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EUROPEAN ASSESSMENT OF GLOBAL PUBLICLY FUNDED AUTOMOTIVE RESEARCH

Publicly funded automotive research in Spain

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1 Introduction

1.1 Background

The FP7 project EAGAR benchmarks the current public automotive research activities at international level, in particular the European Union with Brazil, Canada, China, India, Japan, Malaysia, Russia, South Korea, the United States and 13 EU Member States.

EAGAR identifies the national road transport visions and roadmaps, research priorities, supported key topics, technology pathway, as well as the level of investment. This enables a direct comparison of national automotive R&D policies relating to the environment, safety and congestion.

The EAGAR study provides a key perspective on global investments designed to improve automotive vehicle technologies for a greener, safer and smarter road transport system.

1.2 Objectives

This deliverable report summarises the situation of the RTD funding system in Spain. With respect to published vision statements, research targets and roadmaps, the national funding programmes of the past 4 years and the governance of automotive RTD funding in Spain.

The report is basis for the subsequent benchmarking analysis, which delivers the key results of EAGAR addressing the following issues:

- Overview of national road transport visions, research agendas and roadmaps
- Comparison of automotive research priorities and investments focused on vehicle technologies
- Characteristics of national automotive research funding systems and approaches
- Highlight areas of strength and weakness in European RTD compared to the analysed countries
- Potential international cooperation areas from a European perspective

This study benefits the competitiveness of Europe and enables the stakeholders to adjust its visions & plans for the future. Date of publication: September 2010. It is available from the EAGAR website WWW.EAGAR.EU as deliverable D.4.1.

1.3 Methodologies

This country report is mainly based on comprehensive investigations via desk research, information from the responsible programme managers and individual feedback from experienced project managers and researchers. The methodology used was developed in the first months of the project. It is consistent for all target countries. The data collection was mainly done from May to November 2009.

The four main categories are:

- General and automotive data about the country
- Published challenges, visions, targets for automotive research
- Funding organisations and hierarchies for automotive research
- National public funding programmes with dedicated calls or permanently open between in the years 2006 to 2009.

2 Description of the main WP 4 results

Work Package 4 from the EAGAR project comprises the research on general country information, national automotive challenges, visions and targets, relevant institutions and the funding programmes found throughout the country. In this case, the Work Package is related to Spain, its automotive industry and the national RTD activities.

2.1 General Information and Automotive Data

The Kingdom of Spain is the second largest country in Western Europe after France, with a territory of 504,800 km² located on the Iberian Peninsula. It is comprised of 17 autonomous regions, with Madrid as the capital city. The territory includes the Balearic Islands, the Canary Islands, Ceuta, Melilla, and some inhabited islands. Spain has a population of 46 million (recently reached in 2008) and an average population density of 91 inhabitants/ km², having an unequal distribution throughout the different regions of the country. The total GDP for the year 2007 was 1050.6 bio €, from which 13.342 bio € were destined to the total RTD spend of the country, where 4.070 bio € were destined to automotive RTD.



Figure 1.- Spanish flag and Constitutional symbol

The automotive sector in Spain represents the 3rd largest car market in Europe and the 8th in the world. The most important car manufacturers have facilities in Spain, although they do not have decision centres and only scarce RTD activity. With around 1,000 companies, the vehicle-manufacturing sector represents 6% of the GDP and employs directly and indirectly over 350,000 people. According to the information provided by the Instituto Nacional de Estadística (National Statistical Institute), the R&D investment of the Automobile Manufacturers and Trucks during 2007 was 280 million €.



Figure 2.- Map of Spain

Spain is comprised of 17 autonomic regions and the counties of Ceuta and Melilla. Each Spanish autonomic region is formed by one or more provinces, which in turn possess a common political and economical organization. Every region has a Parliament and a Government that manage the community. The Parliament is an assembly formed by the representatives that are elected by the citizens. This Parliament elaborates the autonomic legislation, which applies only to the autonomic region. The most important law in a region is the Estatuto de Autonomía (Autonomy Statute), where the capital, official language, territory, symbols and autonomic competencies are established.

The Autonomic Government, then, runs the autonomic region affairs. By these means, the government is able to manage education, health, environment, industry, infrastructure, etc. within the community, while the Spanish Government manages the international affairs and national legislation applicable to all communities. This governmental organization gives Spain a very wide variety of funding that can be received from each region or community, adding to the extensive national and European funding programmes. Some regions dedicate more funds to RTD than others, according to the local industry, the long-term plans for development of the area and the total amount of capital available in the region.

On a national level, *Ministerio de Fomento*¹ (Ministry of Public Works) is responsible for transport policy visions and policy goals, as well as for transport infrastructure investments. Besides this ministry, some other ministries are involved in transport research policy, such as the *Ministerio de Ciencia e Innovación*² (Ministry of Science and Innovation) from the Ministerio de Fomento; *Ministerio de Industria, Turismo y Comercio*³ (Ministry of Industry, Tourism and Commerce); *Ministerio de Medio Ambiente y de medio rural y marino*⁴ (Ministry of the Environment and Rural and Marine Af-

¹ *Ministerio de Fomento* (<http://www.fomento.es/>)

² *Ministerio de Ciencia e Innovación* (<http://web.micinn.es/>)

³ *Ministerio de Industria, Turismo y Comercio* (<http://www.mityc.es/>)

⁴ *Ministerio de Medio Ambiente y de medio rural y marino* (<http://www.marm.es/>)

fairs); and the Spanish Department for Transport (DGT – Dirección General de Tráfico⁵) from *Ministerio de Interior*⁶ (the Ministry of Internal Affairs). Some of the strategic research funding programmes of these ministries are open for transport and mobility research projects, that finance or co-finance public or semi-public research organisations, private companies, technological centres, etc. Additionally, the Autonomous Regions have their own funding programmes where transport and mobility projects can be submitted.

In recent years, the evolution of persons involved in R+D activities has increased significantly compared to previous years, but is still trailing behind the reference countries in R+D in Europe. Through innovation and the management of the RTD activities nationally, the Ministerio de Ciencia e Innovación looks forward to mobilize 6,000 M€ in research from private institutions, incorporating a mere 40,000 enterprises into innovative activities. These activities should put Spain as the 9th innovative country in the world (its current position is the 16th).

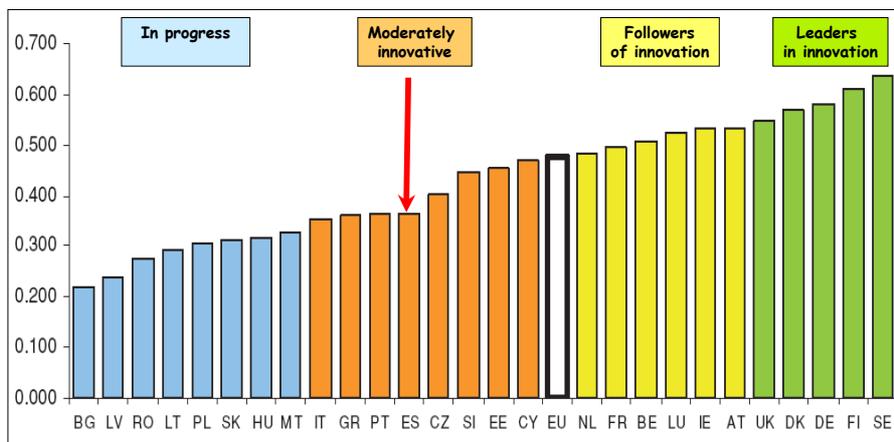


Figure 3.- Ranking of Innovation for EU27

National spending and funding for research and technological development

Parallel to the Innovation actions are the RTD activities throughout the country. With the ever increasing necessity to improve the country's research activity, an increase in the amount of capital destined has been registered for the last decade. In the year 1994, a mere 0,8% of the national GDP was used as RTD expense. Up to date, a number of 1,27% (or more) is available from the GDP for research activities.

⁵ DGT – Dirección General de Tráfico (<http://www.dgt.es/portal/>)

⁶ Ministerio de Interior (<http://www.mir.es/>)

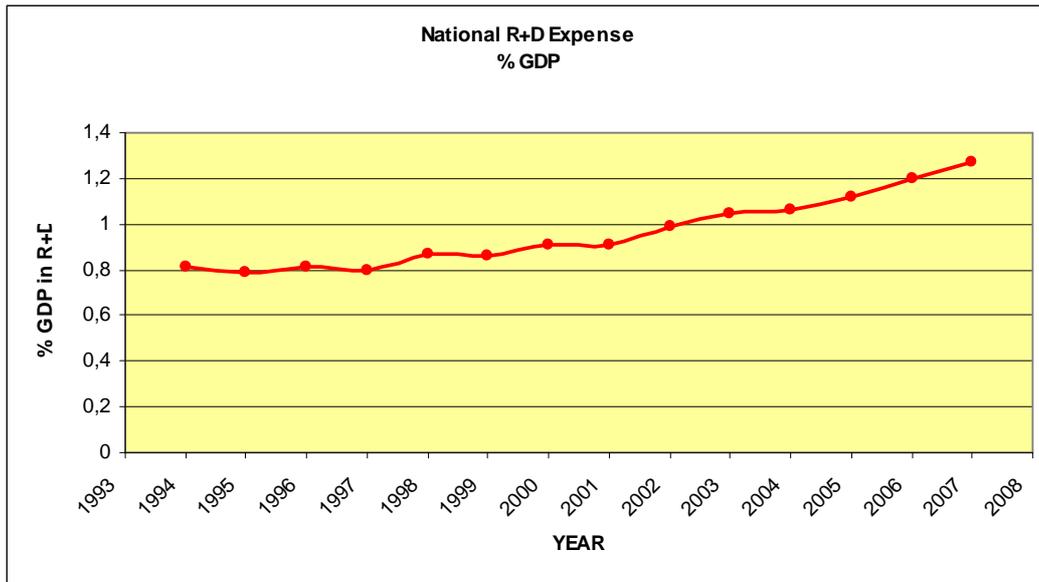


Figure 4.- National RTD expense

From this expense found for RTD in Spain, three main branches of funding exist: the industrial funded research, the public administration funded research and the foreign investment. In the past decade, a marked change has happened: industrial funding has overcome public funding for RTD activities, while foreign investment has remained practically in the same amount. This behaviour shows that the industry has found in the innovation and development sector the means to improve profitability, products and competitiveness in the country and in the international scene.

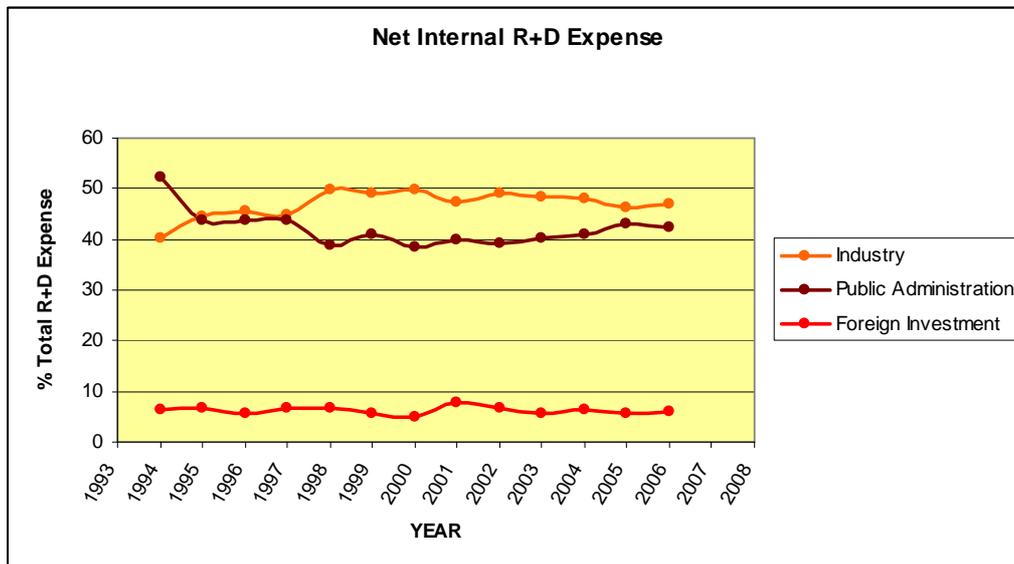


Figure 5.- Comparison between origin of RTD funding.

2.2 National Funding Organisations and Hierarchies for Automotive Research

The funding system in Spain is controlled by the *Ministerio de Industria* (Ministry of Industry) in most of the programmes available, through the management of the CDTI, which is in charge of publicising and informing interested parties on the available calls to participate in. Autonomic regions provide funding, which can be obtained in direct participation or also with the information from

CDTI. International funding can be obtained through CDTI. It is important to note that CDTI, although a funding organisation, in many cases only acts as an aid and guide to participate in the calls.

Funding Organisations

List of the most important funding organizations in Spain:

Ministerio de Fomento.- The Ministry of Public Works is in charge of the proposal and execution of the Government policies in the matters of infrastructure and land, air and maritime transport in state competence, excepting those competencies from the Ministry of Environment, Rural and Marine Areas.

Ministerio de Industria, Turismo y Comercio.- The Ministry of Industry, Tourism and Commerce is the department from the General State Administration that is in charge of proposing and executing Governmental politics referring to industrial development and innovation, commercial politics, small and medium enterprises, energy and mining, tourism, telecommunications, audiovisual media and development of the society of information.

Ministerio de Ciencia e Innovación.- Ministry of recent creation, coming from the Ministerio de Educación y Ciencia that was divided into *Ministerio de Educación* and *Ministerio de Ciencia e Innovación*. This ministry is in charge of the National R+D+i plan for research and innovation.

Centro para el Desarrollo Tecnológico Industrial.- CDTI finances, through general calls all year long, entrepreneurial R+D+i projects. Equally, it finances qualified civil aeronautical projects. CDTI is a Public Entrepreneurial Entity depending on the Ministry of Science and Innovation that promotes innovation and technological development of Spanish companies. Since 2009, CDTI is responsible for financing and supporting R+D+i projects in Spanish corporations either nationally or internationally. Its objective is to contribute to improvements in the technological level through some of these activities:

- Technical-economical evaluation and financing for R+D projects.
- Management and marketing of Spanish participation in international technological cooperation programs.
- Promotion of international entrepreneurial technology transfer and support services for technological innovation.
- Supporting the creation and consolidation of technologically founded companies.

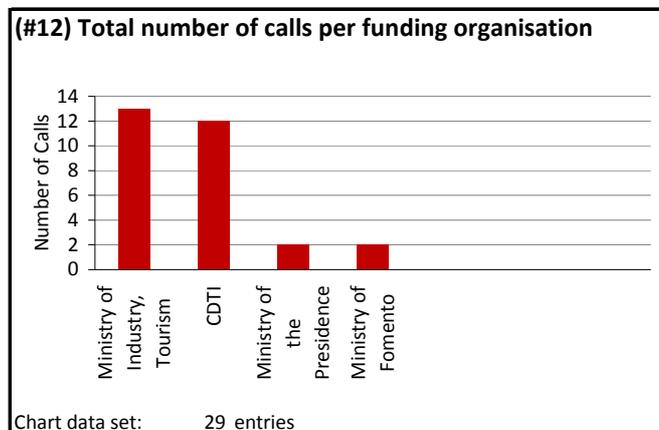


Figure 6.- Calls per funding organization

Other organizations with influence:

Sistema Español de Ciencia y Tecnología (SECYT).- The national R+D+i is the planning instrument from the Spanish Science and Technology System, in which objectives and priorities are established in research policies, development and innovation on the medium term, according to the Science Law 13/1986 of April 14th. The National R+D+i Plan is also responsible for guaranteeing the goal consecution on the middle term.

CORDIS.- Webpage dedicated to R+D information in Europe and the showcase of results obtained. It involves all 7th Framework Activities plus some other EU research.

Fundación Instituto Tecnológico para la Seguridad del Automóvil (FITSA).- The aim is to potentate the integration of technological innovation with social demand on security and environmental respect.

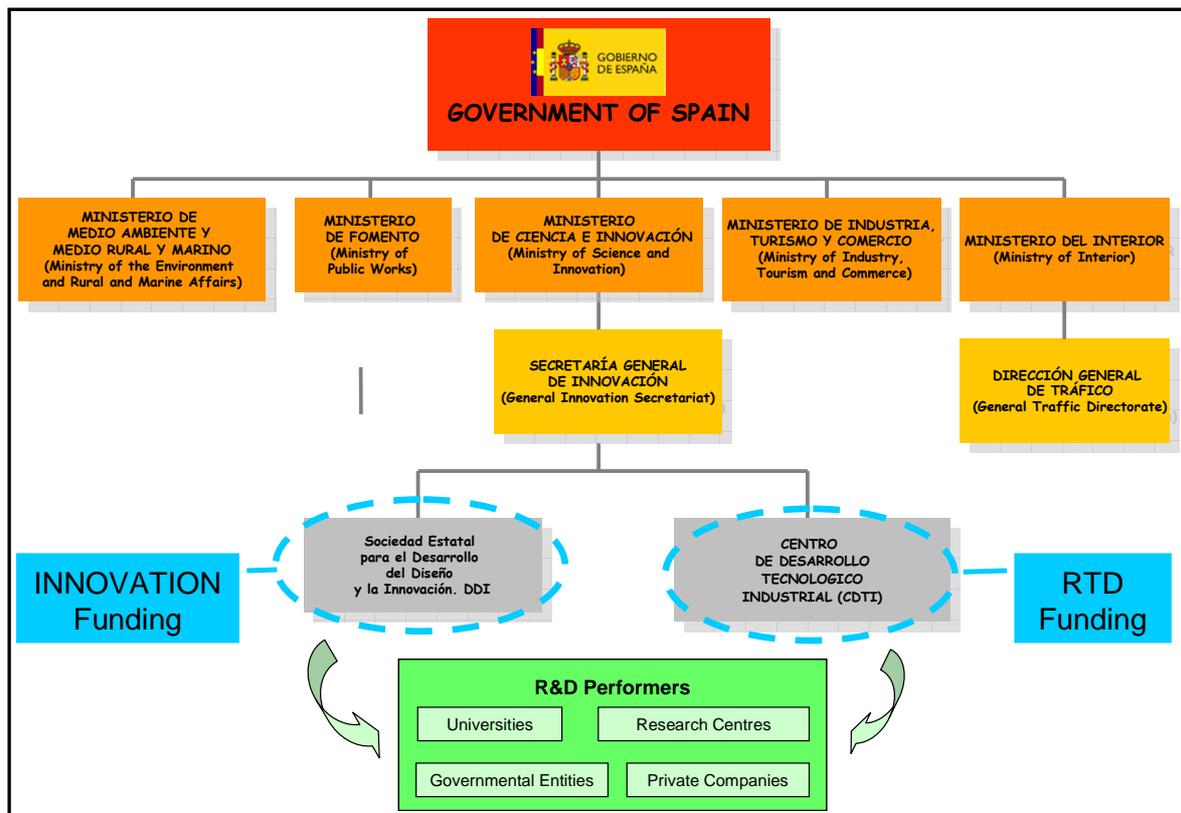


Figure 7.- Scheme for Funding in Spain

Remit for organisations & calls: overlaps or conflicts

There are no overlapping calls. All calls are established by the year and end for a new one to start. Programmes do overlap, and provide a dual opportunity for the institutions to participate, increasing the number of projects accepted by whichever funding organisation.

2.3 Automotive Visions and Strategic Research Agendas

In Spain, the main stakeholder responsible for the transport policy and other associated infrastructures is the *Ministerio de Fomento* (Ministry of Public Works). Some other institutions and ministries participate in different ways in this policy and take responsibility for organizing and funding research. Only in the international cooperation schemes, the role is shared.

Ministerio de Fomento, through the deputy ministry, has published some calls for proposals of RTD in pluriannual projects, between 2002 and 2006. All of the calls are in the frame of the Spanish National Research Plan. Up until 2006, all of the calls were addressed to non-profit organisations such as universities, research centres, associations and related foundations. Private sector companies were able to join the programmes but without any funding from the Ministry, resulting in low industrial participation in RTD (see Spanish RTD scheme).

Now, with the creation of the *Ministerio de Ciencia e Innovación* (Ministry of Science and Innovation), this Ministry manages all the funds destined to RTD and it is also responsible for the management of the other Ministries providing the information and calls for research, as each Ministry has different RTD targets to manage.

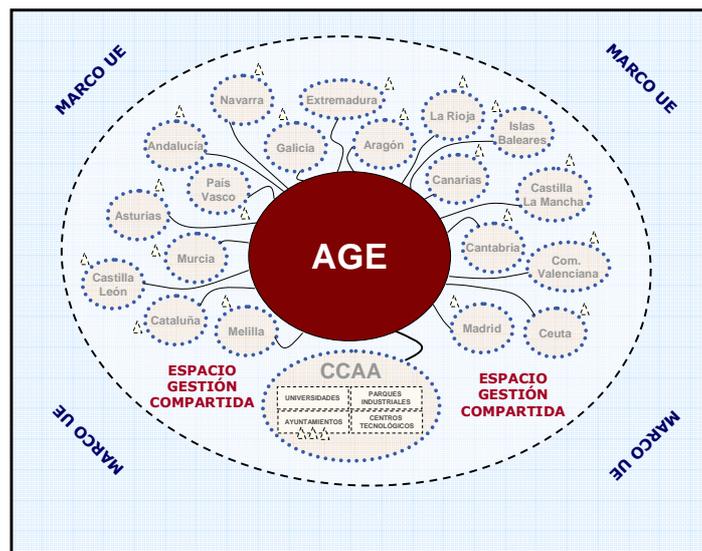


Figure 8.- Spanish RTD scheme

The *Ministerio de Medio Ambiente y de Medio Rural y Marino* (Ministry of the Environment and Rural and Marine Affairs) has a General Directorate for the Environmental Quality and Assessment, within the commitments from the Secretary for Climate Change. This secretary has developed a draft with the “Estrategia Española de Movilidad Sostenible” (Spanish Strategy for Sustainable Mobility). This document contains a number of recommendations and proposals to be adopted by the administration, private companies, institutions and the public in general, looking forward to improve and rise a more efficient and sustainable mobility model, that is respectful with the environment and enhances the quality of life of the population.

The *Ministerio de Industria, Turismo y Comercio* (Ministry of Industry, Tourism and Commerce) has the responsibility of proposing and carrying out government policy in the areas of industrial development and innovation, trade policy, small and medium sized enterprises, energy and mining, tourism, telecommunications, audiovisual media and the development of the information society. Related to transport and mobility, currently there are two main initiatives to be highlighted: the “Plan de Competitividad del Sector Automoción” (Automotive Sector Competitiveness Plan) and MOVELE Project.

The Automotive Sector Competitiveness Plan contemplates actuations directed towards industrial automotive companies in car and component manufacturing, because the sector as a whole is involved strategically in the consecution of the objective of changing the Spanish Economic Productive Model due to the structural characteristics: medium-high technological intensity level, high productivity indexes, creation of employment and a quality industrial network, importance in the transport sustainability and a complicated regeneration in case of disappearance. MOVELE Project consists of the introduction of 2000 electric vehicles of diverse categories, performance and tech-

nologies in a time span of two years (2009-2010) throughout urban environments in Spain. This is targeted to fit companies, institutions and particulars. The program considers the installation of 500 charging stations for these vehicles.

The Spanish Department for Transport (*DGT- Dirección General de Tráfico*) from the *Ministerio del Interior*, is the competent body for the development of plans and programs on road safety, promotion of road safety policies and the analysis of the associated data and statistics. With this aim, the DGT creates in the year 2004 the National Observatory for Road Safety with the purpose of generating information and knowledge on aspects related to road safety. This entity operates in close collaboration with different institutes and research centres to carry on projects in relevant lines of work previously established.

The *Ministerio de Ciencia e Innovación* (Ministry of Science and Innovation) articulates through the “National RTD Plan” the instrument that establishes the objectives and priorities for mid-term research, development and innovation policy, defined in the *Ley de la Ciencia* (Science Act) of 1986, which includes among its fundamental objectives a greater and better coordination among the different agents in the system. The Central Government, through the public sector, develops the science and technology policies. The work program for 2008-2011 National RTD and Innovation Plan is the short-term planning and scheduling tool for science and technology policy in Spain, through four areas of activity and six instrumental lines of action developed by 13 national programs. This national RTD program is implemented by means of annual calls.

The National RTD plan aims at the following:

1. Encourage cooperation between scientific and technological country agents.
2. Promote industrial technological capacity.
3. Favour research on target of interest.
4. Optimise resources and investment in RTD.
5. Respond to strategic needs.
6. Guarantee the results of RTD.
7. Promote the development of own technology.
8. Contribute to the structure of the territory.

The *Ministerio de Ciencia e Innovación* has established a department called *Secretaría General de Innovación* (General Innovation Secretariat) that handles all the businesses associated with RTD and Innovation in the entire country. This Secretariat is also divided into four principal areas, where one is entirely dedicated to the Genoma Foundation; a second one focuses on design and innovation (*Sociedad Estatal para el Desarrollo del Diseño y la Innovación*); a third one that dedicates efforts to generate technology and business development (General Directorate for Technology Transfer and Business Development) and a fourth one, which is the *CDTI* (Centro de Desarrollo Tecnológico Industrial).

Inside the Technology Transfer Directorate, a sub directorate specialized in Public and Private Incorporations Cooperation has developed the E²I plan (*Estrategia Estatal de Innovación*), which considers the innovative perspective of research in Spain. On the other side, the CDTI is in charge of managing and informing about the funds for research projects that can be received, linking all the information in one search engine, which enables the user to find the appropriate program to follow.

E²I plan has performed a basic research on how the innovation in Spain is positioned compared to other European countries. The results obtained show that Spain has some innovative perspective but can further improve if research and cooperation between the public and private sectors is made. In a particular case, Spain has a necessity to advance in the actual research model to produce an important change. The country is ready for it, as there is scientific and technological capital

available to be put in the country's productive structure and innovation is being set as a profitable activity with a productive model based on knowledge.

For this new structure, E²I plan makes an important connection between public and private institutions in order to impulse the improvement of the research projects in Spain.

Significant challenges for the national road transport sector.

Spain, having an important role in the European Automotive Industry joins its efforts to tackle the challenges that have been set throughout the European Union in recent years, as these general challenges imply within an improvement in competitiveness, better use of the resources and cleaner technologies throughout the industry.

Spain will provide important participation in:

- Fuel Efficiency Improvement & Green House Gas Emissions reduction
- Pollution and Noise reduction
- Mobility performance improvement
- Safety and security in vehicles and infrastructure
- Increase the Competitiveness of the automotive sector in a national and international setting.

Visions & focused targets for road transport

Vision:

Automotive Sector Competitive Plan.- The objective of the plan is to encourage automotive enterprises to optimize processes and redirect production towards added value products, safer and more sustainable development. These are key competitive elements in the sector, guarding employment and job creation, improving its quality and conditions, including security and health on the job.

National Scientific Research, Development and Technological Innovation Program.- The objective of this plan is to establish the guidelines to be followed in the R+D+i path within the National Science and Technology Strategy towards 2015. The plan includes research and development, scientific actions, equal employment opportunities and social development programs.

Targets:

Electrical vehicle market introduction.- Pilot test on technical, economical and ecological viability of electric vehicles, looking to have 1 million by 2014.

Use of bio fuels on public transportation.- Use of 20% Bio fuels by 2009, in order to work towards the 38% goal by 2012.

Plan VIVE.- Renewal of vehicle park, up to 240,000 by 2010.

20% speed limit reduction.- Promote efficient driving in the following three months during 2009.

Reserved lanes for public transport.- Establish reserved lanes for public transport in cities with more than 500,000 inhabitants by the year 2012.

Worker mobility plan.- Establish planned bus routes for companies with more than 100 workers, according to their living place starting in 2009.

2.4 Funding Programmes

Research in Spain constitutes a pillar on the development of new technologies, focused mainly on the innovation aspects of the scientific world. R+D+I is now considered as one of the most important country development programmes and is quite sponsored by the government, the Autonomic regions and the funding obtained from the European Community. R+D+I is then promoted via CDTI⁷ (*Centro para el Desarrollo Tecnológico Industrial*), which has a very complete list of research calls to which everyone interested can apply. These calls cover all possible aspects that can be funded either by the Spanish Government, the Autonomic community where the research is to take place or the available programmes from the European Community to which each project is capable of applying, including amongst all, technology that can be applied to the automotive industry.

Funded programmes specifically for automotive disciplines are not common in Spain. Instead, all the funding programs aim at broadening the technology development by accepting entries from any organisation that wishes to develop a new and innovative concept, to become more competitive on their branch or to collaborate with similar industries in other countries for the generation of treaties and commercial relationships. Thanks to this approach, all scientific, medical, technological, productive, business or tourist organizations present their proposals and are granted funds for their development.

It is quite important to note that the support provided to the automotive industry from the Spanish Government comes via Car Renewal programmes, where a person can obtain a good discount on the car price by turning in an older car that covers certain requisites. This initiative has been proving good up to date and has now received extra funds for the next year, as it has really increased the new vehicle sales. These new vehicles are, in most of the cases, vehicles that produce less than 100 gr of CO₂ per km, contributing to the targets of pollution reduction.

Another important programme opened for 2009 is the Automotive Sector Competitiveness Plan⁸. This plan, probably the only one purely focused on automotive industry, promotes the development and improvement of the enterprises amongst the European automotive industry by funding R+D+I projects. This programme has started a new tendency in R+D+I and project management, since all the companies who applied to the programme realized that they required restructuring, that their potential is more than they believed and have begun reorganizing themselves in order to achieve short and mid term goals intensifying the development of the institution through research and innovation.

The rest of the funding programmes are open to technological research in general, where the best-proposed projects receive the help. Automotive projects have then, a very good opportunity to compete and receive funds as they represent one of the most important commercial activities in the country, where auto safety, pollution and efficiency issues can be addressed proving once more their importance on the European Community's targets.

The link between vision & targets and funding allocation

⁷ CDTI (*Centro para el Desarrollo Tecnológico Industrial*) (<http://www.cdti.es/>)

⁸ <http://www.mityc.es/PortalAyudas/Automocion/Paginas/Index.aspx>

The challenges in Spain are those proposed by the European Community, yet the Spanish approach has contemplated two principal visions: the Automotive Sector Competitiveness Plan and the National Scientific Research, Development and Technological Innovation Program. With these two programs, the Spanish Government invites and promotes self envisioned development, providing to the research community and industry the funds they need to perform their own research and innovation projects, allowing the companies to follow their path for their mid and long term goals with support.

The targets to be reached are more of a short-term plan, and include the automobile renewal programme, the installation and test of electric vehicles and charging systems in some of the most important cities, the use of alternative propulsion systems and the improvement in public transportation and city mobility. These targets have been set to no more than 4 years time, and have started to produce important results.

Funding programmes and states of RTD as well as different types of instruments

The funding programmes available for Spain show a clear tendency for innovation on the scientific and medical aspects. There are not much specific project funding proposals, yet, any innovative or improving idea can apply for the funding. Some attention is being brought to the environmentally friendly technologies, supporting new forms of generating electrical energy, saving energy in households and industry, producing less pollutant products and components and reducing the use of polluting means of transportation.

Special interest and funding has been applied to the electrical vehicle (EV) projects, starting some test runs with a fleet of EV's in big Spanish cities, where cars and charging network are being tested at the same time. It is important that both aspects become a development issue, since the electrical networks might not be able to cover the need for a massive electrification of the vehicles and hence might need to be modified earlier than the vehicle introduction process.

Overview of technology specific programmes for automotive RTD

As previously expressed, the calls and the technology categories aimed at in Spain are quite open and can apply to many automotive related aspects. Few programme calls address specific technological calls, whereas they all mostly encourage innovation for environmental impact reduction, safety and efficiency. This wide array of calls to apply for generate important windows of opportunity to all kind of institutions and projects, whether they have the technological capability to develop the project or they are beginning in the world of research, obtaining important assets for future projects.

From the specific automotive RTD programmes, we find the Spanish funded Automotive Industry Competitive Plan. This program provides funding to automotive related companies, universities and institutions, where the project management, technology creation, innovation or production improving is the goal. This program funds only automotive institutions that are able to prove that they are carrying out research, preparing the personnel in automotive related subjects and generate innovative projects.

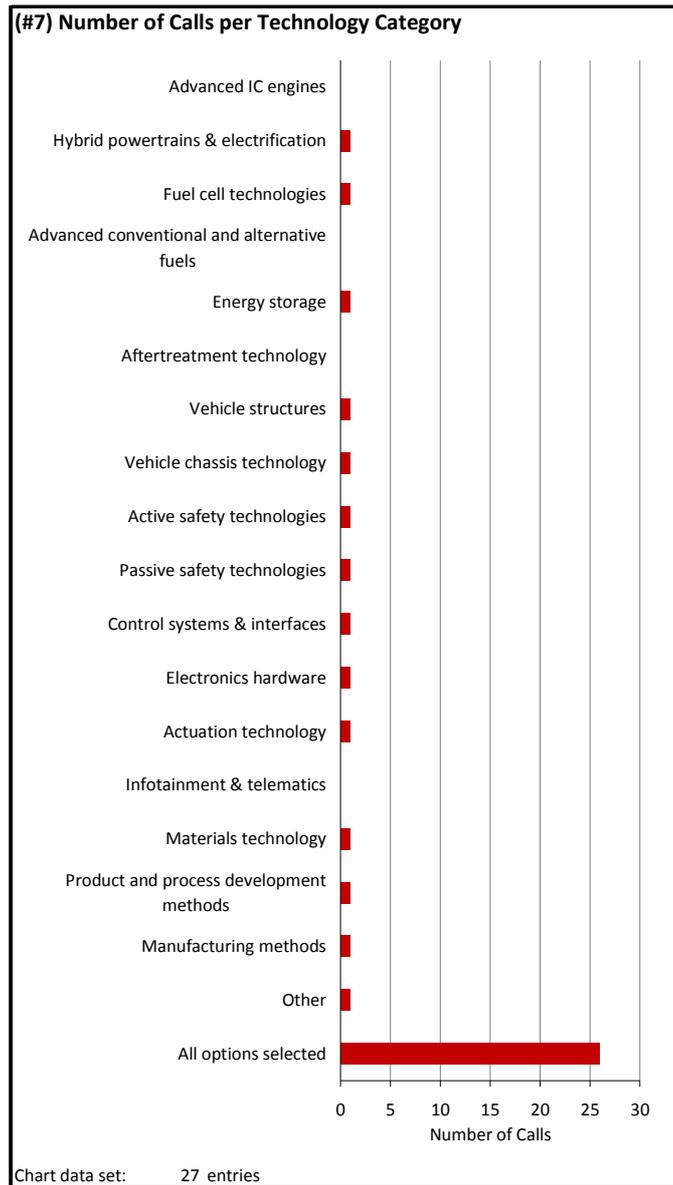


Figure 9.- Number of calls per Technology category (SPAIN)

2.5 The efficiency, flexibility, and experienced bureaucracy of the funding process

The flexibility to release new calls in response to changing situations

The Spanish funding system is based on being flexible from the beginning by accepting entries to the calls from different sectors. In fact, the specialization of calls is not one of the strong points in Spain. As stated in earlier stages, funding is given to the innovative and improving projects in the areas of more technological interest to the country.

The application process

Application processes in Spain are quite open and simple to follow. The Spanish government has named CDTI (Centro para el Desarrollo Tecnológico Industrial) as the principal manager or promoter of the different funding programmes available. In the CDTI webpage, there is a special program

dedicated to help you select the type of funding you are looking for and then provides the necessary information on how to apply.

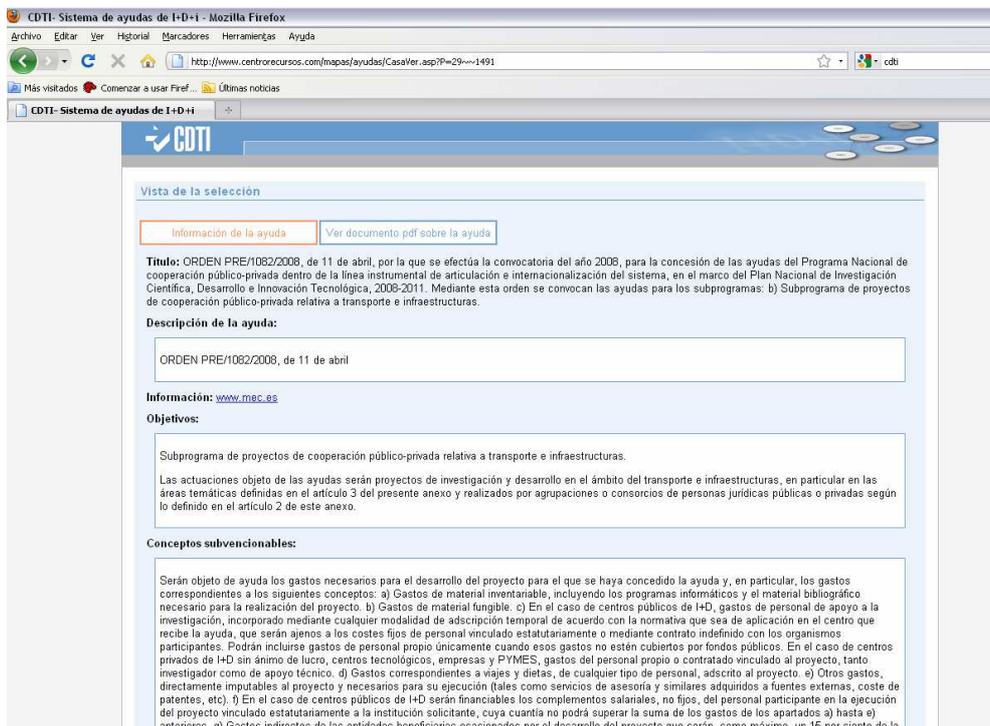


Figure 10.- CDTI webpage

The vast majority of the proposals require an initial presentation paper to be submitted. This paper shall include the idea of the project, the viability, the economic previsions, the work plan and the participant or participant’s information. Each proposal is then evaluated and the funds are given, according to the programme, the available budget and the type of funding. Some funding programmes give an initial payment, and later on, after turning in the final report, the rest of the funding. Some others provide the funding each year as the project is going or as a full initial payment.

Funding organisations accept changes in the projects as long as they are well backed up and with the complete information regarding the change provided. Some organisations carry out audits and request six monthly or yearly progress reports. In these reports, economic data is very important, as well as the project itself.

If a call was missed, the organisation will have to wait another year to participate in the same call, provided it is a yearly call. Punctual calls close on the date they have been set. Some organizations might accept some late entries, but it is not very common. Another option is to re-apply one year later, in case that the project was not accepted on a specific call.

The proposal assessment takes in between one and six months, according to the funding organisation and programme. Generally, yearly calls for yearly projects have a one-month approval period, whilst longer projects will take up to half a year to give a positive or negative answer. Although not in every case stated, experts in the area or the industry review the calls, supported by high management from the funding organisations.

Experienced success rates

On an internal experience, we develop some 25 proposals a year for different funding programmes. From these 25 proposals, about 15 are accepted by different funding organisations and vary widely on the funds received. Once these proposals are accepted, no more than one month has gone for

the beginning of the project in most of the cases. The transfer of the funds works very well and the payments are generally done on the established date or even earlier.

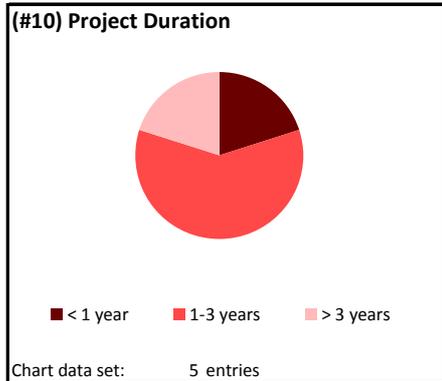


Figure 11.- Duration of projects

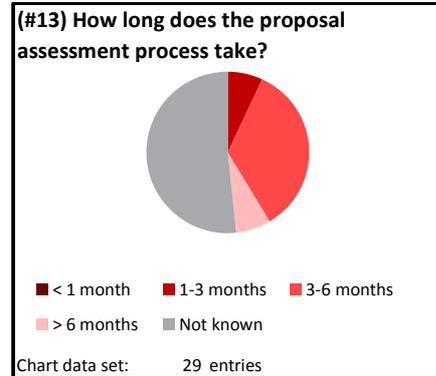


Figure 12.- Proposal assessment process

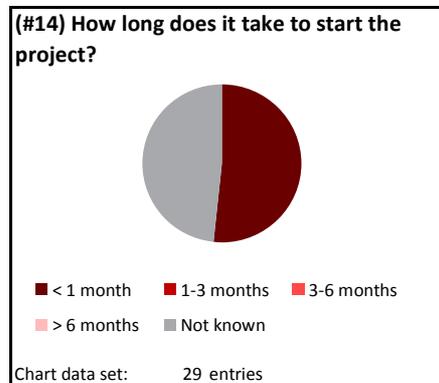


Figure 13.- Start of project

Funding process - exploitation

Funding organisations, when receiving the project proposal require certain aspects to be fulfilled regarding the exploitation of the project. An economical plan and a working plan have to be presented. In this economical plan, an exploitation and benefit budget prevision shall be stated. This is important in order for the organisation to have an idea of the extent of the project and the support given to certain partners.

Along with the economical plan, a working plan must be presented. In the work plan, a Gantt chart of the phases and the project development has to be created, and the milestones to be achieved have to be present. In this milestone and work plan, an exploitation or dissemination plan needs to be included. It is generally located in the final part of the project and includes conferences, web pages, publications, meetings, workshops, etc.

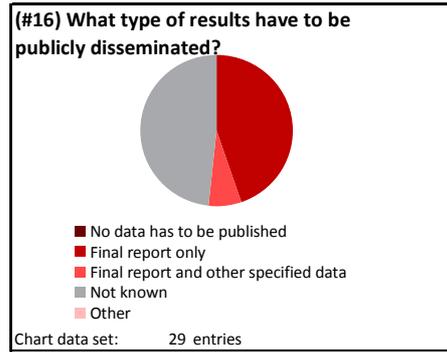


Figure 14.- Results

Funding process – feedback

Actually, there are no process feedbacks going on in Spain. This tool should be promptly implemented as all the information gathered could provide the ministries and institutions with valuable data that would allow for more and better funding organization.

Transparency & openness

In Spain, information on the funding programmes is available through the CDTI and some other public institutions that provide funding. The information is available for everyone to be consulted, most of them by internet and officially published in the official document BOE (Boletín Oficial del Estado). Participation in the programmes is open to everyone, yet, the requirements of each programme make a pre-selection on who can apply. When in need for more information on a certain programme, contact details for each are provided in the relevant web pages.

Foreign collaboration

Collaboration with foreign organisations is not the most common in Spanish funded programmes, yet, there are some special international cooperation programmes taking effect, which require the mandatory participation of a Spanish company and a minimum of one other company from a participating country. These programmes are generally funded by both countries. Some of these programmes are allocated in the CDTI, and include the EUREKA, IBEROEKA, CHINEKA, CANADEKA, ISIP (India), KSI (Korea) and JSIP (Japan). European funded programmes do accept organisations from many countries to participate; in fact, it supports the collaboration between companies from different countries. Different entities are allowed to do the work if they are stated and approved in the original plan, or if they are subcontracted for a specific part or test from the project.

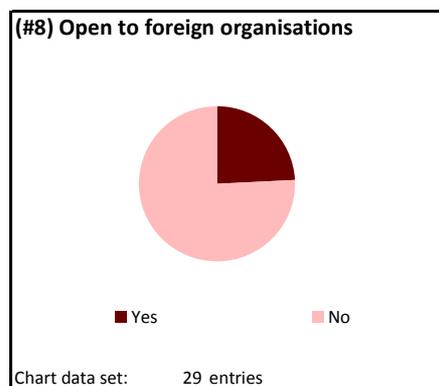


Figure 15.- Openness

3 Discussion and Conclusion

Research and Development in Spain is gaining a lot of importance lately. It is one of the new targets set by the government to impulse the development of technology and competitiveness of many industrial sectors in the country. The investment in research and development and innovation in the past years has reached the 6% from the national GDP, locating the technological activities in the look for many enterprises that had never considered this option for their own companies.

The total research carried out in the country focuses on generating innovation and new products, which fulfil all homologation requirements for Spain and Europe, improving with it the competitiveness of the companies, the personnel and the country as a whole. This innovation wave is extending to all the industrial sectors, and R&D funding is considered for all participants. Special attention is being put on medicine, nano-sciences and the automotive sector, since the automotive sector in Spain is the eighth biggest in the world.

Some of the most important characteristics are that funding in Spain can be obtained through a variety of channels, organisations and participation methods. The European Community, the Spanish Government and the Autonomic Governments give funding then. Each region in Spain chooses or promotes the most convenient programs to sponsor according to the region's need. Nevertheless, many of the programs are open to any innovative project and encourage the small and medium companies to participate in the development of new technology and professionalization of its personnel.

It is perhaps worth mentioning that funding in Spain is widely open to any project from any sector that provides the Innovation attribute, hence, making a competitive selection process for the funding organisations and the institutions to provide the best and more attention calling projects. Along with this fact, partnership is encouraged since many projects require participation from different members in order to be capable of selection, due to the competitiveness of the entire projects presented for funding. This competitiveness encourages then many companies to look for interesting subjects, solid partnerships and high-end projects.

Nevertheless, having such a strong and broad competition for the funds, looking only for innovation aspects, makes the specialized research related to the country's targets weaker. In fact, funding for the automotive sector as such is seen as an aid to buy and renew your car or to improve the competitiveness of the company in the sector, but without any specific guidelines on the work to be done. Many companies have then proposed certain innovation projects that improve the company from the human resource area without having any important breakthrough in technology and according to the own company expectations and needs, without considering national aspects relevant to the industry. .

The EAGAR Project and the goals it pursues will be highly beneficial for the automotive industry in Spain. Many companies do not know of the existence of a huge amount of funding that can be obtained for R+D+I from the government, the Autonomic regions, the European Commission and the international cooperation programmes that require at least participants from two countries, making an interesting choice especially in the automotive sector. EAGAR will then provide technological institutes, universities, manufacturing companies, research centres and public organisations with relevant information for projects to be tackled and funded. Although EAGAR focuses only on automotive research, the plan will eventually lead to the information for other sectors. Fortunately, in Spain, CDTI has put together an interactive webpage where any information on funding schemes can be found and selected according to specified search criteria.

EAGAR project should be published and made available to all the automotive sector industry and related companies so that the information on funding applications is spread. With this in mind, EAGAR could provide a solid background for other industries to follow on the benchmark for their funding processes, and thus, generating a technological funding cycle that provides invaluable help for research institutions throughout the country.

It is also important to mention that all the information gathered for this project, in the case of Spain, has been collected through desk research, due to the fact that nowadays the Spanish organisations have strived to include all the relevant information on line and in an accessible manner.

4 References

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5 Annex

Overall programme initiative name	Programme call name	Programme call description	Funding organisation	Programme call end date (DD. MM. YYYY)	Main point of reference
PLANE Plan Español para el Estímulo de la Economía y el Empleo	Plan Integral de Automoción: Competitividad del sector automoción.	The challenge is to maintain Spanish productive units running, establishing competitiveness improvement plans that position the industry in competitive and promising markets.	Ministry of Industry, Tourism and Commerce (General Industry Direction)	13/02/2009	http://www.mityc.es/PortalAyudas/Normativa/ListadoDocumentosNormativa/Documentación%20general%20relativa%20a%20ayudas%20y%20subvenciones/14ayudatec2009.pdf
Proyecto MOVELE	Proyecto MOVELE	The project is focused on running an initial test on economical, ecological and technical viability of electrical vehicles.	Ministry of Industry, Tourism and Commerce (Institute for Energy Diversification and Economization)	31/12/2010	http://www.idae.es/index.php/mod.pags/mem.detalle/id.407
PLANE Plan Español para el Estímulo de la Economía y el Empleo	Plan Vehículo Innovador Vehículo Ecológico (VIVE 2008 - 2011)	In 2008 the Ministry of Industry and the ICO started Plan VIVE to impulse the substitution of older vehicles.	Ministry of Industry, Tourism and Commerce (General Industry Direction)	31/07/2010	http://www.planvive.info/?gclid=CNiI0aOUiZkCFYh_3godAWs_kg
Ministerio de Industria, Turismo y Comercio	Plan 2000E	For 2009, a second automotive renewal program is established. It will coexist with Plan VIVE and the amount of the fund is 2000 euros per car. People can not make use of both, they must select each program.	Ministry of Industry, Tourism and Commerce (General Industry Direction)	01/06/2010	www.mityc.es
PROFITS (MITYC)	PROFIT: FOMENTO INVESTIGACIÓN TÉCNICA	The Technical Research Promotion Program calls for companies to and other entities to perform research and technological development.	Ministry of Industry, Tourism and Commerce		http://www.mityc.es/PORTALAYUDAS/PROFIT/Paginas/index.aspx
Ministerio de Industria, Turismo y Comercio Convocatorias de Ayudas Públicas	INNOEUROPA	INNOEUROPA Program is one of the measures driven by EUROINGENIO Initiative to increase Spanish return from the 7th Framework Programme and obtain an 8%.	Ministry of Industry, Tourism and Commerce	11/04/2007	http://www.mityc.es/PortalAyudas/InnoEuropa/Paginas/index.aspx

EAGAR – Publicly Funded Automotive Research in Spain

Overall programme initiative name	Programme call name	Programme call description	Funding organisation	Programme call end date (DD. MM. YYYY)	Main point of reference
Ministerio de Industria, Turismo y Comercio Convocatorias de Ayudas Públicas	Ayudas a la implantación de sistemas de gestión y de departamentos de I+D+i en empresas	The object of this public aid is to support the implementation of infrastructure and systems in the R+D+i context inside companies.	Ministry of Industry, Tourism and Commerce (General Industry Direction)	19/05/2008	http://www.mityc.es/Plan_IDI/ImplantacionEmpresas/Paginas/Index.aspx
Ministerio de Industria, Turismo y Comercio Convocatorias de Ayudas Públicas	Creación y Consolidación de Centros Tecnológicos (CREA)	The objective of this programme is to redistribute the technological centres map to the industry's necessities so as to reduce the imbalance found today.	Ministry of Industry, Tourism and Commerce (General Small and Medium Enterprise Direction)	19/05/2008	http://www.mityc.es/Plan_IDI/CREA/Paginas/Index.aspx
Ministerio de Industria, Turismo y Comercio Convocatorias de Ayudas Públicas	Desarrollo Experimental Industrial	The National Experimental Development Program has the main objectives of promoting technological development between different agents involved in the Spanish Science and Technology System (SECYT).	Ministry of Industry, Tourism and Commerce (General Industry Direction)		http://www.mityc.es/PLAN_IDI/Industrial/Paginas/Index.aspx
Ministerio de Industria, Turismo y Comercio Convocatorias de Ayudas Públicas	Centros Tecnológicos (Desarrollo Experimental)	Support for technological centres to carry out experimental development projects.	Ministry of Industry, Tourism and Commerce (General Small and Medium Enterprise Direction)		http://www.mityc.es/Plan_IDI/CTDesarrolloExperimental/Paginas/Index.aspx
Ministerio de Industria, Turismo y Comercio Convocatorias de Ayudas Públicas	Centros Tecnológicos (Investigación Aplicada)	Supporting technological centres to develop applied research projects focusing on planned research.	Ministry of Industry, Tourism and Commerce (General Small and Medium Enterprise Direction)	12/05/2008	http://www.mityc.es/PLAN_IDI/CTInvestigacionAplicada/Paginas/Index.aspx
Ministerio de Industria, Turismo y Comercio Convocatorias de Ayudas Públicas	Investigación Aplicada Industrial	Supporting technological centres to develop applied research projects focusing on planned research, including pre-competitive projects whose results are not directly marketable and have a high level of risk..	Ministry of Industry, Tourism and Commerce (General Industry Direction)	12/05/2008	http://www.mityc.es/Plan_IDI/InvestigacionAplicada/Paginas/Index.aspx

EAGAR – Publicly Funded Automotive Research in Spain

Overall programme initiative name	Programme call name	Programme call description	Funding organisation	Programme call end date (DD. MM. YYYY)	Main point of reference
Ministerio de Industria, Turismo y Comercio Convocatorias de Ayudas Públicas	Programa CEIPAR	Entrepreneurial Competitvity Support Program that constitutes one of the principal instruments to reinforce connection between the R+D+i world and the corporations.	Ministry of Industry, Tourism and Commerce (General Industry Direction)		http://www.mityc.es/Plan_IDI/CEIPAR/Paginas/Index.aspx
PROGRAMA CENIT	INGENIO 2010	The CENIT Program (Strategic National Consortium in Technical Research) manages financing for large integrated projects in industrial research with strategic character, great dimension and high scientific-technical baggage.	Centro para el Desarrollo Tecnológico Industrial (CDTI)	31/12/2010	http://www.cdti.es/index.asp?MP=7&MS=23&MN=3
PROYECTOS DE INVESTIGACIÓN Y DESARROLLO (PID)	PROYECTOS DE INVESTIGACIÓN Y DESARROLLO (PID)	Research and Development Projects (PID) have the objective of financing entrepreneurial projects implied in the creation and significant improvement of a productive process, product or service, including activities from industrial research and experimental development.	Centro para el Desarrollo Tecnológico Industrial (CDTI)		http://www.cdti.es/index.asp?MP=7&MS=17&MN=2&TR=C&IDR=593
LINEA BANCA CDTI	Línea Banca CDTI para la Financiación de la Innovación Tecnológica	Finance under the minimis regime, technological innovation projects whose objectives cover one of the following: Incorporation and adaptation of emerging technologies in the company, including process adaptation and technology improvement in new markets. Incorporation of a totally new or significantly improved production method or supply.	Centro para el Desarrollo Tecnológico Industrial (CDTI)		http://www.cdti.es/index.asp?MP=7&MS=240&MN=3

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Overall programme initiative name	Programme call name	Programme call description	Funding organisation	Programme call end date (DD. MM. YYYY)	Main point of reference
FONDO TECNOLÓGICO	FONDO TECNOLÓGICO	The Technological Fund is a special European Union FEDER (Fondo Europeo de Desarrollo Regional) budget destined to promote R+D+i in Spain.	Centro para el Desarrollo Tecnológico Industrial (CDTI)		http://www.cdti.es/index.asp?MP=7&MS=236&MN=3
FONDO TECNOLÓGICO	Proyectos de Cooperación Interempresas Nacional	R+D projects with experimental character and being carried out by groups of companies that have as an objective the development of technology, novelty products or processes while promoting a collaborative culture between them.	Centro para el Desarrollo Tecnológico Industrial (CDTI)		http://www.cdti.es/index.asp?MP=7&MS=245&MN=3
CDTI FINANCIACIÓN Y COOPERACIÓN INTERNACIONAL	EUREKA	EUREKA is an intergovernmental initiative for R+D+i support, it is cooperative in the European environment and seeks to impulse competitiveness of European companies.	Each country		http://www.eureka.be/home.do
CDTI FINANCIACIÓN Y COOPERACIÓN INTERNACIONAL	IBEROEKA	IBEROEKA is a support instrument for technological cooperation in Latin America, Portugal and Spain.	Each country		http://www.cdti.es/index.asp?MP=7&MS=53&MN=3
CDTI FINANCIACIÓN Y COOPERACIÓN INTERNACIONAL	CANADEKA	CDTI and NRC-CNRC (Canada) signed in November 2005 a treaty that establishes a Bilateral Technological Cooperation Program.	Governments		http://www.cdti.es/index.asp?MP=7&MS=123&MN=4
CDTI FINANCIACIÓN Y COOPERACIÓN INTERNACIONAL	CHINEKA	The Bilateral Hispanic-Chinese Technological Cooperation Program promotes international cooperation between Spain and China.	Governments		http://www.cdti.es/index.asp?MP=7&MS=56&MN=3
CDTI FINANCIACIÓN Y COOPERACIÓN INTERNACIONAL	ISIP (INDIA & SPAIN INNOVATING PROGRAM)	The Bilateral Hispanic-Indian Technological Cooperation Program (ISIP) promotes international cooperation between Spain and India.	Governments		http://www.cdti.es/index.asp?MP=7&MS=211&MN=3

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Overall programme initiative name	Programme call name	Programme call description	Funding organisation	Programme call end date (DD. MM. YYYY)	Main point of reference
CDTI FINANCIACIÓN Y COOPERACIÓN INTERNACIONAL	KSI (KOREA & SPAIN INNOVATING)	The Bilateral Hispanic-Korean Technological Cooperation Program (IKSI) promotes international cooperation between Spain and Korea.	Governments		http://www.cdti.es/index.asp?MP=7&MS=228&MN=3
CDTI FINANCIACIÓN Y COOPERACIÓN INTERNACIONAL	JSIP (JAPAN & SPAIN INNOVATING PROGRAM)	The Bilateral Hispanic-Japanese Technological Cooperation Program (JSIP) promotes international cooperation between Spain and Japan.	Governments		http://www.cdti.es/index.asp?MP=7&MS=248&MN=3
Ayudas I+D+i Ministerio de Fomento	Proyectos de I+D+i de transporte e infraestructuras	Subprogram of public-private cooperative projects related to transportation and infrastructures.	Ministry of the Presidency	02/06/2008	http://www.centrorecursos.com/mapas/ayudas/CasaVer.asp?P=29~1491
Ayudas I+D+i Ministerio de Fomento	Línea de articulación e internacionalización del sistema de I+D+i.	Public support grants to science and technology in the line of internationalization and cooperation of the system.	Ministry of the Presidency		http://www.centrorecursos.com/mapas/ayudas/casaAv.a.asp
Ayudas I+D+i Ministerio de Fomento	Support for pilot programs that promote sustainable mobility in urban and metropolitan environments.	Promote a sustainable urban and metropolitan mobility and define the tasks of the Ministry of Public Works in an integrated and coordinated action with the relevant administrations.	Ministry of Fomento		http://www.fomento.es/MFOM/LANG_CASTELLANO/INFORMACION_MFOM/SUBVENCIONES/PROGRAMAS/conv.htm
Ayudas I+D+i Ministerio de Fomento	Convocatoria de subvenciones a estudios y acciones de difusión 2008	Contribute to the improvement and perfecting of the activities related to transport, infrastructure and related topics managed by the Ministry of Public Works.	Ministry of Fomento	29/08/2008	http://www.fomento.es/MFOM/LANG_CASTELLANO/INFORMACION_MFOM/SUBVENCIONES/ESTUDIOS/OrdenFOM2219.htm