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The internationalization of Spanish Communication Research through Horizon 2020 Program

La internacionalización de la investigación española en comunicación a través del Programa Horizonte 2020

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Abstract

Introduction. This paper analyses the participation of Spanish researchers working in the field of Communication in the European research program, Horizon 2020. Methodology. We proceed to a qualitative and quantitative study of the data accessible on CORDIS, the European Commission's website, for the Horizon 2020 program. To this end, the data have been processed with the resources offered by Excel data management and Tableau data analysis. Results. The data show how Spanish researchers are beginning to have a significant international presence both in programs aimed at the areas of social sciences and humanities, as well as in others more oriented towards basic and applied science. It is observed that this participation is both as coordinators of the proposals and as participants or partners in a consortium. Conclusions. The conclusions obtained confirm the capacity for internationalization over the last seven years, firstly, of Communication studies and, secondly, of Spanish researchers in this area of knowledge.

Keywords

European Research Area; Horizon Europe; Innovation in Communication; I+D+i; Meta-research; Milestones in Research

Resumen

Introducción. Este trabajo analiza la participación de los investigadores españoles que desarrollan su trabajo en el ámbito de la comunicación, en el programa de investigación europea, Horizonte 2020. Metodología. Se procede a un estudio cualitativo y cuantitativo de los datos accesibles en CORDIS, la web de la Comisión Europea, para el programa Horizonte 2020. Para alcanzar este fin se han tratado los datos con los recursos que ofrece la gestión de datos de Excel, así como el análisis de datos del programa Tableau. Resultados. Los datos muestran cómo los investigadores españoles empiezan a tener una significativa presencia internacional tanto en programas dirigidos a las áreas de ciencias sociales y humanidades, como en otros más orientados a la ciencia básica y aplicada. Se observa que esta participación es tanto como coordinadores de las propuestas, como participantes o socios de un consorcio. Conclusiones. Las conclusiones obtenidas constatan la capacidad de internacionalización a lo largo de los últimos siete años de, en primer lugar, los estudios sobre comunicación y, en segundo, de los investigadores españoles en esta área de conocimiento.

Palabras clave

Espacio Europeo de Investigación; Hitos en Investigación; Horizonte Europa; Innovación en comunicación; I+D+i; Meta-investigación

1. Introduction

This paper presents the status of communication researchers who are participating in the European Commission's calls for research and innovation, encompassing the areas of journalism, advertising, audio-visual communication, social media, corporate communication, and public relations, as of 2021. The results obtained show the position, impact, and success rate of researchers in Europe. We have also revealed the extent to which Spanish researchers lead or participate in these research projects, as well as their relationship with other researchers from different European countries, which are aspects that have a positive impact on the national system of knowledge, as they increase the quality, excellence, and international scope of our scholars.

Therefore, the present study is a meta-research project in communication in the European domain, which is an essential object of study, as it allows us to discover the direction in which the interests of researchers are heading, in order to explain an uncertain and highly volatile future in communication and its relationship with society (Gaitán Moya et al., 2021). Communication research can help society and all of humanity at various levels, in the same way as occurs in other disciplines, yet it is necessary to know the true meaning of conducting research in communication and to identify its objectives, interests, methods, and areas of operation (Gómez-Diago, 2020). As will be seen, this type of research is similar to that of other scientific disciplines, as it involves approaching communication study from an epistemological perspective, which refers to the multidisciplinary nature of this field and its links with other branches of knowledge. One must also consider its institutional aspect, or in other words, the current existence of theoretical work. From that point, we must also consider the need for knowledge transfer among researchers. Finally, the methodological aspect also needs to be taken into account, in such a way that an examination can be carried out regarding the relationship between the different areas of communication on the one hand, and politics, economics, technology, etc. on the other.

Recent studies on meta-research in communication published in high-impact journals in the field being addressed in this study have focused on the system of research and knowledge production itself. However, they have also focused on the participation of Spanish researchers in national competitive calls for papers (Deuze, 2021; Gaitán Moya et al, 2021; García-Avilés, 2021; Gómez-Escalonilla and Izquierdo-Iranzo, 2021; Gómez-Diago, 2020; Goyanes, 2020; Lozano-Ascencio et al., 2020; Martínez-Nicolás, 2020; Peñafiel-Saiz et al., 2019; Seoane-Pérez, Martínez-Nicolás and Vicente-Mariño, 2020; Travieso-Rodríguez and Ríos-Hilario, 2020). These studies address the unique aspects of national research calls, authorship networks, researcher profiles, publication models, and citation of research results, but not the analysis of the results of those calls.

Nevertheless, these studies have been of great help to the authors of this paper in outlining the research questions, as well as in organising the objectives and planning the research methodology. In this sense, there is no doubt about the importance of studies that focus on the analysis of research lines, methodologies, and objects of analysis, which are submitted in the research published in high-impact journals, theses, and congresses (Baranquero Caretero and Limón Serrano, 2017; Blasco-Blasco, Rodríguez-Castro, M. and Túñez-López, 2020; Caffarel Serra et al, 2021a, 2021b; García-Marco, Figuerola and Pinto, 2020; Gómez-Escalonilla and Izquierdo-Iranzo, 2020; Martínez-Nicolás and Carrasco Campos, 2018; Rodríguez-Bravo and Nicholas, 2020; Rodríguez-Gómez and Goyanes, 2020; Trabadelarobles et al., 2020; Tramullas, 2020).

With regard to participation in European calls, the research consulted does not deal with data analysis, as indicated above, but rather with the Commission's requirements for accessing these grants (Campos and Codina, 2021; Gertrudix et al., 2020; Gertrudix et al., 2021). These studies address the most appropriate communication strategies for disseminating the results of projects supported by European research programmes. Undoubtedly, the communication, dissemination, and disclosure of participation on the one hand, and results on the other, has such importance as a strategic task in the development of a proposal that the European Commission considers it essential in order for the project to be successful, even opting for open access dissemination (Koutras, 2020).

On the other hand, the transfer of research results has also become a topic of meta-research in communication as a basic feature of its consideration as a scientific discipline at the same level as basic and applied science (Claes, Baranquero and Rodríguez-Gómez, 2021; Günther and Domahidi, 2017; Keating et al., 2019; Valero-Pastor and Carvajal Prieto, 2019).

In this way, research in communication as a discipline within the national or European knowledge system has evolved over the years to become an area that meets the same requirements and standards of excellence as other fields of knowledge, such as basic or applied science (Goyanes, 2020). Thus, studies in communication compete on equal terms with other scientific disciplines in research calls regarding rigour, novelty and outstanding quality. In the case of European calls for proposals, which are highly competitive, the complexity and repercussions of the success and return of these projects are not only felt by the researcher and his or her team, but also by their institutions and universities, which is why

the study herein is interested in the presence of Spanish researchers in the European Research Area. Thus, the growing importance of communication research has resulted in increased participation in competitive programmes and an increase in funding and support for meta-research projects at the local, regional, national, and European levels.

Communication is seen as a fundamental factor in conveying society's demands to governments and centres of power. Likewise, the results from communication research must influence the policies of countries and institutions, in such a way that society can be transformed (Gómez-Diago, 2020). As such, the European Union has recognised the value of Social Science, Arts, and Humanities in its research funding programmes entitled Horizon 2020 (2014-2020) and Horizon Europe (2021-2027). These programmes include communication, making it a transversal subject that encompasses all areas of knowledge, in the same way that it affects all activity in modern societies (European Union, 2021).

The three main pillars of Horizon 2020, which are Excellent Science, Industrial Leadership, and Societal Challenges, have accommodated all areas of knowledge, as well as activities related to research and innovation, with communication being one of them. The aim is to make Europe more advanced and competitive with other economies, whether consolidated or emerging.

Thus, we would first like to highlight the Excellent Science Pillar, which is aimed at strengthening scientific excellence, where you can find the Marie Skłodowska-Curie Actions (MSCA) initiative, which provides support to researchers from all over the world, at all stages of their careers, and in all disciplines. It is also a key line of support for institutions with doctoral and post-doctoral programmes, as well as for collaborative projects of research and innovation symbolised by excellence and cooperation beyond the academic world. Furthermore, the European Research Council (ERC) provides attractive long-term funding to support outstanding researchers and their teams in pursuing high-risk, high-benefit innovation in any field of study, with scientific excellence as the sole criterion for evaluation. Finally, within this pillar, Future and Emerging Technologies (FET) is a programme that supports large-scale, highly innovative research projects to address the challenges of an increasingly high-tech world.

Another programme in which communication studies will find a suitable space for its development is in the specific objectives of the programme entitled Science with and for Society (SwafS). The mission of this venture is to build effective cooperation between science and society, to recruit new talent for science, and to match scientific excellence with social awareness and responsibility.

Within the Societal Challenges Pillar, communication researchers have the opportunity to participate in any of the seven challenges involved. If communication is seen as a cross-disciplinary field of knowledge, and even as a strategic task for successful research, this pillar can be considered suitable for its development. Similarly, within the Industrial Leadership Pillar, which is aimed at accelerating the development of technology and supporting innovation in companies, the SME Instrument stands out. Its objective is to support innovative small and medium-sized enterprises that have the ambition to grow, develop, and achieve international scope through a European innovation project. Moreover, calls related to Information and Communication Technology (ICT) fund collaborative projects and other types of activities that promote scientific and technological progress along with the European Union's leadership in this field.

This philosophy of the European Commission has undoubtedly helped researchers to cross the boundaries of knowledge, and even to expand them. In other words, it has fostered a multidisciplinary environment and the internationalisation of communication research. All of this enables Spanish researchers to participate in programmes and fields of study that previously seemed to be reserved for scientific and technological areas, as will be seen throughout this paper.

2. Research objectives

With regard to the aforementioned, it is certainly of interest to learn about the participation of Spanish researchers in European investigative programmes, specifically Horizon 2020. This was the framework for financing projects related to research, development, and innovative excellence in various subject areas in Europe from 2014-2020. This programme has also allocated funds to promote careers in research, while at the same time trying to attract the best talent to Europe, thereby disseminating knowledge with the ultimate goal of responding to major global issues related to health, the environment, and citizen security.

Therefore, the following research questions are set forth:

RQ1: How many communication projects have been funded by Horizon 2020?

RQ2: In how many of these projects is there a Spanish presence?

RQ3: In which programmes do Spanish researchers participate?

Thus, the objectives of this study are as follows:

O1. To identify the communication projects funded by the Horizon Europe Programme.

O2. To analyse the presence of Spanish communication researchers in major European Investigative calls, specifically in the Horizon Europe programme.

O3. To identify the programmes to which communication researchers apply, whether as coordinators or participants.

3. Methodology

This paper offers both a quantitative and qualitative review of the activities funded by the aforementioned programmes. The aim is to quantify Spanish communication research projects, reveal the programmes in which they are included, and to assess the importance of communication research in today's society, based on its presence in European research programmes. The data have been obtained from the European Commission's CORDIS portal (<https://cordis.europa.eu/en>), which provides open access and public information on the participation and funding of R+D+i research in the different European Union programmes. In January of 2022, a spreadsheet was downloaded that included the complete list of projects funded throughout the entire period of the programme, which ran from 2014-2020, thereby obtaining a total of 35,124 projects. Next, it was necessary to select those in which the main topic was communication.

Each project includes 20 information fields, of which the following have been utilised and processed in order to obtain the data used for this study:

- ID: Exclusive identification number for each project.
- Title: Title of the project.
- Objective: Complete summary of the project including the main objectives.
- Coordinator: University or research centre coordinating the project.
- Coordinating Country: Country to which the coordinator belongs.
- Participants: Other research centres that participate in the project.
- Participating Countries: Countries of the other participating research centres.

From all the projects available in CORDIS, in order to select those dealing with social science research, we conducted a search for a series of keywords within the descriptive fields of the projects: Title and Objective.

The keywords selected are shown as follows:

- Social Communication
- Political Communication
- Audio-visual Communication
- Mass Media
- Journalism
- Social Networks
- Fake News
- Disinformation
- Advertising
- Public relations

The search for these keywords in the two fields produced a large number of records that were very difficult to process efficiently, so it was necessary to implement a system that could easily export each search to a file, which was a fairly complex process using Excel.

The programme chosen to screen the keywords in each field was Tableau, a data visualisation and analysis application that made it possible to create a spreadsheet from each of the selected keywords. All the spreadsheets were then combined into a single spreadsheet, eliminating repeated entries, yet maintaining the keywords as fields, so that the first column contained the project titles and the first row contained the seven fields selected from the database, plus the ten searches performed.

4. Results and discussion

4.1 Spanish participation in Horizon 2020

Participation in projects related to research, development, and innovation includes teams located in universities, research centres, and companies, or individual researchers working in any of them. Data on the subsidy obtained by Spain in the overall programme show an allocation of 6.114 billion euros (*Centro para el Desarrollo Tecnológico e Industrial, CDTI*, 2021) [Centre for Technological and Industrial Development]. These results indicate that Spain is the EU country that has obtained the fourth

highest amount of funding, with a rate of return of 10.4%, which represents the participation of 3,759 organisations, of which 2,737 are companies. In terms of proposals, of the 63,730 initiatives with Spanish partners, 8,457 were funded, making Spain the country with the second highest number of projects in Horizon 2020.

In the present study, a keyword search was carried out, as specified in the methodology section, which yielded a large number of records that were very difficult to process efficiently, so it was necessary to implement a system that could easily export each search to a file, which turned out to be a fairly complex process with Excel. As a result, the volume was reduced from 35,124 to 5,036 projects. The latter is the number of funded proposals from all applicant countries before separating projects from Spanish centres. In this way, it was possible to see if one or more of the selected keywords appeared in their title or objectives in any of the projects

After analysing the results obtained, it was discovered that although many projects included some of the keywords, they could not be considered communication research due to the fact that the keywords were not related to the context analysed, especially those that included the term *communication*. Examples of such projects are those dealing with telecommunications, specialised aspects within the areas of health sciences, and others. For this reason, the decision was made to divide the database into two groups. On the one hand, a sheet was created in an Excel file with a record of the projects that included the word *communication* in the title or objective, and in the same file, another sheet was added with projects that included the rest of the key words, which were much more specific. In this way, we found 4,278 projects that included the term *communication*, while the rest of the keywords appeared in 142 projects.

Next, a screening and refining process was carried out, but this time manually, in order to select only those activities that were in line with the research questions and objectives of this study. From the first sheet, many records were eliminated, while from the second sheet nearly all of them matched the selection criteria. The latter procedure generated a final list of 194 projects funded by European programmes in the field of social communication, of which 36 are projects in which 61 Spanish institutions participated. The total cost of the projects approved amounted to 76,716,528 euros.

The following table shows more clearly the number of projects analysed for the purpose of identifying those that refer to communication.

Table 1. Project selection

	Projects
Initial query	35,124
Generic Communication filter	4.278
Specific words filter	142
Manual filter	
All combined	194
Spanish	36

Source: developed by the authors based on data from CORDIS.

Next, to identify the participants, we worked with the rest of the information fields in order to separate the Spanish centres according to their participation as coordinators or participants in each project, as well as to obtain additional information on the funding of each organisation or the geographical location of the headquarters of the participating entity.

4.2 The presence of Spanish communication researchers in Horizon 2020

Regarding the presence of Spanish communication researchers in the Horizon 2020 Programme, the sample analysed yielded a total of 61 participating organisations, either in the role of coordinator or as partners in a consortium that would carry out the work packages of the approved projects.

Among the 61 Spanish organisations participating in these types of projects, we find universities (34.4%), regional and national administrative bodies (4.9%), public and private research centres (36.1%), and companies (24.6%).

Among the universities, one is private and the rest are public, as can be seen in the table below.

Table 2: Participants according to type of organisation

Institution	Province	Funding
<i>Acentoline comunicacion editora S.L.[Ltd.]</i>	Granada	Private
<i>Agencia Estatal Consejo Superior de Investigaciones Científicas</i>	Madrid	Public
<i>Agilia Center S.L. [Ltd.]</i>	Sevilla	Private
<i>Associació Catalana de Comunicació Científica</i>	Barcelona	Private
<i>Años España</i>	Madrid	Private
<i>Ayuntamiento de Málaga</i>	Málaga	Public
<i>Consejería de Economía Innovación Ciencia y Empleo J.A.</i>	Sevilla	Public
<i>Consorti de la Ribera</i>	Valencia	Public
<i>Consortio Instituto Tecnológico Matemática Industrial Itmatl</i>	A Coruña	Public
<i>Descubre - Fundación Andaluza para la Divulgación de la Innovación y el Conocimiento</i>	Granada	Public
<i>Easy Innova S.L. [Ltd.]</i>	Girona	Private
<i>Expert System Iberia</i>	Barcelona	Private
<i>FECYT</i>	Madrid	Public
<i>Fundacio Eurecat</i>	Barcelona	Public
<i>Fundacio per a la Universitat Oberta de Catalunya</i>	Barcelona	Private
<i>Fundación Centro Tecnológico de Telecomunicaciones de Galicia</i>	Pontevedra	Private
<i>Fundación Ciudadana Civio</i>	Madrid	Private
<i>Fundación Deusto</i>	Vizcaya	Private
<i>Fundación Épica La Fura Dels Baus</i>	Barcelona	Private
<i>Fundación Euroárabe de Altos Estudios</i>	Granada	Public
<i>Fundación Ibercivis</i>	Zaragoza	Private
<i>Fundación Profesor Novoa Santos</i>	A Coruña	Public
<i>Fundación Publica Andaluza Progreso y Salud</i>	Sevilla	Public
<i>Fundación Pública Gallega Centro Tecnológico de Supercomputación de Galicia</i>	A Coruña	Public
<i>Gnoto Marketing and Sales S.L. [Ltd.]</i>	Barcelona	Private
<i>Ingeniería InSitu S.L. [Ltd.]</i>	Lugo	Private
<i>Institut de Investigació en Ciències de la Salut Germans Trias i Pujol</i>	Barcelona	Public
<i>Instituto Andaluz de Investigación y Formación Agraria Pesquera Alimentaria y de la Producción Ecológica</i>	Huelva	Public
<i>Instituto Municipal de Gestión Medioambiental</i>	Córdoba	Public
<i>Jardín Botánico de Córdoba</i>	Córdoba	Public
<i>Ministerio del Interior</i>	Madrid	Public
<i>Newtral Media Audiovisual S.L. [Ltd.]</i>	Madrid	Private
<i>Quobis Networks S.L. [Ltd.]</i>	Pontevedra	Private
<i>Regio Plus Consulting S.L. [Ltd.]</i>	Madrid	Private

Science for Change, S.L. [Ltd.]	Barcelona	Private
<i>Sociedad Española de Bioquímica y Biología Molecular</i>	Madrid	Private
Stímulo Design S.L. [Ltd.]	Barcelona	Private
<i>Universidad Autónoma de Barcelona</i>	Barcelona	Public
<i>Universidad de Almería</i>	Almería	Public
<i>Universidad de Cádiz</i>	Cádiz	Public
<i>Universidad de Córdoba</i>	Córdoba	Public
<i>Universidad de Granada</i>	Granada	Public
<i>Universidad de Huelva</i>	Huelva	Public
<i>Universidad de Jaén</i>	Jaén	Public
<i>Universidad de Málaga</i>	Málaga	Public
<i>Universidad de Navarra</i>	Navarra	Private
<i>Universidad de Santiago de Compostela</i>	A Coruña	Public
<i>Universidad de Sevilla</i>	Sevilla	Public
<i>Universidad de Vigo</i>	Vigo	Public
<i>Universidad del País Vasco</i>	Araba-Alava	Public
<i>Universidad Pablo de Olavide</i>	Sevilla	Public
<i>Universidad Politécnica de Madrid</i>	Madrid	Public
<i>Universidad Pompeu Fabra</i>	Barcelona	Public
<i>Universidad Pública de Navarra</i>	Navarra	Public
<i>Universidad Rey Juan Carlos</i>	Madrid	Public
<i>Universidade da Coruña</i>	A Coruña	Public
<i>Universitat de Barcelona</i>	Barcelona	Public
<i>Universitat de Girona</i>	Girona	Public
Videona Socialmedia S.L. [Ltd.]	Madrid	Private
Visual Tagging Services	Barcelona	Private
Zabala Innovation Consulting, S.A. [Ltd.]	Madrid	Private

Source: developed by the authors based on data from CORDIS.

Thus, we can see that 37.5% of the new knowledge regarding communication in this field comes from universities, and 25% from research centres. Among the latter, we have found organisations with diverse legal and business structures, examples of which include public and private foundations, as well as large entities such as the Spanish National Research Centre. With regard to companies, which comprise 37.5% of the total, it should be noted that the majority are consultancy firms.

Therefore, we find that the 16 organisations coordinating research projects on communication in the Horizon 2020 Programme are mainly universities and companies, and to a lesser extent research centres. In other words, 64% are publicly funded (eight entities in total, six of which are universities), and the remaining 36% are from the private sector.

These data indicate that in the case analysed, Spanish research related to communication has mainly come from the public sector. Undoubtedly, this leads us to reflect on the role of communication as a fundamental feature of the governmental, political, financial, and industrial realms, with the understanding that the task of analysis, evaluation, measurement and impact, at least in this case, continues to belong to the academic and research environments. Consequently, we note the

importance of evaluating and reflecting on the relevance and challenges of communication for society and the world in which we live, or in other words, meta-research in communication from the scientific and university domains in Spain (Deuze, 2021; Gómez-Diago, 2020; Goyanes, 2020).

The location of these projects depends on where the participating organisation is physically located, but also the place where its institutional headquarters is registered. For example, many of the projects that are assigned to the Autonomous Region of Madrid are actually carried out, or have been awarded, to centres and companies with physical headquarters in other regions, yet as mentioned above, their headquarters are legally registered in Madrid. This issue can distort the results when trying to understand the impact of awarding and developing these projects in a system of regional knowledge. The following graph shows the autonomous regions where the participants are registered.

Table 3: Origin of the participants by Autonomous Region

Region	Participants
Andalusia	36%
Madrid	20%
Catalonia	18%
Galicia	16%
Navarra	4%
Aragón	2%
Basque country	2%
Valencia	2%

Source: developed by the authors based on data from CORDIS.

With regard to participating organisations, the data analysed allow us to see the types of entities involved, their characteristics, and their location. Andalusia, Madrid and Catalonia are the regions with the highest number of projects. It should be kept in mind that Andalusia has ten universities and one international university, all of which participate with another ten organisations, including research centres, government institutions, and companies. The prominent status of the Autonomous Regions of Madrid and Catalonia is similar to the position they hold in other R&D&i programmes in European and national calls, mainly with the factor of business participation, as shown in the Horizon 2020 results on the programme as a whole, published by the *CDTI* (2021). One should bear in mind that the headquarters of many of the companies, and even research centres (as mentioned above) are located in the cities of Madrid and Barcelona, although their physical headquarters are in other regions. Reports on impact and return usually take this situation into account, but not always. The truth is, the participating organisations in the CORDIS database usually indicate their legal address, which often results in distorted results when it comes to assessing where the work is actually carried out and to which institutions the researchers belong.

Thus, the strength of the Regions of Madrid and Catalonia is acknowledged, both in terms of areas of knowledge production from an institutional and business point of view, and of course, with regard to leadership in developing lines of research that focus on content creation, new narratives, and communication in general. Together with these regions, we have also highlighted the role of Andalusia and the prominence of its universities. One can see how Andalusian public universities, some of which are relatively new, have a significant presence in European research. Also noteworthy is the fact that new private universities with degrees in communication, which have been established in Andalusia (an example is Loyola University), have begun to commit themselves to conducting research and becoming international in scope as well. Galicia is also prominent, where communication research is highly interesting, as the universities of La Coruña and Santiago are the driving force behind projects approved in the Horizon 2020 programme.

4.3. Programmes in which communication research is included.

The third objective of this research is to identify the types of programmes in which Spanish communication researchers participated in the Horizon 2020 programme.

Within the Excellent Science Pillar, the Marie Skłodowska-Curie Actions (MSCA) initiative is aimed at strengthening scientific excellence, as previously mentioned. Moreover, this programme is the most

popular of all, especially in terms of research potential, as it includes young researchers in the field of communication as well as the European Commission's interest in developing new research careers. Thus, we can see that a large part of the funding received in Spain for research proposals in communication has been allocated to participation in the MSCA-NIGHT event, known to the academic world as the European Researchers' Night, which involves communication, participation, and awareness of the role of science in society. Another of its aims is to awaken interest in the development of future research careers. This programme is also highlighted by the RISE calls for the exchange of knowledge with the market, which involves small and medium-sized enterprises. The fact that 62.8% of the projects funded in the field of communication are aimed at disseminating science, as well as supporting and promoting the work of young scientists and technologists, is a highly interesting feature, especially for young researchers who are finding it increasingly difficult to consolidate their careers in the different fields of research (Seoane-Pérez, Martínez-Nicolás and Vicente-Mariño, 2020).

The ERC and SwafS programmes are open to any branch of knowledge and to all topics, and ERC is the programme that requires higher standards of excellence, not only regarding the initial idea, but in relation to the actual researcher in charge of the concept as well. As such, it is the most competitive programme in Horizon 2020. This indicates that Spain's 3.5% share of participation in the Framework Programme for Research achieves a high level of excellence and innovation in the field of communication. In other words, this type of research will go beyond the boundaries of current knowledge in this field and open up new lines of research for the future. With Spain having a 6.4% return, the ERC programme is undoubtedly the most competitive of Horizon 2020, due to the fact that the only criterion of evaluation is excellence and the researcher's ability to take risks in order to achieve the best possible results. The fact that communication studies compete with basic science and technological applications makes these results even more valuable, as there are no preferential topics or research lines. Moreover, they cover all areas of knowledge.

On the other hand, the programme known as Science with and for Society (SwafS), which promotes multidisciplinary collaboration and knowledge transfer as the basis for developing new lines of research, shows only a small percentage of participation by communication researchers. Nevertheless, we must bear in mind that this programme aims to understand the impact of basic and applied science on humans and society. On the other hand, both types of science have emerged as a response to the demands of people and society and pose new challenges for development, and for the future. This can be clearly seen in the project financed by SwafS 19-2018-2019, the aim of which was to take stock and re-examine the role of scientific communication in which we see the presence of Spanish researchers.

This aspect of science dissemination is of great interest both to the scientific community and institutions dedicated to the management and development of European, national, and regional science policies. Public or private investment in R&D, as well as the efforts of many scientists and technologists, would be useless if the results of the research carried out did not reach society in one way or another, either through specialised communication or dissemination aimed at society as a whole (Gertrudix et al., 2020; Gertrudix et al., 2021; Koutras, 2020). Yet we must bear in mind that dissemination and knowledge transfer, in the sense referred to above, must place the main focus on benefiting society instead of evaluating researchers' careers in order to achieve a specific professional objective, among other interests (Martínez-Nicolás and Carrasco-Campos 2018; Rodríguez-Bravo and Nicholas, 2020; Rodríguez-Gómez and Goyanes, 2020).

Other programmes in which we have encountered participation by Spanish communication researchers include Social Challenges and Industrial Leadership. This means there is definite value in these activities, as a result of participation in transversal and multidisciplinary projects and the enhanced ability to work in teams with other researchers from different branches of knowledge, whether basic or technological science, with the aim of obtaining results that allow us to understand reality from different perspectives.

Communication researchers have participated in three of the seven challenges that comprise the Social Challenges Pillar. Given the characteristics of this pillar, the studies are of an exceedingly relevant scientific and technical nature, and we find them in Challenge 3 (Safe, clean, efficient energy), an example of which is highlighted by EE-10-2014 aimed at funding projects with a topic focused on the development of technology to increase energy efficiency. We also find Spanish researchers in Challenge 6 (Europe in a changing world: Inclusive, Innovative and Reflective societies), in which a distinguished project stands out, which was submitted for the call entitled REFLECTIVE-3-2015, related to European cohesion, regional and urban policies, and their perception in Europe. Finally, Spanish communication researchers are also present in Challenge 7 (Safe Societies: Protecting the freedom and security of Europe and its citizens), where a project has been funded within the topic FCT-6-2015, aimed at developing technology for the fight against terrorism.

Thus, we have highlighted the allotment and obtainment of funding in the different Societal Challenges for due to various aspects. The first is the leadership of Spanish researchers in the debate on ideas for

improving society, migration, new movements and behaviours of communities, and multiculturalism. Secondly, the importance of Spain's participation in the search for solutions to the consequences of energy dependence, despite being a leading country in terms of opportunities for developing renewable energy, is an aspect that has proven to be of great importance since the outbreak of the war in Ukraine. Finally, it must be pointed out that thanks to the development of projects of this nature, Spain and its research partners are playing a key role in developing methodologies, models, and technology for the protection of individuals and societies in virtual environments, where cybersecurity is essential for any type of economic and financial transaction, but also for the spaces of culture, education and interpersonal relationships. With regard to the impact of this research on the scientific and technological domains, it is still merely testimonial, and as postulated by Günther and Domahidi (2017), it will require time and effort that is more extensive and more highly valued in the spaces where the quality of scientific production is evaluated (Goyanes, 2020), where we will find less theoretical research and more case analyses and experiences of applied communication (Martínez-Nicolás, Saperas and Humanes, 2019).

In the Future and Emerging Technologies (FET) programme, we find some remarkable and encouraging results, especially through participation in FET Open calls for the development of novel ideas and radically new technologies. Finding researchers in communication in this programme is especially striking, due to the high technological level of this programme, the scientific and technological profile of the participants, as well as the magnitude of the projects funded.

As part of the Industrial Leadership pillar, aimed at accelerating the development of technology and supporting innovation in companies, the SME Instrument is aimed at assisting innovative small and medium-sized enterprises that have the ambition to grow, develop, and become international in scope through a European innovation project. Along with the previous one, there are also calls for Information and Communication Technology (ICT), such as the H2020-ICT-2018-2 call that funded projects aimed at analysing and building the foundations of the next generation of social network platforms for a "global social sphere", in which we also find proposals on communication.

In the table below, one can see the programmes, calls, and topics funded by the projects in which Spanish researchers have either participated or coordinated.

Table 4. Participation by programme

Project acronym	Coordinating country	Participating countries	Acronym	Call	Topic
ARTICONF	AT	UK; ES; MK; NO; PT; NL	ICT	H2020-ICT-2018-2	ICT-28-2018
PERCEPTIONS	AT	EG; UK; AT; BE; CY; DZ; FR; ES; IL; XK; BG; DE; IT; EL; NL	SC7	H2020-SU-SEC-2018	SU-BES01-2018-2019-2020
reTHINK	DE	FR; DE; PT; ES	ICT	H2020-ICT-2014-1	ICT-05-2014
MediaFutures	DE	FR; ES; IT; DE; BE; UK	ICT	H2020-DT-2019-2	DT-ICT-05-2020
MENELAOS_NT	DE	ES; IL; DE; TR; RO	MSCA	H2020-MSCA-ITN-2019	MSCA-ITN-2019
OpenBudgets.eu	DE	EL; DE; ES; FR; UK; BE; CZ	SC6	H2020-INSO-2014	INSO-1-2014
MediaVerse	EL	EL; BE; DE; CH; ES; PT; IT	ICT	H2020-ICT-2020-1	ICT-44-2020
Phil-Threats	ES		MSCA	H2020-MSCA-IF-2014	MSCA-IF-2014-EF
MINDPICS	ES		SME Instrument	H2020-SMEINST-1-2016-2017	SMEInst-01-2016-2017
FEMONMETOO	ES		MSCA	H2020-MSCA-IF-2019	MSCA-IF-2019
Technopolitics	ES		MSCA	H2020-MSCA-IF-2019	MSCA-IF-2019
LT_Observatory	ES	UK; AT; NL	ICT	H2020-ICT-2014-1	ICT-17-2014
VirCoin2SME	ES	ES; DE; BE	MSCA	H2020-MSCA-RISE-2014	MSCA-RISE-2014
RESSQUA	ES	ES	MSCA	H2020-MSCA-NIGHT-2014	MSCA-NIGHT-2014
NEWSERA	ES	PT; ES; IT	SWAFS	H2020-SwafS-2019-1	SwafS-19-2018-2019-2020

ENRICH	ES	NL; DE; SE; EL; UK	MSCA	H2020-MSCA-ITN-2015	MSCA-ITN-2015-ETN
OPENRESEARCHERS	ES	ES	MSCA	H2020-MSCA-NIGHT-2016	MSCA-NIGHT-2016
G-NIGHT	ES	ES	MSCA	H2020-MSCA-NIGHT-2020bis	MSCA-NIGHT-2020bis
EPSN 2021	ES	ES; FR	MSCA	H2020-MSCA-NIGHT-2020bis	MSCA-NIGHT-2020bis
MIRAGE	ES		ERC	ERC-2017-STG	ERC-2017-STG
Videona	ES		SME Instrument	H2020-SMEINST-1-2016-2017	SMEInst-12-2016-2017
MapModern	ES		ERC	ERC-2018-STG	ERC-2018-STG
NEWTRAL	ES		SME Instrument	H2020-SMEInst-2018-2020-1	EIC-SMEInst-2018-2020
VISUALTRUST	ES		ERC	ERC-2020-COG	ERC-2020-COG
CAIN	ES		SME Instrument	H2020-SMEINST-1-2014	ICT-37-2014-1
STEP_BY_STEP	FR	PL; BE; IT; DE; ES	SC3	H2020-EE-2014-3-MarketUptake	EE-10-2014
JOLT	IE	IE; EL; FR; ES; UK; NL	MSCA	H2020-MSCA-ITN-2017	MSCA-ITN-2017
JOLT	IE	IE; EL; FR; ES; UK; NL	MSCA	H2020-MSCA-ITN-2017	MSCA-ITN-2017
FANDANGO	IT	EL; ES; BE; IE; IT	ICT	H2020-ICT-2017-1	ICT-14-2016-2017
SPARK	IT	UK; FR; IT; ES; BE	ICT	H2020-ICT-2015	ICT-19-2015
FETFX	IT	IT; ES; AT	FET	H2020-FETOPEN-2018-02	FETOPEN-02-2018
EUMEPLAT	IT	DE; BE; EL; PT; SE; ES; IT; TR; BG; CZ	SC6	H2020-SC6-TRANSFORMATIONS-2020	TRANSFORMATIONS-10-2020
ENJOI	IT	PT; NL; BE; ES	SWAFS	H2020-Swafs-2020-1	Swafs-19-2018-2019-2020
DANTE	IT	AT; ES; EL; DE; IT; PT; FR; UK; BE; IE	SC7	H2020-FCT-2015	FCT-06-2015
COHESIFY	UK	BE; PL; CY; IE; DE; HU; IT; ES; NL	SC6	H2020-REFLECTIVE-SOCIETY-2015	REFLECTIVE-3-2015
SHAPE-ENERGY	UK	FR; ES; SE; CZ; NL; DE; IT; BE; NO; TR; BG	SC3	H2020-LCE-2016-ERA	LCE-32-2016

Source: prepared by the authors based on data from CORDIS.

In Table 5 below, we can see the percentage of participation in each of these programmes.

Table 5: Projects by programme

Programmes	
MSCA	62,80%
SOCIETAL CHALLENGES	12,80%
ICT	10,50%
SME INSTRUMENT	4,70%
SWAFS	4,70%
ERC	3,50%

Source: prepared by the authors based on data from CORDIS.

In this way, the data show that 71% of these projects are part of programmes that are clearly aimed at or include research in the field of Social Sciences and Humanities, while the remaining 29% are of a clearly inter-disciplinary nature.

As such, we observe that the topics, as well as the research methodologies and environments within the framework of participation in the Horizon 2020 programme, are similar to the results obtained in studies on national calls and the impact of research, such as those of García-Avilés (2021), Gaitán Moya et al. (2021) or Gómez-Escalonilla and Izquierdo-Iranzo (2020), to name just a few. However, in this study we have highlighted the value of making knowledge international in scope, and the ability of our researchers to work with scientists from other countries and other areas of knowledge.

Thus, to summarise the case at hand, the data show that communication studies are highly important, and they are also an instrument and strategic component within the so-called quadruple helix of innovation (Gertrudix et al., 2020). The findings also reveal the maturity of a field of research that has positioned itself in a system of knowledge generation that must be evaluated according to criteria of quality, excellence (Martínez-Nicolás, 2020), and in many cases multidisciplinary capability. The programmes in which we have encountered funding for communication projects are the MSCA, ERC, Social Challenges, and ICT action. These programmes consider communication research to be a fundamental part of analysing the world around us and an indispensable aspect of solving social problems, in addition to showing the importance of telecommunications for the life of citizens and communities, and displaying the potential of new research careers.

5. Conclusions

The results obtained from the quantitative and qualitative analysis of the data on participation in Horizon 2020 offer a snapshot of the potential for internationalisation during these seven years, firstly of communication studies, and secondly of Spanish researchers in this area of knowledge. The findings of this study might possibly be the first data and conclusions on this topic, which could lead to more in-depth studies in the future on the type and impact of participation in European research programmes. Moreover, such studies could be carried out subsequent to the present research.

From a positive point of view, if we take into account the total volume of projects funded by the Programme during its seven years, the percentage of research focused on communication may seem very small. Undoubtedly, the most significant results can be found in other areas of knowledge in basic and applied science. However, the fact that there are small number does not mean that the social impact is low.

There is no doubt that the importance of communication research in 21st century society, which depends to a large extent on the ability to transmit, process, and receive information, can be measured. Such measurements occur not only in terms of the major scientific impact on citizens, but also qualitatively, with regard to the capability of generating knowledge and analysing these communications, both in the present and for the future, as well as their value in the past as a fundamental component in building the society of the present.

On the other hand, the opportunity provided by this Programme of collaboration, together with the creation of European consortia, expands the capability of Spanish researchers, which is clearly seen in the repercussions of their work and dissemination of the results in high-impact journals of international reach.

With regard to the initiatives in which Spanish researchers participate, it seems somehow natural that the funding of projects lies within the European Research Council programmes, the Marie Skłodowska-Curie actions, and the strategic objective known as Science with and for Society, given that these undertakings are inherent to Social Science and Humanities. Nevertheless, participation in the Social Challenges and Industrial Leadership Pillars has increased, if that were possible, the value of this research due to its multidisciplinary nature. In this sense, we find investigation that meets one of the Horizon 2020 objectives in terms of involving the social sciences and humanities in all areas of Knowledge.

Certainly, the fact of having investigators who participate in the European Research Area is, in itself, an achievement regardless of the number of projects or amount of funding received. The opportunities provided are undoubtedly quantifiable in economic terms, and in terms of results visibility as well, yet they are immeasurable in terms of impact and the results obtained after going beyond the boundaries of knowledge in a research environment that strives for excellence.

On the other hand, such results offer a highly promising outlook for communication researchers in the future, both in terms of maintaining the alliances created and generating new research initiatives as well. The new research programme that is expected to extend from 2021 to 2027, known as Horizon

Europe, remains committed to fostering the further integration of Humanities and Social Sciences into technological research, thereby encouraging social innovation, co-creation, and co-design through trans-disciplinary projects, with the aim of achieving a Europe that is well-adapted to the digital age.

The impact of this research has not been measured in the present study, yet the concept of impact is the key to future research. As defined by the European Commission throughout the Horizon 2020 reference document (European Commission, 2011), impact is the measurable and verifiable effect of research on science, the economy, and society as a whole. Moreover, this will be manifested in future research, along with answers to multiple questions that can certainly be resolved through the exhaustive analysis of data published in official sources, and this will undoubtedly help researchers to face future calls for European research programmes in the coming years.

6. Contributions

Specific contributions of each author	Author
Conception and work design	Author 1
Documentary search	Author 1
Data collection	Author 1, 2
Analysis and interpretation of data	Author 1, 2, 3
Review and approval of versions	Author 1

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