# FEMALE SCIENTISTS IN FIGURES 2021

## EXECUTIVE SUMMARY

GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA E INNOVACIÓN
UMYC UNIDAD DE MUJERES Y CIENCIA
OMCI Observatorio Mujeres, Ciencia e Innovación

**Women and Science Unit**

**Ministry of Science and Innovation**
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NIPO 831210031

*"Gender equality is a priority for the government, a matter of democracy and social justice. But in the case of science and innovation it is also a necessity. We cannot under any circumstances lose the talent of women, who make up more than half of the population.*
**Pedro Duque, Minister of Science and Innovation**

**The Ministry of Science and Innovation has published the report 'Female Scientists in Figures 2021', which analyses the presence of women in the different science areas and levels in Spain, with special attention to research careers in Public Research Organisations (PRSs) and universities.**

## Measuring for progress

In the last 15 years there has been a notable evolution of equality policies in R&D&I in Spain, influenced by the regulatory impulse that gender equality has had at national level, especially resulting from Organic Law 3/2007, of 22 March, for the effective equality of women and men, and also by the directives, initiatives and recommendations within the framework of the European Union. Special emphasis has been placed on the visibility of female scientists and their contributions to all areas of knowledge, on the need to achieve a balanced presence of women and men in all areas and at all levels, as well as the importance of avoiding biases and direct and indirect discrimination and of meeting the needs of all people through the results of science and innovation.

The "Female Scientists in Figures" series has been reporting on a biennial basis since 2015, on the progress in gender equality and the gaps that nevertheless persist. This series has been incorporating new indicators and has become the most important numerical reference at national level on the presence of women and men in the Spanish science, technology, and innovation system.

The aim of this periodic series is to help **identify and quantify gender gaps, advances, and setbacks**, **which will enable the gender impact of R&D&I policies to be assessed and to guide new actions in favour of effective equality in the participation of women and men.**

## Methodology and areas of analysis

This edition provides the latest available data for the indicators of the previous edition and also incorporates a number of additional indicators (2019 is the year to which most of the data relate). The following data sources have been consulted: Statistics on R&D Activities of the INE, Integrated University Information System (SIIU) of the Ministry of Universities, FECYT's Social Perception of Science Survey and Eurostat. In addition, information has been collected from the 50 public universities and 30 private universities in Spain through their rectorates, and also from the 8 PRIs, through the General Secretariat for Research of the Ministry of Science and Innovation.

For ease of understanding, a short text has been included to help interpret the different graphs. Science in Figures 2021 consists of five Chapters and three annexes:

**Chapter 1**. Scientific vocations.

**Chapter 2.** Labour market participation.

**Chapter 3**. Presence and participation of women researchers in higher education and PRIs.

**Chapter 4**. Scientific agenda

**Chapter 5.** Equality policies.

**Annex I.** Methodology

**Annex II.** Tables with data from the charts

**Annex III.** Tables with additional indicators not available in online sources.

All graphs, Annex tables, associated data and additional indicators are available for download.

## Positive trends

This edition of Female Scientists in Figures has identified some positive trends that were already pointed out in the previous edition:

- There has been a gradual increase in the presence of female researchers in recent years. Women **now account for 41% of the research personnel** in our country, above the European average (34%). But there is still no balance in the business sector (31%). (See Chart 2.1)
- An **increase in the presence of women as one moves up the research career ladder** in universities and PRIs. Women represent 44% at grade B and 24% at grade A (2019). (See Chart 3.10)
- A **slight improvement in the presence of women in decision-making positions**. In 2020, in single-person bodies, there are 23% of women in rector positions and 50% of women at the head of an IPO. The gender balance achieved at the level of university vice-chancellors is maintained (42% in 2020). (See Chart 3.13)

## Challenges and gender gaps

### Main challenges

Based on the data and results of Scientists in Figures 2021, the main challenges to which equality policies in R&D&I must respond are as follows:

**Attracting female talent to research, especially in engineering and technology**

**Retaining and supporting female talent in research**

**Integrate the gender perspective in R&D&I.**

### Gender gap

Despite the progress made, this edition of Female Scientists in Figures 2021 has shown that gender gaps still persist:

- A lower presence of female students and researchers in STEM areas, **a particularly worrying decline in engineering and technology** (less than 13% of female researchers worked in this area in Higher Education and Public Administration). (See Charts 2.6 and 2.7).
- Despite the increase of women in science, not all of them continue in research careers and they do not progress at the same rate as their peers (in the leap to stabilisation represented by the B grade, there are percentage differences of 11 points in universities and 19 points in PRIs).
- There is a gender gap in applications for six-year periods that evaluate and recognise the research activity of teaching and research staff, where there are also **lower success rates** for women in various areas, or even in all, as in the case of the six-year transfer period (reaching a difference of up to 22 percentage points in business sciences).
- Women do not participate fully and equally in decision-making in the science system (**23% of female principals and directors of research institutes**).
- Although the proportion of female researchers applying to R&D calls is increasing, they have **lower success rates (43% female and 48% male in 2019**) and receive proportionally less funding than their male counterparts.
- The **success rate for feminist, women's and gender studies R&D project applications** (30% in 2019) has increased compared to 2018, and is approaching the global results of social science projects (41% in 2019).

- The integration of the gender dimension in the content of R&D projects is still insufficient (**23% of proposals considered sex/gender analysis** relevant in 2019).
- Not all PRIs and universities have gender equality plans in place, and **very few monitor and evaluate their impac**t (only 34 public and 10 private universities have evaluated their equality plans).
- **Equality structures are not yet a reality** in all universities and especially in PRIs (only 38%).
- Sexual harassment and gender-based harassment persist in universities and PRIs, but **not all of them have protocols for action** (only 63% of PRIs had protocols in place).

## Recommendations

In this report, the Women and Science Unit has highlighted some lines of action on which it is recommended that progress be made and for which the commitment and involvement of all agents in the science, technology and innovation system is required:

- **To eradicate gender stereotypes**, reinforcing the content on equality in the training of students and teachers, and **to promote vocations and the teaching of science with a gender perspective.**
- To support **affirmative action measures**, especially in calls for R&D projects from funding agencies.
- Training and **capacity building on gender bias** in R&D project evaluation processes.
- To develop **mechanisms for monitoring the gender dimension** in the content of R&D&I projects.
- To ensure the enforcement and monitoring of **equality plans, the reinforcement of equality structures and protocols on sexual and gender-based harassment**, including in the business sector.
- To implement the **R&D&I Equality Seal** for universities and research centres.

The **Women, Science and Innovation Observatory** has approved a work programme for the next two years that will enable progress to be made in gender statistics and indicators, in research careers and in the structural change of science institutions towards gender equality. In addition, its functions include **monitoring the level of compliance with equality policies and measures** in the science, technology, and innovation system.

For all these reasons, and bearing in mind that Spain's policies and structures for equality in R&D&I are a benchmark in the European Union, it is essential to be able to show their positive impact through the successive editions of the Female Scientists in Figures series.

More info:

Press release from the Ministry of Science and Innovation

Video Female Scientists in Figures 2021

Female Scientists in Figures 2021 – Full Report

Tables and additional indicators

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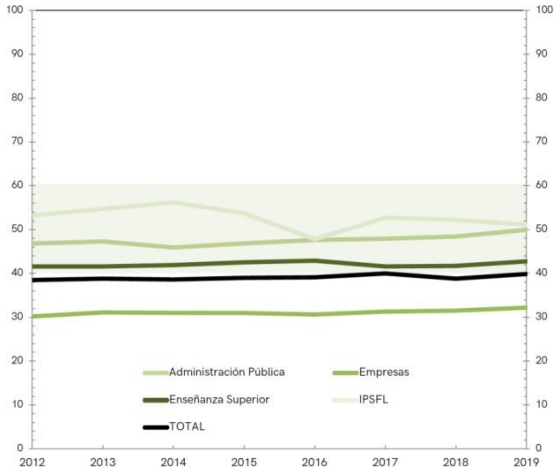
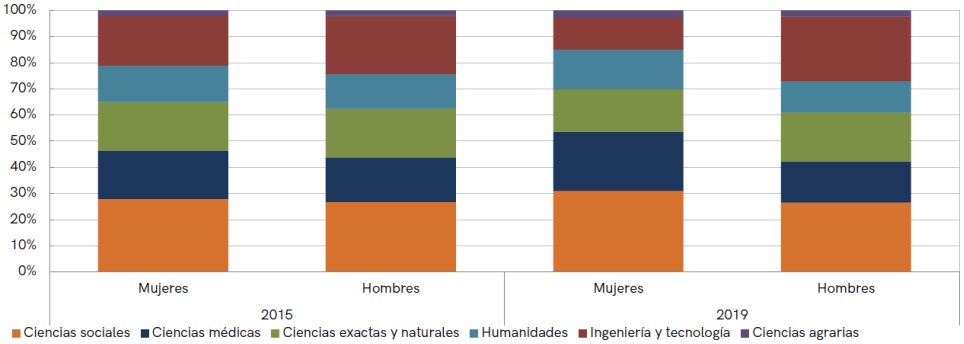
## Charts

**Chart 2.1 Evolution of the proportion of female researchers by area of execution. 2012-2019**. *(Percentage of women out of the total number of research staff in each sector).*



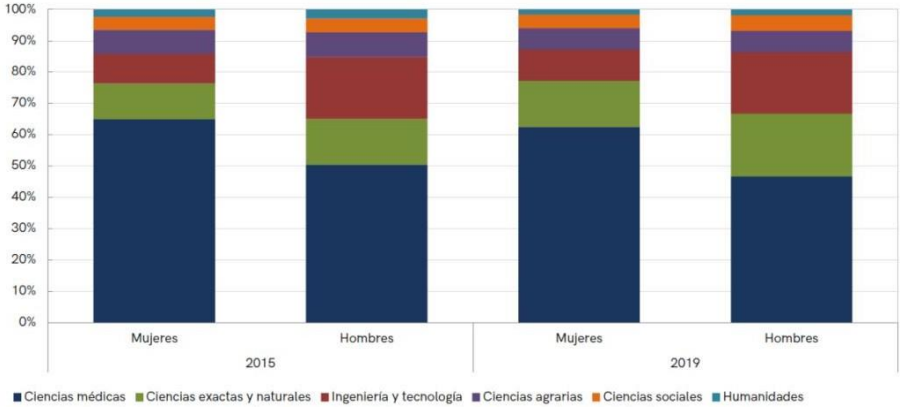

Source: Prepared by the authors based on data from INE, Statistics on R&D Activities.
Notes: Number of female researchers in Full Time Equivalence (FTE). IPSFL (Private Non-Profit Institutions).

**Chart 2.6 Distribution of research personnel in Higher Education according to gender and scientific and technological area. 2015 y 2019**. *(Percentage of research staff in each area)*



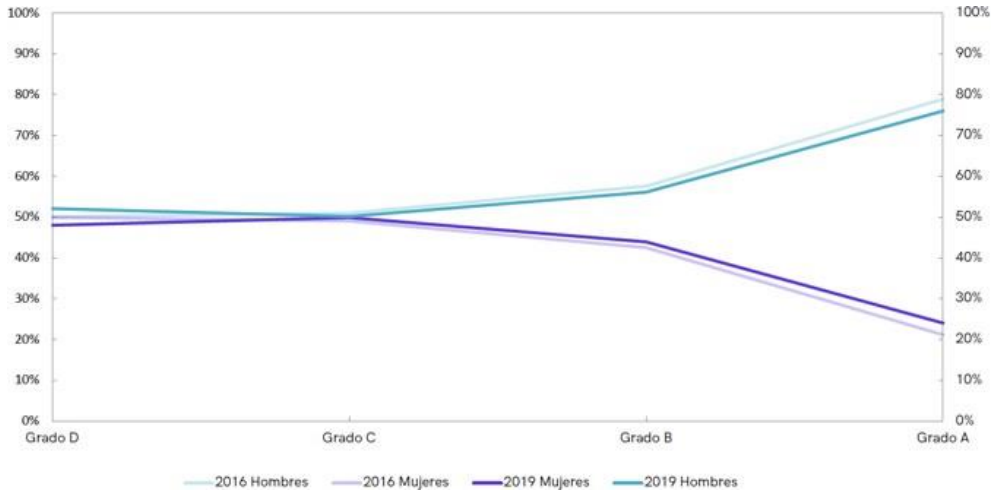

Source: Prepared by the authors based on data from INE, Statistics on R&D Activities.
Note: Data in number of natural persons.

**Chart 2.7 Distribution of research personnel in the Public Administration sector by sex and scientific-technological area. 2015 y 2019.**



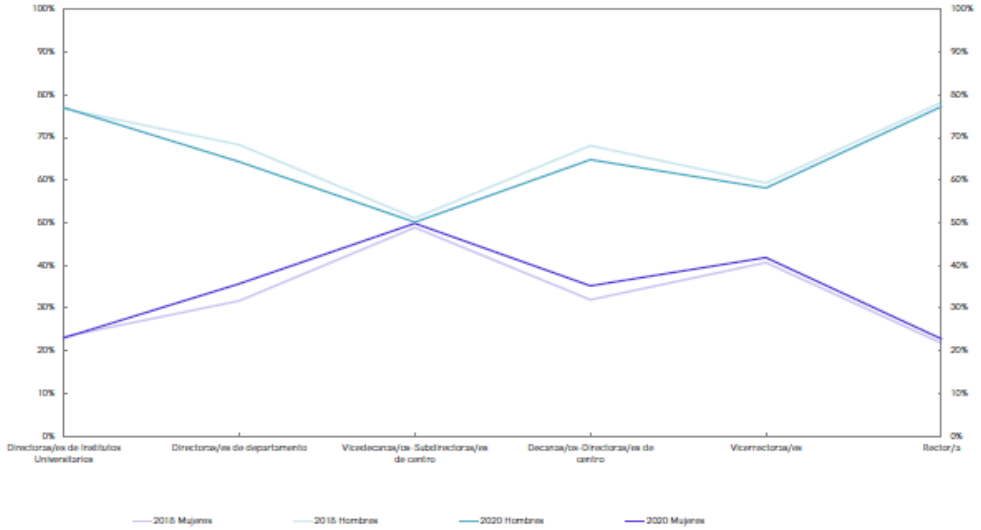

Source: Prepared by the authors based on data from INE, Statistics on R&D Activities
Note: Data in number of natural persons.

**Chart 3.10 Evolution of the distribution of women and men in the research staff of universities and PRIs according to research category. 2016 y 2019.** *(As a percentage of total research staff).*




Source: Prepared by the authors based on data from the Ministry of Universities and the Ministry of Science and Innovation.
Notes: (1) Universities. Grade A (Highest position): Full Professor: Catedrático de Universidad. Grade B (Doctors): Titular, Catedrático de Escuela, Titular de Escuela doctor, lector doctor, visitante doctor and Contratado doctor of public universities; Profesor con capacidad investigadora de centros adscritos/universidades privadas: Profesores doctores de Facultades o E. T.S. with levels between I and II, Professors with doctorate from Faculties or E.T.S. with level III, Professors with doctorate from E.U. and Other Teaching with levels between I and II; Ramón y Cajal, other postdoctoral and visiting researcher. Grade C (First university access doctoral position/newly qualified doctors): Assistant doctor of public universities; Juan de la Cierva. Grade D (Predoctoral): Assistant at public universities Predoctoral researchers, FPI and FPU.
(2) Includes public universities, affiliated centres and private universities.
(3) OPIS. Grade A (highest position): Scale of Research Professors of OPIs. Grade B: Scale of Research Scientists of OPIs; Scale of Tenured Scientists of OPIs; Distinguished Researcher; With contract of the "Ramón y Cajal" Programme. Grade C: With a contract from the "Juan de la Cierva" Programme; With a contract from the "Miguel Servet" Programme; Work and service in charge of research projects; With another Postdoctoral contract. Grade D: Research Staff in Training (FPI, FPU and other pre-doctoral contracts from competitive calls).

**Chart 3.13 Proportion of women and men in single-member university governing bodies by type of body. 2018 and 2020.** *(Percentage on total).*




Source: Prepared by the authors, based on data provided by 79 universities (49 public and 30 private).
Notes: (1) Data as of 31 December of the reference year. (2) The position of Vice-Dean/Deputy Director is not, according to the Organic Law 6/2001, of 21 December of 6/2001, of 21 December, on Universities (LOU) a unipersonal governing body, but it is introduced in the Chart to continue the series and as a contrast with the unipersonal bodies considered.