

## Article

# Steps towards the Integration of the Gender and Sex Dimension in R&I: The Case of a Public University

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**Abstract:** Gender equality has been placed at the centre of European research policy recently. The inclusion of gender and sex considerations into research and innovation (R&I) is an essential factor for scientific excellence and a key requirement for producing knowledge that can benefit society as a whole. However, the adoption of a gender/sex dimension is still a problematic issue in several Research Performance Organisations (RPOs) of European Union (EU) countries. Through the experience of implementing a gender equality plan (GEP) within the scope of a Horizon 2020 (H2020) project at a public Portuguese university (PPU), this study aims to explore the EU policies' impact on the integration of the gender dimension in research, considering both institutional policies and scientific outputs. To achieve the purpose of the study, a mixed approach that combines a qualitative analysis of institutional documents and data collected through interviews with a quantitative analysis of secondary data is used. The implementation of the H2020 project brought the issue of gender inequality to the institutional agenda of the PPU under study and the formalisation of the GEP marked a transition point towards an integrated and intersectional approach that embraces gender dimension concerns in R&I. This transition coincided with a period characterised by an increase in the scientific outputs incorporating the 'gender/sex dimension', which may highlight the importance of European policies in stimulating and accelerating the introduction of the gender dimension in scientific practices in RPOs.

**Keywords:** gender dimension; higher education; innovation; Portugal; research; women



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## 1. Introduction

Gender equality has been at the centre of European Union (EU) policies. In the research and innovation (R&I) sector, specific policies and actions to promote gender equality have been adopted at different levels. It is increasingly recognised that to achieve excellence in research it is not enough to bring women into science; it is also necessary to (re)think the way institutions are organised and structured and how the modes of knowledge production are transformed [1–4].

The inclusion of the gender/sex dimension in R&I has brought improvements in several areas, but data show that only a very small piece of the research produced in the EU considers this perspective, and there is still a long way to go, including in the clarification of concepts [5–7].

By taking into account the gender/sex dimension in R&I, one intends to ensure that both gender (i.e., the social and cultural features, behaviours and needs of both women and men) and sex (i.e., biological characteristics) are taken into consideration along the scientific process [2]. In other words, the gender/sex dimension in research is present when gender and/or sex “are part of the research design and systematically controlled for throughout the research process”, even if it is not the main focus of the study [7] (p. 12).

As the adoption of a gender/sex dimension is still a problematic issue in several Research Performance Organisations (RPOs) of EU countries, this study intends to explore

the experience of implementing a gender equality plan (GEP) within the scope of a Horizon 2020 (H2020) project. The aim is to identify and reflect, in light of European policies, the changes that have occurred in the public Portuguese university (PPU) under study in terms of the integration of the gender/sex dimension in R&I, considering both institutional policies and scientific outputs. This is achieved through a mixed approach that combines a qualitative analysis of institutional documents and data from nine interviews—with coordinators of research units (CRUs) from the PPU under study—and a quantitative analysis of secondary data collected from two well-known databases (Scopus and Web of Science).

The paper is structured as follows: the next section (2) frames the context of the European politics in the gender/sex dimension domain in R&I since the late 1990s, exploring in detail the measures adopted in the European EU Framework Programmes (FPs). Section 3 addresses the importance of integrating this dimension in R&I and characterises the current situation in the EU context. Methods and data are presented in Section 4, followed by the analysis and discussion of the results (Section 5). The paper ends with a brief reflection on the main conclusions, limitations and potential topics for further research.

## 2. EU Politics on the Gender/Sex Dimension in R&I

Concerns about gender inequality have been present in the EU since its foundation. In the science and technology sector, these concerns are more recent, dating back to the late 1990s [8,9]. In a first phase, the focus of European policies was centred on the low representation of women among European scientists. However, by the end of the 20th century, it was acknowledged that the problem of gender inequality ran much deeper [8] and in the following years new policy measures were developed. In addition to creating the *She Figures* report series in 2003, the European Commission (EC) began incorporating gender equality into its funding FPs. The FPs—proposed by the EC and adopted by the Council and the European Parliament following a co-decision—have been the main financial tools through which the EU supports research and development activities, covering almost all scientific disciplines [10].

FP6, which was in place between 2002 and 2006, sought to stimulate gender equality, not only through measures related to increasing women's participation in scientific research, but also by integrating gender into research content. However, the integration of the gender/sex dimension in research has not been successful either at the FP or at the project level [11]. According to project coordinators, the difficulties faced in this area resulted mainly from “confusion about the concept of the “Gender Dimension” and on how to integrate gender in projects” [11] (p. 24), as well as from the “lack of awareness and knowledge on the benefits that are associated with the integration of the gender dimension” [11] (p. 25).

To overcome insufficient knowledge and expertise on gender equality, in the following FP (FP7, 2007–2013), efforts were made to accelerate gender awareness and build the capacity of the research funding organisations in the field. Several projects were funded, including in higher education and research institutions. Since 2012, gender equality has also been assumed as a priority in the European Research Area (ERA). Aiming at fostering institutional and cultural change, three new goals in this field were established [1]. The first two goals aimed to increase women's participation both in scientific careers (1) and decision making (2). The third objective concerns the way scientific research itself is carried out and focuses on the integration of the gender dimension in R&I content [1]. The ERA's commitment to gender equality would subsequently be reinforced, with member states and associated countries being urged to adopt measures to promote gender equality [12].

The H2020 (2014 to 2020) FP has established gender as a cross-cutting issue and the integration of the gender/sex dimension into R&I content was considered an underpinning objective [13,14].

Article 16 of the Regulation establishing H2020 stated that “Horizon 2020 shall ensure the effective promotion of gender equality and the gender dimension in research and

innovation content ( . . . ). The gender dimension shall be adequately integrated into research and innovation content in strategies, programmes and projects and followed through at all stages of the research cycle” [13] (p. 9).

In the context of this FP, institutional change and the integration of gender into research content became a way (and also a new policy instrument) to achieve gender equality in higher education and research institutions. To build capacity for structural change, several projects to implement a GEP in RPOs were funded and methodological tools for gender/sex and intersectional analysis, as well as concrete examples on how to integrate the gender dimension into R&I, were developed and made available to researchers [2,4,15].

The measures adopted have led to an increase in the proportion of topics that explicitly require sex/gender analysis in EC-funded projects. Between 2014–2015 and 2020, this increase was 20.3% [2] (p. 36). However, the implementation of the policy of integrating the gender/sex dimension in research lagged behind and fewer funded research proposals have successfully incorporated sex/gender analysis [2]. According to the *She Figures* report [6], at the European level, only about 1.7% of all H2020 projects integrated the gender dimension.

More recently, the Horizon Europe FP—in force in the 2021–2027 period—strengthened gender equality as a cross-cutting principle, which is now considered at three main levels, related to: (1) the introduction of the GEP as an eligibility criterion for public bodies and higher education and research institutions from member states of the EU and associated countries wishing access to EU funds, (2) the integration of the gender dimension in research and (3) the balanced participation of women on boards and in expert groups, evaluation committees and research teams [15]. The goals set for gender equality seem to reinforce and complement each other. For example, the integration of the gender dimension into research and teaching content is one of the areas that the EC recommends to be covered by GEPs [15,16]. Therefore, the integration of the gender/sex dimension into R&I emerges as one of the priorities set on this new EU funding framework—in line with ERA’s policy [17,18]—and it is now “a requirement by default” and “an award criterion evaluated under the excellence criterion ( . . . )” [15].

Gender equality policies in Europe have been gradually acquiring an increasing complexity, robustness and complementarity. The initial approach, in which gender equality was seen as something that concerned women, their behaviours and choices—and therefore placed the emphasis (almost) exclusively on women’s representation (‘fix the women’ or ‘fix the numbers’ approach)—now coexists with new approaches, centred on cultural and institutional change (the ‘fix the institutions’ approach) and on the integration of the gender/sex dimension in research (‘fix the knowledge’ or ‘gendered innovation’ approach) [4]. This transition confirms the EU’s commitment to gender equality as it “marks an important recognition at policy level of the systemic barriers and disadvantages facing women in research and innovation and the importance of the gender dimension in research and innovation” [19].

In this scenario, this paper intends to explore the impact of EC initiatives on RPOs’ institutional research policies and practices. Specifically, it aims to answer questions such as: Does the implementation of GEPs foster institutional changes that promote greater integration of the sex/gender dimension in scientific research? What is the potential for institutional transformation of EC-funded projects and GEPs in this field? Lastly, what is the repercussion of these initiatives on the scientific production of RPOs?

### 3. Gender/Sex Dimension in R&I: From Policies to Practices

The EC has been acting as a beacon in the effort to integrate the gender/sex dimension into R&I content [2]. In the EU countries, this dimension has been integrated mainly in the social and medical sciences and in interdisciplinary research [5–7], but there have been increasingly more studies in almost all fields: in health, medicine and pharmacology [20–24]; in agriculture [25,26]; in biology and the environment [27,28]; in urban planning [29]; in transport and mobility [30–32]; and in artificial intelligence solutions [33–35], among others [2,4,7,36].

The intersectional incorporation of the gender/sex dimension in research and experimental design (i.e., the simultaneous analysis of gender and other social differences such as ethnicity, class, sexuality [37]) has brought important advances in many disciplines and its importance is increasingly acknowledged [2,7,38]. According to the EC, the questioning of dominant gender stereotypes and norms by researchers leads to a greater understanding of the gender needs, behaviours and attitudes of citizens [2]. As a result, the social relevance of the knowledge, technologies and innovations they produce is enhanced, contributing to the production of goods and services better suited to all people and to new markets [2] (p. 8).

In addition to the benefits for researchers, gender integration in R&I is also considered positive for the whole society: by adding value to research in terms of excellence, quality, creativity and business opportunities, it contributes to fostering innovation, to ensuring Europe's leadership in science and technology and to supporting inclusive growth [2]. At the same time, it is argued that it allows us to enhance equality, helps to address the EU's societal challenges and also contributes to the accomplishment of the United Nations Sustainable Development Goals [2,39,40]. In sum, gender/sex and intersectional analysis are seen as crucial elements of the EU's (and world's) prosperity, particularly in the science and technology fields [4,36].

### 3.1. *The Relevance of Integrating the Gender Dimension in Research: Some Examples*

In some countries, the problem of gender inequality is still perceived (and treated) as an issue relating (almost exclusively) to the (under)representation of women in research [39]. However, including the gender/sex dimension in R&I is not the same as achieving gender balance in research groups [7] and, while both are relevant and complementary, the importance of adopting a gender/sex perspective in R&I is increasingly recognised. This paper deals mainly with the latter topic.

The heart attack symptoms of men and women is a classic example illustrating the need for and importance of the gender/sex dimension. In research conducted on cardiovascular disease, the idea of the male body as the norm predominated and it was usual to assume, until the 1990s, that men and women experienced similar symptoms [7]. However, later research has shown that heart attack symptoms in women and men often differ. While typical symptoms in men include chest and left arm pain, women (especially young women) may have no symptoms or experience nausea, dizziness, and/or shortness of breath [41,42]. These symptoms, usually presented by women, as they did not fit the 'male norm', were easily interpreted as being caused by other problems, including psychological ones [7]. The progress made in recent decades has led to them now being recognised by doctors as symptoms of heart disease [43], but this has led to the underdiagnosis of heart attacks in female patients, resulting in numerous women dying and/or receiving the wrong treatment [7,42].

The harmful consequences of the lack of gender dimension in R&I are worryingly evident in other areas as well. In the transportation sector, for example, the level of protection in a car crash is lower for women because vehicle safety technologies tend to be designed and tested for male bodies [44–46]. Some studies point out that a belted female driver is 47% more likely to suffer severe injuries than a belted male driver involved in a similar crash [45].

These examples, as well as the benefits and advantages inherent to the inclusion of the gender dimension in R&I, show that this is an important issue for several sectors of activity. Therefore, in RPOs, particularly higher education and research institutions, one would expect this issue to have a central and prioritised place in institutional research policies and practices. However, despite its increasingly acknowledged importance, the generalisation of this practice seems to be far from widespread.

### 3.2. *Barriers and Resistance(s) to Gender Equality Initiatives*

In addition to the small number of projects that have integrated the gender dimension in EU FPs (around 1.7% of all Horizon 2020 projects), the number of scientific publications

including this perspective is also very low—below 2% between 2015–2019 at the European level (1.80% EU-27; 1.81% EU-28). The most recent data also show that progress in this area is falling behind, as the number of publications integrating this dimension “increased by just under 1 p.p. since 2010” [6] (p. 261). In Portugal, as a whole, the situation is quite similar and, although slightly higher than the EU average, the number of publications with a gender perspective is also very low in the country (less than 2% according to the *She Figures* report) [5,6,39].

Barriers and resistance to initiatives promoting gender equality and more inclusive work environments may help explain these results and the difficulties in integrating the gender dimension in R&I [47,48]. Although this is a recent problem in Europe, which is not fully studied [49], various forms of resistance to gender equality initiatives in RPOs have been identified. While some have a more individual basis (related, for example, to ‘sensitivities and risks’, ‘status quo’, ‘personal traits’, etc.), others have a more institutional basis (related to available resources and/or the (in)existence of a gender agenda, among others) [50]. Furthermore, four different types of resistance can be distinguished regardless of the national and/or institutional context: “fear of feminism; assumption of HEIs as gender-neutral and the presence of dominant discourses on excellence and merit; devaluation of gender equality knowledge; and lack of institutional or personal support” [51].

In Portugal, resistance to gender equality initiatives in RPOs is a “multifaceted” problem that assumes a tendency to occur in the generality of HEIs, (re)shaping itself according to the framework in which GEPs are placed [52]. The non-recognition of gender inequality as a problem within RPOs, and the lack of knowledge and information about gender in/equality by the academic community, are some of the main reasons for resistance to gender equality initiatives in the Portuguese context [52]. To combat such resistance, some strategies have also been identified. These include, for instance, the commitment and involvement of institutional leaders and other important/relevant stakeholders and compelling institutions to have and provide sex-disaggregated data [52].

#### 4. Methods and Data

To achieve the purpose of the study, a mixed approach was used that attempts to combine a qualitative analysis of documents and data, collected through interviews with key institutional actors, with a quantitative analysis of secondary data regarding the scientific production of the institution, collected in databases such as Scopus and Thomson Reuters Web of Science (WoS). Thus, in a first stage, this research is based on the content analysis of nine semi-structured interviews conducted face-to-face with CRUs of the PPU under study between 2018 and 2019. The interviews were carried out within the H2020 project and were conducted to collect extensive information on the topic of gender in/equality in the institution. They were developed in the initial phase of the H2020 project, as part of the data collection and diagnostic process conducted prior to the design, implementation and formalisation of the GEP (the formal adoption of the GEP occurred only in 2022). The interview script was developed by the national research team of the H2020 project and was organised into four sections/groups. In addition to addressing gender inequalities in the national context (group I), the interviews aimed to collect information regarding the institutional context and management processes (group II), gender awareness in research (group III) and expectations related to the implementation of the GEP in the PPU under study (Group IV). In this paper, we only explore the questions regarding the gender/sex dimension in research, integrated in group III, and whose aim was to identify the existing practices in each research centre and explore the interviewees’ perception regarding the integration of the gender/sex dimension in research. The people in charge of all the research units of the PPU under study were invited to participate in the study, identified through information available on the institution’s website. The invitations to participate in the interviews were made by e-mail to all CRUs and they were conducted with those



who showed interest in participating. The interviews were conducted in Portuguese. The transcripts presented in this article were translated to English by the authors.

Furthermore, in a second stage, through a content analysis of the main policy documents of the institution, the initiatives adopted to stimulate the integration of the gender/sex dimension in R&I are identified and briefly analysed. Starting from a previous study conducted before the H2020 project began [53], which concluded that the issue of gender equality was not formally contemplated in either the policies or the institutional practices of the PPU under study, this analysis seeks to identify the changes that have occurred in the meantime. To this end, the most recent statutes and strategic documents of the PPU were analysed. Included in the analysis were the *Strategic Plan (2019–2022)*, the *Activity Plan (2019)*, the *Quality Manual*, the *Staff Map (2019)* and the *Plan for Risks of Corruption and Related Offenses (2019)*. These documents, available on the institution's website in a common tab entitled "Statutes and other strategic documents", were accessed in October 2022. The *Social Balance Sheet* and the *Accounts and Management Report*, although included in the set of strategic documents, were not accessible and, therefore, were not included in the study. The GEP was also chosen to be included in the analysis, as well as information related to the initiatives adopted under the H2020 project. Although the GEP was not included in the online set of strategic documents, it was also available on the institution's website.

The study is also complemented by a third phase, in which the evolution of the annual percentage of Scopus publications incorporating a 'gender/sex dimension' (i.e., publications which have 'gender', 'women' or 'sex' in the title, abstract or keywords) in the PPU under study is presented and analysed. We also extended the analysis to the WoS database, in order to validate and generate robust results. The documents produced at the PPU with the 'gender/sex dimension' were extracted based on a search with the same words ('gender', 'women' and 'sex') in the 'all fields' field of the WoS core collection.

Therefore, to collect the data from the PPU under study (covering the period from its founding to 2022), two of the largest abstract and citation databases of peer-reviewed literature were used [54]. The results are presented and discussed in the next section. It should, however, be noted that the choice of broad words such as "women", "gender" and "sex" was aimed at collecting information in an *optimistic* scenario, i.e., hoping or considering that all publications containing one of these words adopt the gender/sex dimension.

## 5. Results and Discussion

### 5.1. Gender Dimension in Research in the PPU under Study

#### 5.1.1. An Overview

The PPU under study offers educational degrees at all levels, including non-degree training, such as advanced training programmes and specialisation courses. By 2020 it had about 15,000 students, 1000 faculty members, 477 researchers and 740 technical and administrative management staff [55]. It was founded in the 1970s and was one of the first public universities in Portugal to be led by a woman. Currently, it is committed to a gender intersectional approach that simultaneously considers variables such as race, class, sexual orientation, religion and age, among others. In 2017 and 2019, the PPU under study received the national "Inclusive Employer Entity Brand" award and, in 2019, created the first Local Support Centre for the Integration of Migrants in a Portuguese university [56].

In 2018, the University started its participation in an H2020 project, a European action research project composed of a consortium of seven institutions from six countries. The goal of this four-year project was to create and implement customised GEPs and stimulate and accelerate cultural and institutional change by promoting gender-equal working environments [57,58]. The actions and measures identified aimed to actively address the three major goals sought by the EU: (1) removing barriers to the recruitment, retention and career progression of female researchers; (2) addressing gender imbalances in decision-making processes; and (3) strengthening the gender dimension in research programmes.

The diagnosis at the beginning of the project (2018) showed that gender issues were not formally contemplated in institutional policies and practices. At that time, officially, the PPU under study had not yet started to consider gender issues and there was no specific institutional policy for the promotion of gender equality. Gender aspects were not part of management processes or staff and leadership development programmes. Organisational assessment procedures, recruitment, retention, tenure and promotion processes or budget distribution did not cover this aspect either. For those in leadership positions, the dominant perception was that the institution was gender neutral, and that gender inequality was not a problem inside the University [53]. The gender/sex dimension was not on the institutional agenda and, as shown in the next subsection, some confusion about the concept prevailed among the CRUs interviewed.

#### 5.1.2. CRUs' Perceptions on the Gender/Sex Dimension in Research

The CRUs were academics with leadership roles at the middle level (organic and research units). Their responsibilities included managing the research unit and representing it externally. Of the nine CRUs interviewed, five were male (M) and four were female (F).

When asked about the gender/sex dimension in research, some interviewees sought clarification on the concept by questioning the interviewer:

Interviewer: "I also wanted to bring into the conversation a slightly different question that has to do with the inclusion of the gender dimension in research ( . . . ) is this gender dimension usually taken into account?"

Interviewee (F05): "Gender dimension how? ( . . . )"

Interviewee (F01): "But you're talking in terms of what? The composition of the teams, in terms of their constitution...? ( . . . )"

In fact, the responses of most of the interviewees denote not only some confusion regarding the concept of the "gender/sex dimension", but also a significant lack of awareness on the importance of bringing it into research activities, with most of them assuming that it refers to the participation of women in research teams:

"The best curriculum is chosen, be it a man or a woman, so there is no difference. ( . . . ) And we have several female researchers here, I work with several female researchers" (M06).

Moreover, this lack of knowledge tends to be mistaken and/or (wrongly) associated with the meritocracy discourse:

"We have six technicians, I think they are four women and two men ( . . . ) I have four women technicians, equipment operators, responsible for laboratories, and two men ( . . . ) There was no need to impose parity. ( . . . ) when I looked at professionals' short CVs of those who applied and saw that the woman was better, the woman entered ( . . . )" (M04).

This confusion with the concept shows, as in other contexts, a lack of knowledge and gender awareness in this field [11]. Moreover, the focus of the responses seems to be on the number of people of the underrepresented sex in research teams (more frequently women), an argument which is in line with the rationality of the "fix the numbers" approach [4].

The lack of knowledge about the importance and benefits of the gender/sex dimension in research is also evident, although it is considered important, especially if gender constitutes the object of study itself:

"Gender, yes, it is important as an object of study and as a variable to be recognised in the access [to] information ( . . . ) gender is recognised as one of the most important variables ( . . . )" (M02)

"There are and have been projects that integrate gender as a research object" (F07).

"Gender is secondary here. It is not, or it sometimes is not, when the nature of the project has to do with gender issues ( . . . )" (M02)

However, in a register closer to the “fix the knowledge” approach [4], some interviewees consider that the gender/sex dimension can be included in various stages of the research process, from project design to the analysis of the results, evidencing a higher degree of sensitivity towards this matter when compared to the previous interviewees:

“( . . . ) When conducting some interviews or collecting data, it is a variable that should be considered in the research ( . . . )” (M02)

“We take that into consideration, both when designing the instrument to collect data, when constructing the examples, ( . . . ) when we define the samples ( . . . ) and then there is also that care in the analysis, of triangulating and relating the results to the gender of the people, yes, in our area completely ( . . . ) We take it [gender] into account in the execution, in the implementation, in the way we operationalise the project but when we build it we don’t, rarely, that is, we don’t isolate it as an aspect to mention.” (F01)

The analysis of the interviews also allowed us to identify some of the reasons that may lead to the integration of a gender dimension in research. One of the interviewees, for example, considers that “[it is] the relevance of gender equality as an object of study or as a characteristic of the agents involved that should determine whether or not it is taken into consideration [in research]” (M02). To another, gender “is one variable among many others that make up the concept of diversity” (F01).

The knowledge about available scientific evidence on the importance of gender also seems to play a relevant role that may stimulate the integration of this dimension in some areas, grounding also the practice of intersectional research. One of the interviewees referred—alluding to his area of research—that “we have a lot of scientific evidence that gender ( . . . ) it is a variable that should be considered in research ( . . . )” (M02).

However, perceptions about the importance of the gender/sex dimension in research seem to differ according to the research area. In the engineering field, this appears in some discourses as something dispensable and even meaningless, which strengthens the finding previously mentioned on the lack of awareness and even some *disdain* towards the topic:

“No, none of that is taken into account and it doesn’t make sense in our case ( . . . ) 50% of the work that we do here is probably writing, writing lines, so it’s necessary to write articles ( . . . ) to write, both a man and a woman write, we’re not going to say that men write better than women, that’s equal ( . . . ). 50% of the work is that: writing. Then we have lab work ( . . . ) [and] in engineering that’s equal, whether it’s a woman or a man” (M04).

The individual responsibility of the researcher for the gender/sex dimension in research is also a factor mentioned by the interviewees. In this regard, one mentioned the following:

“( . . . ) when the research involves aspects that may be different in the case of men and women, obviously, we have to take that into account, and it is the researcher’s duty to take that into account ( . . . ) That is part of his research ethics” (M06).

The ethical responsibility of the researcher seems to override the institutional responsibility, given the lack of specific formal/institutional guidelines in this area. Also noteworthy is the lack of knowledge by some of the interviewees about the situation of the research unit they coordinate regarding the gender dimension in research:

“( . . . ) as an object of study, this is my experience, in my object of study I always looked at gender issues. Now, on a general level, I can’t say, I don’t know” (F05). This is, in fact, a particularly worrying aspect when analysing the CRUs’ discourses—these actors hold positions of power and responsibility specifically related to research activities. The production of knowledge is one of the main missions of the University and it is



especially concerning that this is still a dimension which raises some disregard at this institutional level.

In synthesis, despite some confusion around the concept of the ‘gender/sex dimension’ and the lack of knowledge and gender awareness surrounding the advantages of integrating the gender/sex dimension in research, the interviewees’ discourses showed some concerns in this area. The integration of the gender/sex dimension in research seems, however, to depend on: (a) the areas of research, (b) the scientific evidence that researchers have access to, (c) the ethical responsibility of researchers and/or (d) the nature and objectives of each study. Taking this into account, one can assume that the silence of the interviewees regarding the role of the PPU under study reflects the lack of institutional measures in this area.

### 5.1.3. The H2020 Project and Initiatives Adopted to Enhance the Gender Dimension in Research

Starting from the diagnosis carried out under the H2020 project, several initiatives were developed to enhance the gender/sex dimension in research in the PPU under study between 2019–2022 [59–61].

Throughout the implementation period of the H2020 project—in addition to conducting some studies on the gender/sex dimension in research and the presentation and public discussion of their results in international scientific events [39]—efforts were made to increase the gender awareness and knowledge of the academic community, particularly among researchers. Towards this purpose, a workshop on Horizon Europe funding opportunities was organised (in May 2021) to discuss its main objectives and challenges, notably in terms of gender equality. At this event, some specific examples of how to integrate the gender/sex dimension in health sector research were discussed in depth.

To promote the integration of the gender dimension in research practices, three complementary and reinforcing actions were incorporated in the GEP of the PPU under study [56]. A first action consists in carrying out “training actions on the inclusion of the gender and diversity aspect in research proposals and projects”, a second action is “raising awareness on the creation of gender-balanced research teams”, and a third action consists in “defining guidelines for increasing the number of people of the underrepresented sex coordinating projects” [56] (p. 17). Although some of these actions have not been implemented yet, their inclusion in the GEP has brought visibility to this issue as it is a formal and public document that reinforces and extends the PPU’s commitment to gender equality, calling “on the entire academic community to be actively involved in building a fairer, more equal and cohesive society” [62]. The GEP is based on a mainstreaming and intersectional approach; it comprises a total of 16 objectives and 33 strategic actions distributed by five thematic areas: (1) Promoting an inclusive organisational culture; (2) Work-life balance; (3) Balanced careers and decision-making processes and bodies; (4) Gender integration into teaching, research and external relations; and (5) Preventing and combating gender violence. The actions’ implementation will take place until 2025 [56].

In general terms, it can be said that the implementation of the H2020 project marks the transition to an approach in which the promotion of gender equality is mainly fostered through processes of cultural and institutional change [57,58]—moving closer to the “fix the institution” approach [4]. The gender equality issue is placed on the agenda of the PPU under study and, although it remains absent from all strategic documents analysed (see Table 1)—including the *Strategic Plan* [63]—several actions of an institutional nature, focused on the integration of the gender dimension in research practices, have been developed and/or planned, mainly in the scope of the H2020 project and/or the GEP.

**Table 1.** Number of times the words ‘gender’ or ‘woman’ or ‘sex’ appear in each document <sup>1</sup>.

| Document   | Gender | Women | Sex |
|--|--------|-------|-----|
| Statutes   | 0      | 0     | 0   |
| Strategic Plan (2019–2022)                               | 0      | 0     | 0   |
| Activity Plan (2019)                                     | 0      | 0     | 0   |
| Quality Manual   | 0      | 0     | 0   |
| Staff Map (2019)   | 0      | 0     | 0   |
| Plan for Risks of Corruption and Related Offenses (2019) | 0      | 0     | 0   |
| GEP  | 113    | 35    | 32  |

<sup>1</sup> In Portuguese: ‘género’, ‘mulher’ and ‘sexo’.

#### 5.1.4. Scopus and WoS Publications Incorporating a ‘Gender/Sex Dimension’

To explore, characterise and analyse how the PPU under study has been involving the gender dimension in their research outputs, the annual percentage of Scopus publications incorporating the keywords ‘gender’, ‘women’ or ‘sex’ in the title, abstract or keywords (in both Portuguese and English) was determined, in an exercise inspired by previous works [39]. The data from the period 1973–2022 were extracted on 16 September 2022. To complement and reinforce the results, a similar exercise was done using data from the WoS core collection database, as mentioned before. In this case, the search for the keywords was done in “all fields” and the data were extracted on 19 September 2022. The search results are presented in Table 2 (only years with at least one publication with the ‘gender/sex dimension’ were included).

**Table 2.** Publication with the ‘gender/sex dimension’ (PPU under study).

| Year | Scopus Publications with ‘Gender/Sex Dimension’ | Scopus Publications with “Gender/Sex Dimension” (% of Total) | WoS Publications with ‘Gender/Sex Dimension’ | WoS Publications with ‘Gender/Sex Dimension’ (% of Total) |
|------|---|--|--|---|
| 2022 | 91 *  | 3.80   | 66 *   | 3.42  |
| 2021 | 109   | 3.27   | 118  | 3.67  |
| 2020 | 82  | 2.73   | 88   | 3.00  |
| 2019 | 67  | 2.38   | 65   | 2.27  |
| 2018 | 67  | 2.64   | 76   | 2.99  |
| 2017 | 52  | 2.22   | 67   | 2.86  |
| 2016 | 71  | 3.18   | 67   | 2.95  |
| 2015 | 36  | 1.58   | 41   | 1.80  |
| 2014 | 35  | 1.55   | 36   | 1.73  |
| 2013 | 42  | 1.99   | 43   | 2.23  |
| 2012 | 25  | 1.30   | 26   | 1.55  |
| 2011 | 24  | 1.40   | 42   | 2.65  |
| 2010 | 22  | 1.50   | 21   | 1.51  |
| 2009 | 25  | 1.95   | 21   | 1.59  |
| 2008 | 9   | 0.71   | 7  | 0.56  |
| 2007 | 5   | 0.47   | 2  | 0.19  |
| 2006 | 2   | 0.19   | 1  | 0.10  |
| 2005 | 4   | 0.46   | 3  | 0.37  |
| 2004 | 2   | 0.29   | 1  | 0.14  |
| 2002 | 0   | 0.00   | 1  | 0.20  |
| 2000 | 1   | 0.35   | 1  | 0.29  |
| 1996 | 0   | 0.0  | 1  | 0.67  |

\* Still in progress. Source: Scopus and WoS core collection database.

As seen in Table 2, the first publication to meet the search criteria appears in the WoS core collection database in 1996. It is, however, from 2004 onwards that the number of publications with the ‘gender/sex dimension’ begins to increase more steadily.

In 2009, the percentage of publications with this dimension reaches 1% of the total of published documents (1.95% in Scopus, with 25 documents and 1.59% in WoS, with 21 documents). Since then, between advances and setbacks, the number of publications covering this dimension has gradually increased, but it took ten years to represent 3% of the total annual publications of the PPU under study: in WoS, it reaches 3% in 2020 (equivalent to 88 publications out of a total of 2932); in Scopus this level was reached shortly after, in 2021, in a year in which 109 publications with the 'gender/sex dimension' were registered out of a total of 3335 publications.

The years 2020 and 2021 were those with the highest number of publications with a 'gender/sex dimension', both when considering the data extracted from Scopus and when considering those from the WoS database (Table 2).

This period with a higher proportion of publications with the 'gender/sex dimension' coincides with the transition of the PPU under study to a 'fix the institution' approach, marked by the implementation of the H20220 project (2018–2022). This project, in addition to placing the issue of gender equality on the institutional agenda, led to the implementation of a set of initiatives—short, medium and long-term actions—that sought to increase the visibility of the issue and empower the academic community in terms of gender awareness [60,61].

The efforts to stimulate an institutional change were later reinforced with the formalisation of a GEP and its presentation and public dissemination at the University. The adoption of the GEP, as a strategic document, also came in response to the EC's requirements on gender equality, particularly in terms of access to Horizon Europe funds.

The discussion on the gender/sex dimension in research emerges in a framework of cultural and institutional change towards gender equality, triggered by the implementation of a GEP in the PPU under study. In addition to the H2020 project, other initiatives related to gender in/equality in the institution have been developed (for example, under other national and international research projects). Along with national and European/ERA policies and measures in the field of gender equality in higher education and the research sector [64], all these initiatives may help to explain, in a more or less direct way, the increase in the outputs with a 'gender/sex dimension' in the PPU under study.

However, as the GEP of the PPU is still in its initial phase and the projects just mentioned are still ongoing, efforts are needed to further assess the impact of these initiatives on the integration of the gender dimension in research. This is particularly important considering that the number of publications with a 'gender/sex dimension' in the PPU under study remains very low (less than 4% in any database used as reference, Table 2) and that the increase in the percentage of publications with this perspective has been less than 2 p.p. in the last decade (2011–2021): 1.87 p.p. in Scopus vs. 1.02 p.p. in the WoS database. These results suggest that progress in integrating the gender/sex dimension in R&I is both slow and difficult, but there is still a lot of potential for improvement in this area.

It should be noted that we are taking an optimistic view (a kind of wishful thinking) and that the percentage of publications with this dimension may be even lower since the inclusion of publications with a 'gender dimension' by the inclusion of the words 'sex', 'women' or 'gender' in the title, abstract or keywords of the SCOPUS and WoS databases does not in itself mean that a gender dimension was actually adopted in the research. This is, in fact, one of the main limitations of our analysis and it is important, through a more qualitative analysis, e.g., an analysis of the differences in disciplines, authors' gender, to confirm the presence of the gender dimension in the identified studies. This is one of our future research objectives.

## 6. Conclusions

Cultural and institutional change towards (more) gender equality in EU countries, greatly sponsored by EU actions, has sparked discussions and initiatives also targeting R&I policies and practices. The fact that it is not enough to bring women into science, but that it is also necessary to rethink the way institutions are structured and managed and how the

modes of knowledge production are transformed to achieve excellence in research, seems to gain ground in higher education and science. This study attempts thus to analyse the emergence of this cultural and institutional change towards gender equality, by looking at how (the discussion on) the gender/sex dimension has been introduced in a PPU and how the implementation of a GEP, under an H2020 project, has triggered it.

A mixed approach combining a qualitative analysis (collected through interviews with key institutional actors) with a quantitative analysis of secondary data (screening the scientific production of the institution) reveals that, in Portugal, although slightly higher than the EU average, the number of publications with a gender perspective is very low (less than 2% according to the *She Figures* report). In the PPU in which the analysis was developed, the percentage of publications with this dimension reached 1% of the total of published documents (1.95% in Scopus, with 25 documents and 1.59% in WoS, with 21 documents) in 2009. This number has gradually increased, reaching 3% of the total annual publications of the PPU in 2020 (in WoS). In Scopus, this level was reached shortly after, in 2021, in a year in which 109 publications with a ‘gender/sex dimension’ were registered out of a total of 3335 publications.

The quantitative data mirror the results obtained with the interviewees’ responses regarding, for example, with their conceptualisations on the concept and/or practice of the “gender/sex dimension” and its integration into research: confusion around the concept/issue of the ‘gender/sex dimension’ and the lack of knowledge and gender awareness surrounding the advantages of integrating it in research. The great majority of interviewees referred to the participation of women in research teams almost as a synonym to this. However, it was also possible to observe some relevant concerns related to the importance of integrating the gender/sex dimension in research, which relate, e.g., to the areas of research, the scientific evidence that researchers have access to, the ethical responsibility of researchers and/or the nature and objectives of each study.

Although it is neither yet possible to fully assess the transformation potential of the EC-funded project and the GEP nor the repercussion of these initiatives in the integration of the gender dimension in the scientific production of the PPU under study, the results obtained highlight the central role that these initiatives had in the process of the institutionalisation of measures related to gender inequality, including in the integration of the gender/sex dimension in research. Indeed, as far as it could be ascertained, all institutional measures aimed at promoting the integration of the gender/sex dimension in research of the PPU under study were developed and/or planned under the GEP/H2020 project. While more efforts are needed to further assess the impact of EC policies and initiatives, this study demonstrates that progress in gender/sex integration in R&I in RPOs is slow and difficult, and also that there is great potential for improvement in this area.

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