOSER	Customisation of service to improve customer experience	Cetaqua Centro Tecnológico del Agua
SECUTIL	Security and cybersecurity solutions in utilities to protect critical infrastructure	Eurecat Foundation

Source: ACCIÓ.

A.1.10. Additive Manufacturing and 3D Printing Community

The Additive Manufacturing and 3D Printing Community (3D Seed) is coordinated by the Eurecat technology centre. The aim of the community is to accelerate the development and adoption of AM/3DP technologies by industrial production sectors as an alternative way of sustainably designing, developing and producing more competitive new products.

Projects	Description	Coordination
3D TOOLING	R&D&I ecosystem to implement and adopt additive manufacturing and 3D printing in the production tools industry	Leitat
PRO2	R&D&I ecosystem to implement and adopt additive manufacturing and 3D printing in the manufacture of industrial products and industrial production processes	Leitat

Projects	Description	Coordination
TRANSPORT	R&D&I ecosystem to implement and adopt additive manufacturing and 3D printing in the transport industry	International Center for Numerical Methods in Engineering
QuirofAM	Research into AM/I3D technologies in the health industry to improve surgical practice.	CIM Foundation

Source: ACCIÓ.

A.1.11. Water community

The Water Community, coordinated by the Eurecat-CTM technology centre, pursues the following objectives:

- To reduce costs associated with water management
- To guarantee public health and the protection of ecosystems
- To conserve this natural resource, guaranteeing its quantity and quality
- To transform management models (circular economy)

Projects	Description	Coordination
DigesTake	Recovery and valorisation of resources from digested municipal waste within the framework of the circular economy	University of Girona
Regireu	Research into water regeneration technologies and risk management for reuse	Eurecat-CTM
Imaqua	Integrated management of the quality and quantity of water in supply and distribution processes	Eurecat Foundation
Watertur	Research into technologies for smart, sustainable management of the water cycle in hotels	Catalan Water Partnership
Eflucomp	Research into cost-efficient technologies based on separation, biological and high-consumption processes	Eurecat-CTM
Elde	Electro-treatment of industrial wastewater: technical, environmental and economic feasibility	Polytechnic University of Catalonia

Source: ACCIÓ.

A.1.12. Community of cultural and creative industries

Mèdia, the community of cultural and creative industries coordinated by Eurecat, promotes growth and change of business models in the cultural and creative industries and those related to the tourism, sports activities and educational services. The community bases its activities on transforming knowledge and technology into economic and social value.

Projects	Description	Coordination
PICAE	Smart publication of audiovisual and editorial content	Eurecat
ViVIM	Computer vision through multi-platform immersive video	i2CAT Foundation
Mironins	Redesigning the cultural experience of visiting a museum through transmedia narrative, gamification and the new technologies	Eurecat
nanoMoocs	New audiovisual format with advanced technological functions for learning	Pompeu Fabra University
IDENTIT@RT	Identity management, uniqueness guarantees and exploitation rights in digital creative works	Connociam
Engagement	New technological formats to improve the user experience and change organisation processes at museums and cultural centres	Pompeu Fabra University
Model Edvidence	Management system to meet new demands for change in education and knowledge	Pompeu Fabra University
ZINKCAT	Model for marketing innovation in design processes	Creactivitat

Source: ACCIÓ.

A.1.13. Community for smart specialisation in the fashion and habitat industries

ONEIDA, the community for smart specialisation in the fashion and habitat industries coordinated by the Catalan Fashion Cluster, promotes an R&D&I strategy aimed at developing a consumer-centred design industry in Catalonia that is internationally competitive.

Projects	Description	Coordination
COSMETOTEX	Study and development of new parapharmaceutical cosmetic textiles	Punto Blanco

Projects	Description	Coordination
TINTENIBLE	Study and development of new, more sustainable textile dyeing and finishing processes	Escorpión
INNPELL	Innovative strategy for the global integration of the leather industry within the framework of the circular economy	A3 Leather Innovation Center (Lleida University)
RFID	Control of product life cycle by RFID	Gestión de Códigos Deportivos
DIGITPRINT	Digitisation of the intaglio printing process	Lamigraf
SMARTSPACE	Development of an Internet of Things solution for the habitat industries of Catalonia	CENFIM, centre tecnològic de l'hàbitat

Source: ACCIÓ.

A.2. Specialisation and territorial competitiveness

A.2.1. L'Hospitalet innovative health and culture ecosystem

Projects	Description	Coordination
Coordination	PECT Coordination	L'Hospitalet City Council
Strengthening the Biotechnology Cluster	The project focuses on strengthening the biotech cluster in Barcelona's south pole, preparing it to face the challenges of personalized medicine. The project includes 4 actions: 1) promotion of translational research at the Bellvitge campus (preclinical research); 2) creation and launch of a clinical research support unit; 3) the Bellvitge virtual hospital; 4) co-design and promotion of the health-industry environment at the Bellvitge campus.	Bellvitge Institute of Biomedical Research
Promoting the health ecosystem.	The project contributes to consolidate an ecosystem of innovation and professional projection based on the "Health" brand. The purpose is to disseminate the research activity and interaction between the different stakeholders in the ecosystem and the quadruple helix. The project includes actions such as workshops to generate ideas and technical assistance to generate new products, promotion of the biomedical cluster, open days about responsible research and innovation, and predoctoral conferences.	L'Hospitalet City Council
3D Smile.	The project introduces a new model of personalized care based on 3D intervention in the dental industry, trough 3 actions: 1) study of the needs and possible demands of the service through participatory processes with users; 2) installation and monitoring of various smart technology tools, focused on intervention and planning of particular surgery for each process; and 3) specialist training in the use of 3D technology aimed at staff at the University of Barcelona Dental Hospital.	Josep Finestres Foundation

Source: Directorate-General of Local Administration.

A.2.2. Vallès industrial: Innovation and design in European industry

Projects	Description	Coordination
Coordination	PECT Coordination	Ajuntament de Sabadell
Observatory on smart competitiveness.	Development and implementation of a technology surveillance platform and service. Companies will be provided with a customisable tool enabling them to receive regular automatic information on social and global trends in the field of industrial design and advanced manufacturing. The actions include the development of a technological surveillance platform, the creation of a database of companies and technological capacities (knowledge map), the preparation of reports on technological surveillance, the provision of advice and training to companies and awareness-raising.	Autonomous University of Barcelona
Tecnodisseny	The aim of this project is to identify challenges, business ideas, and industrial solutions that integrate technologies and design, mobilising knowledge and talent around new trends and opportunities that emerge in the industrial sector. The actions include workshops (identification of challenges, generation of ideas, partner search and generation of projects), the creation of an interactive web platform for the projects developed, and the rehabilitation and adaptation of spaces for design, testing and innovation.	Textile Design Foundation
Design and innovation in active aging	Creation and promotion of a Senior Citizens' Lab, a meeting space for companies, design professionals and users of products or services for open innovation in the design and manufacture of equipment and the development of services for healthy, active aging. The actions include the identification of needs, motivations and interests of the players, the promotion of synergies, the evaluation of work proposals and pilot testing of the ideas generated.	Parc Taulí Health Consortium
Promoting the circular economy	The project aims at enhancing the competitiveness of businesses through circular economy actions focused on improving efficiency in the use of resources, cost reduction, and synergies among companies based on exchanges of materials, energy and water. The actions include the identification of key players, the design of strategies and instruments, and the establishment of stable communication and work mechanisms between manufacturers, waste recovery agents and innovation stakeholders.	Sant Quirze del Vallès City Council

Source: Directorate-General of Local Administration.

A.2.3. Health Care Innovation LAB Orbital 40

Projects	Description	Coordination
Coordination	PECT coordination	Terrassa City Council
T'ACTIVA, Terrassa active and healthy	Programme to articulate the participation of citizens and the other quadruple helix stakeholders in open innovation processes to design, develop and test new solutions to respond to the challenges of healthy urban life. It includes activities to identify challenges and needs, the development of gamified mobile tools, ideas competition and the testing ideas.	Terrassa Health Consortium
E-Motional Reg	Programme to prevent personality disorders and other emotional disorders and a training scheme aimed at the professionals involved. The prevention programme, known as DBT STEPS-A, is based on a social-emotional learning curriculum developed to teach decision-making skills and skills for facing situations among secondary school teenagers, especially at emotionally stressful moments. Besides training activities, the project also includes the creation of teaching material and a virtual classroom, as well as visits to schools and a final evaluation of the results to consider its reproducibility at supralocal level.	Institut Trastorn Límit Foundation
CAREF, Centre for High Performance Photonic Entrepreneurship	Creation of an incubator specialising in companies in the field of photonic science. The aim is to develop an innovative methodology to identify projects based on photonic technology and to guide them as they mature, until they are launched onto the market.	Polytechnic University of Catalonia
Health Living Lab	Creation of a living lab specialised in health, this is an open space to observe the healthcare needs of users and citizens. The project includes actions to adapt physical spaces and to install equipment and machinery for prototyping, developing pilot projects, validating innovations and developing final applications. It also includes initiatives to define the portfolio of services.	LEITAT Foundation

Source: Directorate-General of Local Administration.

A.2.4. Besòs coast, sustainable territory

Projects	Description	Coordination
Coordination	PECT coordination	Sant Adrià de Besòs City Council
Research for sustainability	The project focuses on the challenge of sustainability related to the use of water in the territory. The actions included are 1) the establishment of a network focusing on environmental quality on the Besòs coastline; 2) the design of a prototype for a measurement system to monitor the quality of water in the River Besòs; and 3) the development of solutions for the sustainable management of water resources (pilot intervention to improve the water ecosystem, including the sewer system, surface and groundwater and beaches).	Polytechnic University of Catalonia
Sustainable management and improvement of the entire water cycle	Pilot project to improve the sustainability of the water ecosystem in the territory of Sant Adrià del Besòs and Badalona. The project, which complements the project of Research for Sustainability from the Polytechnic University of Catalonia, consists of two actions: 1) monitoring the coastal model: measurement of water quality in the River Besòs using a prototype buoy system installed at the river mouth with real-time monitoring; and 2) groundwater management: technical and technological implementation of actions to improve the water ecosystem in the territory using groundwater in Sant Adrià del Besòs, an experimental space with impact on the entire adjacent coastline.	Besòs Consortium
Ecomeasures	The project develops an infrastructure and a monitoring and control system with the aim of reducing the consumption of drinking water used in irrigation and auxiliary works on the public way, such as cleaning streets and containers and sweepers using groundwater from the city.	Badalona City Council
Energy talent	The project develops a smart micro-network model that enables improvement in energy efficiency in electricity generation and distribution processes, and which operates as an alternative system to the traditional model.	Polytechnic University of Catalonia

Source: Directorate-General of Local Administration.

A.2.5. The Forest, prime resource of the green economy

Projects	Description	Coordination
Coordination	PECT coordination	Lleida Provincial council
IMBIOFUST	Establishment of a pilot plant for a lignocellulose biorefinery to separate the different chemicals present in forest biomass, currently a low value product with a local market. The aim is to transform components of forest biomass in inputs for biorefineries and to manufacture high value-added products for the advanced chemical industry, with a global market.	University of Lleida
INNOVATRUF	Project to improve the production process of truffle in forests and to introduce and manage truffle plantations, helping to enhance the competitiveness of Lleida's truffle industry.	University of Lleida
Improvements in the planning and mobilisation of mountain forest resources	Project to improve planification and managing of forest resources in steep areas, trough innovation in planning and managing tools. The aim is to overcome the current mechanical and economic limitations to the mobilisation of forest resources.	Forest Science and Technology Centre of Catalonia
Valorisation of wood	The project is aimed at valorising wood from the Lleida Pyrenees through the manufacture of products of high enough quality to be used in sustainable construction solutions. A particular interest is to develop and consolidate the technology for manufacturing counter-laminate wood, due to the high added value it offers the industry, and because it can help to boost the sustainable management of private and public forests in Catalonia.	Forest Science and Technology Centre of Catalonia

Source: Directorate-General of Local Administration.

A.2.6. Energy and forest

Projects	Description	Coordination
Coordination	PECT coordination	Berguedà Provincial Council
Integrated model for sustainable forest management: bioeconomics in forest counties	Implementation of two biomass consumption projects that use forest products to obtain heat energy: 1) installation of forest biomass boilers in municipal facilities, fuelled by products from their forests; and 2) establishment of a centre for the consumption of forest biomass to provide heating power for industrial processes at the Valldan de Berga industrial zone.	Berguedà County Association of Towns for Biomass

Projects	Description	Coordination
Laboratory for new uses of wood	Project to analyse and evaluate the feasibility of manufacturing high quality wood on industrial scale in Catalonia. The project comprises four actions: 1) adaptation of forestry production to the needs of industry and to sustainable management; 2) conducting pre-industrialisation tests on the production of counter-laminate wood; 3) manufacture of pre-commercial scale prototypes; and 4) promotion of industrialisation in Berguedà county.	Forest Science and Technology Centre of Catalonia
Entrepreneurial and talent ecosystem	Project to promote the entrepreneurial ecosystem related to forestry uses and the green economy. It comprises the following actions: creation of an ICT forum (virtual space and app for interaction with and guidance for entrepreneurs); establishment of a research group into the rural world with companies, and research and innovation agents; implementation of a territorial quality brand; and creation of a lab for natural resources to encourage secondary school students, teachers and citizens to discover science.	Berguedà Development Agency

Source: Directorate-General of Local Administration.

A.2.7. Lleida porcine: smart, sustainable production

Projects	Description	Coordination
Coordination	PECT coordination	Lleida Provincial Council
Porcine efficiency	Project to improve the competitiveness of the pig industry in Terres de Lleida by identifying and implementing the best techniques available for the pig production of the future, developing new technologies to optimise pig feeding and the use of water at pig farms, reducing the environmental impact of manure and improving processes to treat slurry.	University of Lleida
Porcine health	Project to improve health at farms in the territory through two actions: 1) creation of a computer tool to record and analyse historical data on pig diseases; and 2) development of prediction systems on the appearance of diseases in a region, based on historical data.	Lleida Porcine Sanitation Group

Projects	Description	Coordination
Porcine technology	Project to adapt pig farms using advanced technologies to convert them into pilot farms and techno-schools equipped with demonstration systems for the efficient treatment of manure and slurry, providing services to companies in the sector and enabling technology transfer. The project includes actions to evaluate and demonstrate new technologies applied to meat production, the training of specialised personnel and actions aimed at citizens to raise awareness about the porcine value chain aimed at citizens.	Torrelameu Consortium Centre for Porcine Studies
Porcine slurry	Project to improve the treatment and the management of slurry, including the design of facilities and nutrients, and the development of a fertiliser from slurry liquid.	Alcarràs Local Authority

Source: Directorate-General of Local Administration.

A.2.8. Terres de l'Ebre biosphere reserve

Projects	Description	Coordination
Coordination	PECT coordination	Baix Ebre County Council
Socio-environmental Observatory for data transfer, entrepreneurship and self-assessment	Creation of a Biosphere Reserve Socio-Environmental Observatory as a tool for compiling, systemising, analysing and prospecting socio-environmental indicators on Terres de l'Ebre, as well as promoting sustainability. An open data platform will give access to the information to socio-economic stakeholders and individuals.	Rovira i Virgili University
Rural symbiosis: soil and agrarian services bank	This project focuses on the deployment and application of innovative tools and platforms aimed at fostering rural development, job creation and encouraging people to stay in rural townships around the Biosphere Reserve. Individual and collective cooperation spaces will be created for the sustainable use of scarce resources. Synergies will also be generated between farms and agro industries, to improve the sector's capacity for anticipation, adaptation and resilience to withstand the tensions caused by global markets. A soil and agrarian services bank will be established to provide access to useful information to guarantee the continuity of farms and promote precision agriculture in the territory.	Terres de l'Ebre Consortium for Environmental Policy

Projects	Description	Coordination
Phytoderivatives: innovation and the agroforestry value chain	This project is aimed at defining a new value chain in the agroforestry industry to create new business opportunities based on a new management model for local resources and the introduction of new bioenergy production technologies. The goals are to activate and consolidate bioenergy as an emerging sector, promote employment and identify new technological solutions based on biorefining to obtain new phytoderivatives that can generate added value and help increase the demand for local bioenergy. The strategy to manage the territory and its forest resources enhances the role of cooperatives and creates an agroforestry cluster.	Terres de l'Ebre Consortium for Environmental Policy
Rural smart energy	Project for the progressive implementation of the SmartGrid model in Terres de l'Ebre, promoting self-consumption and zero balance at all levels of energy use. Project includes the integration of ICT and innovation in the management of networks, and networks for the joint management of production centres based on the different possibilities offered by renewable energy sources (biomass plants using agroforestry waste to produce energy, cogeneration and thermal energy plants, etc.). Under this model, any consumer becomes a potential energy producer.	Terres de l'Ebre Consortium for Environmental Policy
Platform to promote the innovative agri-food system (IAS)	Project to boost the agri-food system through demonstration pilots and the generation of knowledge and models of economic development that are transferable to other agricultural territories in the Mediterranean region. The project activities focus on the implementation of the Innovative Agri-food System (IAS) model; the consolidation of a participative territorial governance; the application of ICT to the agri-food value chain; a more efficient use of natural resources in agriculture (rice, citrus fruit, grapes, olives and fruit and vegetables); the promotion of bioeconomy and circular economy; training for employment, and generation of new business models.	Agroterritorial Foundation

Projects	Description	Coordination
Creation of two platforms to generate competitiveness in the housing industry.	Creation of two acceleration platforms to boost competitiveness in the housing sector (residential and collective): the Circular Economy Acceleration Platform (PaEC) and the Product Innovation Acceleration Platform (PaIP). PaEC will enables companies to adapt to a new, more efficient economic production model based on optimising the use of resources and on maintaining the maximum value of products and resources at all times (cascade recycling). PaIP will enhance the competitiveness of SMEs in the housing sector (value chains of equipment for the home, furniture and others, from manufacturing to retail, distribution and e-commerce) by promoting product innovation.	Centre for the Technological Promotion of Wood and Furniture of Catalonia
Establishment of the Terres de l'Ebre FabLab	The FabLab will help the local manufacturing industry to adapt to the 'industry 4.0' model. It will be a platform to retain talent by generating new jobs and entrepreneurship and industrialisation projects. FabLab will provide a space with access to computer-controlled digital manufacturing machinery (3D printers, laser milling machines) open to start-ups, companies, schools and citizens.	Amposta Local Authority
Ebre Biosphere innovation Platform	The project consists of three actions: 1) The Ebre Biosphere Open Lab is an open innovation platform and collaborative space to promote innovation through interaction and exchange of knowledge among local stakeholders and to promote collaborative innovation projects; 2) Actions to attract talent; and 3) the Knowledge Region technical office to provide support in the search for competitive public funding for R&D&I projects.	Rovira i Virgili University

Source: Directorate-General of Local Administration.

A.2.9. Innovative, secure, healthy food and drink

Projects	Description	Coordination
Coordination	PECT coordination	Reus city council
Scientific advocacy for the consumption of local products	Project to evaluate the effect of the consumption of local fruit on physiological and metabolic adaptation to the seasonal cycle. The project includes the creation of a database on the phenolic composition of local nuts, fruits and vegetables, identifying the varieties with the highest polyphenol content and the cultivation methods that increase its content. The effect of consuming seasonal fruit obtained locally or externally will also be studied in every season of the year.	Rovira i Virgili University

Projects	Description	Coordination
Search for new Ingredients from local products	The project focuses on the search for new ingredients from local plant sources through computational methodologies. Chemoinformatic tools will be used to select potential ingredients with functional properties in plants from the Camp de Tarragona area that suggest new commercial possibilities for the industry. Experimental analysis will be conducted to determine the therapeutic potential of molecules for which computational methods predict positive effects on the health factors of interest using either in vitro or in vivo models.	Eurecat Technology Centre of Catalonia
Establishment of a food security unit and an ecotoxicity platform.	Project to establish a food security unit and an ecotoxicity platform based on ohmic technologies, which combine high sensitivity, specificity and speed in the generation of information. This platform responses to the need of local companies to test new pharmaceutical products for marketing authorisation.	Eurecat Technology Centre of Catalonia
Cooking Lab	Establishment of a highly specialised space for the verification, at the pilot test level, of the behaviour of local high-quality oils in real processing conditions, and the feasibility of adding to them functional compounds. The Cooking Lab will be an experimental kitchen, showroom and interpretation centre for the use of oil, enabling users to study the behaviour of oils produced in the territory and providing lifelong training in the horeca industry.	Institute of Agri-Food Research and Technology
Platform for innovation and promotion of extra virgin olive oil	Establishment of a platform to analyse challenges and opportunities in the oil sector and to enhance business competitiveness by improving the technical knowledge and business skills of professionals, promoting olive oil culture, increasing the public's understanding of the benefits of olive oil, generating greater added value in the sector.	Rovira i Virgili University Foundation

Source: Directorate-General of Local Administration.

A.2.10. Igualada Design Industries

Projects	Description	Coordination
Coordination	PECT coordination	Igualada City Council
Promoting the internationalisation of the design industries.	The project supports the internationalisation of the design industries, through actions to raise awareness, advice to companies on international strategy, cooperation through business platforms in target markets, support to access international markets and participation at international fairs.	Catalan Textile and Fashion Association

Projects	Description	Coordination
Igualada Fashion&Design Hub	The IGD Fashion & Design Hub is a support structure for the development of design industries, and to promote digitisation, innovation and creativity processes aimed at meeting the demand of local products, characterised by the quick availability and personalisation. The project includes joint actions to promote textile and leather industrial capacity in the territory and to attract new customers to the local industry: a 4.0 industry development programme, a vocational training programme in textile and fashion design, a programme to promote creativity and design in local companies, actions to encourage the creation of new businesses in the design industries, and actions to open up fashion and design culture to the general public.	Igualada Local Authority
Office to promote industrial capacity to attract factories to the industrial system in Anoia County	The project gives continuity to the Prototyping Office, created in 2014, to revive textile productions that fashion brands have outsourced to countries where labour is cheaper. The Office has enabled work relations to be maintained between workshops and the brands that have come to the county. The Office strengthens the relationships among textile workshops and brands, with the aims of promoting local industrial capacities at international markets and of attracting new customers.	Private Foundation for Textile Innovation
Programme to Promote 4.0 Industry in design companies in Anoia County	The aim of the Programme to promote 4.0 industries at design companies is to raise awareness among local companies and institutions about the challenges and opportunities involved, and to encourage them to adopt elements of 4.0 industry in their processes. The Programme also aims to enable the digitisation of design companies, to transform design processes and promote industrialisation, sales, logistics and distribution, as well as enabling the delivery of local textile industry products to end users through web platforms offering personalised knitwear.	Private Foundation for Textile Innovation

Source: Directorate-General of Local Administration.

A.2.11. Inno4Agro, an innovative ecosystem for a smart agri-food industry

Projects	Description	Coordination
Coordination	PECT coordination	Lleida City Council

Projects	Description	Coordination
Technology to promote the economic system	Project to boost economic activity in the agri-food sector and to enhance the competitiveness of the business system through innovation and knowledge transfer. The actions include the creation of a directory of stakeholders' technological capabilities and needs; the adaptation of a space to house the Agricultural Machinery Technology Centre; the creation of a technology surveillance and dissemination laboratory, the organisation of workshops, and the creation of spaces for meeting, networking and exchanges of good practice with companies and innovative entities in the sector.	Lleida Agri-food Science and Technology Park
Agro Living Lab	The project adapts and modernises spaces and infrastructure at the Agri-food Park to establish a living lab. The Park offers services to technology-based and newly-created companies, research groups and other stakeholders in the agribusiness ecosystem and industry.	Lleida City Council
Agri-Smart Tourism	The project aims to enhance the capacity of the agri-food sector to drive the tourist industry, by the creation of a smart end-user marketing platform using Big Data to generate quality tourism reservations. This tool will enable the implementation of a marketing strategy based on the identification of the individual behaviours of each user and evaluation of their motivations in order to meet their particular needs more effectively.	Tourism Lleida
Agro-industrial technification	The project includes four actions aimed at promoting strategic projects to meet the challenges of the agri-food sector: 1) the creation of a virtual platform to bring together the different types of data generated in the agri-food field; 2) the launch of a pilot plant to develop food and innovative processes with culinary interest; 3) the development of a renewable energy facility for the design of farms and buildings to house food processing and slaughterhouses, and 4) the organisation of technical conferences on energy efficiency at companies in the agri-food industry.	University of Lleida

Source: Directorate-General of Local Administration.

A.2.12. TurisTIC with the family

Projects	Description	Coordination
Coordination	PECT coordination	Tarragona provincial council

Projects	Description	Coordination
Tourism Data System 2.0	The project develops an integrated tourist information system to involve tourism local stakeholders in the governance of the territory as a tourism destination. An analysis tool will be developed with a range of strategic indicators to compare products, destinations and companies in the PECT territory.	Tourism and Leisure Science and Technology Park of Catalonia Foundation
Sectorial platforms	Development of a platform to manage family tourism industry resources and services, especially those for beach, cultural heritage and wine tourism. The platform will offer suggestions in real time, and tourists will be able to make online reservations. The platform will have a monitoring system of tourist visits, based on analysis of the different mobility patterns and will provide information for decision-making.	Tourism and Leisure Science and Technology Park of Catalonia Foundation
Cultural Heritage	The project contributes to the territory's strategic vision as a high-quality family tourism destination. The actions included are: identification of heritage assets, family tourism label, electronic platform to manage visitor services, system to provide real-time images of the saturation of heritage sites and their car parks. The information will be included in the experiential platform for the Costa Daurada and Terres de l'Ebre tourist regions.	Costa Daurada and Terres de l'Ebre Tourist Board
Mammoth	Project to develop the experience-based cultural industries in the Camp de Tarragona and to generate innovative products and services to consolidate historical and cultural experience tourism facilities. The project includes the design of a museum project for a prehistoric experience.	Catalan Institute of Human Paleoecology and Social Evolution
History makes tourism	Project to create a point of attraction and a space of reference for family and cultural tourism, based on an economically sustainable management model, to recount a narrative related to the land, history, culture, heritage and healthy life of the local territory and county aimed at family tourism.	Montblanc Local Authority
Innovative beach	Creation of a network of beaches that acts as an integrated system of services with permanent access to the information about services and facilities, especially for family activities. The project includes the drafting of a white book to disseminate good practice in the field of smart beaches.	Costa Daurada i Terres de l'Ebre Tourist Board

Projects	Description	Coordination
Wines with the family	Creation of an operational network to link public and private players in the family wine tourism sector. The project includes the creation of a management and coordination structure for activities, the creation of a "family wine tourism" label and the development of technological tools to reinforce stakeholders' interactions, to improve the shared knowledge and to facilitate decision-making by public and private organisations.	Costa Daurada and Terres de l'Ebre Tourist Board
Discovery Space	Creation of a living lab and an open space for companies, users and entrepreneurs, to develop ideas and new products, services and solutions for the industry. Development, testing and evaluation services of ideas and new products (feasibility, viability and user satisfaction) will be provided.	Tarragona Provincial Council
Habitat laboratory	Creation of a space for innovation focusing on the tourist habitat for families. This laboratory will provide a space for co-creation with user-centred work methodologies and design thinking, as well as evaluation spaces (located in different tourist establishments adapted for the purpose), in which all stakeholders in the value chain intervene.	Centre for the Technological Promotion of Wood and Furniture of Catalonia
Healthy meals	The project focuses on healthy food and cuisine for the whole family in tourist settings. It includes a nutritional study and analysis of the Costa Daurada and Terres de l'Ebre catering industry, support for establishments to obtain official gluten-free and Mediterranean diet accreditation and improvement of their provisions with healthy culinary options and reduction of allergens. The project includes training to catering staff about healthy food and allergens, and the creation of a database containing nutritional analyses of food and dishes served at restaurants, accessible to the general public.	Rovira i Virgili University

Source: Directorate-General of Local Administration.

A.2.13. Girona, a water-sensitive region

Projects	Description	Coordination
Coordination	PECT coordination	Girona Provincial council

Projects	Description	Coordination
Consolidation, specialisation and territorial promotion of the Lower Ter Central Water Users Board	Development and implementation of a water management model for the Lower Ter, based on a management plan for operating available resources, a water quality protection plan, and reference regulations on flow rates in the Lower Ter system that will be used to govern relations, decisions and management agreements between the water board and users. The Board will have organisational and technical capacity to perform the following functions: 1) the integrated water management of resources; 2) guaranteeing availability for the sustained use of water for various uses, and 3) defending the rights of users in the Lower Ter.	Lower Ter Central Water Users Board
Automation, control and management of community irrigation channels	Implementation of an automatic remote-control system for a sector of the community network of irrigation channels. The aim is to introduce automated infrastructure to control the flows needed by irrigation farmers, guaranteeing regularity of the supply and minimisation of surpluses. The project includes a pilot test in which administrators and farmers in the irrigation communities will discover the advantages of automating transport and distribution channels and the improvement in irrigation efficiency generated by the application of advanced plot management technologies.	University of Girona
Communication, information and awareness - raising for the water-sensitive region project	Design and implementation of a permanent communication, information and social awareness programme about the PECT project. The plan involves establishing an interactive platform based on a permanent Web 3.0 channel to connect with the main stakeholders linked to water use and management and with citizens.	Mar Foundation
Control of the ecological state of surface water bodies, based on innovative correction and adaptation actions	The project consists in the design and implementation of a continuous monitoring system to provide information on the ecological state of the Lower Ter water systems and determine its production capacity. The system will enable evaluation of the effect of circulating flows and associated nutrient loads in the river basin on the ecological state of recipient aquatic ecosystems.	University of Girona

Projects	Description	Coordination
Information system to disseminate and promote precision irrigation	The project aims at reducing the entrance barriers to precision irrigation for farmers. It will provide irrigation farmers, managers and the general public with maps, tables and other content that indicate the water needs of crops in real time, drawn up daily by means of cartographic data and crop simulations based on up-to-date meteorological data. The content generated by this system will be made accessible from machine to machine via other computer systems in order to enable its redistribution and re-formulation. Professionals and SMEs in the territory will also be enabled to integrate the content in their services.	Institute of Agri-Food Research and Technology
Implementation of demonstration strategies to improve the efficiency of agricultural irrigation.	Creation and construction of the Centre for the Improvement of Irrigation in the Lower Ter and the provision of advice to farmers on how to increase the efficiency of irrigation using ICT. The new centre will operate a network of automated pilot plots equipped with water sensors in the soil and an on-demand customised expert advice system on irrigation, with advice transmitted via ICT. A demonstration low-pressure secondary farm irrigation network using solar power will also be built and operated to serve as a model for the construction and management of other secondary irrigation pipelines.	Mas Badia Foundation

Source: Directorate-General of Local Administration.

A.2.14. Girona, innovative ecosystem

Projects	Description	Coordination
Coordination	PECT coordination	Girona Provincial Council
Girona Co-Grow	Programme to promote entrepreneurship, especially in the field of the social economy and the third sector, and to equip the territory with tools and programmes to improve competitiveness and foster business consolidation and jobs creation.	Girona Provincial Council

Projects	Description	Coordination
2.0 Cooperative and vertical incubator to promote business competitiveness in Alt Empordà County	Project to promote the creation of companies in emerging sectors and to increase business competitiveness. The project is based on two complementary actions: 1) the development of a specific programme to promote competitiveness among companies in the territory, especially in innovation and ICT; and 2) the establishment of an incubation facility for entrepreneurial initiatives in emerging sectors, generating services based on companies' needs.	Figueres Local Authority
Transfer of the test US methodology to business centres and incubators in the counties of Girona.	Project aimed at consolidating the entrepreneurial local ecosystem through the network of business incubators to provide support and advice to entrepreneurs using the test US methodology. This is a methodology to develop business ideas into pre-start-up projects with real possibilities of growth and acceleration. The programme includes the provision of specialist advice on business strategy, provided by multidisciplinary teams of experts, including also students.	La Selva County Council
Structuring and boosting strategic innovative ecosystems in the Counties of Girona	The project promotes the interaction among quadruple helix stakeholders in strategic areas to design joint strategic agendas and activities and to reinforce the sectoral innovation ecosystems. The strategic areas are tourism, water, food and drink and cuisine, cultural and natural heritage, health, robotics, composite materials, cultural and corporate communication, education, innovation and industrial technology.	University of Girona

Source: Directorate-General of Local Administration.

A.2.15. Priorat-Montsant-Siurana, a Mediterranean mountain farming landscape

Projects	Description	Coordination
Coordination	PECT Coordination	Priorat County Council
Land bank, sustainability of the primary sector in Priorat County	The land bank will operate as a database to match offer and demand of land for agriculture activities. It is aimed at two types of user: land and rural property owners; and people who want to take up agricultural activities or increase the land they farm. The project also includes actions to create a preliminary benchmarking on existing experiences and the formulation of a map of land uses identifying both the type of crop in all agricultural plots and plots not farmed.	Priorat County Council

Projects	Description	Coordination
Preservation of DO Montsant wine diversity	The project focuses on developing clonal selection processes for historic vineyards (aged over 100 years) of the garnatxa negra and carinyena varieties in DOQ Priorat and DO Montsant.	Wine Technology Park Foundation
Characterisation of the singularity of DO Montsant wine	The DO Montsant territory will be divided into subzones based on a climatic, geological, cultural and organoleptic characterisation of the product. Wines from different parts of the DO will be compared to analyse their particular characteristics, and their acceptability to different segments of national and international consumers. Wine-makers will receive technical training in sensory analysis.	Montsant Designation of Origin Regulating Council
Ecoinnovation and excellence in wine production in the DOQ Priorat	The aim of the project is to characterise and generate know-how about the peculiarities of the region and the wines produced, and to protect these peculiarities.	Priorat Denomination of Qualified Origin Regulating Council
Wine-making innovation unit	Wineries and winegrowers in the Priorat region will be provided with know-how, equipment and new decision-making tools throughout the wine production value chain. The project will focus on recommendations regarding fertilisation, irrigation, soil and plant management, pest and disease control and maturation of the grapes and best harvesting time	Wine Technology Park Foundation
Promoting innovative and sustainable commerce in the Priorat Region	The aim of the project is to enhance the competitiveness and the sustainability of the local business system through actions to professionalise the sector and promote its modernisation, innovate in sales techniques, foster the generational changeover and transmission in companies, promote cooperation between companies, and strengthen the network of associations.	PIMEC Micro Small & Medium Enterprise of Catalonia

Source: Directorate-General of Local Administration.

A.2.16. Osona Social Transformation

Projects	Description	Coordination
Coordination	Coordination del PECT	Osona County council

Projects	Description	Coordination
Sustainable management of livestock manure	The aim of the project is to reduce the environmental impact of slurry and increase water and air quality. The project focuses on the sustainable management of livestock manure, making intensive livestock farming compatible with the environmental quality of the territory. To achieve, this the Osona Association for Sustainable Livestock Management will be created as the sole interlocutor in the territory to evaluate public and private proposals to improve the management of livestock manure.	University of Vic-University of Central Catalonia
Crealiment Food living lab	The aim of the project is to promote the restructuring and the competitiveness of the agri-food sector in Osona. The project includes two actions 1) the establishment of an experimental and co-creation space bringing together clients and consumers to develop new innovative, quality agri-food products; and 2) the reinforcement of the business ecosystem that encourages the creation, restructuring and attraction of agri-food projects and start-ups in the rural environment, generating new business and market models.	Creacció Entrepreneurship Agency
Promoting Agroecology	The aim of the project is to stimulate endogenous development and employment through agroecological promotion and innovation. A space will be created and actions will be implemented with three main goals: 1) valorisation of traditional agroecological knowledge for innovation and employment; 2) agroecology and ICT as tools for social transformation; and 3) promotion of agroecological production and viable farms.	University of Vic-University of Central Catalonia
Health sector research and innovation facilities	Through this project, the University Hospital of Vic provides facilities and laboratories to promote translational research in biomedicine and to develop simulations in clinical environments. The facilities should attract international research and professional talent and should position the University of Vic as a reference centre in the territory for healthcare research, vocational training and entrepreneurship.	University of Vic-University of Central Catalonia
Management of innovation in the healthcare system	Through this project the Vic Hospital Consortium reinforces its role as a centre of innovation in health. The project has two lines of action: 1) generation, valorisation and commercialisation of knowledge, promotion of creativity, creation of new organisational and business models; and 2) adoption of innovative technologies and systems developed by third parties in clinical processes.	Vic Hospital Consortium

Projects	Description	Coordination
Management of innovation and entrepreneurship at Knowledge institutions	Comprehensive awareness raising, training and guidance programme that helps to develop the entrepreneurial spirit, the detection of technological potentialities, and the transfer of knowledge generated at the University of Vic, enabling the creation of companies, start-ups and spin-offs. The goal of the project is to promote the development of entrepreneurial competencies by university and secondary school students and teaching staff and to encourage their participation in new companies. A platform will be created that combines knowledge generated by research at the university with the capacity and will for innovation of companies and entities in the territory.	University of Vic-University of Central Catalonia
Management of innovation and entrepreneurship in the territory (EspaiCrea)	The EspaiCrea project is aimed at promoting innovation for competitiveness in small and medium-sized businesses and entrepreneurs. The centre will provide support services and training about new business models, transversal competencies required by the production system, innovation in management, and the development of new solutions to business challenges.	Creacció, Entrepreneurship Agency

Source: Directorate-General of Local Administration.

A.2.17. Active, healthy aging and dependency

Projects	Description	Coordination
Coordination	PECT coordination	Garraf County Council
Better aging	A project aimed at improving interpersonal relationships and quality of life among senior citizens in Garraf, emphasising such aspects as preventing undesired solitude and promoting physical exercise according to the physical, functional, emotional and cognitive condition of each individual. The aim of the project is to use the new technologies and adapt resources and services available in the territory to provide innovative personalised assistance to this segment of the population.	Garraf Health Consortium

Projects	Description	Coordination
Aging	Development of a platform and of analysis tools to implement data analysis on groups at risk of vulnerability, on rehabilitation actions and on actions to improve the quality of life of elderly people. The aim of the project is to establish the foundations for a fall prevention strategy in the county through a pilot scheme to monitor elderly people's quality of movement inside and outside the home. The information obtained will serve to make the cities and towns in the territory a healthy and friendly environment for the elderly.	Polytechnic University of Catalonia
NeverAlone	Project to develop a platform, NeverAlone, in the cloud for personalised teleassistance at home for dependent people. This online solution will be accessible to all service providers, and users will receive a series of devices at home to gather data and establish two-way communication, adapted to service providers.	Ave Maria Foundation
Silver Living Lab	Pilot project for a living lab specialising in the field of the silver economy and adopting the methodology established by the European Network of Living Labs (ENoLL). The aim is to develop a collaborative work ecosystem involving several local and county-based stakeholders from the quadruple helix (universities, health and assistance centres, research centres, companies from the sector or engaged in complementary industries, entrepreneurs, students, community makers, people of retirement age, patients and relatives of patients), to find ideas and implement solutions for active, quality aging. The solutions focus on various thematic areas: sensorisation and adaptation of the home, monitoring people in their day-to-day lives, designing useful everyday devices and managing the data obtained (Big Data). The solutions implemented should incorporate new technologies such as 3D printing, virtual or augmented reality, efficient home automation, Internet of Things.	Neapolis

Projects	Description	Coordination
Deliverybot	Design and implementation of an innovative, technology-based solution to enable nursing homes to reduce the number of hours devoted to transporting materials and to use this time to provide care for people, improving the quality of the service and reducing costs. The solution entails a fleet of mobile robots with load capacity of up to 100 Kg, used to transport different materials (food, clean clothing, laundry and so on), as well as fleet management software. These robots can carry and transport carts loaded material, sharing corridors and elevators with workers, customers and residents. The pilot project will be implemented at three nursing homes in the county to generate relevant data (installation time, setting time, number of transports per day, etc.) to enable advances to be made towards the design of the final product.	Institute of Robotics for Dependency

Source: Directorate-General of Local Administration.

A.2.18. Motors for Segarra-Garrigues

Projects	Description	Coordination
Coordination	PECT coordination	Tàrrega City Council
Innovation and technological development in the use of irrigation water in grapes, mountain apples, pistachios and olives	This project is aimed at enabling producers to learn about water needs, irrigation management and the viability of vine, apple, pistachio and olive tree crops. Under it, several experimental and demonstration platforms will be set up in different places in the territory to monitor water conditions in crop fields and the seasonal evolution of production and physiological parameters, and the proposed irrigation strategy for each type of crop will be validated.	Institute for Agri-Food Research and Technology
Innovation and technological development in the use of irrigation water in wheat	This project is aimed at enabling producers to learn about water needs, irrigation management and the viability of quality wheat. Under it several experimental and demonstration platforms will be set up in different places in the territory to monitor water conditions in crop fields and the seasonal evolution of production and physiological parameters, and the proposed irrigation strategy for wheat will be validated.	Mas Badia Foundation

Projects	Description	Coordination
Innovative technological applications to improve olive oil quality	This project entails visits to olive oil production centres in the territory by IRTA experts to study their operational state and capacity, and to review their risk and control analysis systems at critical points, implementing improvements in the design of the facilities.	Institute for Agri-Food Research and Technology
Technical management, implementation at farms, transfer and sustainability of the PECT	This is a coordination action linked to the measures implemented to promote innovation and technological development in the use of irrigation water for different crops. The project aims to coordinate the operation of partner farms and knowledge transfer activities (courses, visits, workshops and conferences), and to disseminate and communicate results and good practice to farms.	Rural Cooperation Association for Development

Source: Directorate-General of Local Administration.

A.2.19. BCN Smart Rural

Projects	Description	Coordination
Coordination	PECT coordination	Barcelona Provincial Council
Creation of a network of incubators for farmers and small craft producers	The project launches a network of incubators with experimentation spaces aimed at entrepreneurs to promote employment in the agricultural farming, agri-food and forestry industries. The Network will provide services related to eco-innovation and will support entrepreneurship, knowledge transfer, training and talent.	Association of Rural Initiatives of Catalonia
Rural Innova	The project establishes a technology services bank to promote the transfer of knowledge between research centre and companies, boosting innovation in the sector and the development of new products and services, especially in the emerging sector of social and cooperative agriculture. The project includes employment actions targeted to unemployed people at risk of exclusion and entrepreneurs. It also includes the creation of a rural co-working.	Association of Rural Initiatives of Catalonia

Projects	Description	Coordination
Governance Hub	Creation of BCN Smart Rural, an analytical and prospective observatory with a space for creativity, reflection, debate and knowledge transfer. This space should contribute to develop links and synergies between companies, technology and university centres and the public sector, consolidating an operational structure and promoting exchanges of knowledge and expertise. The Governance Hub should act as a stimulus for collaboration among quadruple helix stakeholders, raising awareness about the primary sector as economic motor for rural territories and as an attraction source for talent and entrepreneurship; promoting international benchmarking and diffusion of good practices related to innovation in rural ecosystems.	Barcelona Provincial Council
Strategic Forestry Planning	The project innovates in the forestry management by the application of technologies to fire prevention and CO2 fixation. The project revolves around 2 different actions: (1) implementation of ICT and innovation in strategic forestry planning to introduce a remote detection and geographic information system that systemises forestry data gathering in priority areas; and (2) smart forestry management for the prevention of forest fires and to protect natural resources to preserve biomass in priority areas.	Barcelona Provincial Council
Design and implementation of the Biomass Km0 Plan	The Biomass Km0 Plan promotes the use and production of biomass as a source of renewable energy generated by local energy resources. Its main goal is to promote energy efficiency in production, distribution and consumption processes of local, renewable and low CO_2 emission energy sources and to reduce CO_2 emissions through the consumption of local resources. The project analyses the biomass value chain in order to define a strategy and action plan to promote the sector in cooperation with the public-private players involved. The project includes actions such as: implementation of tests on pollutant emissions and consumption, specialised training in techniques for the extraction and management of wood for biomass, awareness-raising campaigns aimed at both the general public and local authorities.	Forest Science and Technology Centre of Catalonia

Projects	Description	Coordination
Rural equipment project	Project to provide facilities with support equipment to process local agri-food and forestry products. These facilities should contribute to reduce the barriers of entry to new companies (by reducing the necessary initial investment) in the agri-food sector. The project includes actions such as, pilots tests on low capacity modular abattoirs; the establishment of agri-food workshops for shared use; and the creation of a multipurpose innovative space to process forestry products and provide technical support for with the aims to contribute to the viability and stability of new companies, to obtain higher value for local products, and to achieve a balance between economic activity based on natural resources and the preservation of agroecosystems.	Association of Rural Initiatives of Catalonia
Land bank network	Creation of a land bank to identify, incorporate and transfer arable land to new rural entrepreneurs. The project also aims to ensure conservation of the natural and ecological heritage of the territory and to create an agro-territorial cooperation network.	Barcelona Provincial Council

Source: Directorate-General of Local Administration.

A.2.20. Cultural and creative industries in Girona and its territory

Projects	Description	Coordination
Coordination	PECT coordination	Girona City Council
Office for the management and promotion of the arts	Establishment of the office for the management and promotion of the arts, to advise and support the cultural and creative industries, promote cultural projects, increase audiences and foster collaboration and coordination among stakeholders. Actions included in the project are the creation of a cross-cutting ICT tool for coordination of stakeholders and the launching of the Girona Crea brand.	Girona City Council

Projects	Description	Coordination
Centres for art creation and exhibition	A project to establish creation and production spaces in the CCI field based on two pilot schemes that will serve as a bench test for the use of these spaces, for the coordination of different professionals and the application of innovative tools. The operation includes 3 actions: (1) establishment of an equipment bank and laboratories specialising in the CCI sector, providing a physical environment for exchanges of experiences and the creation of new productions in the arts sector; (2) creation of a network of CCI creation and exhibition spaces, enabling their coordination and smart use and complementing entrepreneurial activity aimed at promoting the arts, raising their profile by providing different types of exhibition spaces; and (3) a pilot test to encourage the creators of routes for innovative experiences of heritage based on the new technologies.	Girona City Council

Source: Directorate-General of Local Administration.

A.2.21. Mataró Maresme

Projects	Description	Coordination
Coordination	PECT coordination	Mataró City Council
Entrepreneurship and talent: Promoting talent, entrepreneurship and the incubation of projects related to textile design and innovation	Consolidation of the TecnoCampus business incubator and start-up accelerator through actions to promote textile design and innovation addressed to textile companies in the territory.	TecnoCampus Foundation

Projects	Description	Coordination
Establishment of an Innovative Ecosystem to Articulate Technology Knowledge Transfer Initiatives	A project to articulate and boost a textile design industry ecosystem, promoting alliances, synergies and exchanges of experience among national and international players. This ecosystem will encourage the transfer of technology and specific knowledge in the field of 4.0 industry technical fabrics and technologies to companies and design professionals in Maresme county, bringing innovation and technology to the local textile and fashion industry. The project includes technological and prospective surveillance actions, technological diagnosis at design industry SMEs in the territory, with the formulation of their technology development roadmaps, as well as conferences and knowledge pills on innovation and the 4.0 textile industry.	Eurecat Foundation
Reimagine Textile Promotion: establishing spaces and developing the “Reimagine” Textile Brand	A project to revive the role played by the textile industry in Maresme county and Catalonia, by promoting innovation and collaboration among stakeholders to improve the global competitiveness of the textile industry for technical uses. The project includes such actions as workshops and thinktank sessions for companies and entrepreneurs, communication actions via the Reimagine Textile Platform, the creation of a design space for research and prototyping fabrics for technical use, and the establishment of a manufacturing facility for professionals.	Eurecat Foundation
Calella/Maresme-Sport City Lab: Urban laboratory for innovations in the field of sport	Project to establish a test bench based on the sports facilities and amenities in the territory to develop and test new solutions to challenges linked to sport and to generate added value.	Calella Local Authority

Source: Directorate-General of Local Administration.

A.2.22. Girona, a healthy region

Projects	Description	Coordination
Coordination	PECT coordination	Girona Provincial Council

Projects	Description	Coordination
Observatory on social determinants and inequalities in health and well-being	Establishment of an observatory to monitor, disseminate and advice public and private stakeholders in the field of public health, and to inform the general public about the knowledge generated. The goal of the project is to launch a computer platform to enable the introduction and analysis of relevant data to monitor indicators of health and wellbeing, social action and welfare, and disseminate the information and knowledge generated in a comprehensible way to citizens and other stakeholders, making the observatory a reference facility for the different social and political players involved in policies linked to these fields.	Dipsalut, Girona Provincial Council's Public Health Agency
Girona Health LivingLab Platform	Establishment of the Girona Health LivingLab Platform to enable communication among researchers, government, health institutions and the business community and with citizens. The platform will gather systematic information about the states and determinants of health in the territory and will become a repository of basic and advanced data on public health. This tool should generate new knowledge, new collaboration patterns and new actions and tools to promote health and wellbeing in the territory. This should contribute to the creation of an ecosystem of diverse players working and collaborating on promoting health, preventing the most prevalent chronic diseases and addressing health determinants, psychosocial factors, risk factors, lifestyles, aspects of quality of life, and chronic and prevalent diseases.	Doctor Josep Trueta Girona Biomedical Research Institute
Creation of the Alt Empordà County Health Pole: building and innovating in people- and community-centred social and health integration	Creation of a Health Pole, conceived as a physical space and as a tool for collaboration among quadruple helix stakeholders and at the service of people aimed at designing, testing and developing the integration of current health and social services, with innovative approaches and a stronger focus on persons.	Empordà Health Foundation

Source: Directorate-General of Local Administration.

A.2.23. Costa Brava Pirineu of Girona: nature, culture and intelligence network

The cross-cutting initiative "Girona, Tourism Network" is structured into several projects or operations, each coordinated by a different entity. The projects aim to improve the networking of tourist destinations, the use of new technologies to promote Girona's cultural and natural heritage, and to connect networks of footpaths, while also encouraging tourism uses of the territory that are sustainable and compatible with other

economic activities. Different entities promote the following coordinated actions in different parts of the territory: 1) creation of a network of smart paths and generation of marketable products; 2) improvement of management, information, interpretation and access to Girona's heritage; and 3) design and implementation of a management model for tourist destinations with the active participation of stakeholders and open innovation methodologies. The partners are: University of Girona, Alt Empordà County Council, Pla de l'Estany County Council, Ripollès Development Agency, Cerdanya County Council, Girona Green Greenways Consortium.

Projects	**Coordination**
PECT coordination	Girona Provincial Council
Nature, culture and intelligence network: University of Girona	University of Girona
Nature, culture and intelligence network: Alt Empordà County Council	Alt Empordà County Council
Nature, culture and intelligence network: Pla de l'Estany County Council	Pla de l'Estany County Council
Nature, culture and intelligence network: Ripollès County Council	Ripollès Development Agency
Nature, culture and intelligence network: Cerdanya County Council	Cerdanya County council
Nature, culture and intelligence network: Greenways of Girona	Girona Greenways Consortium

Source: Directorate-General of Local Administration.

A.3. Emerging technology clusters

A.3.1. Looming Factory Group

The Looming Factory Group is a consortium of research centres and universities whose purpose is to bring together, consolidate and guide the research that the leading R&D&I centres in Catalonia are currently developing in the field of Industry 4.0 aimed at establishing industrial demonstrators to verify and validate the research results obtained.

To this end, Looming Factory will draft the roadmap for future research and facilitate the connection between R&D&I centres in Catalonia with society and the industrial sector, showcasing the most cutting-edge technologies that can enable Catalan industry to advance along the path of digitisation.

The Polytechnic University of Catalonia is the coordinating body of the Looming Factory Group.

Projects	Description	Coordination
Coordination	Overall coordination of the group	Politechnic University of Catalonia
Smart factory	Focused on developing advanced monitoring algorithms, incorporating aspects such as energy efficiency, environmental impact and security based on data provided by new sensors and actuators. The project also includes increasing the flexibility and adaptation of monitoring and control systems, implementing predictive maintenance strategies and responding in situations of bankruptcy or malfunctioning of industrial plants (health aware control).	Politechnic University of Catalonia
Connected factory	Project to improve communication systems throughout the value chain (plant, distribution and trade)	Politechnic University of Catalonia
Robots on factory	Aimed at improving use of the workspace by robot arms or mobile robots. The project includes the design of robots to make them suitable for spaces at SMEs, and the implementation and learning of forms of movement and navigation that are safe for people, as well as the study and development of learning tools to facilitate interaction between people and robots, and their programming, training and demonstration of cases to ensure a satisfactory user experience.	Politechnic University of Catalonia
Factories of the future	Demonstration of technologies developed in the earlier projects (including batch and robotic production, and collaborative data platform software and services).	CIM Foundation

Source: Directorate-General for Research.

A.3.2. QuantumCat

The emerging group in quantum technologies in Catalonia, QuantumCAT, promotes the development of quantum technologies to integrate them into today's industry, promoting synergies between the different “pillars” of quantum technology in Catalonia and consolidating the position of Catalonia as a leader in the sector. The four “pillars" of quantum technologies are communication, computation, simulation, and sensors.

The coordinating body of QuantumCAT is the Institute of Photonic Sciences (ICFO).

Projects	Description	Coordination
Coordination	Overall coordination of the group	Institute of Photonic Sciences
Quantum communication	Project to improve quantum communications and quantum distributions through the construction and implementation of stronger and faster cryptographic protocols and the demonstration of quantum memories in real environments for long-distance quantum communication.	Institute of Photonic Sciences
Quantum computation	Development of a cloud platform that allows remote users access to a variable quantum processor and programmable annealing.	Barcelona Supercomputing Center
Quantum simulation	Transformation of quantum simulators into accessible, marketable quantum technology.	Autonomous University of Barcelona
Quantum sensors	Development of experimental and theoretical methods that enable the use of ultra-precise atomic sensors in marketable products for biomedical application.	Autonomous University of Barcelona

Source: Directorate-General for Research.

A.3.3. Base3D

The Base3D group brings together several research centres to promote research, technological development and innovation in the field of 3D printing. The group’s main goal is to optimise additive manufacturing. The results of its work are aimed at enhancing the maturity of each of the technologies studied in order to generate added value in industrial sectors such as food and drink, biomedicine and construction.

The coordinating entity of the Base3D group is the CIM Foundation.

Projects	Description	Coordination
Coordination	Overall coordination of the group	CIM Foundation
Light3D	Study of different 3D technologies related to light for additive manufacturing (3D printing), such as selective laser melting, stereolithography, digital light processing and printing systems based on light-sensitive inkjet inks. The goal is to improve powder-based materials for different applications, optimising the simulation parameters of the printing process and creating new resins for 3D printing.	Leitat
Fuse3D	Improving part moulding systems to deposit hot material in semi-molten or paste form, for application in plastic, metal or mixed materials (plastic, metal, ceramic, inorganic).	Sant Joan de Déu Hospital
Ink3D	Development of continuous ink systems (ceramic, polymer, metal, compound and bioinks based on human tissues) to obtain 3D structures with high control of the multi-scale structure and the manufacture of complex multi-material and core-shell parts.	Politechnic University of Catalonia
Hybrid3D	Obtaining multi-material parts through additive manufacturing processes, using these parts to manufacture devices with high added value in different industrial sectors.	CIM Foundation

Source: Directorate-General for Research.

A.3.4. Valorisation of the EGA for industry and society

The VEIS group, whose mission is the valorisation of the European Genomes-Phenome Archive (EGA) for industry and society, brings together leading bioinformatics and computational biology centres with the aim of creating an open ecosystem of technologies connected to the main computational tools to provide access to genome data and enable analysis of information in biomedicine projects.

The coordinating entity of the VEIS group is Pompeu Fabra University.

Projects	Description	Coordination
Coordination	Overall coordination of the group	Pompeu Fabra University
Training and communication	Dissemination of the technological tools of the Barcelona Computational Biomedical Ecosystem (BCBE), training its users, developers and promoters.	Pompeu Fabra University

Projects	Description	Coordination
Sustainability	Development, promotion and management of computational tools to improve access to EGA and its data. The project also aims to consolidate the BCBE as an open ecosystem enabling use of EGA data.	Barcelona Supercomputing Center
Linking	Establishment of mechanisms for connection with the EGA.	Centre for Genomic Regulation
Resource	Production of a catalogue of the systems developed by the VEIS group, with information on the functions of the systems, type and data format.	Barcelona Supercomputing Center
Interoperability	Harmonisation of the controlled vocabulary used by tools and the EGA.	Centre for Genomic Regulation
Benchmarking	Comparative evaluation of the systems developed by the VEIS group from the technical, functional and scientific perspectives.	Barcelona Supercomputing Center
Use cases	Evaluation of the components of the BCBE in a clinical environment, based on projects in which VEIS group members are partners to identify possible points for improvement in functionality, interoperability and access to information.	Centre for Genomic Regulation

Source: Directorate-General for Research.

A.3.5. FEM IoT

FEM IoT is a group whose goal is to promote transfer and research in the field of the Internet of Things (IoT) as a strategic field with great potential within the ICT sector. The group aims to generate a model for coordination with the purpose of sharing collaborating and establishing common strategies in the search for and transfer of results. The objective is to achieve better adaptation to the IoT market, preventing the fragmentation of solutions and ensuring interoperability.

The i2CAT Foundation is the coordinating entity of FEM IoT.

Projects	Description	Coordination
Coordination	Overall coordination of the group	I2CAT Foundation
Connected street infrastructure	Design of global, integrated architecture to meet all the connectivity and service needs of a smart city.	I2CAT Foundation

Projects	Description	Coordination
Valorisation of IoT data	Mass collection of data on energy flows in the streets and on mobility and traffic intensity in the city of Barcelona with the aim of unifying hardware and software standards based on operation of the data collected.	International Center for Numerical Methods in Engineering

Source: Directorate-General for Research.

A.3.6. Emerging Human Brain Cluster (CECH)

CECH, the Human Brain Emerging Cluster, is a group whose objective is to achieve integrative and multilevel understanding of the human brain, and to promote new knowledge and technological tools in collaboration with social and industrial stakeholders in different sectors (clinical, education and technology).

The coordinating entity of CECH is Pompeu Fabra University.

Projects	Description	Coordination
Coordination	Overall coordination of the group	Pompeu Fabra University
Development of biomarkers for the early identification of risks in babies	Development of biomarkers based on eye movements, EEG and fNIRS/ advanced fDCS (advanced functional diffuse optical methods) for diagnosis, design of therapeutic intervention and monitoring of therapy in neurodevelopment in early childhood (0-24 months).	Pompeu Fabra University
Development of biomarkers for diagnosis, design of therapeutic intervention and monitoring of therapy.	Development of dynamic causal biomarkers based on intracortical EEG and neuroimaging for diagnosis, design of therapeutic intervention and monitoring of therapy. The project also includes analysis of intracortical data from epileptic patients.	Pompeu Fabra University
Pharmacological control of the functional connectivity of the cerebral cortex	Development of new photosensitive drugs agonist and noradrenergic antagonists	August Pi i Sunyer Biomedical Research Institute
NeuroPlat	Design of a platform for the rational design of neuropharmaceuticals	Institute for Research in Biomedicine
Mechanisms, modulation and therapy for chronic pain	Description of neurosensory response patterns in migraine, and analysis of patterns during the migraine cycle.	Vall d'Hebron Research Institute

Source: Directorate-General for Research.

A.3.7. GraphCAT

The goal of GraphCAT, the emerging graphene group in Catalonia, is to position Catalonia as an international reference for graphene development, innovation and research, enabling a large number of local industries to acquire a major competitive advantage in the global market by integrating patented graphene-related technologies into their products and services.

The coordinating entity of GraphCAT is the Catalan Institute of Nanoscience and Nanotechnology.

Projects	Description	Coordination
Coordination	Overall coordination of the group	Catalan Institute of Nanoscience and Nanotechnology
Dissemination and valorisation	Consolidation of GraphCAT and alignment with other international and local initiatives, identifying synergies and shared problems. The group also promotes the technologies it develops and their transfer to industrial sectors related to graphene and 2D materials.	Institute of Photonic Sciences
NeuroGraph	Clinical trial of a device based on graphene transistors to monitor brain activity in comatose patients, and brain trauma in intensive care units.	August Pi i Sunyer Biomedical Research Institute
GraphRetina	In vivo evaluation of a graphene electrode array for retinal prostheses.	Catalan Institute of Nanoscience and Nanotechnology
gECoG	Scaling of an array of graphene electrodes used in brain mapping surgery.	Catalan Institute of Nanoscience and Nanotechnology
GraphSIM	Design of a simulation environment for graphene-silicon hybrid CMOS integrated circuits.	Autonomous University of Barcelona
GrabSpec	Design of a graphene-based portable broadband spectrophotometer.	Institute of Photonic Sciences
GraVIsIR	Development of a sensor for improved vision systems, sensitive to different light spectra (UV, visible, near-infrared, shortwave infrared) applied to the automotive, industrial inspection, security and aerospace industries.	Institute of Photonic Sciences

Projects	Description	Coordination
ProGraMass	Optimisation of the graphene production process and quality control techniques to obtain a low-cost graphene for use as electrodes in electrochemical energy storage systems.	Catalan Institute of Nanoscience and Nanotechnology
AQUA-GOX2	Development and production of low-cost graphene membranes for use in biological wastewater treatment bioreactors.	Institute of Photonic Sciences
AutoGraph	Development of graphene-based electrode manufacturing technology for electrochemical energy storage devices in autonomous systems.	Energy Research Institute of Catalonia
INTEGRO	Development of an artificial photosynthesis device combined with a perovskite photovoltaic cell to reduce CO_2 emissions.	Institute of Photonic Sciences

Source: Secretariat of Universities and Research.

A.3.8. FusionCAT

The objective of the FusionCAT (Fusió a Catalunya, or Fusion in Catalonia) Group, which is formed by a number of leading R&D players in the field of fusion, is to promote the knowledge transfer and technology necessary for Catalonia to strengthen its industrial system in the field of fusion energy. Its projects focus on numerical modelling, analysis and design of fusion reactor components and processes, development and validation of fusion reactor software, and design of instrumentation and diagnostic methodology.

The coordinating entity of FusionCAT is the Barcelona Supercomputing Center.

Projects	Description	Coordination
Coordination	Overall coordination of the group	Barcelona Supercomputing Center
Towards the fully integrated modelling of a fusion reactor	Development and validation of multiphysics codes applied to modelling complex systems of high computational requirement, and the subsequent integration of the codes into production processes used in the ITER Project.	Barcelona Supercomputing Center
Neurotronics, tritium production and the fuel operating cycle	Analysis of the fusion fuel cycle and its impact on the reactor and on components related to neutrons, lithium and tritium.	Barcelona Supercomputing Center

Projects	Description	Coordination
Studies of the fusion reactor	Study of technologies for the design of magnets based on high temperature superconducting materials, qualification of the resistance of RHW materials used in the construction of the reactor, and implementation of an energy cycle based on supercritical CO_2.	Barcelona Supercomputing Center
Technology dissemination and transfer	Dissemination and operation of the results of the project in the academic and industrial sectors to promote research and training in the fusion energy industry.	Barcelona Supercomputing Center

Source: Secretariat of Universities and Research.

A.3.9. DRAC

DRAC, a group focusing on the creation of accelerators for the next computer generation, is devoted to designing, verifying, implementing and manufacturing a general-purpose processor with accelerators based on RISC-V technology and specific applications in the fields of security, genomics and self-driving vehicles.

The coordinating entity of DRAC is the Barcelona Supercomputing Center.

Projects	Description	Coordination
Coordination	Overall coordination of the group	Barcelona Supercomputing Center
Design and implementation of an out-of-order processor	Project to design, encode, verify and build the out-of-order processor that will be the subject of work on the group's other projects, incorporating the different accelerators developed into it.	Barcelona Supercomputing Center
Post quantum security and virtualisation techniques	Analysis of different cryptosystems and design of secure extensions so that these systems can be incorporated into the RISC-V-based processor.	Rovira i Virgili University
Computer architectures to accelerate genomic analysis applications	Design of new high-performance parallel architectures for large-scale processing and analysis of genomic data.	Autonomous University of Barcelona

Projects	Description	Coordination
Acceleration of automotive applications with approximate computing in FDSOI technology	Design of an accelerator based on rough computing for complex functions and FDSOI technology, to implement self-driving systems with improved performance and consumption. More specifically, the project focuses on the design of the accelerator computing unit and its integration into future generations of the European processor.	Politechnic University of Catalonia
Integration, design and manufacture of prototypes and test platform	Integration of the different blocks necessary to manufacture the RISC-V processor and the various accelerators designed as part of other DRAC group projects. The test platform will also be developed in order to verify the correct functioning of the processor.	University of Barcelona
Technology dissemination and transfer	Communication of results and operation of intellectual property rights to the technology generated by the group.	Barcelona Supercomputing Center

Source: Directorate-General for Research.

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A.4. R&D cooperation projects

A.4.1. Health and life sciences industries

Projects	Beneficiaries
Development of a new orphan drug for the treatment of Sanfilippo syndrome and other lysosomal storage diseases	BCN Peptides
Industrial implementation of the manufacturing process of stent with multi-layer coating of biodegradable polymer to deliver antiproliferative and anti-inflammatory drugs	Iberhospitex
Development of new, more powerful, versatile and safer antifibrinolytic compounds	Thrombotargets Europe
N-H2L-Im high-tech core, identification of new products that improve the current range of immunosuppressive drugs	University Institute of Science and Technology
Development of a new screening platform for antitumour drugs based on circulating tumour cells and identification of new therapies for the treatment of metastatic colorectal cancer	AROMICS, Applied Research using Omic Sciences
Development of an inhalable formulation of nanoparticles loaded with plasmid DNA to treat cystic fibrosis	Sagetis Biotech
Development of new drugs based on the combination of peptides and organic molecules targeted at the c-Myc transcription factor for the treatment of multiple myeloma (plasma cell leukaemia)	- IDP Discovery Pharma - BCN Peptides
Development of a new analytical platform for therapeutic glycosaminoglycans	Kymos Pharma Services
Development of a diagnostic method to evaluate the efficacy of antitumour drugs	Zeclinics
Development of an innovative IVF technique: maternal spindle transfer (MST)	Embryotools
Development of a computer program prototype that, based on the compounds entered into in any chemical reaction, is capable of producing a series of composite structures compatible (whether expected or not) with mass spectra	Lead Molecular Design
Biological product for the treatment of amyotrophic lateral sclerosis (ALS)	Spherium Biomed
Development, through diagnosis, of an inflammation test and an insulin resistance test based on the characterisation of glycoproteins and low molecular weight and metabolites (LMWM)	Biosfer Teslab
Development of a new injectable biomaterial for bone regeneration	Subtilis Biomaterials
Production of a system to enhance motor rehabilitation	Guger Technologies
Research project into the semantic search algorithm applied to Snomed CT terminology	Bitac Map
Design and development of an expert system to identify synergistic effects of combinations	Prous Institute for Biomedical Research
A biodegradable medical device as a tool to improve therapy in long-term illness	Ascil Proyectos

Projects	Beneficiaries
Design and development of a new device for lithium monitoring in patients.	Devicare
Development of a new clinical-genetic risk score to predict thromboembolic events	Gendiag EXE
New enzyme for more efficient and industrialisable synthesis of gaxilose	Interquim
Emoti-on is an emotional monitoring system to monitor people's moods	Nechi Ingenieria
Prevention of hospital-acquired infections by stimulating patient's own immunity. Development of new products	University Institute of Science and Technology
New methodology to detect prostate cancer using non-invasive biomarkers	Roche Diagnostics
Proactive energy management tool based on artificial intelligence and Big Data techniques	Justaenergia
Hepatoready: new developments	Readycell
Development up to start of clinical concept testing of the product kpi-001	Kern Pharma
Development of the first generic pharmaceutical specialty with Dabigatran	Galenicum Health
New epigenetic inhibitors for the treatment of chronic diseases	Oryzon Genomics
Development of an innovative solution for motor and neurocognitive stimulation in patients admitted to intensive care units	Eodyne System
Development of new therapeutic pathways for the treatment of small cell lung cancer	Idp Discovery Pharma
New generation of specific surgical guides with new high-precision segmentation techniques	Alma IT Systems
Design and validation of devices to photostimulate horse semen	IUL
Development of an innovative therapy for the treatment of Parkinson's disease	Iproteos
Development of a therapeutic vaccine to treat HIV infection	Aelix Therapeutics
Radiodermatitis: search for a new treatment option based on smart tissue	- Martiderm - Bicosome - Manufacturas Bora Bora de Confección
INTEGRA, a smart, inclusive system of detection, prevention and improvement of fragility	- Esport 3 Serveis Alternatius - Use It
Balloon catheter device with paclitaxel to treat risky cardiovascular injuries	- Life Vascular Devices Biotech

Projects	Beneficiaries
ADUR, automatic classification of prostate tumour risk by radiology and machine learning in PET/MRI	Cetir Centre Medic
Development of a solution for detecting and warning of epileptic seizures	Mjn Neuroserveis
Preparation and application of smart, potentially scalable nanocapsules in cancer therapy	Ecopol Tech
Development of a foodstuff for special medical uses in sarcopenia patients	Myogem Health Company
Boosting the immune system with a nanoencapsulation system to fight melanoma	Ecopol Tech
Design and development of a new concept for a standardised MDI actuator that is compatible with DC/DI	Presspart Manufacturing
Smart system to prevent critical events	Better Care
Microcatheter to treat ischemic stroke and prevent the rupture of clots that cause it	Anaconda Biomed
A24, a new peptide for the treatment of atopic dermatitis	BCN Peptides
Study of bioactive derivatives of xanthophyll to obtain anti-inflammatory compounds	Industrial Técnica Pecuaria

Source: ACCIÓ.

A.4.2. Cultural and experience-based industries

Projects	Beneficiaries
Development of software to enable teachers to create and share educational content	La Factoria d'Imatges Serveis Gràfics
Design and development of acoustic systems for 3D immersive sound systems in large spaces	Amate Audio
Research in high production cadence technology for high performance paddle blades	Asics Iberia
Machine learning for the automatic removal of highlighted parts of a video	Vilynx Spain
Adaptable traffic management system between two or more networks in the same company	Starflow
Automatic detection systems for fake news and inappropriate content	Vilynx Spain
Myabckit App help kids learn to read and write	Myabckit

Source: ACCIÓ.

A.4.3. Design-based industries

Projects	Beneficiaries
Research into a new system of textile heating and lighting regulation for efficient energy management	Vertisol Internacional
Development of parametric deformation systems of meshes and analysis of Big Data	Indo Optical
Research into a new system to manufacture universal LED lighting modules for light fittings	Santa & Cole
Biotechnological methods to obtain natural compounds for the fragrance and aroma industries	Ernesto Ventós
Spark: development of a new technology to diffuse volatile substances	Zobele España
Research into new agents of natural origin of interest to the cosmetics industry	Lipotec

Source: ACCIÓ.

A.4.4. Agri-food industry

Projects	Beneficiaries
Development of an Internet of Things system that remotely monitors the stock of feed in farm silos	Ubikwa Systems
Development of detergents and disinfectants based on enzymes and natural ingredients	Itram Higiene
Design of enzymatic technologies based on by-products of plant	Futureco Bioscience
Development and validation of the introgression, using plant biotechnology, of a genetic capacity for tolerance of seawater salinity (in the case of the Ebro Delta) in indigenous varieties of rice plants and production	Càmara Arrossera del Montsià i Secció de Crèdit
R&D into new, environmentally sustainable hot drink capsules with advanced featured	Menshen Iber
Design and manufacture of an edible collagen casing with improved properties	Edible Casings
Development of a new product line that is especially healthy, visually appealing and gluten-free	Exquisitariu
New sustainable methods of extracting bioactive compounds for use in various industrial fields	- Preparados Aditivos y Materias Primas - Indulleida
Study of the modulation of the intestinal microbiota in intensive pig farming productions	Promociones Veterinarias
New technological tool to develop diplohaploid lines in cucurbits	Semillas Fitó

Projects	Beneficiaries
Technological solutions based on the circular economy to improve the environmental and nutritional profile, authentication and use of additives in the production of ecological sausages and cheeses	Embotits Salgot Betar
Research and development of blood hydrolysates for use as biostimulants	APC Europe
New line of fermented vegetable charcuterie for the European market	Embutidos Caula

Source: ACCIÓ.

A.4.5. Chemicals, energy and resources

Projects	Beneficiaries
Recovery of resources from urban waste through the application of landfill mining	Tratamiento Industrial de Residuos Sólidos,
Research and development for new biodegradable, self-extinguishing and anti-vibration lubricant greases	- Industria Química Lasem - Brugarolas - FGC
Feasibility study of biological processes to treat hazardous liquid waste	Distiller
Development of compounds and filaments based on PLA, which offer new and innovative features for 3D printing	ERCROS
Solar evaporation system for to treat livestock manure and reduce the price of treatment of purine for transport to less than 6 euros per m3 produced, with a payback period on investment of less than 10 years	- Sud Energies Renovables - Imper Serveis Comas
Optimising biogas plants to obtain organic urea from biomass	Mannol Lubricantes
Development of a technology to automate the recovery of glass at solid urban waste (SUW) treatment plants	Calaf Tècniques Industrials
Development of a new system of smart drones for cleaning	Valldoreix Greenpower
Development and validation of new technology to treat and recover resources from mining waste	Aquatec, Proyectos para el Sector del Agua
Processes to obtain products with high energy storage capacity from animal by-products (ABPs) not intended for human consumption	Subproductes Càrnics Echevarria i Associats
Generation of electrical energy in any construction element made from ceramic or other materials used in the construction of buildings	Quantoceràmica

Projects	Beneficiaries
Development of a prototype for the automatic elucidation of chemical structures (ChemSite)	Lead Molecular Design
Developing a nano-structured hydrophobic, oleophobic, high-performance polymeric coating	Ecopol Tech
Predictive diagnosis for domestic boilers	Gas Natural SDG
Solutions for the dissipation of heat produced by LEDs integrated in mirrors	Ficomirrors
Research and development of advanced photovoltaic fabric for outdoor solutions and applications	IASO
Development of a new concept of wetlands incorporating bioelectrochemical technologies	ACSA Obras e Infraestructuras
Research into innovative, sustainable filtration processes for pool water to obtain water of excellent quality (SOSTPOOL)	Fluidra
Proactive energy management tool based on artificial intelligence and Big Data techniques	Dexma Sensors
Solar evaporation system to treat livestock manure (SOLARPUR)	Control i Manteniment de l'aigua
Enhancing the biostimulation of indigenous microbes using groundwater (with Germany)	Hidronit Medio Ambiente
Developing the production process for an agent based on two liquid components	Laymatec Técnicas Industriales
Study of the use of geothermal technologies to recover thermal energy from a landfill	Ferrovial Servicios
Design and applications of sustainable plastic biocomposites (bioplastic)	Betaquimica
Construction, testing and validation of a storm prototype in a situation of laboratory emulation	Aliter Grup Renovables
Development of an app for wastewater treatment station operation based on environmental and ecosystem criteria	Companyia General d'Aigües de Catalunya
Aqua-gox: R&D into high-impact graphene-based membranes for water treatment	ACSA Obras e Infraestructuras
High performance long-lasting ballast	Comsa

Source: ACCIÓ.

A.4.6. Industrial systems

Projects	Beneficiaries
Research, design and industrialisation of a new generation of plates using PDO heat sensor technology	Ipagsa Industrial

Projects	Beneficiaries
Research into the continuous conformation of stacks of new composites to obtain complex preforms of dry fibre out of autoclave	Applus LGAI
Qualification of shear forming technology for the use of pieces made with this technology in critical applications	Industrias Puigjaner
System to increase the life of the dies used in hot forming processes for the manufacture of automotive parts using laser cladding techniques	- Gestamp Solblank Barcelona - Autotech Engineering - Talleres Mecánicos Comas - Proquimia
Studying and obtaining new silicone materials that present optimised surface area properties for the transport of aggressive liquids (fuel, hydrocarbons, acids and strong bases) and for the transport of thick or viscous substances	Venair Ibèrica
Automatic system for advance prediction of failures in KFEW kinematic systems	- SA Sistel - Servo Motors Adjust
Development of a support system for industrial production in routing electrical wiring, using new augmented reality tools	- Alstom Transporte - Aumenta Solutions
New platform for 1600 fps air rifles	Gamo Outdoor
Automatic system for predicting error in kinematic systems (KFEW)	Servo Motors Adjust
Numeric-experimental study of the behaviour of glass in the blow and blow process	Ramon Clemente
Video analysis for smart cities based on computer vision	Davantis Technologies
Design of a new technology to produce super-deformable steel	SEBIR
Train 4.0: Monitoring report on Train 4.0 factories	Automatització de Processos i Mediambient
Development of an automatic hook prototype for loading and unloading up to 100 tonnes	Elebia Autohooks
Advanced device to hold air turbine blades	Engineering Community
Hydroblood: obtaining dehydrated protein from slaughterhouse blood	Talleres Azuara
Research and development of robot virtualisation tools and processes	CT Ingenieros de Catalunya Aeronáuticos Automoción e Industriales
Production of optimised metallic powder for additive manufacturing applications	Innomaq 21
New control and monitoring systems for the plastics injection industry according to paradigm and 4.0	Array Plastics

Projects	Beneficiaries
Automatic system for predicting error in kinematic systems (KFEW) in advance	Motronic Service Sabadell
Amplification and monitoring system for very long range optical networks without boosters (with Israel)	W One Sys
Development of a new process for manufacturing additives for the electronic impression of ceramic substrates	Francisco Albero
Advanced manufacturing and artificial intelligence techniques in forming lathes	Industrias Puigjaner
New artificial vision self-learning solution, deep learning technology and advanced algorithm	Infaimon
System to measure driven interferences and enable the automatic design of filters.	Emzer Technological Solutions
Innosmast: fast, smart digitisation of consulting in innovation	- Induct Sea - Grupo Include 3 - Mind The Gap Talent
Flexible guided test system for high voltage wiring in aeronautics and e-mobility	EMDEP 2
z-pulsar simultaneous synchronisation and monitoring device for high-performance networks	Albedo Telecom
Design of an aerial vehicle machine learning system that permits preventive maintenance	Cpi Integrated Services
R&D project for new prototype to manufacture 3D model circular fabric for small diameters	Construcciones Metalúrgicas Especiales
Remote inspection system for electrical and telecommunications towers based on an IoT platform	Comsa

Source: ACCIÓ.

A.4.7. Industries related to sustainable mobility

Projects	Beneficiaries
Development of a new type of charger for charging points based on fast continuous current, 250 kW and at least five 50 kW plugs for electric cars	Circontrol
ATPA vibro-acoustic diagnostic method, technology developed by ICR itself to numerically identify the contribution of all elements to noise in a railway carriage	Ingeniería para el Control del Ruido
Change in current navigation systems to enhance pollution indicators in maritime transport	Bound4Blue

Projects	Beneficiaries
Development of a battery charger for electric and hybrid vehicles. A new concept in chargers to miniaturise these devices and simplify their industrialisation	Idneo Technologies
Design and specification of a protocol for vehicle to cloud applications	- Advanced Automotive Antennas - FICOSA
Design and development of a functional prototype for an auxiliary propulsion system for vessels	Bound 4 Blue
Project 5G neutral operator	Tradia Telecom
Development of a removable personal water propulsion system driven by electric motor	Easysurf
Research into more reliable, higher performance and more economical RF tunable devices	Nanusens
VCSM: secure vehicle computing system module	Advanced Automotive Antennas
Side channel attack with multiple information sources	Bitwise
RF particle sensor for particulate filters in internal combustion engines	Francisco Albero
TEP2M, new type of power electronic components in mechanical parts	Lear Corporation Holding Spain
Research into anti-freeze solutions for asphalt roads	Benito Arno e Hijos
ARINBO, a new urban mobility management system based on origin-destination matrix and advanced analytics tools	Altran Innovación
SCANH, advanced control system for navigation on hydrofoils	Altran Innovación
Automation of quality inspections in train manufacturing using UAV and machine learning	Alstom Transporte
Research into the application of artificial intelligence to improve last mile logistics	Smartmonkey Scalable Computing
LTE-V2X, R&D into LTE technology to implement C-V2X	Advanced Automotive Antennas
Efficient power conversion systems for new models of electric mobility	Francisco Albero
Development of a redundant road safety system for self-driven vehicles	- Elecnor - Sorigué

Source: ACCIÓ.

A.5. Knowledge transfer

A.5.1. Valorisation and knowledge transfer units at universities

A.5.1.1. Individual projects

Projects	Description	Beneficiaries
Reinnova UB-FBG	Project to promote innovation, valorisation and transfer of knowledge and technology from the University of Barcelona and the Bosch i Gimpera Foundation.	Bosch i Gimpera Foundation
TransErdfUdg	Project to support the valorisation and the transfer of results from research at the University of Girona.	University of Girona
Valorisation and knowledge transfer unit at the Open University of Catalonia	Project to improve the Valorisation and Transfer Unit at the Open University of Catalonia.	Foundation for the Open University of Catalonia
Valora Horitzó 2025	Project to promote and consolidate knowledge transfer at Pompeu Fabra University.	Pompeu Fabra University
Identifica-Avaluar-Prioritzar-Ajudar-Crear	Project for the valorisation and transfer of knowledge from the International University of Catalonia.	Private Foundtation Internationa University of Catalonia
UDL5Y-TECH	Plan to promote and support transfer and innovation at the University of Lleida.	Lleida University

Source: Directorate-General for Research.

A.5.1.2. Collaborative projects

Projects	Description	Beneficiaries
Plan of actions for valorisation and transfer at the URV Foundation and Rovira i Virgili University	Project to improve technology transfer and knowledge transfer system at the URV, increasing the valorisation and marketing of the technologies, knowledge and innovations generated.	- Rovira i Virgili University Foundation (Coordination) - Rovira i Virgili University
UPC Acceleration and Transfer Plan 2016-2020	Project to consolidate the research and innovation environment and links with the quadruple helix, with the aim of maximising mutual cooperation and harnessing UPC capacity to create a response to societal needs and challenges.	- Politechnic University of Catalonia (Coordination) - CIT UPC, Technology Center Foundation of the Politechnic Univerity of Catalunya

Projects	Description	Beneficiaries
Economic and social transformation of the territory through the collaborative leadership of innovative technological projects	Project to position the University of Vic - Central University of Catalonia (UVic-UCC) as a point of reference for technology, knowledge transfer and social transformation in Central Catalonia.	- Balmes University Foundation (Coordination) - University Foundation of Bages
UAB Innovation and Entrepreneurial Ecosystem	Project to launch new actions to transfer knowledge and structure and dynamise the innovation and entrepreneurship ecosystem at the UAB campus.	- UAB Research Park Foundation (Coordination) - Autonomous University of Barcelona
FORTUT	Project to strengthen the transfer units at La Salle-Ramon Llull University	- Technology Private Foundation (Coordination) - IQS Private Foundation - Ramon Llull University

Source: Directorate-General for Research.

A.5.2. R&D&I networks

Projects	Description	Beneficiaries
XRE4S, R&D&I Energy for Society	Network that promotes the energy transition and the introduction of a low-emission society in Catalonia.	Energy Research Institute of Catalonia
XaFIR, Fourth Industrial Revolution network	Network engaged in Industry 4.0, aiming to become a key disruptive agent in the transformation of the industrial system of Catalonia through mass implementation of Industry 4.0 technologies in the production sector, and to position itself as a European leader in the fourth industrial revolution.	Politechnic University of Catalonia
Paediatric Innovation Hub	Ecosystem formed by different stakeholders (R&D&I centres, hospitals, universities, companies, patients and families, investors and regulatory authorities) to implement a new programme for the valorisation and transfer of solutions in paediatric medicine.	Sant Joan de Déu Private Foundation for Research and Teaching

Projects	Description	Beneficiaries
TECSAM, Innovation Network for New Technologies in Mental Health	Programme for cross-cutting valorisation and knowledge transfer in the field of mental health. The network's goal is to transfer to the market technologies with high added value and to detect, in cooperation with patients, families and mental health workers, new uncovered needs.	Sant Joan de Déu Private Foundation for Research and Teaching
XarTec SALUT, R&D&I network devoted to health technologies	Creation of a network for the exchange of knowledge among R&D&I stakeholders in the health sector, and technology transfer, to promote the creation and growth of new companies, and to generate more efficient transfer instruments that can enhance the economic and social impact of technologies. The network implements its valorisation and transfer programme in five specific areas: rehabilitation, clinical and diagnostic studies, treatment, training and sport.	Politechnic University of Catalonia
Food Innovation Network	Programme of valorisation and transfer aimed at transforming and improving the interaction between R&D&I stakeholders in the agri-food industry, adopting economic and social criteria that can help in: 1) the search for solutions to complex and persistent problems in the sector; 2) enhancing the valorisation of research results; and 3) transfer these results to the market more efficiently.	Bosch i Gimpera Foundation
BlueNetCat, Catalan Network for Blue Innovation – Xarxa R&D&I Marítima de Catalunya	Interdisciplinary ecosystem of stakeholders that promotes the valorisation and knowledge transfer in the maritime sector of Catalonia and improved competitiveness in the sector of the blue economy.	Bosch i Gimpera Foundation

Source: Agency for Management of University and Research Grants.

A.6. Knowledge Industry Programme

A.6.1. “Seed” projects

Projects	Beneficiaries
Study and analysis of the interference of lipid accumulation in the cardiovascular system through LRP1 peptidomimetics, a new therapeutic cardiomyopathy strategy	Scientific Research Council
Platform for training and accreditation that integrates a complete educational programme with a simulator for the acquisition of the necessary skills and knowledge in the field of hysteroscopy	Institute of Bioengineering of Catalonia
Marketing a technology (semiconductor chip) developed for very low-cost point-of-care devices for the molecular detection of different types of biomarkers by means of fluorescence-based bioassay (molecular analysis)	Bosch i Gimpera Foundation
Project to monetise research into microwave images and apply it to clinical and industrial uses (a very promising method, being low-cost, portable and secure)	Pompeu Fabra University
Research, development and production of new biostimulating products for efficient and sustainable agriculture, especially in situations of environmental stress such as drought, based on biotechnological innovation, with the aim of increasing the yield of crops affected by environmental challenges	Centre for Agri-economic Research
Development of a lighting device that can be fitted to surgical instruments to improve visualisation during surgery	Germans Trias i Pujol Institute for Scientific Research Foundation
Generation of a robust intellectual property strategy, a business model and identification of marketing opportunities for SUMO (small ubiquitin modifier) conjugation as a strategy for the discovery of drugs	Centre de Recerca en Centre for Agri-economic Research
Establishment of a new company capable of becoming a provider of solutions for society and the medical community with regard to reducing interventions linked to the implantation of stents, increasing the health quality of the patients and reducing costs associated with interventions	Ramon Llull University
Development of a system called FENIX, which is placed between the antenna and the receiver and improves the reliability of the devices that use GNSS in the presence of RFI thanks to a combination of algorithms originally developed for microwave radiometers and GNSS reflectometers	Polytechnic University of Catalonia
Development of a new thermal insulation material, totally biodegradable, made from agricultural by-products and natural rubber	Polytechnic University of Catalonia
Development of CASPER, a pet, social, cognitive, care robot, for children in hospital	Polytechnic University of Catalonia
Development of a complete microfluid platform for multi-parameter analysis of a single blood sample	Polytechnic University of Catalonia

Projects	Beneficiaries
Development of a prototype contactless electromagnetic sensor to precisely measure angular and angular speeds in rotatory elements such as servomechanisms, rotors and inertia wheels (used in satellites)	Autonomous University of Barcelona
Development of a technology demonstrator of a fully- integrated 3-axis CMOS accelerometer, research into sealing the device, presentation of patents and planning a growth strategy for the proposed CMOSMEMS accelerometer	Polytechnic University of Catalonia
CELIFAST Project for the instant diagnosis of celiac disease at the point of care, based on magneto-operated platforms and deamidated magnetic peptides	Autonomous University of Barcelona
Development of a biosensor based on plasmonic photonics, giving precision at low cost	Polytechnic University of Catalonia
Study of the effectiveness and safety, in vitro and in vivo, of the antitumour agent PANCAd to treat patients with pancreatic cancer	August Pi i Sunyer Institute of Biomedical Research
Project to obtain and market a new molecule that acts as an antibiotic in gram-negative bacteria	Institute of Biomedical Research Foundation
Advanced development of a technology that enables the generation of ultra-fast soft X-rays with a duration of attoseconds; that is, to deliver a compact device that unravels evasive ultra-fast electronic movement, which determines how electronic circuits or solar cells work, or how medication is produced	Institute of Photonic Sciences
Diagnostic system for a polymer membrane fuel cell	Scientific Research Council
Creation of a quantum random number generator (QRNG) with unprecedented features, size and cost; an optoelectronic device with potentially enormous impact on ICTs	Institute of Photonic Sciences
Development of a modular generator to produce electrical energy from heat contained in fluids through waste recovery by the Seebeck effect	University of Girona
Analysis of the technical and commercial viability of marketing a product based on gallic acid as an antihypertensive food or nutrition ingredient, and the development of a business plan for this product	Rovira i Virgili University Foundation
R&D project on edible insects as a sustainable protein source: breeding technology and inclusion in traditional Mediterranean recipes	University of Lleida
Reversible video watermarking system for real-time applications (WaterVideo)	Foundation for the Open University of Catalonia
Reactive plan: a tool for continuous planning of software versions	Polytechnic University of Catalonia
System for prediction and management of admissions pressure in hospital emergency departments	Polytechnic University of Catalonia

Projects	Beneficiaries
Web-based platform to identify interruptions of fronto-subcortical connectivity in brain disorders	Bellvitge Institute of Biomedical Research (IDIBELL)
Development of antibiotics to treat infections acquired in the hospital due to Gram-negative bacteria resistant to multiple medications	Bosch i Gimpera Foundation
SCREAM: Super fast confocal microscopy based on efficient acoustic-optical modulation	Bosch i Gimpera Foundation
Validation of the capacity of SKL in the bloodstream to cross the BBB and its therapeutic use in neurodegenerative and demyelinating diseases	Autonomous University of Barcelona
Sustainable economic valorisation of electronic waste	Polytechnic University of Catalonia
Portable device to measure blood flow non-invasively	Institute of Photonic Sciences
NC-p38i: Innovative therapeutic candidates for ischemic and myocardial reperfusion injuries	Biomedical Research Institute Foundation
3D printed multiplexer for wireless communications	Telecommunications Technology Centre of Catalonia
Flexofabric	Catalan Institute of Nanoscience and Nanotechnology
Detection and imaging of underground antipersonnel (AP) mines and other underground objects using high frequency ultrasonic scanner	Institute of High Energy Physics
Plant healing	Institute of Material Science of Barcelona - CSIC
Salivaomics: identification of genomic markers to improve early detection of ovarian cancer	Vall d'Hebron University Hospital Research Institute Foundation
DIGITUSII: automatic indexing service for manuscript archives	Computer Vision Centre
Endovascular bioresorbable patch for aortic dissection repair	Ramon Llull University
Customisation and 3D printing of absorbable meshes	International University of Catalonia Private Foundation
Nanoparticle-based intra-canal endodontic medication	International University of Catalonia Private Foundation
Use of bacteria in the treatment of acne	International University of Catalonia Private Foundation

Projects	Beneficiaries
VIDAA, virtual platform for the implantation of devices in left atrial appendages	Pompeu Fabra University
Transparent photovoltaic windows integrated into buildings	Institute of Photonic Sciences
Voltage programmable magnetic reading system for use in smart, robust, energy efficient magnetic keys	Autonomous University of Barcelona
MIREGAMIS, mixed-reality gaming platform for small figurines	Pompeu Fabra University
System of filtering photocatalytic lamellae to be housed inside the ventilation chamber in facade panels	Politechnic University of Catalonia
Extracellular vesicles as a tool for identifying new Chagas disease biomarkers	Barcelona Institute for Global Health
High speed additive manufacturing of and resolution using a new system for controlling the positioning of the added material	Energy Research Institute of Catalonia
Search for the therapeutic indication of new dual molecules that act as ligands for sigma receptors and inhibitors of soluble epoxide hydrolase enzymes	Bosch i Gimpera Foundation
System based on gas sensors for monitoring and security of elderly people at home	Politechnic University of Catalonia
New fast, efficient and safe teeth whitening treatment	Autonomous University of Barcelona
MV-Optimizer: validation of a computer system for managing ventilated patients in intensive care	Politechnic University of Catalonia
Priming with polyamines from the rhizosphere to induce stress tolerance in plants	Bosch i Gimpera Foundation
Integrated system for the detection of heavy moving vehicles	Politechnic University of Catalonia
New prostate cancer drugs based on first-in-class androgen receptor dimerization inhibitors	Bosch i Gimpera Foundation
Electronics printed on an innovative substrate to give robots the sense of touch in human-robot interaction	Bosch i Gimpera Foundation
Low-cost colorimetric sensors the detection of gases, aimed at IoT applications	Bosch i Gimpera Foundation
POLIMON: biorenewable material based on terpene polyesters	Institute of Chemical Research of Catalonia
Study of the adjuvant effect of DIF-P in an influenza vaccine	University of Lleida
GEL-AID: gelled water for hydration in patients with dysphagia	University of Lleida
DendriTHERAP: transcriptomic analysis in new dendritic cells to design a therapy for autoimmune diabetes	University of Lleida
Soluble epoxide hydrolase inhibitors as a treatment for Niemman-Pick C disease	Bosch i Gimpera Foundation

Projects	Beneficiaries
MoCoTo: mobile corneal topography	Foundation for the Open University of Catalonia
IBBSM: system to find the right time and quantity to repopulate silos and optimise their restocking and delivery routes	Foundation for the Open University of Catalonia
MyoHeal: paradigm shift in muscular regeneration	Autonomous University of Barcelona
ATOMSIM: atomistic simulations for materials design	Barcelona Supercomputing Center
Evaluation of new compounds to increase neuronal activity in Alzheimer's disease	Autonomous University of Barcelona
PositivethinkingApp and DistractApp: apps to manage pain	Foundation for the Open University of Catalonia
Development of alloys for 3D printing of metal parts in semi-solid state	Politechnic University of Catalonia
Scaling of the manufacturing process of advanced catalysts to obtain renewable natural gas	Energy Research Institute of Catalonia
Secure chaos-based long-range communications with synchronised optomechanical crystals	Bosch i Gimpera Foundation
MACONCRET	Politechnic University of Catalonia
Mechanical and atraumatic microvascular suture.	Germans Trias i Pujol Health Sciences Research Institute Foundation
Design of competitive sustainable plastic compounds	Bosch i Gimpera Foundation
Innovative approach to neutron dosimetry in continuous and pulsed fields	Politechnic University of Catalonia
Discovery of drugs and reuse of nucleoside analogues as new and promising antibacterial drugs	Vall d'Hebron University Hospital Research Institute Foundation
HematoTEST: a device for the detection of hematocrit (erythrocytes) and its use in diagnosing medical pathologies related to its dysfunction	Bosch i Gimpera Foundation
Urinary markers in colorectal cancer for the selection and optimisation of appropriate treatments	Rovira i Virgili University Foundation
OnADA: online automated data analysis service	Rovira i Virgili University Foundation
High-performance toxicology and disease modelling with a new 3D tissue model	Fundació Centre de Medicina Regenerativa de Barcelona

Projects	Beneficiaries
Architectural integration of solar thermal collectors made from large format ceramic materials and long-life waterproof sheets.	International University of Catalonia Private Foundation
Optimisation of a nanocarrier for the clinical delivery of small ARNs	Vall d'Hebron University Hospital Research Institute Foundation
Dendro CHECK: a new diagnostic kit to improve detection of the classical swine fever virus	Institute of Agri-Food Research and Technology
Use of nasal colonisers as probiotics against Glässer's disease	Institute of Agri-Food Research and Technology
Diagnostic test to predict the evolution of patients with acute lymphoblastic leukaemia	Autonomous University of Barcelona
High quality magnetic particles	Energy Research Institute of Catalonia
Kit to quantify viable bacteria with the naked eye	University of Girona
Active pitch control of a wind turbine to improve performance in strong winds and gusts	University of Girona
Implementation of FLEA-ChIP-Seq technology at single-cell level for the study of protein-DNA interactions	Centre for Genomic Regulation
CORV: a resilient and versatile converter	Energy Research Institute of Catalonia
Melli: an empathic system for health programmes	Universitat Ramon Llull
CowTalk: automatic classification of the vocalisations of cows to monitor their welfare	Universitat Ramon Llull
MithrAtaxia: laboratory validation of the protective effects of Mithramycin A in its therapeutic use in Friedreich's ataxia	University of Lleida
REWOP: system reusing olive residue for application in the tanning industry	University of Lleida
FALCON: fair airtime allocation and bit rate control for DASH video transmission to SDWNs	I2cat Private Foundation, Internet and Digital Innovation in Catalonia
GLASCENT: production of metallic glass powder using centrifugal atomisation technology	Eurecat Foundation
WiLD: wireless system to detect leaks in vehicle production lines sense	Foundation for the Open University of Catalonia
BLAD: BioLiver assistance device	Institute for Bioengineering of Catalonia
New ejection pump inhibitors to combat antimicrobial resistance	Autonomous University of Barcelona

Projects	Beneficiaries
Lignin extracted from olive dregs as a natural enhancer of agricultural soils	University of Lleida
MACROSENSE: macroporous silicon-based methane spectroscopic sensor to monitor natural gas pipelines	Politechnic University of Catalonia
BactRNAClean: new therapy against antimicrobial resistance	Autonomous University of Barcelona
MESOI: method of visual detection of plant diseases in soilless indoor farming environments	Universitat Ramon Llull
SPVIoT: smart monitoring and prediction of vegetation growth around power towers using advanced laser technologies and artificial intelligence with cloud energy	Universitat Ramon Llull
smartNorms: smart system for the verification of architectural and construction standards	Institut d'Investigació en Intel·ligència Artificial del CSIC
SCREW: scalable and reproducible epitaxial system for exfoliation of graphene deposited on silicon carbide wafers	Institut de Microelectrònica de Barcelona, del CSIC
TECNANO: innovative technology for the in situ quantification of nano and microplastics in marine waters	Rovira i Virgili University Foundation
Astrocytic therapies for the treatment of cranioencephalic trauma	Autonomous University of Barcelona
MAR2EA: high-efficiency monitor to measure radon concentrations in the environment and in radiation protection applications	Politechnic University of Catalonia
Development of a new ocular tamponade for the treatment of retinal detachment	Germans Trias i Pujol Health Sciences Research Institute Foundation
Determination of bioactive components derived from the microbiota by microsampling	University of Lleida
New drugs against antibiotic-resistant "supermicrobes"	Autonomous University of Barcelona
HOLOBIPV: “holoGraph” photovoltaic concentrators integrated into buildings for electricity generation and lighting control	University of Lleida
CORNEAL-BC: new nanocellulose dressings to treat corneal wounds	Institute of Materials Science of Barcelona CSIC
Autonomous networks to monitor animal welfare and reduce events of annoying smells	Politechnic University of Catalonia
VACON: valorisation of slurry by cryoconcentration	Fundació Universitària Balmes

Projects	Beneficiaries
Artificial intelligence applied to brain organoids for the discovery of new drugs	Pompeu Fabra University
DyPes microsimulation model, projection of sustainability and adequacy of pensions	Bosch i Gimpera Foundation
GRDICON (Grid Consultor): 3D tool for the exploration of professional identity in healthcare organisations	Bosch i Gimpera Foundation
Concept test of the ligand-based repositioning (LBRS) of a phenolic compound with anti-amyloidogenic activity	Bosch i Gimpera Foundation
TIRECAT: catechol-based insulating membranes for tissue regeneration in osteoarthritis	Catalan Institute of Nanoscience and Nanotechnology
THYROFAST: determination of thyroid hormones in situ using 3D-printed electrochemical platforms based on hybrid graphene nanobiomaterials	Autonomous University of Barcelona
NANOINKS: photoactive, multi-response printable hybrid nanoparticles as anti-counterfeiting markers	Catalan Institute of Nanoscience and Nanotechnology
EPSsus: sustainable biopolymers from waste	Fundació Universitària Balmes
SeaRealSense: in situ real-time monitoring and detection system of pollutants in marine environments	Bosch i Gimpera Foundation
CO_2-ALPHA: autotrophic CO_2 recovery system for PHA production	Fundació Universitària Balmes
New dual-acting compounds for the treatment of neurodegenerative diseases	Bosch i Gimpera Foundation
Development of a magnetic device with enhanced security for information storage	Institute of Materials Science of Barcelona CSIC
Zinc coating to improve the cycling of Zn-air batteries	Consell Superior d'Investigacions Científiques
Development of new methods to introduce fluorinated modifications that increase the pharmacological activity of the active ingredients	Rovira i Virgili University Foundation
Portable electronic device controlled by an app to measure flour dough elasticity in situ	Bosch i Gimpera Foundation
Validation of Fanconinib hits: DNA repair as a therapeutic target in cancer	Hospital de la Santa Creu i Sant Pau Research Institute

Source: Agency for Management of University and Research Grants.

A.6.2. “Product” projects

Projects	Beneficiaries
Development and approval of a prototype medical device to prevent infections in prostate biopsies	Pompeu Fabra University
In vivo studies of the efficacy and safety of a fragment of antibody derived from bapineuzumab to treat Alzheimer's disease	Autonomous University of Barcelona
Development and concept testing of a near-field UHF-RFID reader based on field confinement devices	Autonomous University of Barcelona
Establishment of a spin-off company, SixSenso, which will produce a prototype, validate and promote an optical platform	Institute of Photonic Sciences
Development of an antimetastatic nanoconjugate aimed at metastatic CXCR4+ stem cells	Hospital de la Santa Creu i Sant Pau Research Institute
Development of industrial applications for a new antibiofilm agent for the food and drink industry	Autonomous University of Barcelona
Project to use magnetic metamaterials to improve the remote charging of mobile and medical devices and electric cars	Autonomous University of Barcelona
Development of SENSA (System for Endoscopy Stenosis Assessment), image-based computational software, in video-bronchoscope frames in real time to provide a precise assessment of CAO	Computer Vision Centre
Validation of the Multi-Stage Core modular desalination system, which separates freshwater through a method of evaporation and condensation that emulates natural processes, forcing the thermodynamic conditions so that this effect occurs in an efficient, controlled manner and with minimum energy consumption	International Center for Numerical Methods in Engineering
Cardiovascular scale	Politechnic University of Catalonia
Manufacture of a high efficiency electrolyser system for energy storage (FETENS)	Energy Research Institute of Catalonia
Rapid detection of bacteriophages as viral indicators in water (AQUAPHAGE)	Bosch i Gimpera Foundation
ColorChecker: SaaS for automatic colour recognition	Bosch i Gimpera Foundation
Multichannel code for 3D audio	Eurecat Foundation
PoC for detection of hepatic steatosis: STEAPoC	Eurecat Foundation
CIplanner: system for surgical planning of cochlear implants	Pompeu Fabra University
Optimisation and validation of a microwave imaging prototype for endoscopic explorations and interventions (MiWEndo)	Pompeu Fabra University
Valorisation of NeuroHeal as a neuroprotective and regenerative agent for peripheral nerve injuries	Autonomous University of Barcelona

Projects	Beneficiaries
A human derived peptide (hECP-5P36) as a new antimicrobial agent to combat bacterial resistance	Autonomous University of Barcelona
FENIX - Front-End GNSS Interference eXcisor	Politechnic University of Catalonia
Micro-injection machine for photonic integrated circuit encapsulation with optical performance using thermoplastic materials	Politechnic University of Catalonia
Synthia: collection of synthetic scanned images of driving scenarios	Computer Vision Centre
LIPID targeting in breast cancer	Biomedical Research Institute Foundation
Proof of concept for brain delivery of therapeutic antibodies using Gate2Brain technology	Biomedical Research Institute Foundation
New devices for in vitro diagnosis for the clinical treatment of tuberculosis and hepatocellular carcinoma	Germans Trias i Pujol Health Sciences Research Institute Foundation
Immunotherapy against p95HER2 positive breast cancer	Vall d'Hebron Institute of Oncology
Accelerating the digitisation of the integrated systems industry (SDESI)	Barcelona Supercomputing Center
SOUNDTILES: mapping the invisible under water	University of Girona
Validation of Apo J-Glyc as a biomarker of ischemic injury	Hospital de la Santa Creu i Sant Pau Research Institute
Catalan CubeSat Platform	Institute of Space Sciences of Catalonia
Smart electronics to monitor metabolites in sweat (SEAMLESS)	Autonomous University of Barcelona
Gate2Brain-4-DIPG, a proof of concept for the treatment of minority paediatric brain tumours using Gate2Brain technology	Biomedical Research Institute Foundation
IDPR: smart router for energy distribution	Politechnic University of Catalonia
NanoTarg: teranostic nanobales with tumour targeting	Pompeu Fabra University
SUMOblock: new treatments for acute myeloid leukaemia	Centre for research in agricultural Genomics
In vivo concept test of a broad-spectrum antiviral	Pompeu Fabra University
Biotechnological production of formaldehyde-free bioadhesives from recycled organic solid waste (slurry)	Pompeu Fabra University

Projects	Beneficiaries
SeptiLoop: a rapid diagnostic kit that identifies bacterial infections in the blood through immune activity and assists clinical decision making in emergency situations, optimising treatment of sepsis	Bellvitge Institute for Biomedical Research
Development of green facades using concrete with improved bioreceptivity	Politechnic University of Catalonia
Optimisation and validation of a biotechnology-based prototype for recovering valuable metals present in electronic waste	Politechnic University of Catalonia
STCC: a new steel-concrete connection system in mixed tubular pillars to improve the load capacity and fire resistance of the structure	Politechnic University of Catalonia
Trip Doctor: a mobile-based participatory system to improve the health of the traveller	Barcelona Institute for Global Health
Brain Health Coaching App, an ICT-based coaching app to promote brain health	Fundació Institut Guttmann
Smart pill for the treatment of pneumonia	Centre for Genomic Regulation
NICVA: non-invasive device to quickly monitor cardiovascular health	Politechnic University of Catalonia
Modulation of alternative splicing as a new treatment for lung cancer	Centre for Genomic Regulation
Experimental demonstration and commercial viability of an energy efficient universal refrigeration system	University of Lleida
ABLE: robotic exoskeleton that enables the user to walk naturally and intuitively again after spinal cord injury	Politechnic University of Catalonia
X-ray detector with innovative photon counting ASIC	High Energy Physics Institute
ISCHEMSURG: miniaturised electrochemical sensor for non-invasive real-time postoperative control of tissue ischemia	Institute for Bioengineering of Catalonia
Sensoraïm: autonomous distributed sensor networks for smart grape-growing	Institute of Materials Science of Barcelona CSIC
Hypoglycemia minimize	University of Girona
Endovascular repair patch	CETS Sarrià Chemical Institute Private Foundation
Validation of the design of inflatable breakwaters for smart protection of sandy beaches against erosion	International Centre for Numerical Methods in Engineering
D2PATCH: disposable digital patch to monitor dehydration	Barcelona Microelectronics Institute CSIC

Projects	Beneficiaries
VACNUM	Vall d'Hebron University Hospital Research Institute Foundation
Development and application of cerium nanoparticles in the treatment of hepatocellular carcinoma	- Catalan Institute of Nanoscience and Nanotechnology - August Pi i Sunyer Biomedical Research Institute
CFIP: carbon fibre injection technology in parts made with 3D printing	Eurecat Foundation
ImmerSeaView: immersive underwater vision system	University of Girona
Manufacture of catalysts to produced renewable synthetic natural gas	Energy Research Institute of Catalonia
New compositions targeting breast and ovarian cancer stem cells	Centre for Genomic Regulation
Salt4Health: boosting the taste for salt	Eurecat Foundation
UNI-LARGE: advanced gene editing platform	Pompeu Fabra University
Synflora advanced skin therapeutics	Pompeu Fabra University
APoEmA: drinking water for isolated sites	International Centre for Numerical Methods in Engineering
Add2Man: design tool for optimum performance in additive manufacturing	International Centre for Numerical Methods in Engineering
NEUTROON: 5G neutral host platform	I2cat Private Foundation, Internet and Digital Innovation in Catalonia
MyoSleeve: a care device for the treatment of neuromuscular injuries related to the forearm	Politechnic University of Catalonia
PRP-HO7 family: new biological immunomodulators against autoimmune diseases	Bellvitge Institute for Biomedical Research
DERMOGLASS: manufacture and evaluation of a prototype dressing for wound healing	Institute for Bioengineering of Catalonia
Automatic Hyperspectral Pest Count: improving the efficiency of integrated pest control through photonic engineering	Politechnic University of Catalonia
PHOTO-RX	Institute of Chemical Research of Catalonia
IoT network for remote areas	Ramon Llull University

Projects	Beneficiaries
Ophthalmic instrument based on the degradation of the corneal reflex for the evaluation of the tear film	Politechnic University of Catalonia
pHotoYOGURT: online optical determination of pH for yoghurt production	Autonomous University of Barcelona
BeAR: going beyond automatic reading systems	Computer Vision Centre
EPPICS: technological tools for early prevention of intensive post-treatment syndrome	Parc Taulí Foundation
New immunotherapy strategy for cancer and diagnostic testing	Germans Trias i Pujol Health Sciences Research Institute Foundation
New probiotic strategies for obesity control and diagnostic kit development	Pere Virgili Institute for Health Research
3D skin cancer analyser	Politechnic University of Catalonia
In vitro method predict the risk of mortality in patients with cardiogenic shock	Germans Trias i Pujol Health Sciences Research Institute Foundation
NC-p38i-II: new candidates to prevent damage to the cardiac cells	Biomedical Research Institute Foundation
Boston keratoprosthesis bactericide based on silver nanoparticles and biofunctionalised to prevent retroprosthetic fibrosis	International University of Catalonia Private Foundation
CAD-based therapies as a new autophagic mechanism in leukaemia	Josep Carreras Leukaemia Research Institute
A simple, inexpensive tool for the diagnosis of cystinosis	Higher Council for Scientific Research
MAQA: autonomous monitoring of water quality	Bosch i Gimpera Foundation
PASCAL: programmable matrix microscope with virtual filtering	Bosch i Gimpera Foundation
iPOLE	Technological Center of Telecommunications of Catalonia
Toxicity control chamber for micropollutants	Rovira i Virgili University Foundation
PARPiPRED: diagnostic test to enable personalised medicine in cancer treatment	Vall d'Hebron Institute of Oncology

Projects	Beneficiaries
Apotransferrin as a new therapeutic strategy for treating ischemic stroke	Germans Trias i Pujol Health Sciences Research Institute Foundation
Automated modular array of latest-generation bioreactors for *in vitro* plant growing	Institute of Agri-Food Research and Technology
Synthetic erythrocytes for influenza virus surveillance	Vall d'Hebron University Hospital Research Institute Foundation
e-PROFOUND: early prognosis markers for neurodegenerative diseases	Hospital de la Santa Creu i Sant Pau Research Institute
3D-Crete: development and optimisation of a cementitious material for 3D printing	Politechnic University of Catalonia
Stellate liver cells for biomedical and technological applications	August Pi i Sunyer Biomedical Research Institute
SalivOmiX: miRNA-based saliva test for early diagnosis of ovarian cancer	Vall d'Hebron University Hospital Research Institute Foundation
Industrial implementation of burnishing to finish the surfaces of injection moulds	- Politechnic University of Catalonia - Balmes University Foundation
RES-KIT: point-of-care kit to detect antimicrobial resistance	- Barcelona Institute of Microelectronics, CSIC - Institute of Agri-Food Research and Technology
ASFREE: nanostructured system based on nanofibres with high efficiency in the removal of arsenic in contaminated water	- Autonomous University of Barcelona - Leitat Technological Centre
CYBERLUNG: cyber bronchoscopy guide for lung cancer biopsies	- Computer Vision Centre - Autonomous University of Barcelona

Source: Agency for Management of University and Research Grants.

A.7. Public procurement of innovation

A.7.1. Individual projects in the PPI programme in the health sector

Projects	Beneficiaries
System for monitoring intestinal perfusion in colorectal surgery. Solution for the evaluation of intraoperative intestinal vascularisation, integrated into one laparoscopy tower.	Parc Taulí Health Corporation
Information support system for breastfeeding in hospital. Solution based on technological elements (sensors, communications and software) to provide support for the breastfeeding service in hospitals.	Parc Taulí Health Corporation
Digital transformation of the hospital emergency triage system. New technology to support the emergency assistance service that uses artificial intelligence to enable the assessment of symptoms for early preliminary diagnosis (practically at the triage phase itself) and to aid clinical decision making.	Parc Taulí Health Corporation
Improved comprehensive care for patients with arrhythmias. Implementation of a new care model for patients with arrhythmias that entails the remodelling of the current healthcare structure, patient empowerment and the introduction of ICT solutions.	Catalan Health Institute
Integral, transversal and multidisciplinary management of aortic valve stenosis (MITMEVA). Implementation of a new assistance model (integral, multidisciplinary and continued) for patients with aortic valvular stenosis who are candidates for medical treatment or valve replacement via surgery or percutaneous intervention (TAVI).	Hospital Clínic de Barcelona Consortium
Diagnostic service for patients with undiagnosed pulmonary nodules. Solution for bronchoscopy that incorporates electromagnetic navigation technologies to diagnose pulmonary nodules in which due to their size or position in a peripheral lobe, it is impossible to obtain samples from the patients and, therefore, to diagnose them using current techniques.	Hospital de la Santa Creu i Sant Pau Health Management Foundation
Detection, communication and intervention among the adolescent and young adult population who present or are at risk of presening psychotic disorders. New online technology, with exploratory game specifically for the detection, communication and treatment of psychotic disorders in young adolescents and adults who present, or are at risk of presenting, this pathology.	Sant Joan de Déu Health Park
Implementation of a new approach to the diagnosis and care of Sexually Transmitted Infections. Implementation of a new screening circuit that includes the development of new technology based on ICT tools and enables quick and easy detection and early treatment of STIs.	Catalan Health Institute
Improved results from the clinical processes of repeated urinary infections. Establishment of a new monitoring model of based on a strategy of preventive and non-reactive intervention through the purchase of new technology that enables patients to monitor their own urine pH.	Puigvert Foundation

Projects	Beneficiaries
Territorial integrated model of ophthalmology. Implementation of a new ophthalmic care model that improves both eye health and patient satisfaction.	Salut Empordà Foundation
Improved care and quality of life among pluripatological patients who have had a stroke. Improving the care, monitoring, control and quality of life of patients who have had a stroke, based on improving current care and work protocols, empowering patients (through the use of ICT) and adopting new tools for diagnosis, monitoring and rehabilitation.	Catalan Health Institute
Provision of quality care, free from mechanical and chemical imperatives. Implementation of a new service that enables the transition of hospitalisation provisions (general, hospice, mental health and intellectual impairment) to unassisted care without imperatives and which also guarantees the safety of patients and their environment, through the purchase of innovative technology.	Sant Joan de Déu Health Park
Implementation of an intensive recovery programme (IRP) in gynaecological and mammary oncology surgery and pelvic floor repair surgery. Intensive recovery programme based on the application of pre-operative strategies to reduce stress caused by surgical intervention. The aim is to achieve better and quicker patient recovery, a decrease in complications and mortality and a reduction in the overall health costs of the surgical process.	Catalan Health Institute
Personalised surgery service: effectiveness, precision, safety and quality in surgery and the implantation of prostheses/3D custom implants. Implementation of a new personalised, comprehensive health care service that includes the design and implantation of prostheses or custom implants, based on new digital technologies, 3D printing and results assessment.	Catalan Health Institute

Source: Directorate-General for Economic Promotion, Competition and Regulation.

A.7.2. Collaborative projects in the PPI programme in the health sector

Projects	Beneficiaries
Improved care for critical patients through early and continuous assistance. Implementation of a new organisational system for care services for critical patients based on two elements: the cooperation of the entire medical and nursing team in identifying and providing care for the critical patient during hospitalisation; and the technological support necessary for the early detection and monitoring of patients at risk of serious clinical deterioration before they enter the intensive care unit.	- Catalan Health Institute (Coordination) - Parc Taulí Health Corporation

Projects	Beneficiaries
Unit of excellence in diabetes. Implementation of a new personalised medical service to provide care for patients with type I diabetes that includes the use of continuous monitoring technologies, systems to integrate clinical data (regardless of the type of devices and location) and new monitoring technologies that enable the development of new systems for patient stratification.	- Sant Joan de Déu Hospital (Coordination) - Parc Taulí Health Corporation
Home dialysis service. Implementation of a new home dialysis service through the purchase of various innovative technological solutions.	- Terrassa Health Consortium (Coordination) - Catalan Health Institute
Telemonitoring and personalised information for chronic patients. Introduction of a new healthcare model that involves primary, specialised, hospice and social care workers to improve health outcomes and the quality of care provided to chronic patients.	- Consorci Sanitari Integral (Coordination) - Institut Català de la Salut

Source: Directorate-General for Economic Promotion, Competition and Regulation.

A.8. R&D&I Infrastructures

A.8.1. Large scientific and technological infrastructures

Projects	Beneficiaries
- Improving the reliability of radio frequency transmitters in the ALBA synchrotron - Standard equipment for accelerator vacuum systems and light lines - Standard equipment for electronic and wiring systems - New BL20-LOREA light line at the ALBA synchrotron - New BLXX-FAXTOR light line at the ALBA synchrotron - Cross-cutting improvements to the lines and infrastructures of the ALBA synchrotron	CELLS, Consorci per a la Construcció, Equipament i Explotació del Laboratori de Llum Sincrotró
- Large laboratory equipment to implement new genomic applications - Expansion of the capacity to calculate and store massive genomics data	Centre for Genomic Regulation
- Construction and adaptation of research spaces, facilities and equipment and their connection with research infrastructure in the BSC-CNS headquarters building and adjoining and related sites	Barcelona Supercomputing Center

Source: Directorate-General for Research

A.8.2. Singular infrastructures

Projects	Beneficiaries
Equipping new laboratory spaces and acquisition of scientific equipment for IBEC laboratories to develop regenerative medicine and nanomedicine technology	Institute of Bioengineering of Catalonia
Equipping spaces such as laboratories, and acquisition of the necessary scientific equipment to conduct highest-level research in the field of the human brain	Pompeu Fabra University
Creation of the IQS Centre for Transfer in Integrated Processes and Technologies (CTPTI), advanced infrastructure for research and technology transfer to industry	CETS Chemical Institute of Sarrià Private Foundation
Fitting laboratories and associated premises with R&D facilities and equipment from the Diagonal-Besós Campus	Polytechnic University of Catalonia
Project for the construction and furnishing of the Pasqual Maragall Building, infrastructure to implement a scientific programme on Alzheimer's disease and other related neurodegenerative diseases	Pasqual Maragall Private Foundation for Alzheimer Research
Construction of IoTiCAT, a facility to enable participatory development, interdisciplinary learning and creative activities in the context of the Internet of Things, as well as the interaction of people with the environment	University and Technology Private Foundation

Projects	Beneficiaries
Construction of a new building for research into biomedical sciences	Hospital de la Santa Creu i Sant Pau Foundation
New building dedicated to research into translational medicine, biomedicine and biotechnology	Biomedical Research Park of Barcelona Consortium
Conversion and adaptation research facilities in the Biomedical Research Park of Barcelona (PRBB) building to house the new EMBL outstation, and extension of the CEXS-UPF Department	Catalan Institute of Nanoscience and Nanotechnology
Adaptation of services, spaces and facilities for the new EMBL outstation	Centre for Genomic Regulation
Optimisation, adaptation and improvement of facilities, and acquisition of technological equipment for the integration of the Centre for Regenerative Medicine (CMRB)	Bellvitge Biomedical Research Institute
Extension and adaptation of the UAB Animal House Service	Autonomous University of Barcelona
Equipping a facility at Sant Joan de Déu hospital where different processes will be applied to provide a scientific and technological response to patients with minority illnesses	Sant Joan de Déu Private Foundation for Research and Teaching

Source: Directorate-General for Research.

A.8.3. Cooperative infrastructures

Projects	Beneficiaries
TICxVIDA. Installation of a computer infrastructure that supports HPC (high performance computing) and Mass Data applications for projects in the field of life sciences, bringing together knowledge and resources to facilitate participation in research projects involving the computer use and processing of large volumes of biological data	Barcelona Supercomputing Center
Transmission cryo-microscope with direct electron detector for the analysis of biological macromolecules	Higher Council for Scientific Research
METCAM-FIB: transmission electron microscope with monochrome aberration correctors and focused ion beam	Catalan Institute of Nanoscience and Nanotechnology
Creation and development of the Biomedical Proteomics Platform for biomedical and translational applications	- Centre for Genomic Regulation - Institute for Research in Biomedicine Foundation

Projects	Beneficiaries
PLICAT: Lipidomic Platform of Catalonia	Lleida Biomedical Research Institute
CATSUD Nanotechnology Platform	Rovira i Virgili University
Advanced electron microscopy for research, innovation and knowledge transfer	University of Barcelona

Source: Directorate-General for Research