

COMMUNICATIONS OBLIGATIONS FOR SPANISH ENTERPRISES RECEIVING STATE R&D+i GRANTS

ABSTRACT:

Dissemination is a key element for innovation. Under this premise, private enterprises benefiting from state aid for Research, Development and Technological Innovation (R&D+i) should carry out communication activities. The objective of this study is to analyse communication obligations when receiving state funds (direct and indirect). From the compilation of all the calls published in the year 2015, we identified the following: the information requirements to be disseminated, the mechanisms for non-compliance, and the distribution of tasks between companies and funding agencies. The results indicate that the demands in terms of communication are different when receiving direct and indirect funds, in the latter case, there are none. The requirements in the calls for direct grants of R&D+i are very general and are not unified. In order to comply with the transparency and communication objectives set by the European Union, communication actions should be intensified and aspects such as the amount of the grant or the type of project should be taken into account. The agencies that manage the subsidies should increase the level of demand, promote data sharing and develop a more active role in disseminating results.

Keywords: diffusion of innovation, communication, data sharing, innovation, R&D+i, public funds.

RESUMEN:

La difusión es un elemento clave para la innovación. Bajo esta premisa, las empresas privadas beneficiarias de ayudas estatales a la Investigación, Desarrollo e innovación tecnológica (I+D+i) deberían llevar a cabo actividades de comunicación. El objetivo de este trabajo es analizar las obligaciones comunicativas en las ayudas estatales (directas e indirectas). A partir de la recopilación de todas las convocatorias del ejercicio 2015, se identifican los requisitos sobre información que se exige difundir, los mecanismos para casos de incumplimiento y el reparto de tareas entre empresas y agencias de financiación. Los resultados indican que las exigencias en términos de comunicación varían en las ayudas directas e indirectas, siendo en estas últimas inexistentes. Los requerimientos en las convocatorias de ayudas directas de I+D+i son muy generales y no están unificados. Para cumplir con los propósitos de transparencia y comunicación fijados por la Unión Europea deberían intensificarse las acciones de comunicación y para ello deberían tenerse en cuenta aspectos como el montante de la ayuda o el tipo de proyecto. Sería recomendable que las agencias que gestionan los subsidios incrementaran el nivel de exigencia, promocionaran la compartición de datos y desarrollaran un papel más activo en la difusión de los resultados.

Palabras clave: difusión de la innovación, comunicación, compartir datos, innovación, I+D+i, ayudas públicas.

1. INTRODUCTION: INNOVATION AND COMMUNICATION (dissemination and data sharing)

The European Union (EU) and its Member States invest a significant proportion of their budgets on innovation programmes. They wish to ensure that the public in general are informed about the projects they support and that the results of research are shared in order to facilitate future studies and optimise the use of public resources [1].

In fact, innovation is a multifactorial concept in which communication is an important component that influences both a) the process in its dissemination and b) that in its generation.

a) In fact, "dissemination of innovation" has monopolised the attention of the scientific community and given rise to a scientific theory of the same name that, with a sociological focus, attempts to explain how, why and at what speed innovations propagate through a social system (seen as a set of inter-related individuals). The theory concentrates on the process that has the purpose of socialising innovations between individuals in a set time and through various communications channels. Rogers [2] has defined the purpose of this current of work as the analysis of:

the process through which an innovation is communicated through certain channels over time between members of a social system. This is a special type of communication in which the messages have to do with new ideas.

There are many investigators who, following Rogers, have developed and validated mathematical models measuring the influence of the communication being disseminated. Various reviews, such as those of Mahajan, Muller and Bass [3], Baptista [4], Meade and Islam [5] and Peres, Muller and Mahajan [6] have compiled the main contributions of these models. Without attempting to cover everything, several variables in dissemination such as publicity, interpersonal communication (mouth-to-mouth) and the price must be considered important. In the various models, the variable communication is encompassed by publicity and mouth-to-mouth, as shown in Table 1.

In their conclusion, the studies analysed (Table 1) point out that communication increases the probability of the adoption of the innovation. High levels of publicity at the start are important for informing all innovators about the existence of a product. Subsequently, publicity can give way to mouth-to-mouth communication in terms of increasing the number of adopters. The frequency of communication should be modulated depending on whether the innovation is disruptive, unprecedented and lacking prior information, or an incremental innovation. In the first case, there must be more focus on publicity to expand the level of information. In the second case, interpersonal communication may be more appropriate.

From a review of the previous literature, it is clear that communication in general is very important as an essential variable for dissemination of the innovation in its various aspects. However, the dimension of public communication and inter-group communication between researchers, of profound interest for this study, has scarcely been analysed, given that public institutions and the European Union call for more communication and transparency to ensure that public opinion knows about supported projects and so that there is better use of resources [1].

b) While the theory of dissemination of innovation focusses on communication of novelty on public opinion or the market, there is another line of work, data sharing, that focusses on the importance of communication and information for generating innovations. This emerging field of study is concerned about the way in which research data are shared and is restricted to the research community as the receiver and emitter of the information.

The results of studies on Data Sharing point out that data sharing leads to better use of resources, especially in subsidised projects. In addition, access to the results of research can facilitate the subsequent task of other researchers or can even become the starting point for future analyses. Data Sharing means cost and time savings, prevents duplication of work and increases the level of transparency [7]. This latter aspect, transparency, is essential for the EU, which urges Member States, management authorities and beneficiaries, to adopt the necessary measures to inform the public about the operations that have been financed by European funds [1].

The OECD has established some principles and directives for access to the research data financed through public funds. Apart from defining key concepts such as what is research data, it has made a series of recommendations for the organisations that manage EU funds [8].

It should be emphasised that the start of data banks goes back to 1971 with the launch of the Protein data bank [9]. From that time various other specialised repositories have appeared such as GenBank and ArrayExpress in the genomic area, and the Biological Magnetic Resonance Data Bank in biology [7]. The proliferation of these data banks is largely due to the efforts of the financial agencies that play an important role such as the National Institutes of Health (NIH) in the United States, which ensures that data of projects with funds exceeding 500,000 dollars in a year must remain open, meaning that the organisation must develop and maintain a database.

In the EU, there are initiatives such as *OpenAire*, which indexes the results of projects financed by the European Commission under the 7th Framework Programme and Horizon 2020. The aim of this platform is to increase international visibility of financed research, monitor compliance of open access policies and exercise transparency. In August 2017, *OpenAire* can search over 21 million scientific publications from 2,351 sources.

Universities and research centres all over the world have also become important databases by developing institutional repositories storing research results (articles, communications and doctoral theses). Publication of articles in specialised journals and presentation of conference talks have always been mechanisms used by researchers for dissemination their results.

Although in Spain, the implementation of open data repositories is emerging, we should highlight *Odisea* and *CEACS* that bring together primary and secondary data of surveys and statistics of organisations such as the *CIS* (Spanish Sociological Research Centre), *INE* (Spanish National Statistics Institute) and the OECD, as well as the "*Recursos i dades primàries*" [Resources and Primary data] collection that is part of the digital repository of the Pompeu Fabra University [10].

In addition to the actions of public institutions, there are initiatives such as GitHub that create open source repositories that can be used by the research community for the results of R&D projects. However, there is no source that brings together the data of research performed by private companies and this reveals that there is still a lot of work to do. All indications are that in the new future, open access will be essential for all subsidised projects [10].

Associated with the complexity derived from the creation of data banks, there are other critical aspects for determining when the results of research should be shared. There are examples such as the NIH that establish that data must be shared by a deadline such as the date when a journal accepts the article with the research results [7]. Another key aspect is the funding of dissemination activities and data sharing in the R&D+i grants. In the European Horizon 2020 calls for proposals, such activities are subsidised with the aim of reaching both public opinion and the research community.

Aware of the value of communication for R&D+i and the need for transparency demanded by the EU, companies are required to inform about supported R&D+i projects. For determining the communication requirements, it is necessary to establish what information should be communicated, with what frequency, at what time, in which ways, who should do so, what data should be shared and whether dissemination should be an eligible item for subsidy.

In this context, given the importance of communication for innovation, the purpose of the study is to analyse the obligations, both in terms of dissemination and data sharing, that are required in national calls for proposals for R&D+i funding. This is a first step for being able to evaluate the effectiveness and relevance of some public policies.

Specifically, this study addresses:

- 1) Compiling and reviewing calls for R&D+i proposals that are directly and indirectly funded at the national level in Spain.
- 2) Analysing and classifying, for subsequent description, the obligations in terms of communication of innovation that companies receiving R&D+i funds must comply with, specifically:
 - a. Detailing the demands in the calls for proposals as well as the distribution of roles at the time of disseminating the results.
 - b. Checking the requirement of partial or total publications of results in publicly accessible repositories.
 - c. Listing the mechanisms established in case of non-compliance.

From a practical point of view, all the calls for proposal for directly funded R&D in Spain directed at enterprises have been compiled and analysed, focussing on which dissemination actions were demanded, what their contents had to be, what timescales had to be met, who were responsible, what would occur in case of failure to meet the obligations, whether the dissemination actions were funded, if the actions had to be detailed in the applications for grants or if they had to be included in a public database.

The methodology used is described below. We then present the results and end with the conclusions of our study.

2. MATERIALS AND METHODS

2.1. STUDY DESIGN

In order to meet these objectives, firstly we consulted the website of the Secretariat of State for Research, Development and Innovation, responsible for scientific and technical research, development and innovation policies, containing the Annual Action Programme and all the a) direct and b) indirect national funding (Table 2).

- a) For each of the direct funds, we compiled the call for proposals for each of them for the year 2015 from the websites of the Secretariat of State for Research, Development and Innovation, under the Ministry of Industry, Economy and Competitiveness (*MINECO*) and the Centre for Industrial Technology Development (*CDTI*)¹.

Because the *CDTI* signs contracts before a notary with the beneficiaries where all the obligations that they must meet are specified, we also collected the contracts of five companies listed in the section "Approved *CDTI* Projects".

The search of all the listed sources enabled us to select all the Spanish R&D+i funding programmes, published and/or called during the year 2015 (Figure 1).

- b) Regarding indirect funds, we consulted the website of the Secretariat of State for Research, Development and Innovation (*MINECO*) and identified three: tax deductions for R&D+i and Patent Box, which are fiscal incentives for innovation, and Social Security allowances for research staff. We analysed the three documents that regulate indirect funding: Law of Company Tax (2014) - tax deductions for R&D+i and Patent Box - Royal Decree 475/2014 - Social Security allowances for research staff- and Royal Decree 1432/2003, which regulate the issuance of Motivated Reports.

2.2. METHODOLOGY. REVIEW OF COMMUNICATION REQUIREMENTS: CONTENT ANALYSIS

When the documentation was compiled, we applied content analysis techniques to describe the obligations in terms of communication of innovation; identifying the distribution of roles; and determining if measures that contribute to data sharing were being employed.

The recording unit was taken to be the articles referring to dissemination and a coding protocol with a dichotomous system was developed, determining the variables to be analysed (Table 3).

3. RESULTS

Calls for proposals for R&D+i funding

Twenty-one documents (eighteen for direct funding and three for indirect funding) were collected and analysed. Regarding the direct funding, the documents that approved the terms of the three national programmes were analysed (Table 4), which collected all the funding for R&D+i directed at enterprises, the total universe of national calls for proposals, including eight documents that encompassed ten calls (Figure 1) and five contracts signed between companies and *CDTI*.

Regarding indirect funds, the three documents that regulate them were analysed: Law of Company Taxes (2014), which regulates tax reductions for R&D+i and Patent Box; Royal Decree 475 (2014), which regulates the Social Security allowances for research staff; and Royal Decree 1432/2003, which regulates the issue of Motivated Reports for the

application of tax deductions for R&D+i.

Communication requirements in direct and indirect funding

A) Direct funding

a) Dissemination activities

Information referring to communication is added to the calls for proposals and/or contracts under various names, for example: "other obligations of the company" (R&D projects); "obligations of the beneficiary" (*Feder Interconecta*, *Emplea* or *Torres Quevedo*); "publicity" (*Retos Colaboración*); "information, communication and documentary custody" (*AEESD*); or "visibility of EU and CDTI financing" (*Interempresas Internacional CDTI Eurostars*).

All the grants specify that dissemination activities must be carried out (Table 5). All include the need to mention the granting organisation, the insertion of logos and emblems and the mention of the project on the company's website. In addition, the grants managed through *CDTI* add the requirement to include an explanatory panel or poster.

The calls for proposals in the *AEESD* programme also indicate that the beneficiary must ensure free access for any user to all the scientific publications related to the project and must indicate where the research data can be found.

b) Dissemination frequency and content

The calls for proposals list minimum dissemination activities, without specifying the frequency or content that must be included. Only grants managed through *CDTI* ask for a description to be made on the website, which must depend on the amount of the grant and/or type of project and specify the information to be included (description that includes the aims and results of the project).

c) Timelines

The time when dissemination actions must be performed is not clearly specified and the times are not adapted to the type of project. Only in the case of *Feder Interconecta* is it indicated that the public must be informed of the support obtained during the project and a poster or panel must be permanently displayed within three months after the project conclusion. Some calls for proposals, such as *Torres Quevedo* and *Doctorados Industriales*, specify that there must be publicity when publications, talks or dissemination activities are undertaken.

This means that when activities such as talks are performed, publicity must be given coinciding with the activity. The other dissemination activities, such as a mention on the website or the inclusion of posters (except for the *Feder Interconecta* programme), will coincide with the project justification.

d) Distribution of responsibilities

In all cases, it is the enterprise that is responsible for informing the public about the funded project. The entrusted entity never assumes any task other than the creation of a public listing and publicity prior to notifying the grant.

e) No dissemination

Failure to comply with dissemination obligations is regulated in all the direct grant calls for proposals for R&D+i, whether this refers to general compliance with the obligations or through specific sections. In the latter case, calls for proposals by *Torres Quevedo* and *Formación de Doctores en Empresa* indicate that failure to comply with the

established dissemination requirements will result in partial repayment of the amount specified for such failure. The *Emplea* call for proposals also mentions this aspect, indicating that failure to comply will result in total repayment of the grant plus interest.

The other calls for proposals do not specify anything concrete, only indicating that all obligations must be complied with.

f) Financial support for dissemination

The activities of information and communication are not an eligible cost in any call for proposals and, therefore, dissemination actions that must be performed by the companies are never refunded.

g) Application for funding

In the various applications for funding, it is not necessary to define a detailed plan of the dissemination activities. They are only indicated in the calls for proposals by *Torres Quevedo* and *Formación de Doctores en Empresa* and this requirement is not expressly directed at companies.

h) Data sharing

None of the calls for proposals makes reference to the obligation to ensure free access to the research data, except for the calls of *AEESD*. In these cases, the beneficiary must ensure that the public in general can have access to the scientific publications resulting from the project and also indicate where the data can be found. It is also specified that the metadata must be in a standard format.

Table 6 includes a statistical description of the data obtained.

B) Indirect funding

The texts that refer to indirect funding do not specify dissemination actions and consequently do not spell out either the frequency of the communication activities or the contents, or the distribution of responsibilities. They include no mention of dissemination, the communication costs are not eligible, and a dissemination plan is also not demanded.

4. CONCLUSIONS

National R&D+i funding calls for proposals demand compliance with some communication obligations in accordance with the interest shown by the EU for increasing transparency [1]. However, the following points should be highlighted:

- Direct funding
 - There is considerable heterogeneity in the mention of the required communication actions. It would be necessary to set up a terminological glossary that would limit the scope of each of the actions and that would capture the concepts of communication, dissemination and publicity that appear indistinctly in the various calls for proposals.
 - The activities demanded are very general and do not include publication in prestigious indexed journals or giving talks, one of the most common ways of disseminating the results of investigations.
 - In all funding, apart from in the *CDTI* calls for proposals, the frequency of dissemination does not vary as a function of the specific details of the project. The frequency could be modulated as a

function of aspects such as the amount received (as done by the NIH), the project type (disruptive or incremental innovation) or the field of research.

- Practically all dissemination actions must be performed coinciding with the project justification. This aspect could be critical, given that forcing the company to reveal the results at an early stage could dissuade them from requesting a grant where the purpose is to support projects that would not happen without public intervention. A point of reference could be that used by the NIH, where the limit would be set by the acceptance of an article in a scientific journal [7]. However, it is possible that private companies are not familiar with the publication of articles. Therefore, possible alternatives could be sought such as dissemination coinciding with the concession of intangibles (patents, utility models, etc.) or after a prudent time following final project justification. In addition, the possibility of differentiating between R&D projects that require more effort and those of technological innovation should be considered and to assess offering a longer time scale to the former.
 - The responsibility for dissemination falls on the beneficiaries. The communication possibilities of the management organisations are not exploited, as happens at an international level with the NIH. In this case, *MINECO*, the source of a large proportion of the funds, could adopt a more relevant role in communication and centralise efforts and resources.
 - In contrast to what happens with European calls for proposals framed under Horizon 2020, the communication actions in national calls for proposals are never eligible for subsidy and it is the companies who must assume those actions with their own resources. Including dissemination as an eligible cost should be assessed and the penalty for non-dissemination set, which is ambiguous in many cases.
 - It would be advisable to request a breakdown of the communication activities in the application for funds as an essential element for publicising the innovation achieved.
 - Except for one case, there is no demand that the results are included in publicly accessible repositories. Practically all the initiatives are focussed on the results of research carried out by universities and research centres [10]. Taking into account the benefits of data sharing [7], the financing agencies could play a more active role. Firstly, because they may be the organisation that creates, maintains and makes the repositories available, and secondly because they can encourage data to be shared. Therefore, a starting point could be that used by the NIH, where projects that receive specific funding must necessarily share the data of their investigations. Thus, taking the *OpenAire* initiative as a reference, it would be useful for the central Administration to lead an analogous initiative with projects subsidised at the national level.
- Indirect funding:
- Despite the relevance and efficacy of communication of the innovation, indirect grants still have not included any dissemination measures. It should be asked if this is consistent with scientific evidence, which points out that communication is a clear driver of the process of dissemination of innovation [2 - 6].
 - A first thought is that given the sums involved in indirect grants, the possibility of setting some minimal communication measures, which would be consistent with the requirements of direct grants, should be assessed. Given that *MINECO* manages the Motivated Reports, a first initiative could be to create a directory with project title, company and amount.

We can conclude that it would be advisable to standardise the communication requirements set in Spanish R&D+i calls

for proposals and to intensify and expand the actions, taking into account aspects such as the amount of grant and the type of project. Thus, agencies managing grants could undertake a more active role in the dissemination of the funded projects through the creation and promotion of a public data bank that includes the information of projects funded in national R&D calls for proposals or performing part of the dissemination of the results of subsidised research.

FOR DEEPER KNOWLEDGE

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SUPPLEMENTARY MATERIAL

Table 1: review of the dissemination models for innovation that include the various dimensions of communication

Author(s)	Title	Year	Aim*	Description	Variables analysed	Empirical support	Conclusions
Dodson and Muller	Models of new product diffusion through advertising and Word-of-mouth	1978	N	Develop a model of the dissemination process that recognises the interaction between adopters and non-adopters and the influence of external sources of information such as publicity. The model is related to the proposals of Gould, Nerlove and Arrow, Vidale and Wolfe, Palda, Bass, Nicosia and Glaister.	Publicity and mouth-to-mouth	No	Propose a model that unifies various theories and models and test the influence of publicity and mouth-to-mouth communication in the dissemination process.
Horsky and Simon	Advertising and the diffusion of new products	1983	N, T	Evaluate the impact of the company's publicity strategy on the dissemination process of a new product and seek to determine the optimum publicity policy that the company should pursue.	Publicity and mouth-to-mouth	1 product (telephone bank)	The firm must make an intense effort in publicity at the start to inform all innovators about the existence of the product. Later, publicity can gradually reduce as innovators begin to acquire the product.
Thompson and Teng	Optimal pricing and advertising policies for new product oligopoly models	1984	N	Develop a theoretical model of dissemination that includes price and publicity variables. The proposal start from the demand growth model of Bass and the publicity models of Vidale-Wolfe and Ozga.	Price and publicity	No	The number of potential clients depends both on the price and on the publicity rather than being constant. Optimum prices and publicity rates start high and gradually reduce.
Kalish	A new product adoption model with Price, advertising and uncertainty	1985	N, T	Develop a model that includes price, publicity and uncertainty.	Price, publicity and uncertainty	1 product (lasting product)	Promotion increases awareness and the probability of adoption. Information from the first adopters reduces uncertainty.

Simon and Sebastian	Diffusion and Advertising: The German Telephone Campaign	1987	I	Investigate the influence of publicity is the dissemination of new telephones in West Germany. Propose various alternatives for integrating publicity into the Bass model and extend the work of Horsky and Simon, proposing alternative publicity-dependent dissemination models.	Publicity	1 product (telephones)	The model assumes that publicity specially affects imitators. Publicity reaches its maximum effect after several months.
Dockner and Jørgensen	Optimal advertising policies for diffusion models of new product innovation in monopolistic situations	1988	N	Determine the optimum publicity strategy for new dissemination models for products in a monopoly situation. Compare their model with those of Thompson and Teng and of Horsky and Simon.	Publicity	No	Determine that the optimum publicity strategy must initially be low and later increase (when the effect of dissemination is negative and publicity is directed to imitators), or initially high and then gradually reduce (effects of positive dissemination or publicity directed at innovators. Case reported in many examples of the literature).
Bass, Krishnan and Jain	Why the Bass model fits without decision variables	1994	N, I	Validate the Bass model and its applicability and expand it (Bass generalised model) including decision variables such as price and publicity.	Price and publicity	3 products (air conditioning, colour television and clothes dryer)	Assert that the Bass model continues to be applicable and verify its generalised version, which includes price and publicity, to be flexible and valid.
Putsis	Parameter variation and new product diffusion	1998	I, N	An empirical investigation was performed on the variation of parameters in dissemination models and a new model developed that can estimate with different parameter structures, that includes variables of marketing-mix and replacement sales.	Variables of marketing-mix	2 products (durable products)	The proposed model was validated using three estimation procedures: non-linear least squares, a stationary stochastic process and a non-stationary stochastic specification.

Source: compiled by the authors.

¹ The Kalish model used was different from that introduced in the table and was presented in the article, “Monopolist pricing with dynamic demand and production cost”.

- * To define the purpose of the work, the classification of Bass, Krishnan and Jain in the article “Why the Bass model fits without decision variables” was used:
- N: the main purpose was to develop a theory for including the price and publicity in the framework of dissemination.
 - T: the main aim was to obtain optimum prices and publicity, assuming a theoretical model for the purpose.
 - I: The main aim is to investigate the role of price and publicity, empirically comparing as many extensions as possible with the Bass model.
 - O: The impact of the variables was analysed.

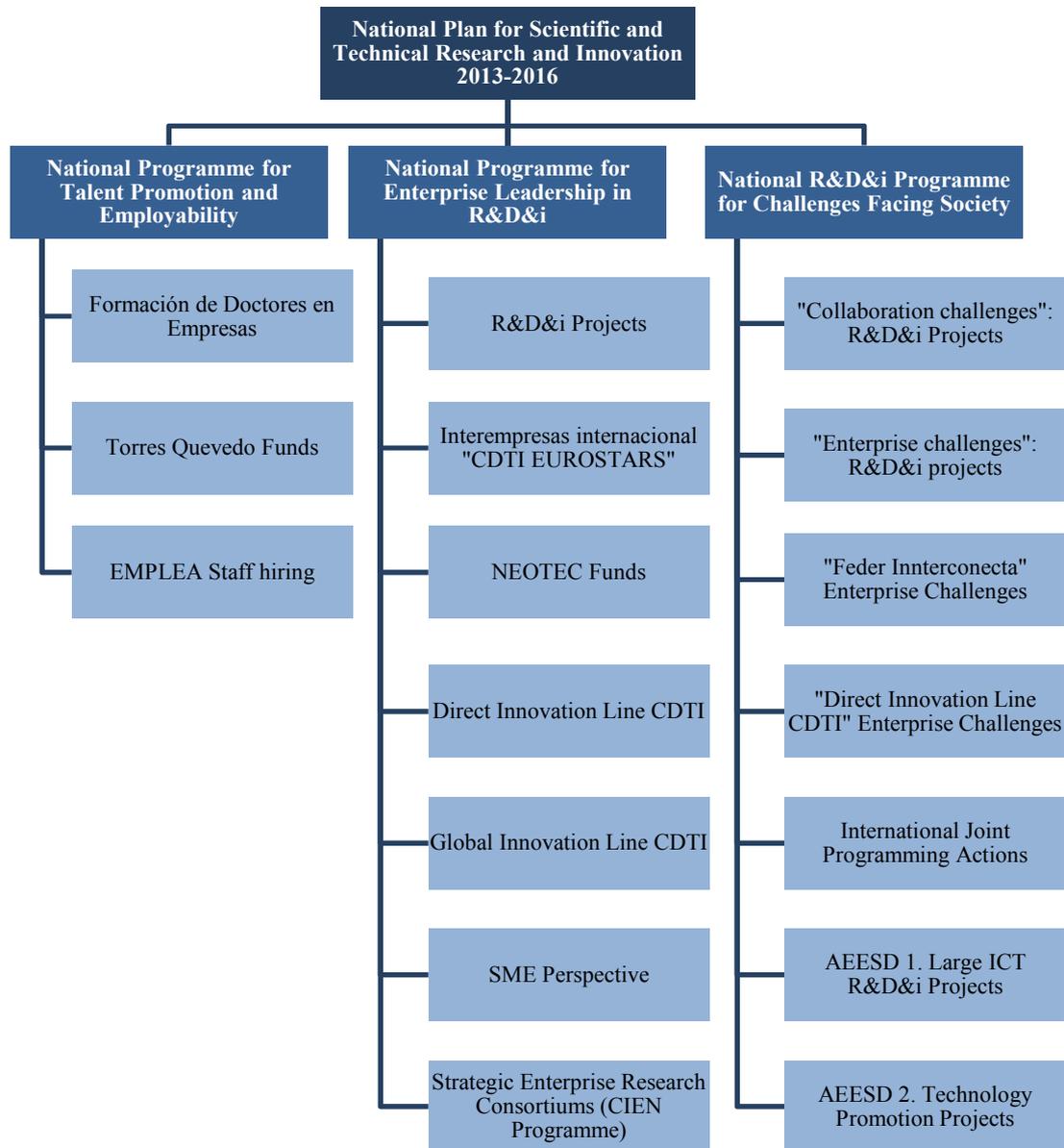
Table 2: sources consulted to compile the legal texts.

Aim	Source	Section consulted	Content	Web address
Identify direct funding	Secretariat of State for Research, Development and Innovation (MINECO)	Innovation> Funding instruments> Annual programme of activities 2016 and earlier	Annual programme of activities 2016 with a description of the direct funding at a national level	http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.26172fcf4eb029fa6ec7da6901432ea0/?vgnextoid=6324ded45c0c4410VgnVCM1000001d04140aRCRD
Identify indirect funding	Secretariat of State for Research, Development and Innovation (MINECO)	Innovation> Actions for promoting innovation> Taxation and allowances for R&D+i activities	Indirect funding to support R&D+i	http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.7eeac5cd345b4f34f09dfd1001432ea0/?vgnextoid=45d1a8f3785b4410VgnVCM1000001d04140aRCRD
Compile the terms of the call for proposals of each direct grant	Secretariat of State for Research, Development and Innovation (MINECO)	Grants search> All grants for 2016	Terms and call for proposals for each grant, both documents published in the BOE and linked from the website	http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.29bfd64be21cddc5f09dfd1001432ea0/?vgnextoid=f95505e42afee310VgnVCM1000001d04140aRCRD&id2=&id1=0&id3=2015&btn_modulo_ayudas=Buscar
Compile the terms of the direct grants	Secretariat of State for Research, Development and Innovation (MINECO)	Start> National Plan for Scientific and Technical Research and Innovation 2013-2016 > National R&D+i Programme for Challenges Facing Society	Terms of the National Programme for Research, Development and Innovation for Challenges Facing Society	http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.dbc68b34d11ccb5d52ffeb801432ea0/?vgnextoid=ebe401a5353cd410VgnVCM1000001d04140aRCRD
Compile the terms of the direct grants	Secretariat of State for Research, Development and Innovation (MINECO)	Start> National Plan for Scientific and Technical Research and Innovation 2013-2016> National Programme for Enterprise Leadership in R&D+i	Terms of the National Programme for Enterprise Leadership in R&D+i	http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.dbc68b34d11ccb5d52ffeb801432ea0/?vgnextoid=415cfc40144bd410VgnVCM1000001d04140aRCRD
Compile the terms of the direct grants	Secretariat of State for Research, Development and Innovation (MINECO)	Start> National Plan for Scientific and Technical Research and Innovation 2013-2016> National Programme for Talent Promotion and Employability in R&D+i	Terms of the National Programme for Talent Promotion and Employability in R&D+i	http://www.idi.mineco.gob.es/portal/site/MICINN/menuitem.d20caeda35a0c5dc7c68b11001432ea0/?vgnextoid=baf505e42afee310VgnVCM1000001d04140aRCRD
Compile the terms of the call for proposals of each direct grant	CDTI	Financing R&D+i projects	Direct grants directed at SMEs and related documents	https://www.cdti.es/index.asp?MP=7&MS=17&MN=2

Compile contracts signed between CDTI and enterprises receiving grants	CDTI	Approved CDTI projects	Enterprises with an approved CDTI project	https://www.cdti.es/index.asp?MP=7&MS=25&MN=3&IDR=0
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Source: compiled by the authors

Figure 1: calls for proposals for R&D+i support.



Source: MINECO. Compiled by the authors.

Table 3: variables of each call for proposal.

Variable	Question asked	Results
Dissemination activities	Are the dissemination activities that must be carried out specified?	Yes/No
	What activities are considered?	
Frequency	Is there a set of minimum activities that must be performed?	Yes/No
	Are the actions dependent on the amount of the grant and the type of project?	Yes/No
Content	Is a minimum content specified?	Yes/No
	What minimum contents are demanded?	
Timescale	Is the time when the actions are to be performed indicated?	Yes/No
Responsibilities	Who is responsible for dissemination?	- the beneficiary - the granting organisation - other
	Are the functions that must be performed by each party clearly demarcated?	Yes/No
No dissemination	Is there a specific clause that mentions failure to disseminate?	Yes/No
Financial support	Are the costs of the activities of disseminating the innovation eligible?	Yes/No
Grant application	Is a breakdown of the dissemination activities demanded in the grant application?	Yes/No
Data sharing	Must the results of the project be included in a publicly accessible repository?	Yes/No

Source: compiled by the authors.

Table 4: number of documents analyses referring to direct and indirect grants.

	Number of documents analysed	Description
Direct funding	18	<ul style="list-style-type: none"> - 5 texts referring to national programmes: <ul style="list-style-type: none"> • National Programme for Enterprise Leadership in R&D+i (Orden ECC/1333, 2015) • National Programme for Talent Promotion and Employability (Order ECC/1402, 2013 amended by Order ECC/1820, 2014 and by Order ECC/2483, 2014) • National Programme for Research, Development and Innovation for Challenges Facing Society (Order ECC/1780, 2013) - 8 documents (10 calls for proposals for grants): <ul style="list-style-type: none"> • AEESD ICT technology promotion and large R&D+i ICT projects • Retos Colaboración • Feder interconecta • Horizonte Pyme • Neotec • Interempresas internacional • Emplea • Torres Quevedo and Doctorados Industriales - 5 Contracts of CDTI lines: <ul style="list-style-type: none"> • R&D projects (2) • Direct Innovation Line (2) • Global Innovation Line (1)
Indirect funding	3	<ul style="list-style-type: none"> - Law of Company Taxation (2014) - RD 1432/2003 - RD 475 (2014)

Source: compiled by the authors

Table 5: dissemination activities to be performed

FUNDING	ACTIVITIES
R&D projects	CDTI logo and EU funds logo and emblem; description on the website; poster or panel; accept inclusion on the public list.
Direct Innovation Line	
Global Innovation Line	
Cien strategic projects	
Feder Innterconecta	Logos (CDTI, MINECO and Feder) on all materials and contracts; panels or posters; public listing; description of the website (provided)
Neotec	CDTI logo and EU funds logo and emblem. Mention to MINECO. Publish the award on the website. Give publicity in any agreement or contract, publications, talks, equipment, inventoried materials and dissemination activities
Retos colaboración	Publicise the grant award on the website; mention in contracts, grants; publications, talks, equipment, inventoried materials and dissemination activities; mention of funding sources.
Emplea	Reference in contracts, publications, talks and dissemination activities. Publicity on the enterprise website.
Doctorados industriales	
Torres Quevedo	
AEESD-ICT technology promotion projects	Mention to MINETUR and EU logos and emblem if co-funded. Inclusion in the list of beneficiaries. Label on physical equipment.
AEESD-R&D+i ICT large projects	Free and public access to possible articles and to the research data. Promote dissemination of the project and its results, providing specific information to multiple audiences (including communications media and the public).
Horizonte pyme	Give publicity on the website. Publicity in contracts, publications, talks and dissemination activities of results. Mention to MINECO.
Interempresas internacional "CDTI EUROSTARS"	CDTI logo and EU funds logo and emblem.

Source: self-drafted.

Table 6: summary of the results from the variables of each call for proposals.

Variable	Question asked	Results
Dissemination activities	Are the dissemination activities that must be carried out specified?	Yes: 100% No: 0%
	What activities are considered?	- Logos, emblems and/or mention of financing source: 100% - Description on website: 64.3% - Poster or panel: 35.7% - Inclusion in a public list: 50% - Publicity in activities (talks, publications, etc.): 64.3% - Labelling on equipment: 21.4% - Free access to research articles and data: 14.3%
Frequency	Is there a set of minimum activities that must be performed?	Yes: 100% No: 0%
	Are the actions dependent on the amount of the grant and the type of project?	Yes: 35.7% No: 64.3%
Content	Is a minimum content specified?	Yes: 28.57% No: 71.43%
	What minimum contents are demanded?	Objectives and results: 28.57% None: 71.43%
Timescale	Is the time when the actions are to be performed indicated?	Yes: 21.4% No: 78.6%
Responsibilities	Who is responsible for dissemination?	Beneficiary: 100% Others: 0%
	Are the functions that must be performed by each party clearly demarcated?	Yes: 100% No: 0%
No dissemination	Is there a specific clause that mentions failure to disseminate?	Yes: 21.64% No: 78.56%
Financial support	Are the costs of the activities of disseminating the innovation eligible?	Yes: 0% No: 100%
Grant application	Is a breakdown of the dissemination activities demanded in the grant application?	Yes: 0% No: 100%

Data Sharing	Must the results of the project be included in a publicly accessible repository?	Yes: 14.3% No: 85.7%*
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Source: compiled by the authors.

* It should be noted that the calls for proposals for "AEESD-technology promotion projects" and "AEESD-large R&D+i ICT projects", indicate that the beneficiary must ensure that the public in general can have access to the scientific publications resulting from the project. However, publication of the results is not compulsory.