



COMMUNICATION OF INNOVATION THROUGH ONLINE MEDIA

Comunicación de la innovación a través de los medios online

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Abstract

The communication of innovation through online media is a subject that has not been studied much. This article examines the communications of Spanish companies that have received grants for their Research, Development and Technological Innovation (R&D&I) projects from the *Centre for Industrial Technological Development (Centro para el Desarrollo Tecnológico Industrial, CDTI)*. The companies that received funding in January 2016 are reviewed and an analysis performed of the quantitative and qualitative content of the websites and blogs for the subsequent 2 years has been. We have observed whether the companies communicate their innovations, if so, how, and whether they are complying with their communication obligations. Our conclusions indicate that the communication is insufficient, dispersed and not homogeneous. The regulations should better specify in which section the information should be published and which elements it should consist of, in order to improve transparency.

Keywords

Innovation; R&D; Communication; Online media; Web; Transparency; Dissemination; *CDTI*; Public funds.

Resumen

La comunicación de la innovación realizada a través de los medios online es una materia poco estudiada. Este artículo investiga la comunicación que hacen las empresas españolas, que han recibido ayudas para sus proyectos de investigación,

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desarrollo e innovación tecnológica (I+D+i), del *Centro para el Desarrollo Tecnológico Industrial (CDTI)*. Se revisan las empresas que han recibido una ayuda en enero de 2016 y se hace un análisis de contenido cuantitativo y cualitativo de los sitios web y blogs durante veinticuatro meses. Se observa si las empresas comunican las innovaciones, cómo lo hacen y si están cumpliendo con las obligaciones en materia de comunicación. Las conclusiones indican que la comunicación es insuficiente, está dispersa y no es homogénea. La normativa debería concretar mejor en qué apartado se debe publicar la información y qué elementos debería contener, para mejorar la transparencia.

Palabras clave

Innovación; I+D+i; Comunicación; Medios online; Web; Transparencia; Difusión; CDTI; Fondos públicos.

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1. Introduction

Transparency is a matter of concern to the *European Union* and the member states. The aim is for the public to be informed of aid granted to companies, so that there is greater clarity in the allocation processes and to increase the level of knowledge about actions supported by public funds (*European Union*, 2013).

As a result of this concern, initiatives have been launched in Spain such as the creation of the *Transparency Portal of the Government of Spain (Portal de la Transparencia del Gobierno de España)* or the *National Subsidy Advertising System (Sistema Nacional de Publicidad de Subvenciones, SNPS)*. The latter collects information on public aid conveyed and granted by the General State Administration, the administrations of the Spanish autonomous communities, the entities that comprise the local administration and the bodies and other entities of public law with their own legal personality.

In the academic environment, transparency has also been the focus of research. **Giménez-Chornet** (2012) already predicted the need for the public to have access to information, in order to guarantee transparency. One of the key contributions, by **Beltrán-Orenes** and **Martínez-Pastor** (2017), researches the organisation of information in the *Portal de la Transparencia de España (Transparency Portal of Spain)* and the presence of subjects obliged to be included by law. These authors conclude that most of the obligated entities, among which are some private companies, are not in the *Portal de la Transparencia*.

Pacios, Vianello-Osti and **Rodríguez-Bravo** also investigate transparency, but from the standpoint of Spanish universities and conclude that, although universities are transparent and comply with the obligations established by law, information

"is not individualised and is rarely linked to the results obtained (articles, patents, reports, etc.), which would allow sharing knowledge, as well as adding credibility and confidence in the financing of research" (**Pacios; Vianello-Osti; Rodríguez-Bravo**, 2016).

Websites are essential for the dissemination of innovations and for compliance with transparency requirements. In addition, they contribute to the democratisation of scien-

ce (**Wilkins**, 2008) and informal learning (**Weigold; Treise**, 2004).

The Web has transformed the way in which companies communicate with their public and is a source for the dissemination of information. For this reason, organisations devote more and more attention to it, in order to achieve a good dialogue with their public, and to manage aspects such as usability, navigability (**Marín-Dueñas; Laso-de-la-Vega-González; Mier-Terán-Franco**, 2016) and content quality (**Palazón-Meseguer**, 2001).

Online science communication conducted by universities and research organisations has also been studied in the academic context (**Lederbogen; Trebbe**, 2003; **López-Pérez; Olivera-Lobo**, 2015; 2016). The conclusions suggest that, although these organisations have started to use web 2.0 to communicate the research they do, dialogue with the public is not fruitful and effectiveness of communication continues to be poor. One of the factors that make dialogue with the public difficult is the use of technicalities that hinders the understanding of information by non-specialists.

“ The use of technicalities hinders the understanding of information by non-specialists ”

On the other hand, in order to guarantee the principles of publicity and transparency of subsidised acts, the *European Union* and the Spanish central administration have drawn up legal texts. In Europe, *Regulation n. 1303 (European Union, 2013)* specifies the communication obligations that must be carried out by companies receiving aid. In addition, the *European Framework on State aid for research and development and innovation (European Union, 2014)* highlights the need for member states, the *Commission*, economic operators and the public in general to find all the information on aid granted.

In Spain there are also several legal documents to take into account:

- *General law of subsidies (Spain, 2003)*: on the advertising of subsidies;
- *Law on the rationalisation of the public sector and other administrative reform measures (Spain, 2014)*: includes

modifications of the articles comprised in *Law 38/2003* referred to the advertising of the grants and *The national subsidies database (Base de datos nacional de subvenciones)*;

- *Law on transparency, access to public information and good governance (Spain, 2013)*: defines how the transparency framework in Spain should be.

As well as this, the contributions of *Royal decree 887 (Spain, 2006)* specify the diffusion tasks that companies must carry out.

The *General law of subsidies* specifies that

“the beneficiaries must give adequate publicity of the public nature of the financing of programs, activities, investments or actions of any kind that are subject to subsidy, in the terms established by regulation.” (*Spain, 2003*).

In addition, the *National subsidies database (Base de datos nacional de subvenciones)* will operate as a national subsidy advertising system and will contain

“reference to the regulatory bases of the subsidy, call, program and budget credit to which they are subjected, object or purpose of the subsidy, identification of the beneficiaries, amount of the subsidies granted and actually received, resolution of refunds and penalties imposed” (*Spain, 2014*).

The *Law on transparency* also specifies that the beneficiaries must advertise the subsidies and aid received. Specifically, it indicates that information on the “amount, objective or purpose and beneficiary” must be published and information

“will be published in the corresponding electronic offices or web pages and in a clear, structured and understandable way for those interested and, preferably, in reusable formats” (*Spain, 2013*).

What should companies that receive R&D aid communicate? The dissemination actions are established in European and Spanish legal texts (Vilaplana-Aparicio; Martín-Llaguno; Iglesias-García, 2018a) and in the calls for R&D&I grants, which specify what kind of actions the beneficiaries must ensure in the interests of communication and transparency.

In the calls of the *Centre for Industrial Technological Development (Centro para el Desarrollo Tecnológico Industrial, CDTI)*, a public business entity, under the *Ministry of Economy, Industry and Competitiveness (Ministerio de Economía, Industria y Competitividad)*, and which manages a large part of the resources to support R&D&I in Spain, establishes that companies that have received a grant must insert the *CDTI* and *Feder* logos in a prominent place on their website, incorporating also a description, install a physical plaque or poster

in the company premises, and agree to be included in a public list (Table 1) (Vilaplana-Aparicio; Martín-Llaguno; Iglesias-García (2018b).

Given the importance of transparency and communication that beneficiaries of the aid must achieve, this article seeks to confirm whether the companies that are receiving *CDTI* grants are complying with the communication requirements established by law and by the calls. The focus is placed on website communication.

The research focuses on aid from *CDTI*, as an entity with forty years of experience which manages a large part of national programs, and which has become

“a fundamental engine in the support and financing of Spanish R&D and business innovation” (*CDTI, 2017a*).

The entity moves more than 1,500 million euros a year and during its existence has supported more than 12,500 Spanish companies (*CDTI, 2017b*).

2. Objectives

The purpose of the article is to investigate the use that companies make of their corporate web portals to provide information about the innovations they make. Specifically, we are aiming to:

- Investigate whether companies have a website and whether they use it to display the innovations they make, complying with the requirements of the law.
- Study whether these have a section that deals with innovation, the facility to find information and examine whether it contains information on the supported project.
- Observe whether the portals publish news about the subsidised project, describing: date of publication, number of related publications, content and whether they have links shared on social networks.

In brief, the research focuses on whether beneficiary companies comply with the online communication obligations derived from achieving *CDTI*'s R&D&I support and how they expose this data on their websites and blogs.

Table 1. Dissemination actions to be carried out when *CDTI* grants are received

Aid	Actions
R&D projects	- insert logo of the <i>CDTI</i> ;
Direct line of innovation	- insert logo and banner of the EU funds;
Global innovation line	- add a description on the website;
<i>Cien</i> strategic projects	- install poster or plaque;
	- accept inclusion in a public list.
<i>Feder Innterconecta</i>	- insert logos (<i>CDTI, Mineco</i> and <i>Feder</i>) in all materials and contracts;
	- install poster o plaques;
	- accept inclusion in a public list;
	- add a description on the website (provided)
<i>Neotec</i>	- insert <i>CDTI</i> logo;
	- insert logo and banner of the EU funds;
	- mention <i>Mineco</i> ;
	- publish the concession on the website;
	- advertise in any agreement or contract, publications, presentations, equipment, inventory material and dissemination activities

Source: Vilaplana-Aparicio; Martín-Llaguno; Iglesias-García (2018b)

3. Methodological aspects

CDTI is one of the main agencies that grant R&D&I aids. Therefore, this article has focused on all companies that received public funding from CDTI in January 2016 (CDTI, 2016). Specifically, during this period 70 projects were supported from four technological areas, developed by 65 companies (see Table 2 and Annex).

The observed period covers twenty-four months (from January 2016 to December 2017). The CDTI projects differ in type and duration:

- R&D projects: from 12 to 36 months;
- Innovation projects: 18 months;
- Neotec projects: from 12 to 24 months;
- *Innovación global (Global innovation)* projects: up to 24 months;
- *Cien* strategic projects: from 36 to 48 months;
- *Interempresas internacional (Intercompany international)* projects: from 12 to 36 months.

As such, it has been considered that during this period the initiative will have been completed or the first significant results will have been achieved.

To locate the websites of the selected companies, the database *Analysis system of Iberian balances (Sistema de análisis de balances ibéricos, SABI)* was consulted, which contains information on Spanish companies and provides the company web addresses in the “contact information” section <https://www.bvdinfo.com>

Subsequently, Google’s search engine has been used to confirm whether the company has other websites or find possible sites in case of not obtaining results in SABI.

To determine whether the website was owned by the company supported by CDTI, the sections Who are we (or similar), Contact and Legal notice are revised. This last section has been key, since it contains the fiscal data of the entity.

Once ownership is validated, it is determined whether the website has a section dedicated to innovation, how it is denominated and how easy it is to locate the information. If this section exists, mention of the supported project is investigated, including the following elements: logos of the granting organisations, project title, description, budget, results and graphic and audio-visual resources (Table 3).

Table 2. Number of companies examined by area

Area	Companies	Projects
Biotechnology, health technologies and agro-food	14	14
Energy, manufacturing and transportation technologies	9	10
Industrial and information society technologies	17	18
Chemical, environmental and materials technologies	25	28
	65	70

In addition, if the company has a news section, then the name of the news section is defined; and if news articles related to the CDTI project exist, whether they include some of the elements mentioned (logo, project title, description, budget, results and graphic and audio-visual resources) is noted, as well as whether the news has shared links to social networks. Mention of other R&D grants received is also noted. The two previous sections have been examined since CDTI clarifies that there must be a description on the website, but it does not specify where.

This study has been conducted using content analysis,

“a research technique designed to formulate, based on certain data, reproducible and valid inferences that can be applied to its context”

and which allows rigorous and systematic study of the nature of messages (Krippendorff, 1990).

Table 3. Summary of the variables analysed

Variable	Question suggested	Results
Website	The company has its own website	Yes/No
Innovation section	Has a section about innovation	Yes/No
	Denomination of the section “innovation”	
	Route to the innovation section	Direct link One click Two clicks More than two clicks
	Information about the project supported by CDTI	Yes/No
	Information that includes	Logos/titles/ description/ budget/results/graphic resources/ audio-visual resources
	Information on other R&D&I projects	Yes/No
News section	Includes a news section	Yes/No
	Name of the news section	
	News production	
	Publish information on the project supported by CDTI	Yes/No
	Time/date of publication	
	Information includes	Logos/title/ description/ budget/results/graphic resources/ audio-visual resources
	News have links to social networks	Yes/No

On the one hand, all the sections that include information related to innovation have been revised and on the other hand, all the news published on the web has been compiled. In total, 1,199 news items have been examined. In both cases it has been observed whether the words “innovation”, “research and development” and/or “R&D” appear in English and Spanish (“innovación”, “investigación y desarrollo”, and/or “R&D”) and whether these words are accompanied by a mention of “CDTI” or “Feder”, which are the European funds that co-finance the CDTI projects. In the event of citing the projects financed by CDTI, the title was checked that matched the one supported by the project.

In the research, the website of the company subsidised by CDTI has been taken into account and, in the event that it mentioned the corporate website of the group, if the project was named in the section dedicated to innovation it would be positively validated.

4. Results

Of the 65 companies studied 83.08% have their own website, 10.77% have centralised communication on the corporate website of the group or related companies and 6.15% have no website.

4.1. Innovation on the webs

When reviewing the companies with their own website, it is observed that 66.67% of these mention innovation on the website, while the rest (33.33%) omit this information. The section that includes this mention uses different names, specifically:

- “R&D&I” (22.2% of cases);
- “innovation” (16.7%);
- “company”, including the sections “we”, “company”, “about” and “know us” (13.9%);
- “R&D” (11.1%);
- “projects” (5.6%).

In the rest of the cases the information is shown in: front page (5.6%) or in sections called:

- “acknowledgements” (2.8%);
- “solutions” (2.8%);
- “grants and subsidies” (2.8%);
- “quality” (2.8%);
- “technical guarantee” (2.8%);
- “research and development” (2.8%);
- “tech innovation” (2.8%).

The route to the innovation section also differs from one case to another. While 50% of companies have a direct link to the section from the start menu, 41.67% of the cases can be accessed after a click and 16.67% after two clicks.

On the other hand, only 33.33% of the companies that include innovation have information

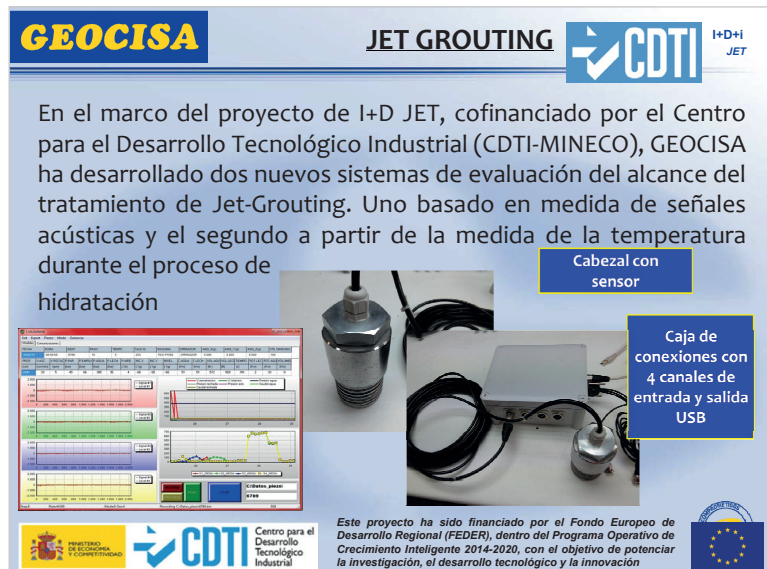


Image 1. Example of the information published in the innovation section of one of the companies.

Website of the company *Geotecnia y Cimientos SA*.
<http://www.geocisa.com>

on the project supported by CDTI (image 1). That is, of the 65 companies examined, 54 have their own website, 36 talk about innovation and only 12 include information about the R&D project subsidised in the innovation section (18.46% of the total number of companies studied).

When the project approved by CDTI is mentioned, basically it includes (table 4): the CDTI and Feder logos (91.67%), the project title (83.33%) and a brief description (75%), ignoring information of interest as the budget or the most significant results.

In addition, it is observed that 91.67% of the companies that mention the funding received by the CDTI publish information on other R&D projects financed in other calls, in previous or subsequent calls.

In the case of companies that do not have their own website, it is noted that in 36.36% of the cases the information is collected on the group’s website or within one of the group companies’ websites. These are some examples of companies:

Table 4. Information that appears in the innovation sections when talking about the R&D projects granted by CDTI (for clarity percentages have been rounded to unit)

Type of information included when the project is mentioned	Companies that include this information (%)
Logos	92
Title of the project	83
Description	75
Budget	8
Results	17
Graphic resources (graphics, figures and images)	17
Audio-visual resources (videos, animations and audios)	0

Table 5. Type of information included when the R&D project supported by CDTI is comprised in one of the group companies' websites (for clarity percentages have been rounded to unit)

Type of information included	Companies that include this information (%)
Logos	75
Title of the project	100
Description	75
Budget	0
Results	25
Graphic resources (graphics, figures and images)	25
Audio-visual resources (videos, animations and audios)	0

- *Exclusivas Rimar SL*
<http://www.suavinex.com>
- *Productos Plásticos Performantes 3P SA*
<http://www.3pcorporate.com>
- *Siro El Espinar SSL*
<http://www.gruposiro.com>
- *Gamesa Electric Power Systems SL*
<http://www.gamesaelectric.com>

In these cases, the information published mainly consists of the title of the project (100%), the logos (75%) and the description of the project (75%) (table 5).

In the case of *Sacyr Construcción SA* the information is centralised on the website <http://www.sacyr.com> and, although it includes information on CDTI projects and different organisations, it does not include information on the project supported during the period under review.

4.2. Companies that publish news about the project supported by CDTI

Of the observed companies that have their own website, 64.81% have a section devoted to news. This section acquires different names such as: news (74.29%), blog (11.43%), press (5.71%) or press room, press releases and news & events, with 2.86% respectively.

If we look at the production of news between January 2016 and December 2017, we see that companies that have published 1 to 20 news articles (57.14%) dominate, followed by those that have published between 21 and 40 news articles (17, 14%), from 41 to 60 (8.57%), more than 100 (8.57%), from 61 to 80 (5.71%) and from 81 to 100 (2.86%).

Of the 65 companies, only 12.3% have published information about the supported R&D project (14.8% of companies with web site) (graph 1). Likewise, the companies that have made the most dissemination of the project are those that publish

between 1 and 20 news pieces (62.5%). Of the 1,199 news items collected and reviewed, only 0.75% are related to the R&D projects studied and 3.0% are insertions on other R&D&I aids. If we take into account the time of publication, it should be noted that 25% made the publication in 2016, while 75% did so in 2017.

When we go into more detail about the published news related to the subsidised projects it is observed that 100% of the news articles include the logos and the title of the project and 62.5% also contain a description of the project. However, only 12.5% of the news articles include information on the results and graphic resources and no publications cite the budget or provide audio-visual resources.

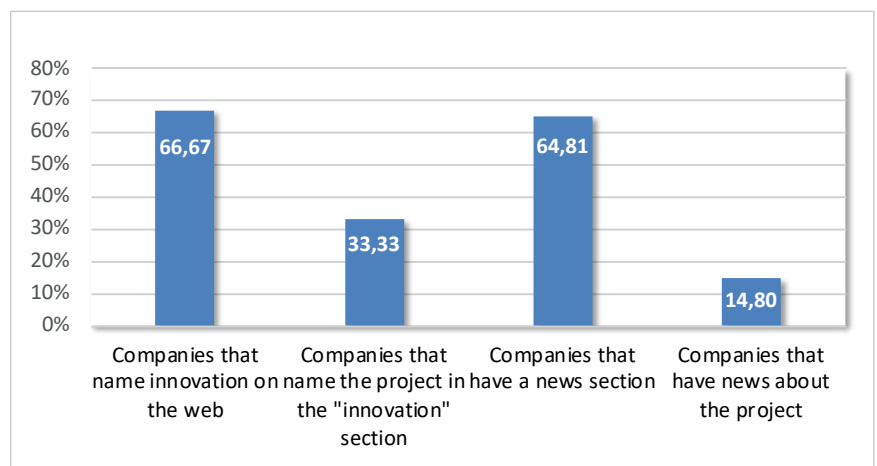
Finally, it should be noted that 87.5% of the websites that contain news about the project have links to social networks, mostly *Facebook* and *Twitter*.

Only 30.76% of companies comply with the law and include information about the supported project

5. Debate and conclusions

From the previous results, the following conclusions can be drawn:

- Only 30.76% of companies comply with the law and include information about the supported project, either in the "innovation" section or the "news" section.
- In no cases is this information is published in the sections "innovation" and "news" in a complementary manner. A first step could be the centralisation of the information in a single section and the increase of control mechanisms, to guarantee that the communication actions are carried out. Likewise, publication of the information in the news section could imply a lower visibility of the project information, due to the fact that the most recent news relegates the oldest news.



Graph 1. Summary of the companies that have their own website and include project information in the "innovation" or "news" section

- Some companies do not have their own website. This means that the information of the projects is not published or is in the portals of group companies. It would be worth evaluating the option that the regulations or the *CDTI* itself offer an alternative system for companies that do not have their own website and consider whether the public may find it difficult to access the information that is published in companies of the group, which sometimes do not have the same name (like in the case of the company *Grupo Rimar SL* whose content is published on the website *Suavinex*: <http://www.suavinex.com>)
- The section “innovation” receives different names. It would be beneficial if the regulations delimited its nomenclature to standardise it. In addition, it would be possible to specify the location of the section that, until now, varies a lot between one company and another. A possible option could be to use the term “R&D&I” as the name of the section and place it in the main menu.
- *CDTI* does not establish how long project information should be available on the website. Calls and contracts should describe what is mandatory to ensure that it is maintained for the stipulated time. Companies often change websites periodically and the information may no longer be available.
- *CDTI* indicates that a description must be completed which is in proportion to the aid granted on the web. Therefore, it should be defined how this proportionality should be and what the description should contain in each case.
- The project information, which is published in the “innovation” section, does not meet the communication requirements set by *CDTI*. In the published information, all companies should include the logos, the project title and the description. In addition, taking into account the requirements of the *Transparency law (Spain, 2013)*, and the interest to improve it, it would be appropriate for companies to complete the published information, always including information on the objective or purpose of the supported project and aid budget.
- The news articles published also have a different length and content. It could be of interest to clarify what should appear in the description and its approximate length. Likewise, as is the case with the content published in the “innovation” section, the news includes little information referring to the purpose of the project or its budget.
- All companies that have published any related news about the project have made a single entry. Some have done it in the months following the approval of the project and others upon completion of the project. *CDTI* should better specify when companies receiving aid should announce approval of a project and the minimum number of publications the announcement should appear in.
- The innovative companies studied are characterised by having little communicative initiative. Within *CDTI* programs, companies which develop a more active innovation communication policy could be rewarded for providing quality content (**Palazón-Meseguer, 2001**) that is updated (**Marín-Dueñas; Laso-de-la-Vega-González; Mier-Terán-Franco, 2016**) and that contributes to the dissemination of science (**Wilkins, 2008**).

- A very high percentage of companies have links to social networks in the news section to share content. This could be a key element in sharing information with the public and achieve a more fruitful dialogue with the public (**López-Pérez; Olvera-Lobo, 2016**).
- It is recognised that companies that have obtained a *CDTI* grant are familiar with the communication requirements. Therefore, the possibility of intensifying communication requirements should be assessed.

From the data collected, it can be concluded that the internet communication of these companies when they achieve a *CDTI* R&D project is insufficient, dispersed and not homogeneous. It should better specify in which section of the company’s website the information should be published and which elements it should contain. However, this presents a limitation, as it reviews the 24 months following the approval of the project. Future lines of research could consist of examining communication actions over a longer period that covers the entire duration of the project. It would also be interesting to investigate the use that companies make of social networks to publicise the projects and their results.

“The communication of the companies that receive an R&D project of the *CDTI* is insufficient, is dispersed and is not homogeneous”

6. References

- Beltrán-Orenes, Pilar; Martínez-Pastor, Esther (2017)**. “Organización de la información y sujetos obligados en el Portal de la transparencia de España”. *El profesional de la información*, v. 26, n. 5, pp. 983-994. <https://doi.org/10.3145/epi.2017.sep.19>
- CDTI* (2016). Proyectos aprobados. *Perspectiva CDTI: revista de innovación tecnológica*, n. 48, p. 41. <https://goo.gl/UQH1xL>
- CDTI* (2017a). *Perspectiva CDTI: revista de innovación tecnológica*, n. 51. Centro para el Desarrollo Tecnológico Industrial. <https://goo.gl/X9j1ij>
- CDTI* (2017b). “El CDTI cumple 40 años como principal impulsor de la I+D+i empresarial en España”. *CDTI*, 12 de diciembre. <https://goo.gl/X996x4>
- European Union* (2013). “Reglamento nº 1303/2013 del Parlamento Europeo y del Consejo, de 17 de diciembre de 2013, por el que se establecen disposiciones comunes relativas al Fondo Europeo de Desarrollo Regional, al Fondo Social Europeo, al Fondo de Cohesión, al Fondo Europeo Agrícola de Desarrollo Rural y al Fondo Europeo Marítimo y de la Pesca, y se deroga el Reglamento (CE) nº 1083/2006 del Consejo”. *BOE*, n. 347, 20 diciembre. <http://www.boe.es/buscar/doc.php?id=DOUE-L-2013-82898>
- European Union* (2014). “Marco sobre ayudas estatales de investigación y desarrollo e innovación”. *Diario oficial de la Unión Europea*, 26 junio. <https://goo.gl/4EyQPX>

- Giménez-Chornet, Vicent** (2012). "Acceso de los ciudadanos a los documentos como transparencia de la gestión pública". *El profesional de la información*, v. 21, n. 5, pp. 504-508. <http://dx.doi.org/10.3145/epi.2012.sep.09>
- Krippendorff, Klaus** (1990). *Metodología de análisis de contenidos. Teoría y práctica*. Barcelona. Editorial Paidós. ISBN: 978 84 75096278
- Lederbogen, Utz; Trebbe, Joachim** (2003). "Promoting science on the web: public relations for scientific organizations —results of a content analysis". *Science communication*, v. 24, n. 3, pp. 333-352. <https://doi.org/10.1177/1075547002250299>
- López-Pérez, Lourdes; Olvera-Lobo, María-Dolores** (2015). "Comunicación de la ciencia 2.0 en España: el papel de los centros públicos de investigación y de los medios digitales". *Revista mediterránea de comunicación*, v. 6, n. 2, pp. 165-179. <https://doi.org/10.14198/MEDCOM2015.6.2.08>
- López-Pérez, Lourdes; Olvera-Lobo, María-Dolores** (2016). "Comunicación pública de la ciencia a través de la web 2.0. El caso de los centros de investigación y universidades públicas de España". *El profesional de la información*, v. 25, n. 3, pp. 441-448. <https://doi.org/10.3145/epi.2016.may.14>
- Marín-Dueñas, Pedro-Pablo; Laso-de-la-Vega-González, Carmen; Mier-Terán-Franco, Juan-José** (2016). "La eficacia de la web corporativa en las pequeñas y medianas empresas: un análisis de la usabilidad web". *Estudios sobre el mensaje periodístico*, v. 22, n. 1, pp. 431-444. <http://revistas.ucm.es/index.php/ESMP/article/view/52604>
- Pacios, Ana-Reyes; Vianello-Osti, Marina; Rodríguez-Bravo, Blanca** (2016). "Transparency and access to information on research projects in Spanish public universities". *El profesional de la información*, v. 25, n. 5, pp. 721-729. <https://doi.org/10.3145/epi.2016.sep.02>
- Palazón-Meseguer, Alfonso** (2001). "Comunicación web: el valor de los contenidos de la red". *Comunicar*, n. 17, pp. 93-96. <https://goo.gl/L1bSKR>
- Spain** (2003). "Ley 38/2003, de 17 de noviembre, General de subvenciones". *BOE*, n. 276, 18 de noviembre. <https://www.boe.es/buscar/act.php?id=BOE-A-2003-20977>
- Spain** (2006). "Real decreto 887/2006, de 21 de julio, por el que se aprueba el Reglamento de la Ley 38/2003, de 17 de noviembre, General de subvenciones". *BOE*, n. 176, 25 de julio. https://www.boe.es/diario_boe/txt.php?id=BOE-A-2006-13371
- Spain** (2013). "Ley 19/2013, de 9 de diciembre, de transparencia, acceso a la información pública y buen gobierno". *BOE*, n. 295, 10 de diciembre. <https://www.boe.es/buscar/doc.php?id=BOE-A-2013-12887>
- Spain** (2014). "Ley 15/2014, de 16 de septiembre, de racionalización del sector público y otras medidas de reforma administrativa". *BOE*, n. 226, 17 de septiembre. https://www.boe.es/diario_boe/txt.php?id=BOE-A-2014-9467
- Vilaplana-Aparicio, María J.; Martín-Llaguno, Marta; Iglesias-García, Mar** (2018). "How should companies that receive R&D&I funds communicate? Legal requirements in Spain". *El profesional de la información*, v. 27, n. 3, pp. 633-640. <https://doi.org/10.3145/epi.2018.may.16>
- Vilaplana-Aparicio, María-José; Martín-Llaguno, Marta; Iglesias-García, Mar** (2018b). "Obligaciones de comunicación para empresas españolas receptoras de ayudas estatales de I+D+i". *Dyna*, v. 94, pp. 268-271. <http://dx.doi.org/10.6036/8505>
- Weigold, Michael F.; Treise, Debbie** (2004). "Attracting teen surfers to science web sites". *Public understanding of science*, v. 13, n. 3, pp. 229-248. <https://doi.org/10.1177/0963662504045504>
- Wilkins, John** (2008). "The roles, reasons and restrictions of science blogs". *Trends in ecology & evolution*, v. 23, n. 8, pp. 411-413. <https://doi.org/10.1016/j.tree.2008.05.004>

Annex: Companies analysed

	Company	Area
1	Angulas Aguinaga SA	Biotechnology, health technologies and agro-food
2	Aperitivos Matarile SA	Biotechnology, health technologies and agro-food
3	Exafan SA	Biotechnology, health technologies and agro-food
4	Farmalider SA	Biotechnology, health technologies and agro-food
5	Iniciativas Alimentarias SA	Biotechnology, health technologies and agro-food
6	IVI Murcia SL	Biotechnology, health technologies and agro-food
7	Laboratorio Arago SL	Biotechnology, health technologies and agro-food
8	Lacasa SA	Biotechnology, health technologies and agro-food
9	Linkcare Health Services SL	Biotechnology, health technologies and agro-food
10	S. Coop. Agrícola Aragonesa del Ebro conservación y vida útil de los piensos.	Biotechnology, health technologies and agro-food
11	Sat Bernaus Petit Num 1130 Cat	Biotechnology, health technologies and agro-food
12	Siro El Espinar SL	Biotechnology, health technologies and agro-food
13	Vall Companys SA	Biotechnology, health technologies and agro-food
14	Verdimed SA	Biotechnology, health technologies and agro-food

15	<i>Fabricante de Contenedores Fadeco SA</i>	Energy, manufacturing and transportation technologies
16	<i>Filtros Industriales SL</i>	Energy, manufacturing and transportation technologies
17	<i>Fomento de Construcciones y Contratas SA</i>	Energy, manufacturing and transportation technologies
18	<i>Geotecnia y Cimientos SA</i>	Energy, manufacturing and transportation technologies
19	<i>Industrias Metalúrgicas Jem SA</i>	Energy, manufacturing and transportation technologies
20	<i>Ingeniería y Equipamientos SA</i>	Energy, manufacturing and transportation technologies
21	<i>Sacyr Construcción SA</i>	Energy, manufacturing and transportation technologies
22	<i>Talleres Mecacontrol SL</i>	Energy, manufacturing and transportation technologies
23	<i>Vak Kimsa SA</i>	Energy, manufacturing and transportation technologies
24	<i>Aqua E-Solutions SA</i>	Industrial and information society technologies
25	<i>Blue Sostenible SL</i>	Industrial and information society technologies
26	<i>Cirprotec SL</i>	Industrial and information society technologies
27	<i>Entelgy Consulting SA</i>	Industrial and information society technologies
28	<i>Gamesa Electric Power Systems SL</i>	Industrial and information society technologies
29	<i>Hotwords España SL</i>	Industrial and information society technologies
30	<i>Lazarus Technology SL</i>	Industrial and information society technologies
31	<i>Luz Wavelabs SL</i>	Industrial and information society technologies
32	<i>Mier Comunicaciones SA</i>	Industrial and information society technologies
33	<i>Professional Answer SL</i>	Industrial and information society technologies
34	<i>Robot SA</i>	Industrial and information society technologies
35	<i>SHS Consultores SL</i>	Industrial and information society technologies
36	<i>Singular Meaning SL</i>	Industrial and information society technologies
37	<i>Thales Programas de Electrónica y Comunicaciones SA</i>	Industrial and information society technologies
38	<i>Ulma Manutención S. Coop.</i>	Industrial and information society technologies
39	<i>Unifit Online SL</i>	Industrial and information society technologies
40	<i>Vector Software Factory SL</i>	Industrial and information society technologies
41	<i>Al Farben SA</i>	Chemical, environmental and materials technologies
42	<i>Andaluza Tratamientos Higiene SA</i>	Chemical, environmental and materials technologies
43	<i>Calaf Tecniques Industrials SL</i>	Chemical, environmental and materials technologies
44	<i>Castey Global SL</i>	Chemical, environmental and materials technologies
45	<i>Cobert Tejas Ibérica SL</i>	Chemical, environmental and materials technologies
46	<i>Compañía Española de Petróleos SAU.</i>	Chemical, environmental and materials technologies
47	<i>Euroatomizado SA</i>	Chemical, environmental and materials technologies
48	<i>Exclusivas Rimar SL</i>	Chemical, environmental and materials technologies
49	<i>Fundiciones Mecacontrol SL</i>	Chemical, environmental and materials technologies
50	<i>Gocam Empresas Plásticas SL</i>	Chemical, environmental and materials technologies
51	<i>Hidro Rubber Iberica SA</i>	Chemical, environmental and materials technologies
52	<i>Ingelia SL</i>	Chemical, environmental and materials technologies
53	<i>IQAP Masterbatch Group SL</i>	Chemical, environmental and materials technologies
54	<i>Panel Fijaciones Sociedad Cooperativa</i>	Chemical, environmental and materials technologies
55	<i>Pavimentos Asfálticos Lario SL</i>	Chemical, environmental and materials technologies
56	<i>Plásticos Hidrosolubles SL</i>	Chemical, environmental and materials technologies
57	<i>Practichel SL</i>	Chemical, environmental and materials technologies
58	<i>Productos Plásticos Performantes 3P SA</i>	Chemical, environmental and materials technologies
59	<i>Retineo Ingeniería SL</i>	Chemical, environmental and materials technologies
60	<i>Soler & Palau Research SL</i>	Chemical, environmental and materials technologies
61	<i>Suavizantes y Plastificantes Bituminosos SL</i>	Chemical, environmental and materials technologies
62	<i>Tecnoquim del Vallés SL</i>	Chemical, environmental and materials technologies
63	<i>Torreid SA</i>	Chemical, environmental and materials technologies
64	<i>Urbiliza Renovables SL</i>	Chemical, environmental and materials technologies
65	<i>Ursa Insulation SA</i>	Chemical, environmental and materials technologies