

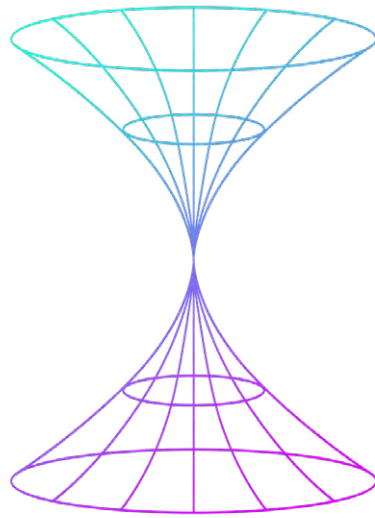
# Deep Tech Strategy Spain

Technologies  
of the Future

Executive Summary

## Deep Tech Strategy Spain

2026-2030



## Deep Tech Strategy Spain

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Technologies  
of the Future

**The time to act is now.** After a decade of transformation and sustained investment, Spain has built a strong foundation in science, talent, and innovation to lead the technologies that will shape the future. Moving forward with ambition and a national vision in disruptive fields such as artificial intelligence, biotechnology, clean energy, and quantum computing will open a new era of prosperity, strategic autonomy, and sustainability, while strengthening Spain's voice on the global stage.

# Driving Spain's leadership in the technologies of the future

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In recent years, Spain has steadily increased its investment in R&D, reaching historic highs, strengthened its regulatory framework, and deployed strategic instruments such as the Strategic Projects for Economic Recovery and Transformation (PERTE), the National Artificial Intelligence Strategy, and the Quantum Technologies Strategy, among others. At the same time, Spain's technology startup ecosystem has undergone remarkable maturation, venture capital investment has multiplied, and public-private collaboration has intensified.

**The objective of the Strategy is to position Spain among the global leaders in the development, scaling, and industrialization of Deep Tech**

Today, the challenge lies not only in generating knowledge, but in transforming it into technological leadership, strategic autonomy, and shared prosperity. Turning scientific advances into globally competitive companies requires effective strategic coordination, strong public leadership, and the deployment of appropriate financial instruments.

Against this backdrop, the **Deep Tech Strategy Spain 2026–2030** has been launched with the objective of positioning Spain among the global leaders in the development, scaling, and industrialization of deep technologies (deep tech). These technologies are grounded in advanced science, involve high technological risk, and hold significant potential to transform productive systems and society as a whole.

The Strategy establishes a stable, coherent, and integrated framework to guide the advancement of frontier technologies; strengthen collaboration among universities, research and technology centres, firms, and public administrations; and ensure that our country's scientific potential is translated into prosperity, high-quality employment, technological autonomy, and social well-being. The Strategy also aims to promote territorially balanced development by fostering the creation of a truly interconnected network of innovation hubs.

In line with the European Union, Spain recognizes that technological sovereignty extends beyond economics and has become a matter of geopolitics, security, and strategic resilience. Recent disruptions and growing international competition have highlighted the need to strengthen critical capabilities and protect strategic knowledge, not only to safeguard key assets, but also to create the conditions that will enable the scientific, technological, and industrial ecosystem to scale, compete, and lead in the technologies that will shape the future. In addition, the Government of Spain advocates for steering scientific progress and innovation towards the common good, promoting the responsible development and use of emerging technologies for the benefit of society, with full respect for human rights, equity, and social well-being.

**The Government of Spain advocates for steering scientific progress and innovation towards the common good, promoting the responsible development and use of emerging technologies**

# Priority scientific and technological areas

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**Deep tech** refers to innovations grounded in frontier science that, in addition to driving economic growth and creating new markets, help address some of the major challenges of our time and deliver tangible improvements in citizens' quality of life. Many of these technologies have dual-use applications, with potential across both civilian domains and security and defence contexts. Technologies such as advanced artificial intelligence, quantum computing, advanced materials, and biotechnology exemplify this convergence between scientific innovation and strategic applications, shaping an ecosystem capable of generating capabilities with simultaneous applications in both the civilian economy and the military domain.

The initial selection of priority deep tech areas is based on strategic guidelines of the European Commission and on a dedicated public consultation conducted by the Ministry of Science, Innovation and Universities in 2025. This selection of technologies may be updated throughout the implementation of the Strategy in order to adapt to the continuous evolution of deep tech.

**1. Biotechnology and health:** Spain is home to one of Europe's most dynamic biotechnology ecosystems, with more than a thousand companies connecting scientific research and the healthcare system, facilitating the transfer of knowledge to patients while generating economic growth and high-quality employment. This environment is further strengthened by Spain's international leadership in clinical trials, developed in close collaboration with the National Health System and under the highest scientific and ethical standards.

**2. Technologies for sustainability and clean energy:** With a high installed capacity in wind and solar energy, Spain has an increasing share of renewables in its energy mix and holds a leading international position in the field of renewable energy. The combination of natural resources, technological capabilities, and energy infrastructure reinforces its strategic role in the ecological transition.

**3. Artificial intelligence and data technologies:** Spain is consolidating its position as one of Europe's leading hubs for artificial intelligence and the data economy. Investments in data infrastructure, supercomputing capabilities, specialised training, and advanced regulatory frameworks are strengthening an ecosystem focused on the responsible development and use of these technologies.

**4. Advanced semiconductors:** In recent years, new capabilities have been developed for the design, manufacturing, and validation of critical electronic components. These advances contribute to the creation of highly skilled employment and the strengthening of technological autonomy, while also facilitating access to more advanced and secure digital technologies.

**5. Advanced connectivity and digital technologies:** Spain ranks among the most advanced countries in high-capacity networks. The widespread deployment of fibre optics and 5G, together with gigabit infrastructure, edge computing nodes, and advanced digital services, is shaping an ecosystem that drives innovation and improves everyday life.

**6. Robotics and autonomous systems:** A strong scientific and industrial base, together with significant participation in European projects, is driving the development of robotic solutions applied to sectors such as industry, logistics, medicine, construction, and agriculture. These technologies are helping modernise Spain's productive fabric and enhance its competitiveness.

**7. Advanced materials, manufacturing, and recycling:** The development of new materials and more sustainable production processes, together with the recovery and reuse of critical raw materials, is advancing significantly. These developments reduce waste, improve industrial efficiency, and strengthen a more circular and resilient production model.

**8. Advanced sensing technologies:** Spain is consolidating capabilities in advanced sensors and integrated photonics, with applications in healthcare, environmental monitoring, and industrial control. These tools enhance prevention, risk monitoring, and decision-making.

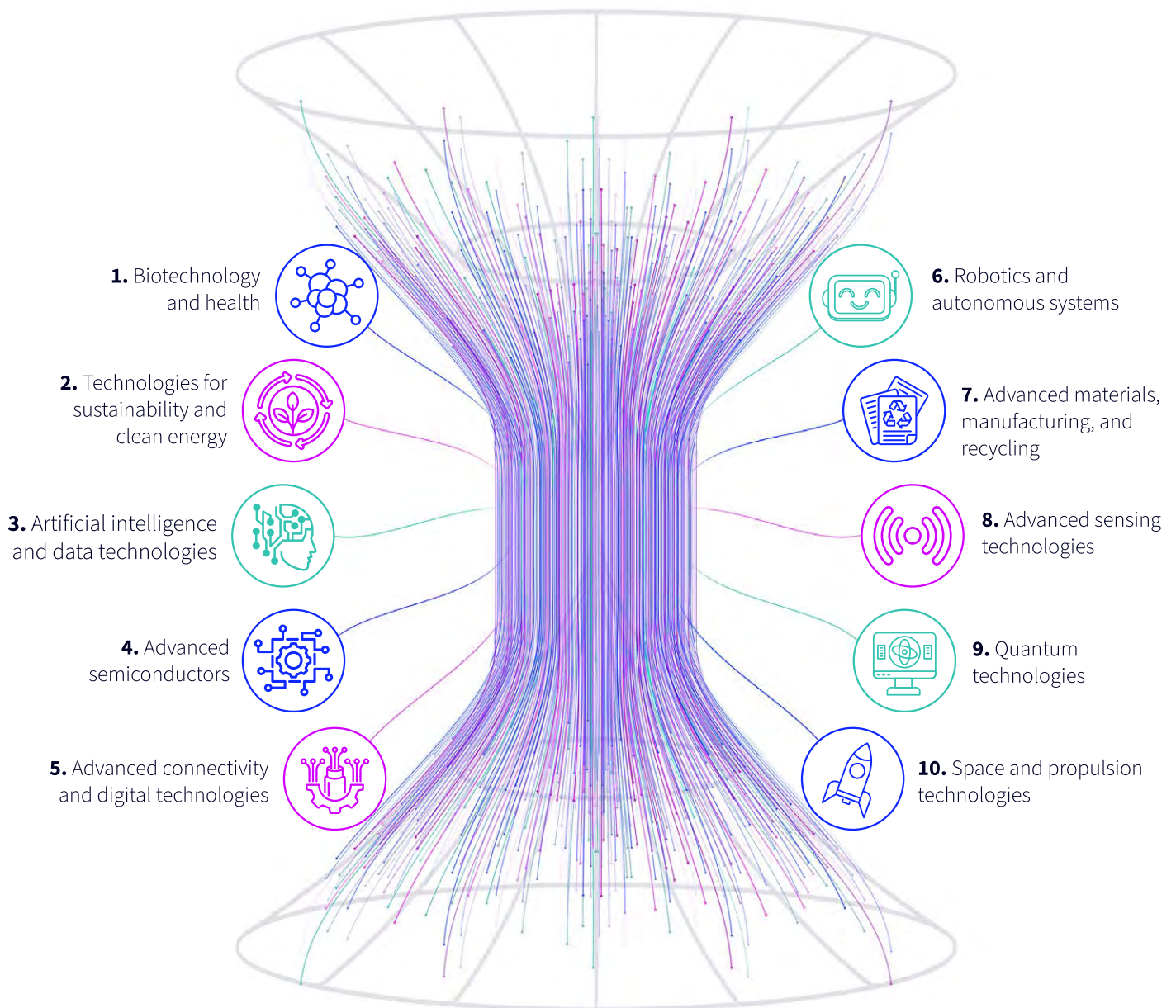
**9. Quantum technologies:** Thanks to a strong scientific system and the development of specialised infrastructure, Spain is positioning itself as a relevant player in quantum technologies. These technologies open new possibilities in computing, secure communications, and high-precision measurement, with applications in science, industry, and security.

**10. Space and propulsion technologies:** In recent years, new capabilities have emerged in Spain for the development of satellites and space systems, which are essential for telecommunications, navigation, meteorology, and Earth observation. The growth of innovative companies and the coordination of the Spanish Space Agency are strengthening Spain's position in the European space sector.



## PRIORITY SCIENTIFIC AND TECHNOLOGICAL AREAS

# Deep Tech Technologies of the future



# Deep Tech ecosystem capabilities and stakeholders

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Spain has a strong and internationally competitive scientific base. Universities, public research organisations, technology centres, and companies form an innovative ecosystem that supports the development and scaling of deep tech technologies. Spain's deep tech ecosystem is built on the interaction among different stakeholders: knowledge-generating institutions, entrepreneurs and technology companies, funding actors —both public and private—, large industrial corporations, support structures, and a transformative public policy framework that fosters innovation and technology transfer, shaping a value chain that connects research with the market and society.



## KEY STAKEHOLDERS IN SPAIN'S DEEP TECH ECOSYSTEM



### PUBLIC ADMINISTRATION (EU, NATIONAL, REGIONAL)

Strategic, political and regulatory framework



### KNOWLEDGE GENERATION SYSTEM

- Universities
- Public research organisations and centres
- Technology centres
- Scientific and technical infrastructures

· Scientific excellence  
· Knowledge transfer

### SMES

- Startups
- Spinoffs
- Scaleups

· Development  
· Validation  
· Scaling



### HUMAN CAPITAL

- Research personnel
- Technical personnel
- Entrepreneurs

· Talent attraction  
· Intersectoral mobility

### LARGE COMPANIES

- Spanish companies
- Multinational companies

· Industrial integration  
· Global value chains  
· Open innovation



### SUPPORT AND INTERMEDIATION ENVIRONMENT

- Incubators and accelerators
- Knowledge Transfer Offices
- Science and technology parks
- Clusters and technology platforms
- Spanish Patent and Trademark Office

### INVESTMENT AND FINANCING

- Public:  
National (AEI, AEI, CDTI, ENISA, ENISA - National Innovation Company, ICO, ISCIII, SETT), Regional/Local, European
- Private:  
Banks, funds, venture capital, private equity



#### \*List of acronyms:

AEE – Spanish Space Agency. AEI – State Research Agency. CDTI – Centre for Technological Development and Innovation  
ENISA – National Innovation Company. EU – European Union. ICO – Official Credit Institute. ISCIII – Carlos III Health Institute  
SETT – Spanish Society for Technological Transformation. SME – Small and medium-sized enterprises

# Structure, objectives and key actions

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The Deep Tech Strategy Spain is structured around three axes, each comprising three objectives and a broad set of measures and initiatives to be implemented over the 2026–2030 horizon. The first axis focuses on strengthening scientific and technological capabilities. The second aims to reinforce the business fabric. The third, cross-cutting axis supports the previous two to foster a more dynamic deep tech ecosystem.

With a total budget exceeding €8 billion, The Strategy brings together existing initiatives and programmes while introducing new measures, providing them with greater coherence and coordination in order to enhance their visibility and effectiveness. It is not intended to be an exhaustive inventory, since new initiatives are expected to be incorporated as they are launched and consolidated.



## STRATEGIC AXES AND OBJECTIVES

**A1**

### Scientific and technological capabilities

- 1.1.** Develop, attract, and consolidate deep tech talent
- 1.2.** Promote deep tech knowledge transfer
- 1.3.** Establish and consolidate internationally recognised research and technology centres in Spain

**A2**

### Industrial and business base

- 2.1.** Stimulate demand for deep tech innovations
- 2.2.** Strengthen public-private capital instruments to support the scaling of deep tech companies
- 2.3.** Develop value chains and support the industrialisation and internationalisation of deep tech companies

**A3**

### Dynamic ecosystem

- 3.1.** Establish a new institutional governance framework for the deep tech ecosystem
- 3.2.** Strengthen technology intelligence, communication, and the visibility of the deep tech ecosystem
- 3.3.** Create a regulatory framework conducive to the development of deep tech companies

**Axis 1** aims to strengthen Spain's scientific and technological capabilities in the field of deep tech by fostering talent, enhancing knowledge transfer, and consolidating world-class research and development infrastructure. It includes the deployment of intensive specialised training programmes, the attraction of international talent, and the development of researchers' capabilities in entrepreneurship and scientific-technological leadership. On the one hand, the human resources programmes of the State Research Agency (AEI) —including Ramón y Cajal, Juan de la Cierva, Torres Quevedo, Industrial Doctorates, and ATRAE— will be increasingly oriented towards deep tech. On the other hand, these actions will be complemented by additional dedicated programmes across different deep tech areas.

In parallel, mechanisms to protect and valorise industrial property will be strengthened, alongside proof-of-concept initiatives connecting research with the market, support programmes for science-based entrepreneurship, and the consolidation of cutting-edge research centres and infrastructures with the capacity to compete internationally. Particular emphasis is placed on the creation of new research centres and scientific infrastructures across the country in different deep tech domains, including Spain Neurotech located on the campus of the Autonomous University of Madrid, IFMIF-DONES in Granada, the Iberian Centre for Research in Energy Storage (CIIAE) in Cáceres, and the particle accelerator for hadron therapy at the Institute of Corpuscular Physics in Valencia, among others.

### **Advanced public-private collaboration models will be promoted to stimulate demand for innovation**

**Axis 2** is aimed at strengthening Spain's deep tech business ecosystem. It accounts for nearly 80% of the Strategy's total budget, reflecting the priority placed on supporting companies from research to market, while accelerating the scaling, industrialisation, and internationalisation of their technologies. To this end, advanced public-private collaboration models will be promoted to stimulate demand for innovation through public procurement, as well as through the creation of shared laboratories, testbeds, and real-world validation environments that facilitate interaction among public administrations, industrial companies, and technology-based startups. A notable example is the Innterconecta STEP programme, launched in 2025 and set to be significantly expanded under this Strategy. Its objective is to finance collaborative R&D projects led by companies proposing innovative solutions to strategic challenges within the framework of the Strategic Technologies for Europe Platform (STEP).

In the financial domain, Objective 2 under Axis 2 envisages a structural reinforcement of public-private capital directed towards deep tech through the expansion of existing instruments —such as INNVIERTE, ICO funds, and the Next Tech programme— as well as the launch of new investment mechanisms, including the Deep Start fund for public investment in venture capital funds and a dedicated technology vertical within the new España Crece sovereign fund, announced by the Government of Spain in January 2026.

### The new Deep Start instrument to boost venture capital in deep tech

Within the framework of this Strategy, the Centre for Technological Development and Innovation (CDTI) has created the **Deep Start** instrument (formerly known as Deep Tech Tech Transfer) in collaboration with the European Investment Fund. It has an initial budget of €353 million, of which €300 million is provided by CDTI, and is expected to expand further over the coming years. Deep Start will invest in specialised venture capital funds to support the scaling of high-impact deep tech projects in Spain. In mid-2025, the call for expressions of interest was launched, attracting a significant number of proposals. In January 2026, the first fund was selected, with €30 million to be invested in accelerating the development of technologies for paediatric disease therapies, providing a clear example of how this Strategy seeks to direct deep tech towards the common good.

Ensuring the availability of patient capital is essential to support companies throughout all stages of their development, to facilitate their industrial scaling, and to strengthen their international expansion, while also promoting the catalytic role of large corporations in the development of value chains, the early adoption of emerging technologies, and access to global markets. Also noteworthy are the ENISA-FEPYME participating loans, a quasi-equity financial instrument designed to stimulate private investment and innovative entrepreneurship, while ensuring that small and medium-sized enterprises can finance their projects without the need to provide additional guarantees.

Among the new measures incorporated into this Strategy, the WISER Project in the strategic field of nuclear fusion stands out as a flagship public-private initiative aimed at positioning Spain among the world's leading countries in the technological and industrial development required to achieve operational nuclear fusion.

### **The WISER project to develop fusion technology as a safe, clean, and virtually limitless energy source**

The WISER Project (WInd-tunnel for a StEllarator Reactor), with an investment of approximately €500 million, aims to demonstrate the scientific and technological feasibility of the stellarator approach to nuclear fusion. It is the result of a strategic partnership between Centre for Energy, Environmental and Technological Research (CIEMAT), Centre for Technological Development and Innovation (CDTI), and Técnicas Reunidas, a global leader in engineering and construction in the energy sector. It represents a clear example of the type of public-private collaboration required at a time when fusion is moving beyond the exclusive domain of research and entering the development phase of a new industrial sector. WISER will be significantly smaller and less costly than a full-scale reactor, while providing highly accurate information on its expected behaviour, thereby minimising the financial, scientific, and technological risks associated with the subsequent design and construction of the larger reactor. The project outlines a unique strategy at the international level and highlights a window of opportunity to position Spain and its companies at the forefront of the race towards commercial fusion power plants for electricity generation. Fusion energy is a potentially disruptive technology with incalculable capacity to transform the global energy system, and one to which only those states and companies that have developed the necessary expert community and industrial capabilities will have access. Furthermore, the convergence in Spain of the WISER Project and IFMIF-DONES —two unique and complementary facilities in preparing the transition towards a fusion reactor— would place Spain in a position of global leadership in the development of this technology.

Under Objective 3 of Axis 2, the Strategy aims to consolidate a fully industrialised and internationally competitive deep tech ecosystem, enabling disruptive technologies developed in Spain to progress from early-stage maturity to production, integration into global value chains, and international commercialisation. Particularly noteworthy in this area is the AI Factories programme of the Ministry of Digital Transformation and Public Administration, which includes the acceleration of artificial intelligence startups and the strengthening of the capabilities of the Spanish Supercomputing Network.

Among the measures to promote internationalisation, in addition to reinforcing existing initiatives such as the Eureka programme, the ICEX NEXT Deep Tech programme will be launched to support deep tech startups in accessing new markets. Alongside

reinforcing support for Spanish companies and research institutions participating in European Union framework programmes, the Centre for Technological Development and Innovation (CDTI) and the State Research Agency (AEI) will further strengthen their international cooperation in deep tech with other research and innovation agencies abroad, such as the recently signed agreement between CDTI and the German innovation agency SPRIND, which includes the development of joint calls.

**Axis 3**, as a cross-cutting axis, aims to consolidate a dynamic, coordinated, and internationally competitive deep tech ecosystem capable of sustaining long-term technological development and maximising the impact of the actions set out under the other axes of the Strategy. To this end, it is structured around three major lines of action combining governance, strategic intelligence, and improvements to the regulatory environment. First, it proposes the creation of a new governance framework capable of overcoming the current fragmentation of the ecosystem through effective coordination among ministries, regional governments, and the private sector.

Second, the Strategy envisages a significant strengthening of technology intelligence and strategic knowledge generation in order to improve decision-making and reinforce Spain's international positioning. This system will be built around the National Deep

Tech Observatory, a new platform integrating information on talent, research, entrepreneurship, infrastructure, and industry, providing a Dynamic Map, a Technology Intelligence Radar, an Annual Report, and a Deep Tech Label designed to identify, recognise, and showcase high-potential startups and projects, while facilitating their access to support instruments. In addition, a new Network of Venture Builders and Deep Tech Factories will be established under the coordination of CDTI to intensify cooperation with investors, venture builders, and other promoters of deep tech startups.

**It is essential to ensure the availability of patient capital to support companies throughout all stages of their development, to facilitate their industrial scaling, and to strengthen their international expansion**

**A new governance framework will be established to overcome the current fragmentation of the ecosystem through effective coordination among ministries, regional governments, and the private sector**

Finally, Axis 3 also includes the development of a more agile and predictable regulatory framework, adapted to the specificities of deep tech, with the dual objective of accelerating the diffusion of these technologies while ensuring their responsible use. In this area, priority is placed on identifying and removing administrative, fiscal, and regulatory barriers, as well as on creating regulatory experimentation environments that facilitate the validation and transfer of critical technologies. At the same time, the Strategy promotes early and proactive adaptation to emerging European regulatory developments, such as the so-called 28th Regime and the ongoing revision of the EU public procurement framework, with the aim of anticipating regulatory change, reducing uncertainty, and facilitating the scale-up of deep tech companies across the European market.

## Priority is placed on identifying and removing administrative, fiscal, and regulatory barriers



### SUMMARY OF DEEP TECH STRATEGY SPAIN

#### Axis 1

#### Strengthening Scientific and Technological Capabilities in Deep Tech

##### Objectives

##### Measures

##### Key initiatives

#### 1.1. Develop, attract, and consolidate deep tech talent

- Advanced training and skills development
- Talent attraction and retention

- Ramón y Cajal, Juan de la Cierva, Torres Quevedo, Industrial Doctorates, ATRAE

#### 1.2. Promote deep tech knowledge transfer

- Commercialisation of scientific results
- Protection of industrial property
- Support for science-based entrepreneurship

- Complementary Plan for Knowledge Transfer
- Proof-of-Concept Grants for Deep Tech Projects

#### 1.3. Establish and consolidate internationally recognised research and technology centres in Spain

- Cutting-edge R&D infrastructure
- Advanced innovation ecosystems

- Spain Neurotech
- CIIAE
- IFMIF-DONES

**Axis 2****Strengthening the Deep Tech Business Ecosystem**

<i>Objectives</i>	<i>Measures</i>	<i>Key initiatives</i>
<b>2.1. Stimulate demand for deep tech innovations</b>	<ul style="list-style-type: none"> <li>• Public procurement of innovation</li> <li>• Consortia, strategic alliances, and experimentation laboratories</li> </ul>	<ul style="list-style-type: none"> <li>• Innovation Procurement Programme in Cybersecurity</li> <li>• Innterconecta STEP Programme</li> </ul>
<b>2.2. Strengthen public-private capital instruments to support the scale-up of deep tech companies</b>	<ul style="list-style-type: none"> <li>• Specialised patient capital financing programmes</li> <li>• Structured support and venture-building mechanisms</li> </ul>	<ul style="list-style-type: none"> <li>• Deep Start</li> <li>• ENISA-FEPYME Participating Loans</li> <li>• WISER Project</li> </ul>
<b>2.3. Develop value chains and support the industrialisation and internationalisation of deep tech companies</b>	<ul style="list-style-type: none"> <li>• Testbeds and validation environments</li> <li>• Catalytic leadership of large corporations</li> <li>• Industrialisation in Spain and internationalisation of the ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>• AI Factories</li> <li>• ICEX NEXT Deep Tech</li> </ul>

**Axis 3****Fostering a Dynamic Deep Tech Ecosystem**

<i>Objectives</i>	<i>Measures</i>	<i>Key initiatives</i>
<b>3.1. Establish a new institutional governance framework for the deep tech ecosystem</b>	<ul style="list-style-type: none"> <li>• Interministerial coordination</li> <li>• Interregional coordination</li> <li>• Private sector participation</li> </ul>	<ul style="list-style-type: none"> <li>• Deep Tech Interministerial Committee</li> <li>• Deep Tech Advisory Council</li> <li>• Deep Tech Alliance</li> </ul>
<b>3.2. Strengthen technology intelligence, communication, and ecosystem visibility</b>	<ul style="list-style-type: none"> <li>• Technology intelligence and foresight</li> <li>• Monitoring, communication, and visibility of the deep tech ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>• National Deep Tech Observatory</li> </ul>
<b>3.3. Create a regulatory framework conducive to the development of deep tech companies</b>	<ul style="list-style-type: none"> <li>• Regulatory framework to accelerate deep tech while ensuring its responsible use</li> <li>• Identification and removal of administrative, fiscal, and regulatory barriers</li> </ul>	<ul style="list-style-type: none"> <li>• Regulatory sandbox for the transfer of critical technologies</li> <li>• Sectoral programme to promote the use of testing and experimentation environments for deep tech</li> </ul>

# Funding and governance

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This Strategy —led by the Ministry of Science, Innovation and Universities and the Ministry for Digital Transformation and Public Administration— has been developed with the participation of 13 ministries. It proposes a collaborative, cross-cutting, and multi-level governance model, bringing together representatives from the ministries involved, regional governments, and the scientific, technological, and business communities.

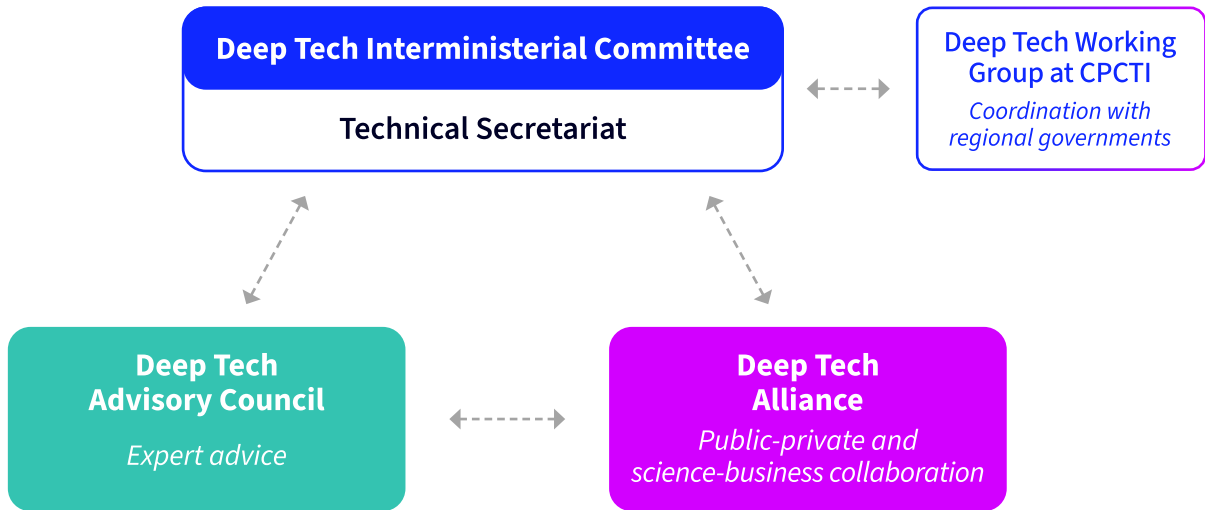
## Participating ministries

Ministry of Science, Innovation and Universities  
Ministry for Digital Transformation and Public Administration  
Ministry of Industry and Tourism  
Ministry of Economy, Trade and Business  
Ministry of Defence  
Ministry of Transport and Sustainable Mobility  
Ministry of Health  
Ministry for Ecological Transition and Demographic Challenge  
Ministry of Housing and Urban Agenda  
Ministry of Agriculture, Fisheries and Food  
Ministry of Labour and Social Economy  
Ministry of the Interior  
Ministry of the Presidency

To this end, the following governance bodies will be established:

- The **Deep Tech Interministerial Committee**: the main institutional coordination body for the Strategy within the General State Administration, bringing together representatives from 13 ministries.
- The **Deep Tech Strategy Technical Secretariat**, to be coordinated by CDTI.
- The **Deep Tech Working Group** within the framework of the Council for Scientific, Technological and Innovation Policy (CPCTI), aimed at ensuring multi-level territorial coordination.
- The **Deep Tech Alliance**: a permanent strategic platform for public-private and science-business collaboration.
- The **Deep Tech Advisory Council**: a permanent advisory body composed of internationally recognised experts.

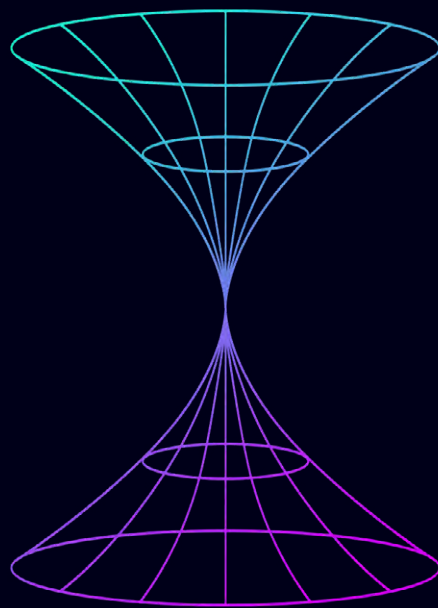
## GOVERNANCE BODIES



The estimated budget allocated to the Strategy amounts to more than €8 billion over the 2026–2030 horizon. This budgetary estimate will be reviewed periodically in light of emerging opportunities and will remain subject to the resources available in each financial year, as it reflects an indicative programme-based planning framework. In addition, the Strategy will incorporate any financing instruments that may emerge from the European negotiations on the next 2028–2034 Multiannual Financial Framework.

The Strategy will be supported by an information system designed to enable monitoring through specific, measurable, achievable, realistic, and time-bound indicators, based on reliable and comparable information systems. Outcome indicators will reflect the status and evolution of Spain’s deep tech ecosystem and will include two types of strategic indicators: on the one hand, indicators for which recurring data sources currently exist; and on the other, emerging indicators for which direct evidence is not yet available and whose measurement will be progressively developed during the implementation of the Strategy in view of their strategic relevance. The monitoring system will enable the periodic publication of aggregated information through the National Deep Tech Observatory, thereby reinforcing transparency, accountability, and the visibility of the ecosystem.

### **The estimated budget for financing the Strategy amounts to over €8 billion for 2026–2030**



# Deep Tech Strategy Spain

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