REPORT ON STRATEGIC ACTIONS TO IMPROVE GENDER-INCLUSIVE RESEARCH PROGRAMMES AND FUNDING

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List of Abbreviations and Acronyms

Acronym	
APVV	Slovak Research and Development Agency
BE	Business Enterprise
BSF	United States - Israel Binational Science Foundation
CBS	Central Bureau of Statistics (Israel)
CHE	Council for Higher Education (Israel)
CM	Consortium Meeting
CoP	Community of Practice
EB	Executive Board
EGP	Exclusionary Gendered Practice
EU	European Union
FFG	Austrian Research Promotion Agency
GCI	Glass Ceiling Index
GDP	Gross Domestic Product
GDPR	General Data Protection Regulation
GE	Gender Equality
GEO	Gender Equality Officer
GEECCO	Gender Equality in Engineering through Communication and Commitment (EU Horizon2020 project)
GIF	German-Israeli Foundation for Scientific Research and Development
GOV	Government
HE	Higher Education
HEI	Higher Education Institution
HERI	Higher Education Research & Innovation
IAB	International Advisory Board
KEGA	Cultural and Educational Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic
MOS	Ministry of Science and Technology (Israel)
NTL	National Team Leaders
OECD	Organisation for Economic Co-operation and Development
PBC	Planning and Budgeting Committee of CHE (Israel)
PNP	Private Non-Profit
POV	Point of View
RFO	Research Funding Organisation
RPO	Research Performing Organisation
R&D	Research and Development
R&I	Research and Innovation
RRI	Responsible Research & Innovation
SAV	Slovak Academy of Sciences
SC	Steering Committee
SH	Stakeholder
SIEA	Slovak Innovation and Energy Agency
SME	Small/Medium-sized Enterprise
SSH	Social Science and Humanities
STEM	Science, Technology, Engineering and Mathematics
SwafS	Science with and for Society

SWG GRI	Standing Working Group on Gender in Research and Innovation
VEGA	Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and Slovak Academy of Sciences
WP	Work Package
WPL	Work Package Leader

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Table of Contents

List of Tables

List of Figures

1 EXECUTIVE SUMMARY

In science, grants and research funding are important elements to promote research in general, but also to support researchers in their career path. It is therefore of great importance that funding is equally accessible to all those interested in research who have eligible qualifications and that everyone has the opportunity to take this path, both men and women.

This report builds on the results of the CHANGE project, more specifically of WP5, which deals with gender-inclusive research programmes and funding. The circumstances regarding gender-inclusive research programmes and funding were analysed and evaluated by mapping the gender in research programmes, inclusive stakeholder mapping, conducting expert interviews and drafting strategies to improve the situation with national RFO stakeholders.

The research funding landscape is generally very diverse. Each country has different instruments to support scientific work and researchers. The individual participating countries clearly reflect this in the CHANGE project; Slovenia, Austria, Portugal, Israel, Germany, and Slovakia, have many different research funding organisations, each offering different funding opportunities. Even within some countries, there are regional differences in research funding. In this work the CHANGE researchers examined more closely the potetial of RFOs of the individual countries and their research funding programmes, procedures, and processes with regard to support gender equality in research and RPOs.

The leaders of this presented research work are BBC and IFAM. All project partners were actively engaged in the performed tasks. Initially, all partners conducted research on research funding in their respective countries. For this purpose, the task leaders IFAM and BBC prepared a guideline to support the search and gathering of RFOs and their research programmes and funding procedures with regard to gender inclusion. In this way, all project partners compiled a map for their country showing the various funding instruments and organisations. The CHANGE researchers used these maps as a basis for the selection of relevant interview partners. Based on a predefined categorisation, interview partners who represent the individual research landscape as diversely as possible were selected. The researchers interviewed sixty-two experts of different RFOs and policy makers via video meetings, telephone calls or in face-to-face meetings. Later on, partners conducted national RFO workshops to present and categorise gender-inclusive good practices and to develop gender-inclusive strategies. This report presents the results of the mapping, the performed interviews, and RFO workshops.

Findings from these three tasks show that many aspects within the various funding processes are similar across the partner countries, while not every section of the overall

sequence is transparent for the applicants, nor is it gender-balanced or gender-inclusive. Research funding processes might indeed be unconsciously gender-biased regardless of place, policy, or regulation. However, there are also good practice examples for gender-balanced or gender-inclusive research programmes and processes, such as: legislation and regulation, mandatory training courses for evaluators focusing on unconscious biases, presence of gender experts in committees, and supportive instruments or programmes for young female researchers. These good practices are a basis for shared learning and joint improvement of the CHANGE partners towards gender-fair research funding processes and organisations.

The analysis also shows the diversity and complexity of research landscapes in different countries, and even within the same country on different levels - whether national, regional, or local – or in different types of sectors or fields of research. It seems that gender-inclusive or exclusionary practices in each country are embedded in cultural context, but also in old traditions and male-dominated perceptions of science and scientific research. Regardless of regulative measures and some good practices in some RFOs, it seems that women researchers in all countries still face inherent gender gaps in research funding processes, as it is well manifested in 'scissors curves' and other quantitative figures all over the world.

This report is an initial attempt to offer critical thinking on the research system, based on a vivid discourse that has been more vocalized in academia in recent years. Thus, in addition to applying intervention methods to empower women researchers on the one hand and to neutralise gender unconscious biases of RFOs on the other hand, it is offered to challenge the science and research meritocratic paradigm as well. Such an innovative thinking might offer more flexibility in procedures and criteria thus enabling a genuine diverse and gender-balanced scientific playground to all, women and men alike.

2 INTRODUCTION

Throughout history, the outcomes from research and development (R&D) have transformed people's lives and societies in multiple ways, as well as the natural environment we are part of. Research and experimental development can make a significant contribution to economic growth and prosperity, meet national needs and global challenges, and improve overall societal well-being (OECD, 2015). Grants and research funding are crucial conditions to enable the performance of research activities. Gender equality, on the other hand, is defined by the EU as an essential condition for an innovative, competitive, and thriving European economy (European Commission 2020c). Hence, the European Commission addresses structural barriers to gender equality in research and innovation through its main funding instrument – Horizon2020 and Horizon Europe, and within the European Research Area in collaboration with member countries and research organisations[1]. The goal in Horizon Europe is therefore to improve the European research and innovation system, create gender-equal working environments where all talents can thrive, and better integrate the gender dimension in projects to improve research quality as well as the relevance to society of the knowledge, technologies, and innovations produced[2].

Since the overall aim of CHANGE is to promote gender equality in research and academia, dealing with research funding programmes and funding processes is of great relevance and one of the project's core businesses and focal points. In parallel to the Horizon Europe directive (previously Horizon2020, the frame in which CHANGE project was initiated), and to the CHANGE goals, three aspects of gender equality in R&I were considered and examined within the scope of this work:

1. Gender balance among researchers in funding programmes and funding organisations.
2. Gender balance in RFO decision-making bodies (e.g. evaluation committess, experts and boards).
3. The integration of the gender dimension into research and innovation content.

It should be mentioned, however, that the extent of the examination was different for each aspect, depending on identified gaps, national contexts, priorities, and available data in each of the participating CHANGE countries. Specifically, more emphasis was put on the first two aspects, as will be specified in the following chapters of this report. In light of the abovementioned aspaects, the concrete objectives of this work were:

[1]European Commission, The Commission's gender equality strategy – link
[2] ibid

- To map gender in research programmes and funding.
- To establish a network of RFO stakeholders.
- To propose strategic actions to improve gender-inclusive research programmes and funding.

Although not included in the scope of this project, a few words should be said about scientific research in general, contemporary critical thinking regarding its fundamentals and structure, and its implications on issues such as diversity, equity, or gender equality. Since the days of Aristotle, scientific research has been based upon neutral principles such as extraordinary claims, falsifiability, critical thinking, objectivity, parsimony, replicability, ruling out rival hypotheses, correlation vs. causation, etc. (Almog and Almog 2020). We would argue that these theoretical principles are neither perfectly 'objective' nor 'neutral' (gender-wise or otherwise) once implemented in the scientific arena nowadays. As with any other human activity, research and research systems might be biased, manipulated, or driven by various kinds of interests, beliefs, or conceptions, whether political, socio-economic, cultural, religious, etc.

Scientific research and research funding are highly intertwined in scientific career paths of men and women in higher education, industry, or other research-oriented organisations. Winning grants has become a significant factor in academic success, for example. It is one of the criteria for promotion in academia. It enables the employment of research assistants, procurement of laboratory equipment, participation in international conferences, raises in salary, etc. (Ministry of Science & Technology 2019a). Within the framework of the 2008 economic crisis and the neoliberal agenda, it has been suggested that scientific work should become more market-driven and focused on dimensions such as performativity, competitiveness, project-based working, and commodification, with significant impacts in terms of both generations and gender (Murgia and Poggio 2019).

Almog and Almog 2020 describe research nowadays as a vicious cycle where quantitative researchers publish more, hence achieve higher positions and ranks in the academic hierarchy, in comparison to qualitative researchers. Differences in research value, prestige or funding may also be found between different fields of R&D, as STEM and SSH. In addition, the Higher Education sector has some sector-specific activities that are challenging with regard to the concept of R&D. These are in particular related to education, training, and specialised health care (OECD 2015).

Since women are well represented in the fields of SSH, qualitative research methodologies and other Higher Education activities such as teaching, education, arts, and clinical or health care, it stands to reason to assume they would face gender imbalances or challenges in their scientific and research careers, resulting from less

research funding opportunities or instrumental support. As for the STEM fields, women are often less represented in them from earlier stages of their academic training and career choice, following lower percentages of academic career or research funding submissions in later stages. It seems that whatever field of research is concerned in whatever country, women still face a glass ceiling compared to men, as is well manifested in 'scissors curves' all over the world: they make about half (or more) of PhD graduates, but much less than that in senior academic staff members or funded researchers. Something in the research system seems just not to work for women as it does for men or as Murgia and Poggio (2019) ask and suggest:

> *"How can one challenge and change a research system that is still governed by old-boy networks and which is still based on the grant rush, on competition, on hyper-productivity and on the fact that subjects are expected to be fully available at all times?" (ibid)*

In the framework of CHANGE, the work presented in this report mainly focuses on investigating and improving research funding processes from a gendered perspective, accepting the research paradigm as it is. However, the abovementioned suggests a further and deeper investigation into the roots of the research system is inevitable and required. Such investigation could be implemented by Point of View (POV) groups applying gender decoding of research organisations or research processes. The term "point of view" refers to women's view of organisational practices – i.e., the manner in which women experience organisational practices and the manner in which they participate in them, hence challenging existing power relations in the organisation (Lehrer and Ben Eliyahu 2019, chapter 3). In the research context, for example, a group of women might identify a formal requirement for promotion, such as a post-doctorate abroad, as an exclusionary gendered practice (EGP) from their POV.

In conclusion, research funding processes are critical to sustaining scientific research. However, as any other human activity, they could be biased and influenced by various interests and circumstances. Improving gender equality in research is of course important and desirable. However, no less important is to question the root causes of inequalities in the research system itself:

> *"…the problem needs to be tackled directly, trying to fight and change the system itself, starting from gender inequalities to other types of inequalities, such as those based on sexuality, class and ethnicity. In short, it is about changing the very roots of the system." (Murgia and Poggio 2019)*

2.1 DEFINITIONS OF RESEARCH AND FUNDING ORGANISATIONS

As each of the participating countries has its specific funding situation using different words for prescribing similar things, the following paragraph aims to define some key terms used for this report and is mainly based on the Frascati manual (OECD 2015).

According to the Frascati Manual, the term R&D is divided into three types of activities: **basic research**, **applied research**, and **experimental development**.

While **basic** research is mainly concerned with gaining new knowledge of phenomena without looking at a specific application or use, **applied** research is aimed at a specific, practical goal.

Experimental development is systematic work that draws on knowledge gained from research and practical experience, and produces additional knowledge aimed at producing new products or processes or improving existing products or processes.

In order to classify the various RFOs according to their qualities into sectors, four different sectors of research and experimental development (R&D) are introduced, based on the Frascati Manual (2015). This classification identifies shared characteristics of institutions that perform or fund R&D:

1. **Business enterprise (BE)**

   This definition encompasses all resident corporations which are basically able to generate a profit or are active in production, while their products can be goods, services, or business.

2. **Higher education (HE)**

   Unlike the other sectors, the System of National Accounts does not define this sector. It comprises all universities, colleges of technology and other institutions providing formal tertiary education programmes, whatever their source of finance or legal status, and all research institutes, centres, experimental stations, and clinics that have their R&D activities under the direct control of, or administered by, tertiary education institutions.

3. **Private non-profit (PNP)**

   This sector includes all non-profit private organisations, as defined in the System of National Accounts, except those classified as part of the higher education sector. This also includes private households and private individuals engaged or not engaged in market activities.

4. **Government (GOV)**

   Governmental organisations are non-profit institutions that are controlled by government units of **central** (federal), **regional** (state), or **local** (municipal) government.

In regard the kind of funding, two major categories can be identified: On the one hand, there are **individual grants** and on the other hand, there is funding for **research projects** and research supporting projects.

Individual grants and programmes fund researchers and support such things as doctorates and training. A specific person requests an individual grant, which supports this person. Often these are scholarships or other types of support that enable career advancement. For example, the European sister project GRANteD[3] is focusing explicitly on this kind of funding. Therefore, the CHANGE consortium did not focus on this issue.

Research projects are funded activities that have a defined scope of work or a set of objectives, which are designed to advance a research topic. In some cases, these projects also help to identify research topics in more detail or to build networks for research topics. Often research projects are joint or collaborative projects involving several partners.

2.2 RESEARCH FUNDING PROCESS IN GENERAL

The funding process has different stages. Figure 1 shows a general sequence of a funding process, where the green sections stand for 'default' or routine milestones in funding processes whereas orange sections stand for optional milestones, which are sometimes part of funding processes.

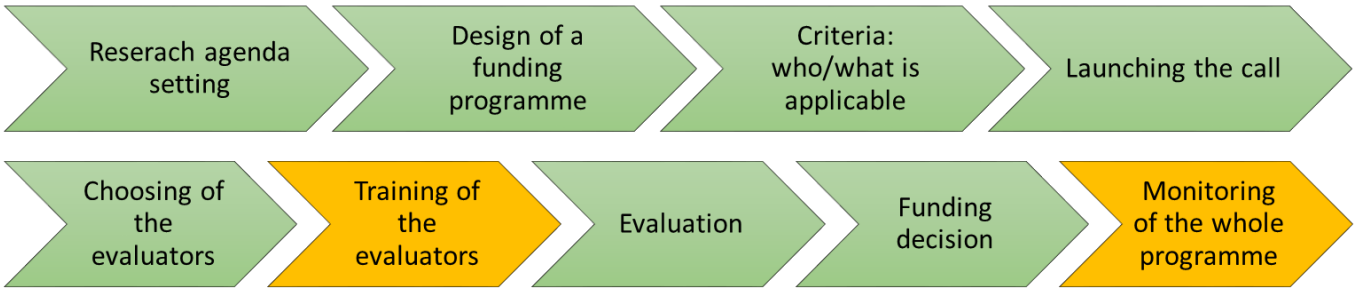

Figure 1: General sequence of a funding process

[3] https://www.granted-project.eu

In some countries, individual grants are the most common funding elements and RFOs and RPOs organise the funding process in close cooperation. In other countries, joint and collaborative research projects build the most important funding structure. However, all funding programmes underlie a similar path of life, which is usually independent of the funding process itself.

The funding process starts with the preparation of the call. At the beginning it has to be determined which topics will be supported and with what kind of financial framework. Political or strategic decisions influence this decision. These decisions define which research topics are and will be relevant in the coming years. Mostly this depends on national and international agendas, challenges to be tackled, and needs, which certainly implies economic interests as well. These specifications and decisions are the basis for the development and design of funding programmes. It is determined which type of funding (individual grants or research projects) should be supported. Any criteria for who can apply, and what can be funded, are defined and often compiled in a call for proposals. Based on these criteria, interested individual researchers or consortia prepare an application for funding. The RFO selects evaluators and defines criteria to review and assess the applications. Sometimes reviewers are trained for the evaluation process on an ethical level, meaning the procedure and its potential biases (whether gender-related or otherwise). However, this does not occur in all funding procedures and is therefore highlighted in orange in Figure 1. Depending on the results of the evaluation process, the funding organisation takes the decision on which applications will receive funding. Another point that is also sometimes part of the funding process is the monitoring and evaluation of the entire process. This does not only mean monitoring the preparation of the call, application, evaluation and distribution of the funding, but it also might imply the monitoring of the implementation of the project to ensure that the details given in the course of the application are followed and implemented. Since this section is not an explicit part of all funding processes, it is also highlighted in orange in Figure 1.

3 THEORETICAL BACKGROUND AND CATEGORISATION

3.1 LEAKY PIPELINE

For better understanding of the research funding process and its gender gaps, the research team chose the perspective of the well-known 'leaky pipeline' model, which describes women's professional progressions in science and academia (Dubois-Shaik and Fusulier 2015). Gender scholars have criticised the leaky pipeline model as it gives the false impression that it is the women's fault, or burden women with guilt, because they are dropping out of the system for various reasons (Miller 2015). Nevertheless, the application of the model makes sense in the present context. The metaphorical use of the pipeline shows that it is the system of pipes and the lack of repairing these pipes, which causes the problems and not the abidance by women in a leaky pipeline system (Sato et al. 2020). This model provides a clear and rather easy way to observe certain points, or stages, along the funding path, where women are less visible, active, or equally participate, and consequently are funded or promoted in the system less frequently. As pointed out in the GARCIA report, this analytical perspective is not merely tracing and locating the leaks, but rather looking at the institutions as gendered organisations, embedded in work ethos and influenced by external and internal pressures and discourses. This analysis enables the identification of 'leaky locations' as symptoms of gender gaps, unconscious biases or barriers resulting from cultural, social or institutional contexts. Identifying the barriers or 'naming the gap' is essential in order to match good practice examples that can mitigate them. Therefore, Figure 2 describes the 'leaky pipeline' adapted to the CHANGE project, based on the funding process from Figure 1.

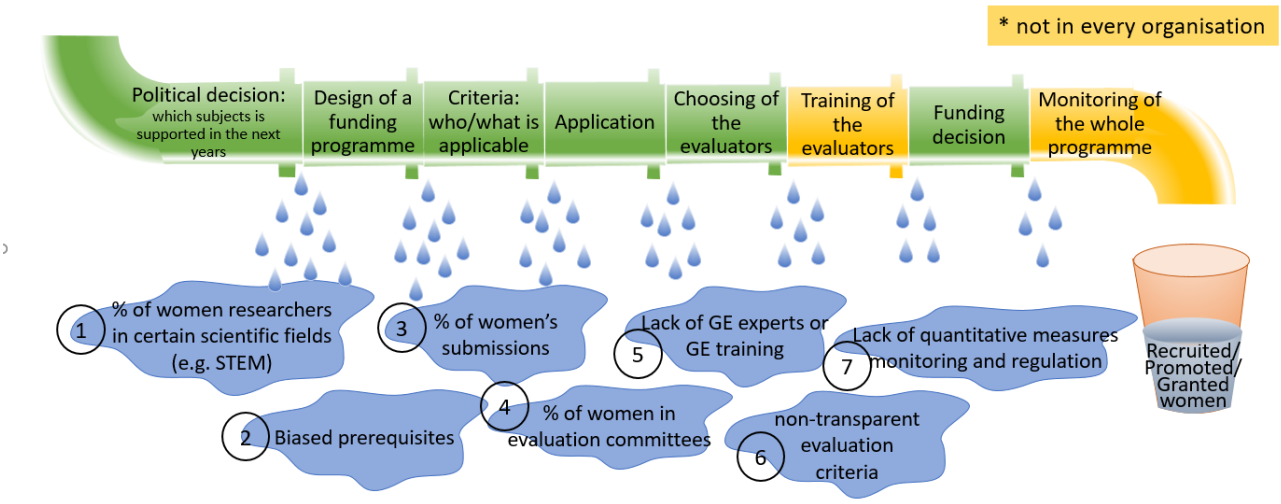

Figure 2: The 'leaky pipeline' in academia and research

As shown in Figure 2, for each stage along the process, 'leaky locations', where women move out or might be excluded from the system, are suggested. These locations are potential points of gender gaps resulting from either external or internal barriers and biases in the system. For example, in case more research funding is initially allocated in certain research fields that are characterised by fewer women researchers (such as STEM vs. SSH), there will be fewer women researchers who apply for funding (gap no. 1). Then, in some funding programmes, biased application prerequisites that are challenging for women might be found, such as age, research duration, relocation abroad or being in tenured-position (gap no. 2) resulting in fewer submissions by women in the application phase (gap no. 3). In the stage where evaluation committees are established, fewer women are appointed to these committees (gap no. 4). Moreover, committee members have little or no gender training, and there is a lack of gender experts (gap no. 5), which results in potential gender unconscious bias that might influence decisions. In case where evaluation criteria are non-transparent (gap no. 6) the evaluation phase might not be 'gender-blind' or 'fair', especially if gender segregated data is not measured, monitored, or regulated along the research programme (gap no. 7). The accumulation of some or all these gaps results in relatively lower percentage of granted women. This model is applicable to describe not only research funding processes, but recruitment and promotion processes in academia in general; replacing evaluation committees with recruitment or promotion committees.

3.2 THE ECOLOGY OF HUMAN DEVELOPMENT MODEL

For the description of the interaction between researchers and their close and wider social systems, the CHANGE team used the ecology of human development model developed by Bronfenbrenner (1979). The model originally describes an ecologically valid psychology of development.

The following assumptions are made in this context by the CHANGE team:

Social systems[4] are complex, respectively social and structural processes of change are complex, therefore are less portrayed as linear, but rather as multifaceted or multileveled. Scholars often recognise social systems as consisting of two or three subsystems, dimensions, scopes, or levels of analysis: individual (narrow) and structural or societal (broad) (Coleman 1986; Benschop and Verloo 2011); or micro (individual), meso-exo (institutional or interactive spaces and surroundings), and macro (values and laws on larger scales – e.g the national level) (Bronfenbrenner 1979; Wijk et al. 2019; Roberts 2020). A schematic depiction of the multilevel concept in research and academia, based on Bronfenbrenner's model of the ecology of human development, is shown in Figure 3.

Social subsystems are interrelated or tightly connected. Therefore individuals, as well as organisations, change or develop as a result of those inter-relations and interactions between the different levels of subsystems, top-down as well as bottom-up (Bronfenbrenner 1979; Berkovich 2014; van Wijk et al. 2019; Roberts 2020). In fact, this assertion lies at the core of the CHANGE approach, according to which structural change inside institutions will be enabled through the engagement of key individuals (micro level) – transfer agents and stakeholders - in co-producing gender equality knowledge and the implementation of gender equality measures in their respective institutions (meso level). Furthermore, through mutual learning and networking with external target groups, communities of practice are expected to be established and sustained on a regional, national and even EU level (macro level) (Dahmen-Adkins, Karner and Thaler 2019).

Although in theory strategies or good practices are often discussed separately, "…gender change in practice entails an eclectic amalgam of strategies…" and therefore there seems to be "potential effect of combination of strategies in terms of transforming organizations to foster gender equality." (Benschop and Verloo 2011, pp. 284-285) Benschop and Verloo conclude that "the strategy requires activists to address both individual and structural levels in order to organize needed systematic transformations" (ibid, p. 287). Other scholars and practitioners admit that only one type of practice or

[4] We refer to social systems and processes in a broader perspective, including all human-related activities, such as policymaking, politics, economy, education, research etc.

strategy cannot guarantee transformation or change unless implemented with additional strategies or organisational tools (cf. EIGE 2016b, regarding gender mainstreaming or van Wijk et al. 2019 regarding social innovations in institutional processes).

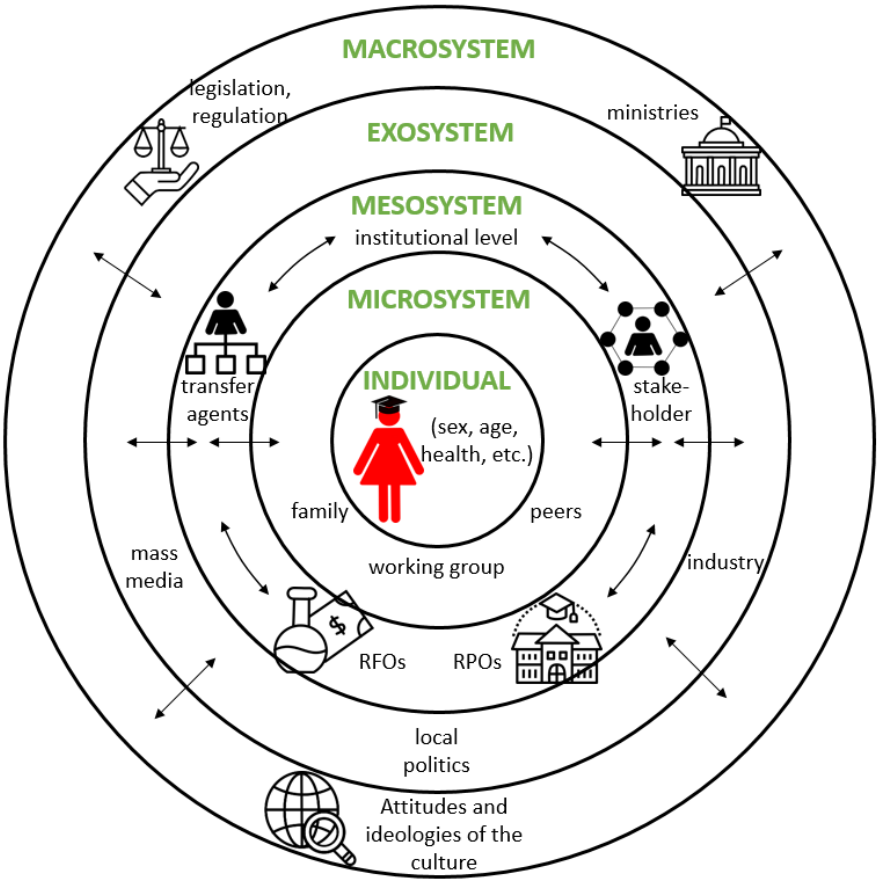

Figure 3: Adapting the ecology of human development model (Bronfenbrenner 1979) to research and academia

An important condition for change is that measures to promote gender equality are taken simultaneously at different levels.

Thus, according to O'Connor and Irvine (2020), state interventions (at the macro level) are paramount for the purpose of raising awareness. Moreover, macro-level interventions have an impact on the meso and micro levels. Nevertheless, regulations cannot be imposed only at the political and state (macro) level. It is important that measures are taken and implemented simultaneously at the micro, macro, and meso levels, and that all levels work together to drive change.

3.3 THE CHANGE TYPOLOGY OF GOOD PRACTICES

"Scholarly research tends to focus on the description [...] of the status quo [...] while it remains disconnected from actual initiatives of gender transformations." (Benshop and Verloo 2011 – p. 278)

Based on the CHANGE approach of knowledge co-production and bridging the gap between theory and practice (Dahmen-Adkins et al., 2019), the research team decided to 'look on the bright side' and try to learn from successful good practices of others. Skimming through several EU sister projects, an abundance of multiple gender-inclusive good practice examples and recommendations are revealed (see for example in GEAR, GENDERED INNOVATION 2, HEA, SPEAR, SUPERA, GEECCO, GENDERACTION, and Science Europe to name a few[5]). This abundance might be quite overwhelming and difficult to encapsulate to the point where "one cannot see the forest for the trees". All practices and recommended ideas for practices are aimed at promoting gender equality in research and academia, focusing on different aspects or phases in the process and in different manifestations, whether those be special support instruments for researchers, organisational tools such as gender sensitisation, sensitive communication, or monitoring and regulation at the higher regional or national levels. All practices seem good, important and relevant, but how can we assess their level of effectiveness regarding our specific purposes? Clearly some kind of systematic typology is needed to understand the rationale of each good practice (or group of good practices), its target audience, and what remedies it offers to which gaps or discrepancies in the system. This typology may enable to adapt and modify those groups of intervention practices, which are the most relevant to research funding organisations and processes, considering each one of the CHANGE partners' unique research landscape and national context.

The proposed typology was developed in line with the CHANGE approach of knowledge co-production (to be further elaborated in this section). Based on the updated stakeholder mapping in the six participating countries, 62 expert interview analyses, along with a literature review and gained experience from EU sister projects, good practices were identified, categorised, reflected upon, and further developed in a sequence of knowledge co-production meetings (consortium meetings and national RFO workshops).

Initially the CHANGE team proposed a categorisation that includes communal gender gaps and barriers that CHANGE partners identified during their expert interviews in RFOs, and potential solutions to them were proposed. The proposed solutions were labelled in six major groups, and so each new solution that was suggested or reviewed was easily categorised according to those groups (see Table 1). This discussion brought to

[5] See an elaborated list of sister projects: https://www.change-h2020.eu/sister_projects.php

mind the (perhaps obvious) understanding that certain kinds of good practices could only solve certain kinds of gaps, and it is impossible to expect one good practice to solve all gaps. Respectively, some gaps may be mitigated through several kinds of practices, and thus some practices could overlap or 'belong' to more than one type or category.

Table 1: Good practices initial typology as targeted solutions to certain gender gaps

Gap / Bias / Barrier	Solution / Good Practice
Lack of policies and legal instruments	Gender policy, regulation, budgeting and monitoring
Excellence and meritocracy	Gender experts, training, gender mainstreaming and sensitisation
Lack of gender awareness, training and expertise	Informal or professional commitment of people
Biased evaluation processes, non-transparent criteria	Blind evaluation system, transparent criteria
Low percentage of women in certain scientific domains	Women's presence in committees
Lack of supportive instruments or environments for women	Supportive instruments for women

This line of thought provided a first aspect of gender-inclusive good practices: their **aim**. In other words, what solutions do they provide to which gaps along the 'leaky pipeline' process of research funding?

The abovementioned ecology of human development model provided the second and third aspects of good practices – their **target audiences** and **level of implementation**. The key questions for these aspects are:

- Who is the target audience for each specific tool or practice?
- How broad is their intended or expected scope of impact, hence level of implementation?

As mentioned earlier, it seems that focusing solely on one level of implementation (e.g. the level of only individuals or only national regulation) is insufficient for sustainable and long-term institutional change towards gender equal processes (Benschop and Verloo 2011), thus strategies should be combined and implemented at several systemic levels, from Microsystems, through meso and exosystems, and up to macrosystems. It is assumed by the CHANGE consortium that, similarly to any other human development, gender-equal researchers should and could only grow and progress if good and fostering practices are implemented coherently and at all ecological levels across the research

landscape – the individual researchers (microsystem), research funding processes and organisations (exo and mesosystems), and higher-level legislation and regulation (macrosystem). All in all, the CHANGE researcher argues that probably only the implementation of several combined practices of several types (of targeted solutions) and on several levels of implementation (micro-meso-exo-and macrosystems) could promote a more comprehensive and sustainable change towards a more gender equal and gender balanced research landscape.

The final CHANGE typology of good practices for research funding organisations and processes, as targeted solutions to specific gaps, is depicted in Figure 4 below.

Figure 4: The CHANGE typology of gender-inclusive good-practices

Each category of good practice at several ecological levels of implementation can therefore be identified and analysed according to its two essential characteristics (see Figure 5):

a. Aims - targeted solution(s) to which gap(s) (puddles) along the leaky pipeline model

b. Level of implementation (individual, institutional, regional, national, etc.)

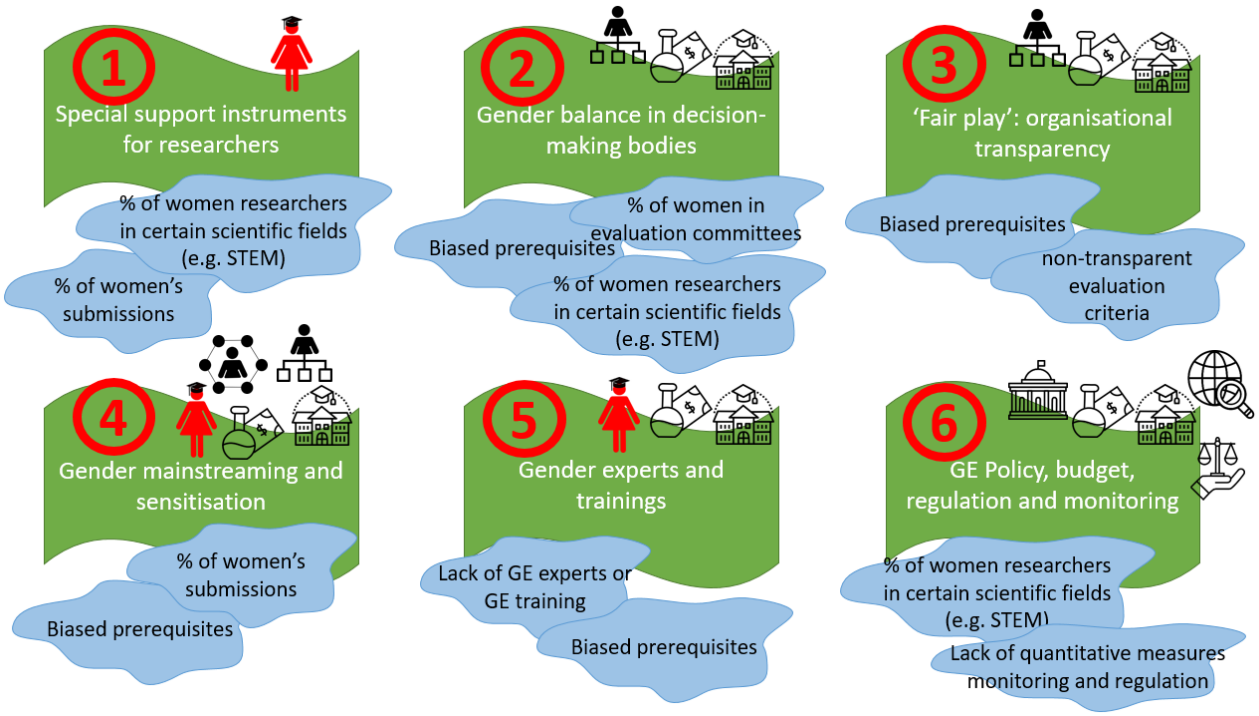

Figure 5: Aims and levels of implementation of the six types of gender-inclusive good practices

4 FIELD WORK METHODOLOGY

CHANGE is an implementation project aiming at two major problems which often characterise "gender in science" research projects: 1) the knowledge-to-action gap (described by Straus, Tetroe and Graham 2009) respectively the research-to-practice gap (discussed by Roxborough et al. 2007); and 2) feminist knowledge transfer and power issues (as described by Bustelo, Ferguson and Forest 2016). These problems have led in the past to a situation where despite enough evidence and knowledge provided by gender experts and scholars, strategies failed to translate this knowledge into actual practice in research performing organisations (RPOs) and research funding organisations (RFOs). The CHANGE approach therefore mainly addresses these issues in two ways. First, the approach is to engage actors and stakeholders from the beginning and to co-produce practical gender equality knowledge together, which is relevant for and will be understood by the respective actors in RPOs and RFOs. Second, transfer agents (TAs) and other stakeholders of RPOs and RFOs are directly involved in the project consortium to build regional communities of practices (CoPs). This idea has been tested in other knowledge brokerage and RRI projects and has proven as a very successful strategy to enable structural changes (cf. Karner et al. 2014; 2016; 2017).

The strategic recommendations in this report are therefore based on exauhstive data collection and field work in light of the abovementioned CHANGE approach. Meaning, through the field work the project's consortium members not only collected empirical data and evidence, but also established networks of research-funding-related stakeholders to co-create knowledge as well as practical solutions together. These networks are planned to become Communities of Practice (CoPs) where national knowledge will be co-produced in workshops and approaches will be shared with other funding organisations. Thus, we hope, good practices will be spread to enhance gender-inclusiveness in RFOs on broader scales – regional, national and beyond – even after the termination of the CHANGE project.

The field work consisted of three sequential parts:

1) RFO mapping
2) Expert interviews
3) RFO workshops

Each part was processed and analysed throughout the project's duration in multiple consortium meetings, brainstorming sessions, TA workshops and draft reports writing. All of these resulted each time with recommendations on strategic actions, which spirally evolved and were refined from session to session, and from one sort of data

collection to another sort. This 'spiral movement' of analysis and brainstorming enabled each consortium member to accommodate strategic recommendations suitable and feasible for their country. This chapter will focus on a summary of the three major parts of data collection and will demonstrate the results and recommendations of each country.

4.1 MAPPING OF GENDER IN RESEARCH FUNDING PROCESSES AND PROGRAMMES

At the beginning of this work, project partners were asked to examine and map the landscape of research funding in their countries, by identifying organisations that are engaged in research funding, whether RFOs, RPOs, policy makers, or funding-related stakeholders on local, regional, and national levels. All of these funding organisations are termed "RFO" in this report. A guideline was prepared for systematic "Mapping of gender in research programmes and funding" which was then included as an update for the overall "stakeholder mapping" executed by all partners.

The guideline provides a structured tool for identifying and categorising funding bodies for research funding and their relation to gender. The CHANGE researchers should consider different kinds of organisations in different types of research sectors, such as public versus private funding, joint research versus individual research projects, research grants versus individual scholarships, etc., depending on the situation in each of the participating countries. They should use additional tools such as national research programmes and funding websites, online toolboxes, EU sources about RFOs (e.g. European Institute for Gender Equality EIGE), as well as previous reports and literature from 'sister' GE-related projects. It was also recommended to categorise the different bodies according to their level of impact and level of potential interest or relevance to gender issues. By this, CHANGE members could start focus on possible 'allies' for their future CoPs.

The CHANGE members explored the kind of funding offered by the organisations. They considered the prerequisites and eligibility criteria for application and the level of GE-neutral language in their calls for proposals, and whether they were research grants or scholarships. In case available, they also explored the organisations' declared policy on gender, the availability of gender experts or gender practitioners within the evaluation processes, whether RFOs offer GE-related information or training to their personnel and evaluators, and whether they publish gender-segragated data reports on their websites. One further point for investigation was if the funding organisation directly relates its programmes and calls to gender issues, if and how gender balance is monitored in

research teams, and if gender is considered as a crosscutting issue for non-gender specific calls.

The RFO mapping in the six participating countries was completed in March 2019 and was integrated with the existing stakeholder mapping from the beginning of the project. It provided a solid basis of information for research funding reality in each country, as well as enabled partners to better identify suitable candidates for the next phase of expert interviews.

4.2 EXPERT INTERVIEWS

The second step in the RFO-related field work was to conduct expert interviews about gender in research programmes and funding. The aim of these interviews was to get in touch with funding organisations, get information about gender aspects in their policy and procedures and to complete absent or partial information gained through the previous step of RFO mapping. It also assisted the CHANGE partners with the identification of potential allies for further networking and establishing of Communities of Practice (CoPs) in each participating country, in light of the abovementioned CHANGE approach.

In order to support all project partners and to ensure a consistent and comparable implementation of the interviews, the CHANGE researchers prepared a guideline for the expert interviews and distributed it to the partners in August 2019. The guideline explained the background and presented suggestions and methodologies for conducting the interviews. It also included the interview questions.

Based on the initial RFO mapping, the CHANGE partners chose key persons in certain RFOs who were suitable and willing to be interviewed. The partners aimed at as much diverse and gender-balanced groups of interviewees as possible. Assuming that interviewees from different genders and with various degrees of gender expertise have different perspectives about the issue of gender in research, it was important to include all genders. All interviewees identified either as female or male, therfore the following graphs display only two genders.

Additionally, the CHANGE researchers locate interviewees from different kinds of research funding or performing sectors, funding organisations, positions, and hierarchy levels. Depending on their positions, employees have different insights about research funding processes and different capacities or authorities to support equal opportunities in funding processes. Experts are particularly interesting if they are generally involved in programme development. Consequently, special efforts were made in finding experts who are generally involved in programme development, both content and criteria wise, and thus are well informed about procedures and processes within their organisations.

In certain cases, especially in countries with a small number of RFOs, the partners carried out interviews with several persons within the same RFO.

In addition, CHANGE researchers also interviewed some political actors who offer research grants, prizes, or awards, ranging from regional governments to ministries (not only in the field of science, but also infrastructure, education, energy, health, etc.). Former evaluators, policy makers, or gender experts, with deep insights into research funding processes, could also provide valuable information, and therefore were interviewed in some cases as well.

During the period of November 2019 to April 2020, all participating project partners interviewed 62 women and men in research funding organisations, as shown in Table 2.

Table 2: Number of interviews

Country	
Austria	17
Germany	13
Israel	11
Portugal	5
Slovakia	9
Slovenia	7
	Σ 62

The distribution of the RFO interviewees according to different sectors, based on the the Frascati manual (see chapter 2.1), is shown in Figure 6.

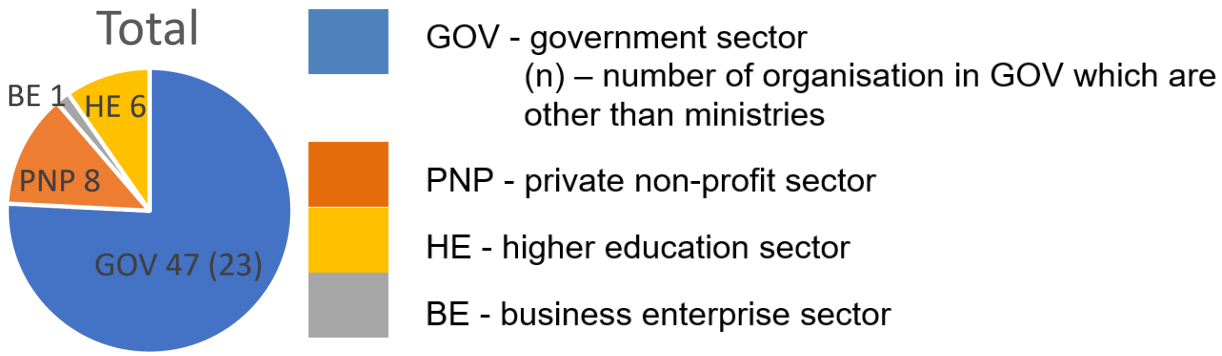

Figure 6: CHANGE expert interviews' organisations by research funding sector

A country-wise overview of the organisations where interviews were conducted is shown in Figure 7, while Figure 6 shows the legend and explanations for the charts.

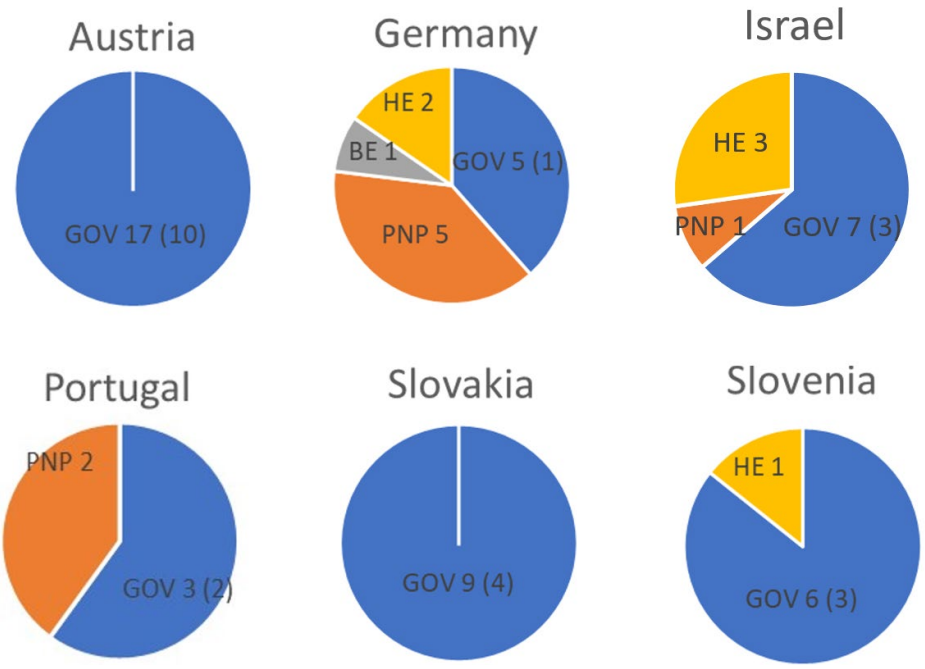

Figure 7: CHANGE expert interviews' organisations by research funding sector and country (see Figure 6 for legend)

Most of the expert interviews were held with people from governmental institutions, such as ministries or public funds, which are financed by governments. Governmental funds other than ministries are presented in brackets in Figure 7. CHANGE partners of three of the participating countries interviewed private non-profit organisations in addition to HE and GOV sectors. Only one interview was conducted with a business-enterprise RFO (in Germany).

In total, most interviews were held with women. 39 interviewees were female, and 23 interviewees were male. The distribution of female and male interviewees of each participating partner is shown in Figure 8.

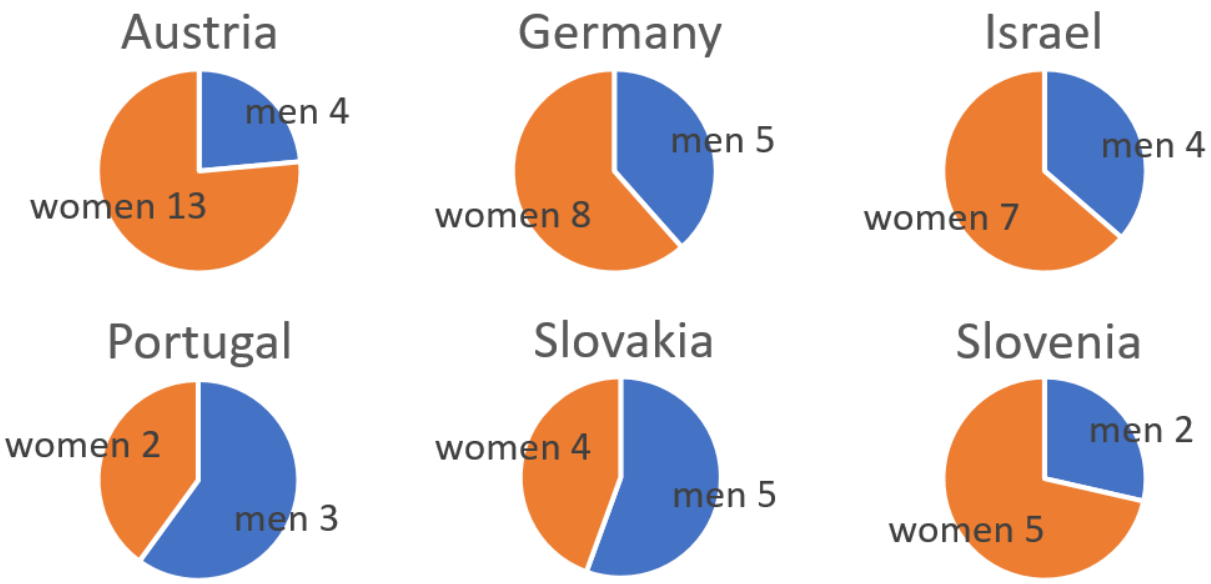

Figure 8: Distribution of female and male interviewees within the participating partners

An overview of the positions of all participating experts with explanation of their position classification is shown in Figure 9. The numbers in brackets are the number of gender experts and gender practitioners within each employee group. Gender experts are people who conduct gender research and are educated in this field (gender scholars), whereas gender practitioners often perform this work in addition to their actual work (gender equality officers). Of course, practitioners participate in training in this field.

Furthermore, the CHANGE partners also interviewed review experts with considerable experience in the field of evaluation and assessment of grant and proposal applications.

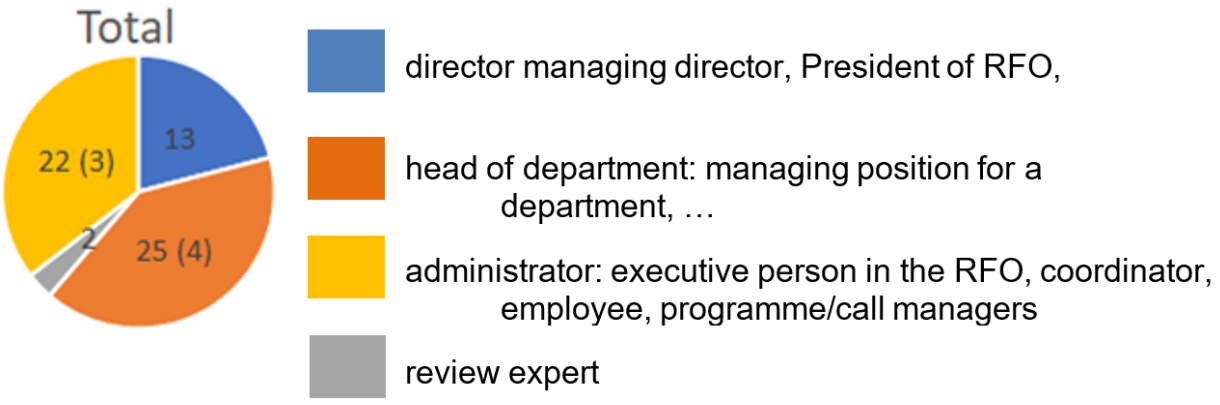

Figure 9: Position of the interviewees in their organisation
(n) – number of persons in each group who are gender experts or practitioners

As demonstrated above, about 61% of the interviews (38 out of 62) were implemented with persons in managing positions, whether at high or middle levels. About 35 % of the interviews (22 out of 62) were held with administrative persons. Meaning, almost all interviewees (60 of 62 – which are 96 % of all interviewees) are of managerial or administrative positions in their organisations. This figure supports the assumption, that the chosen interviewees are indeed key persons who are probably familiar with funding procedures and processes in their organisations, and therefore could contribute their valuable viewpoint on the gender aspect in that context. Within these two groups of managers and administrative employees, only seven interviewees are considered gender experts or gender practitioners in their organisations, but several other interviewees were indicated as having informal knowledge or relatively high awareness of the gender issue.

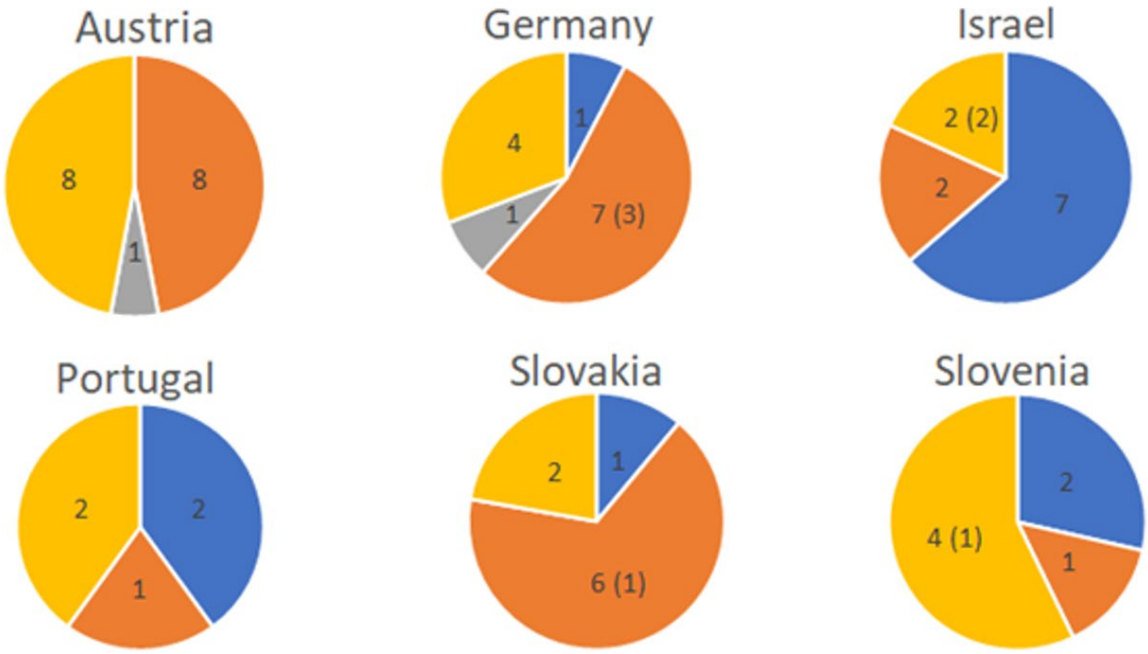

Figure 10: Position of the interviewees in their organisation within all participating partners (n) – number of persons in each group who are gender experts or practitioners

Figure 10 presents the positions of the interviewees of each participating country. As shown, in some of the countries most interviewees were of the executive or administrative level, whereas in other countries most interviewees were of the management level. This may be because organizations are set up differently in different countries. For example, RFOs in large countries have a much larger administrative apparatus than those in smaller countries. Accordingly, it is more difficult to get hold of executives.

Nevertheless, both the interviewees from the administrative and executive levels provided a good insight into the research structure of each CHANGE partner country; the executive ones more from a strategic point of view, the administrative ones from an application-related point of view. However, it seems that the very act of expert interviews could contribute to reflection and awareness rising in RFOs. That by itself could be a good start for structural change.

4.3 RFO WORKSHOPS

The third step of the field work was putting together six workshops with research-funding-related stakeholders in each of the particpating CHANGE countries. The aim of the workshops was to facilitate the initiation of national CoPs regarding gender in research funding processes and programmes in each of the respective countries. Additionally, the CHANGE partners were requested through these workshops to categorise gender-inclusive good practices and to develop further strategies, which are relevant to their national contexts. Following this co-production of knowledge from national RFO stakeholders, the CHANGE consortium including TAs, reflected and outlined strategic recommendations. Essential recommendations will be processed and summarised as policy papers or policy briefs for stakeholders in each of the participating countries, on how to improve gender-inclusiveness in research programmes and funding.

The six national stakeholder workshops took place between September 2020 and June 2021. A more detailed report on the formats and designs of the workshops can be found in deliverable 2.1 "Collection of workshop designs aiming at co-producing gender equality knowledge in science and research" of the CHANGE project. The invited stakeholders were some of the interviewees from the expert interviews phase, in addition to other RFO key persons identified by the partners in the RFO mapping phase. Persons affiliated to gender and/or funding processes in general, such as policy makers, gender experts or researchers in RPOs attended as well, contributing to diverse and multifaceted perspectives on the issue. In total, 82 stakeholders participated in the six workshops, as shown in Table 3.

Table 3: Number of stakeholders in CHANGE RFO workshops

Country	
Austria	8
Germany	23
Israel	10
Portugal	20
Slovakia	9
Slovenia	12
	Σ 82

The distribution of participants by research funding sector of their organisations and by their gender is depicted in Figure 11 and Figure 12 respectively. As demonstrated, about 75% of the participants were female and about 25 % male. Almost all participants were stakeholders in organisations from either GOV or HE sectors. Interviewees from the expert interview phase who had already shown interest during the interview process were invited as participants. In addition, CHANGE partners invited other individuals they met through newly established networks during the course of the project. Participants were selected based on their expertise, potential contribution, but also their availability and willingness to participate in the effort. In this regard, it was somewhat challenging in some cases to invite representatives from research funds, research agencies, or ministries, some of which were not available. In such cases, the RFO workshops resulted in more "bottom-up" strategy recommendations from participants who are "consumers" (rather than "donors") of research funds. In other cases, where more participants were from the "donor" side of funds, the workshops resulted in more "top-down" strategies and recommendations.

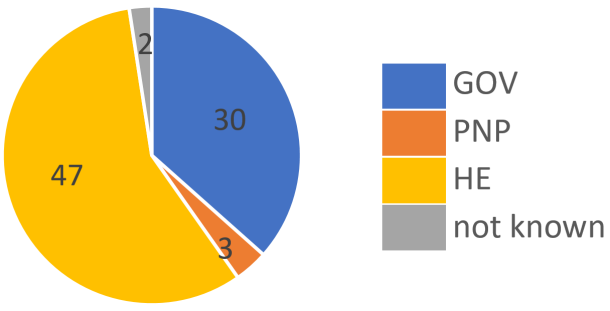

Figure 11: CHANGE RFO workshops' participants, by research funding sector of their organisations

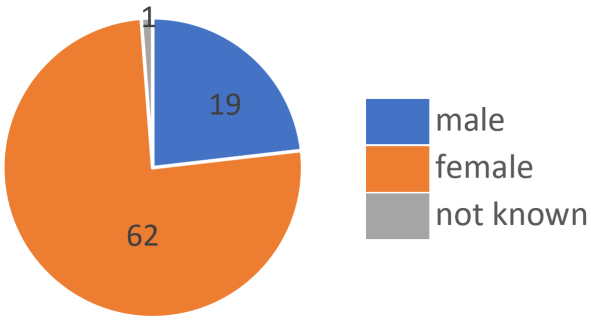

Figure 12: CHANGE RFO workshops' participants, by gender

CHANGE partners designed and moderated the content and framework of the workshops based on methodological guidance from the project leaders and in accordance with national contexts and COVID conditions. All workshops included presentations of good-practice examples of gender-inclusive research funding programmes from the respective countries or other countries. Almost all workshops included small group sessions as well, where participants were given the opportunity to reflect upon the good-practice examples and discuss if and how they are applicable to their countries. Alternatively, they could brainstorm or develop their own ideas for GE strategies in funding programmes and processes. The combinations of 'formal presentations' by experts and smaller group discussions provided a mixture of formal and informal settings, thus enabled serious but also free, interactive and open discussions on the topic. Most partners found the workshops effective and fruitful, in terms of adding valuable inputs to the data that had been collected in previous stages. They also pointed out the pleasant atmosphere, peer learning, meaningful interaction, and active participation as some of the advantages of the workshops. A point to consider, however, is the fact that the RFO workshops were a one-time event only. Therefore, they could initiate CoPs, but certainly not maintain them in the scope of this particular project. Nevertheless, in many of the participating countries, a kind of follow-up communication did occur, by enabling some participants to give their feedback on the national-level draft strategic recommendations. Furthermore, communication and feedback was performed either by addressing representatives from the Standing Working Group on Gender in Research and Innovation in some of the CHANGE participating countries, and/or by inputs given from some relevant RFO representatives or experts in the field of the recommendations.

5 RESULTS

Although each partner country has its unique cultural context regarding gender equality, the manifestation of gender barriers, as well as good practices in research funding, does share some commonalities between countries. This section portrays some differences and commonalities, in order to lay the foundations for a focused analysis and policy recommendations in each of the CHANGE partener countries. First, this chapter will present and compare basic figures regarding GE and R&D indicators in each partner country, compared to EU averages. Then it will outline unconscious barriers or biases that might hinder women in research funding processes, as identified through the field work of the CHANGE partners, followed by three good-practice examples from three of the six participating countries.

5.1 FINDINGS AND HIGHLIGHTS FROM MAPPINGS, INTERVIEWS AND RFO WORKSHOPS

5.1.1 National contexts of gender in research funding

The research funding landscape of the CHANGE countries (Austria, Germany, Israel, Portugal, Slovakia and Slovenia) is very diverse. Each country has different research funding structures and mechanisms embedded in different traditions and cultures. Moreover, in each country research is considered differently, with regard to its interrelations with higher education promotion criteria or other aspects of scientific acknowledgement. In the scope of this report, it is not possible to encompass all socio-economic and cultural aspects of science and research in each of the CHANGE partner countries. However, the report demonstrate a few indicators that might suggest reasons for these differences, and therefore can lay the base for policy recommendations to promote gender equality in research and innovation (R&I) funding processes in each country. It is important to note, however, that focusing solely on certain quantitative indicators (especially the share of women in grade A positions) might be, as mentioned in sister project GENDERACTION, *"too limited to provide meaningful information for the assessment of progress towards gender equality in R&I"* and *"allows gender equality be reduced to female representation".* That is why it is suggested to base one's assessment on multiple data sources and indicators (Wroblewski 2022). In the scope of the CHANGE approach, we have implemented this principle, by analysing both quantitative and qualitative data, but mostly by co-creating the knowledge with stakeholders and transfer agents through expert interviews, workshops and brainstorming sessions.

The gender equality profiles of the CHANGE partner countries were excessively analysed in a gender benchmarking report through the examination of various indicators within social, economic and political contexts (summary of the report see: CHANGE, 2018).

In this report, the CHANGE researchers expand the analysis and focus on the following GE and R&I funding indicators (see Table 4):

- The Gender Equality Index takes values between 1 and 100 and shows how close a country is to achieving a gender-equal society (ideal = 100). Differences to the negative of women and men are considered equally damaging. The index is calculated by the European Institute for Gender Equality (EIGE), an agency of the European Union.
- The Global Gender Gap Index from the World Economic Forum (World Economic Forum 2021) is calculated from 14 social indicators in the four areas of economy, education, health, and politics in order to quantify the gender gap. The index value is to be understood as a percentage of the equality achieved so far (e.g. 0.742 means that women have achieved 74.2 % of the status of men).
- Four additional indicators from the SHE Figures
    - Percentage of women among doctoral graduates
    - The Glass Ceiling Index (GCI) is a relative index comparing the proportion of women in academia (grades A, B, and C) with the proportion of women in top academic positions (grade A positions; equivalent to full professors in most countries) in a given year. The GCI can range from 0 to infinity. A GCI of 1 indicates that there is no difference between women and men in terms of their chances of being promoted. A score of less than 1 means that women are more represented at the grade A level than in academia generally (grades A, B, and C) and a GCI score of more than 1 indicates that women are less represented in grade A positions than in academia generally (grades A, B, and C).
    - Women to men ratio of authorship in all fields of R&D
    - The funding success rate presents the differences in the success rate of women and men applying for research funding in 2019. This funding success rate is calculated as the number of beneficiaries of a research grant over the number of applicants. Positive values indicate that the success rate for women was higher than the success rate for men.

Table 4: Research and innovation indicators – comparison between the partner countries

Indicator	EU average	Austria	Germany	Israel	Portugal	Slovakia	Slovenia
Country innovation profile (European Commission 2021)		strong innovator	strong innovator	strong innovator	moderate innovator	emerging innovator	moderate innovator
Gross domestic expenditure on R&D as % of GDP (OECD 2021)	2.12%[6]	3.13%	3.19%	4.93%	1.40%	0.83%	2.05%
Gender Equality Index (EIGE 2021)	68	68	68.6	n/a	62.2	56	67.6
Global Gender Gap Index (World Economic Forum 2021) [rank out of 156 countries is indicated in brackets]		0.777 [21]	0.796 [11]	0.724 [60]	0.775 [22]	0.712 [77]	0.741 [41]
% of women among doctoral graduates (SHE Figures 2021, Figure 2.1 p. 27)	47.80%	44.0%	45.2%	53.1%	52.9%	49.2%	54%
Glass ceiling index 2018 (SHE Figures 2021, Figure 6.6 p. 194)	1.59	1.55	1.33	2.33	1.71	1.74	1.39
Women to men ratio of authorship in all fields of R&D, 2013–2017 (SHE figures 2018, Figure 7.1 p. 138)	0.55	0.44	0.41	0.52	0.78	0.61	0.59
Research funding success rate differences between women and men, 2019 (SHE Figures 2021, Figure 7.12, p. 259)	-3.6	-7.2	-0.20	-2.7[7]	-2.9	-7.7	0.4

The figures show how difficult it is to analyse gender gaps in research and innovation, and especially research funding, solely based on quantitative data. Positive correlation has been proven between the Gender Equality Index and the European Innovation Scoreboard (Wroblewski 2022). Still, in the case of the CHANGE countries, it seems that there is not always a clear connection between a country's innovation profile and the extent of women's participation in R&D activities or the probability of access to research

[6] EU27 from 01/02/2020
[7] Funding success rate differences, SHE figures 2018, Figure 7.13 p. 173

funding for these activities. For example, Israel is considered a 'strong innovator', yet ranked relatively low in the Global Gender Gap Index (There is no Gender Equality Index available for Israel; therefore we base our observation on the Global Gender Gap Index). Slovenia, on the other hand, is considered a 'moderate innovator', yet has a relatively high Gender Equality Index score very close to the EU average. Germany is considered a 'strong innovator' with higher than EU average Gender Equality Index, and a good rate according to the Global Gender Gap Index, yet according to the SHE Figures women there have the worst funding success rates compared to the other CHANGE countries.

All partners, except Austria and Germany, have higher than EU average female doctorate graduates, very close to or exceeding 50 % of the total doctorate graduates in each country. In fact, based on the Global Gender Gap Index it is quite clear that all CHANGE countries demonstrate high scores in the education dimension, indicating high potential of women researchers in general. In addition, according to the European Innovation Scoreboard 2021 three of the six partners are defined as 'strong innovators' (Austria, Germany, and Israel), indicating positive and prosperous economic potential and multiplicity of research opportunities for both women and men researchers (see Table 4). However, a closer examination of the SHE figures reveals that this promising scientific and economic potential is not fully realised when considering women researchers. The glass celling index of all partner counties is higher than 1. In fact, women researchers in Israel, Portugal, and Slovakia face even higher than EU average glass ceiling index in academic promotion. In all six countries, women are less likely than men to be authors of scientific publications, and in four of the six countries, women are significantly less likely than men to receive research funding when they apply for it. Regarding the CHANGE countries, the Global Gender Gap Index suggests that gender gaps are more evident in the economy and politics dimensions than in the education dimension.

In summary, it seems that regardless of economic capital, scientific capacity, or gender-inclusive good practices in some cases, gender gaps in research funding still prevail across the countries. Therefore, an examination of quantitative as well as qualitative data is required in order to establish better understanding of this kind of connection between research capacity, research funding, and attitudes of RFOs towards GE policies. A more detailed analysis of the national contexts will be specified in chapter 6 – recommendations for each of the CHANGE countries.

5.1.2 Barriers and biases

This section will provide a qualitative analysis based on the field work by the CHANGE partners, including RFO mapping, expert interviews and workshops. Examples for all the categories of barriers and biases that were compiled in the CHANGE typology (Figure 4)

are presented. Quotes from interviewees in the expert interviews are marked in light green, anonymised and coded according to the following key:

The coding begins with the abbreviation for the respective country (AT=Austria, DE=Germany, IL=Israel, PT=Portugal, SK=Slovakia, SI=Slovenia) conducting the interview. The second section identifies the research funding organisation. The third part indicates the gender of the person interviewed and at the end of the coding, the number of the expert interview out of the total number of interviews per country is given.

An example of this is the following:

AT_RFO3_F_EI5
(Austria_research funding organisation no.3_Female_Expert Interview 5)

For GDPR reasons, additional insights from RFO mapping or workshops will be presented as general and integrative statements, with no indication of specific country.

5.1.2.1 Lack of policies and legal instruments

A major obstacle towards gender equality in research funding processes is the lack of gender policy or legal instruments:

> *"First, we need to have the instruments to allocate funding, one cannot think about attributing funding to a certain group to do whatever they want. It does not work like that, right? And so, we need to have the legal instruments to frame the funding. (...) So, the action of [this institution] is to act within the legal obligations that we have, within the political obligations or wishes of the political strategy that we have to follow, and then, according to the budget we have, we see how we can act. (...) The processes are all equivalent. Again, they must have a fixed, defined legal basis. So, when you think about starting an instrument you have to create the legal basis for that instrument, namely a regulation. The regulation for scientific employment, for example, or the regulation for grants, for example. Everything has a regulation (...)."* (PT_RFO02_F_EI01)

> *"Yes, this would be an effect of improvement. When the topic is stabilized and you do not have to run after people with your vendor's tray ... I for instance gave up to run after people and look where else can I add the gender dimension? This was so incredibly cumbersome and everybody was reluctant and it was so tiring. And with those governance instruments and because it became a legal requirement, ... this has changed something."* (AT_RFO01_F_EI01)

If legal instruments are absent or partial (as often happens when transferring from the national or federal level to the regional or local level RFOs), then policy implementation becomes either voluntary or non-existent:

> *"There is a supportive policy but no concrete implementation. We can recommend, but our recommendations aren't always accepted (...) The committee is autonomous and is committed firstly to quality."* (IL_RFO3_M_EI03)

Interviewees from all countries see the benefit of gender equality-oriented regulations, but those from smaller or 'moderate innovators' countries value its potential even more, as a compulsory instrument to get EU funding:

> *"(...) the idea is that this [*cheklists] in the end can provide the management authorities and who decides on this, to perhaps produce more effective documentation that compels or prepares the promoters on aspects that need to be taken into account in the future to have access to community funds. Because it does not hamper applications now, but there's no guarantee that the European Commission will in a while say 'attention, if the promoter does not comply with EU rules on gender equality, or practices that discriminate on the question of sex', (...) may say 'not eligible'."* (PT_RFO03_M_EI01)

It is interesting to note, that the interviewees admit the fact that intrinsic motivation towards gender equality is highly driven by extrinsic motivation, whether formal regulation or peer commitment:

> *"Of course, we are intrinsically motivated in our efforts to promote women in research as well. But we do this in agreement with our cooperation partners in science: as all research organisations which apply for our grants, anyway committed themselves in order that women will be employed and supported in the projects." (DE_RFO02_M_EI02)*

In summary, a lack of formal gender policy and gender regulation is perceived as a major obstacle towards gender equality in research funding processes. RFO seniors seem to need formal authority and significant regulative tools in order to adjust the system to gender equal requirements. Regulation is an effective tool to create an organisational culture, ensure peer commitment, and even utilise peer pressure. Organisations will tend to follow in the footsteps of other organisations from within their own professional community. In that sense, regulation can be not just an enforcement tool, but an educational and cultural tool as well.

5.1.2.2 Excellence and meritocracy

All interviewees agree that the leading principle of their organisations must always be scientific and academic excellence. Moreover, the experts often regard gender equality considerations as a 'threat' to 'excellence':

> *"The focus is on our work ethics. Gender is not an issue. What is important is the quality of the researchers. I can't tell about men and women figures. It's not a criterion we focus on."* (IL_RFO2_F_EI02)

> *"The committee is autonomous and is committed firstly to [*academic] quality."* (IL_RFO3_M_EI03)

> *"We don't refer to gender on purpose."* (IL_RFO1_F_EI01)

> *"The only principle which can be applied in case we want to advance is the principle of the quality. Applicant is for me anonymous. I need to know if the project is of good quality…"* (SK_RFO6_M_EI08)

> *"During the recruitment procedure gender is not taken into consideration, priority is given to the competence of individuals."* (Sl_RFO1_F_EI01)

> *"The foundation has this concern of rigour and rewarding merit because it wants to have the best product (…)"* (PT_RFO03_M_EI01)

The problem is that it is difficult to define and quantify excellence as well as who is considered an expert to determine the level of excellence. Thus, the "excellence" precondition often remains vague, and evaluation committees are quite autonomous to decide on that without questioning their decisions.

Another aspect of the excellence issue is that women want to be granted for their qualifications and not their gender, and that men might feel discriminated in case of gender affirmative actions.

5.1.2.3 Lack of gender awareness, training, and expertise

Some RFOs do not employ gender experts or gender sensitisation tools. Either they do not seem to perceive them as necessary, or they are confident they are educated enough to overcome any possible biases:

"In this sense I see myself as a gender expert. This has to do with my biography: I was in various positions (...). There is no organisation in which promoting of women is not an important issue." (DE_RFO02_M_EI02)

"We don't have gender experts in the organisation. Among our (...) partners affirmative action is distinctly taken by administrators who are also scientists (...)." (IL_RFO3_M_EI03)

"Use of gender sensitive language might be challenging because of formal grammatical rules." (Sl_RFO2_M_EI04)

However, some interviewees do admit in retrospect, that gender biases exist, which they were not aware of earlier in their career paths:

"For many years I've been oblivious to the gender issue. My interpretation was related to the hierarchy between [...] professions [...] I failed to perceive it [...] as a gendered hierarchy attitude." (IL_RFO8_F_EI08)

*"(...) nobody has ever prepared me or explained to me about the criteria [*of promotion]. [...] In retrospect I understand there were gender barriers."* (IL_RFO8_F_EI08)

"The transformation happened in (...) an international conference (...). During lunch I realized how comfortable it was to have a lot of women around and what I had been missing. I came back (...) committed to the gender issue; due to this emotional shift I had experienced." (IL_RFO8_F_EI10)

"Gender bias originates from the unconsciousness. I am well aware of the significance of gender bias." (IL_RFO5_M_EI05)

Another example of the lack of gender expertise among RFO representatives is the fact that some of them confuse gender equality with the presence or percentage of women. Therefore, when facing high percentages of women in certain domains they fail to see the 'problem':

"(...) We have here, clearly, a predominance of female leaders. (...) clearly, we have exceeded any quota that would be established. Therefore, it is an institution that has a practice of gender equality in its daily life, no training is needed, no specific concern is needed, because, in fact, this has occurred in our current practice (...) It has occurred naturally, without imposition, yes. (...) we [women] are, in fact, largely dominant (...)" (PT_RFO04_F_EI02)

> *"However, when you look at it pragmatically, the general director is female and was in the past, her deputy director is female, the financial manager is female. The female ratio in our agency is about 55-60% from 350 employees. Male- female is not a problem here."* (SK_RFO6_M_EI08)

An additional bias is a general antagonism towards gender and feminism. This might pose implicit and unconscious barriers to women or to those who would like to speak openly on this matter:

> *"... it is still a challenge to bring equality-focused projects forward, because there exists an institutional bias towards equality oriented, feminist research projects. The reason therefore lies in the committees ... This is a structurally conservative organisation although it is progressive in its whole spectrum, however as an institution it works conservatively and this indicates the mentality of this house."* (AT_RFO08_M_EI08)

> *"It's not a problem to lead a discussion about the gender wage gap and I don't know about whatever else. But the language, there is a strong resistance... Generic masculinum [= usage of male form of nouns for both genders] is literally a sacred cow."* (SK_RFO3_F_EI04)

5.1.2.4 Biased evaluation processes, non-transparent criteria

A crucial milestone in the research funding process is of course the evaluation phase, where major decisions are made with regard to submission approval and grant funding. The first evaluators' bias is similar to the abovementioned section regarding gender awareness and expertise. Evaluators, as other RFO seniors, often consider themselves objective, professional, qualified, and self-educated about gender. Therefore, they fail to understand the necessity of gender experts in the committees or their own need to get gender unconscious bias trainings. Seldom do they admit in their own bias (see the second quote):

> *"Evaluators get just very detailed written instructions for evaluations, but no instruction on other topics that might influence the outcome of evaluation."* (Sl_RFO2_M_EI05)

> *"The criteria of evaluation are well defined, but maybe there is some inequality toward younger researchers, compared to senior."* (Sl_RFO2_M_EI02)

> *"We analyse the reasons why a call was unsuccessful (low number of applicants or no applicants) and try to improve the quality of the criteria for the next calls."* (Sl_RFO4_F_EI06)

A second bias within the evaluation committees is the low percentage of women evaluators. This is of course the result of a vicious cycle: low percentages of women in certain scientific fields lead to fewer potential women evaluators, and consequently (due to the inherent unconscious bias) to lower percentages of funded women researchers:

> *"In committees we make an effort to appoint as many women as possible. (...) it's not always possible to do. Sometimes there is overload on senior women, and we try to balance it. There is a tension between their managerial responsibility and their other duties. We try not to overload them just because they are women." (IL_RFO4_M_EI04)*

A third bias is the fact that the evaluation process is sometimes not applicant-blind and that the 'evaluators' pool' is rather limited, whether due to the country size, language of proposals, or professional field of expertise. The result of this bias is that in many cases evaluators and applicants are familiar with each other, leading to higher risk of biased evaluations.

> *"[Country name] isn't that big. People know each other."* (SK_RFO6_M_EI09)

> *"Simply said there are not enough people for euro funds. You are not able to find them "on the street"; they are not able to learn it [the job] in few hours or days."* (SK_RFO1_M_EI06)

The fourth bias encompasses non-transparent evaluation criteria. Results from the research prepared in CHANGE showed that evaluation criteria of proposals are sometimes neither transparent, nor clear, nor measurable. Therefore, it is difficult to trace or criticise any biases in them, whether gender-related or others:

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> *"Well, we do not have such a formalism, we submit the proposal to the evaluator and he evaluates that then. So we do not have any criteria, but rely on the expertise."* (AT_RFO05_F_EI17)

> *"The evaluation process is carried out by random drawing of evaluators from the [*proper name] database in the presence of notarial supervision." The quality as the highest (and only) evaluation criteria has been repeated more times."* (SK_RFO5_M_EI07)

Non-transparency prevails not only in criteria, but also in publication of segregated data, in notifying rejection, or in general attitude and openness to external inquiry:

*"There are many anomalies with [*country name] research funding. In general, the mentality is not open and the whole funding system is very rigid."* (Sl_RFO3_M_EI03)

"Notification about rejection of proposal is not transparent and very bureaucratic – there is a template of notification about rejection and you need to change only the name of applicant and title of the project." (Sl_RFO1_F_EI07)

These observations apply for both research funding and academic promotion processes. Promotion criteria in academic institutions are interrelated with research funding processes, since in order to apply for funding programmes one has to be in many cases a senior academic staff member or affiliated with an academic institution. In the case of academic promotion criteria might even be vaguer and more informal than those of research funds:

*"We found out that no matter what academic rank you have, [*women] usually don't know how the institution functions, how decisions are made. Few women know, but most of them don't. For men it's different, because they are part of the system [...] We found out that even senior women [*staff members] simply don't know, whether because they are preoccupied with survival, or because they didn't need the Appointment Committee to get their current jobs etc. The knowledge doesn't flow in the network. Networks function differently for men or for women."* (IL_RFO9_F_EI11)

*"We can think about a different evaluation system. The classic system of evaluation is much more suitable for mono-disciplinary topics; It is narrowing and indirectly damaging. [*However,] I think that criteria for professorship must be identical. Researchers compete in the international arena on their research reputation, not their teaching reputation."* (IL_RFO8_F_EI10)

5.1.2.5 Low percentages of women in certain scientific domains

Similar to lower percentages of women in evaluation committees, certain domains of science and technology are known to have lower percentages of women researchers, which (along with other biases) will follow with low percentages of women's submissions or applications in those domains:

"...There are not so many women entrepreneurs." (IL_RFO5_M_EI05)

"Justice can only be achieved on the funding side if justice is obtained on the applicant side. This will not be the case if not more women do come to positions of responsibility and submit more applications." DE_RFO1_F_EI01

"I once suggested a programme for clinical professor track – it was one of my struggles in the university, to enable other professions a clinical-track; not a single woman has ever applied for this programme." (IL_RFO8_F_EI08)

5.1.2.6 Lack of supportive instruments or environments for women

Some funding programmes pose prerequisites that are likely to be more limiting for women - such as a maximum age for application, a rigid timeframe to complete the research, or mobility requirements (e.g., post doctorate abroad). Since in many cases women are still the main caregivers for their young children or elder family members and face more challenges regarding life-career balance, they are more likely to renounce applications or make other career choices to adapt to their other life obligations.

*"On a personal level, [*managing] home and a clinic and academia was too difficult, that's why I made a career change."* (IL_RFO8_F_EI08)

*"We have learned that the source of the problem is the spouse's position. […] A male scientist's mobility with his family is much more common and accepted than a female scientist's […] Women don't even get to the point where they raise and discuss the question of mobility. [*postdoc abroad]"* (IL_RFO6_M_EI06)

"The most crucial barrier is the phase of building a family and (in)equality in domestic duties. Not every partner (husband) gives full support to the wife or is aware and willing to accept and equally contain this situation. This is the key factor." (IL_RFO1_F_EI01)

Moreover, because of their workloads and less networking and suporting mechanisms, women might have less time or fewer resources for research:

"Women work at several jobs and this gap is increasing […] Women's overtime is never counted, for instance. There are always differences. A well-known practice is to assign women to unrewarded "transparent jobs", e.g. unifying jobs by personnel reduction, giving a woman double-job duty, instead of hiring two people to do those duties, resulting in an unbelievable workload. Consequently, she doesn't have enough time to research and publish articles, having bigger crews to manage etc." (IL_RFO9_F_EI11)

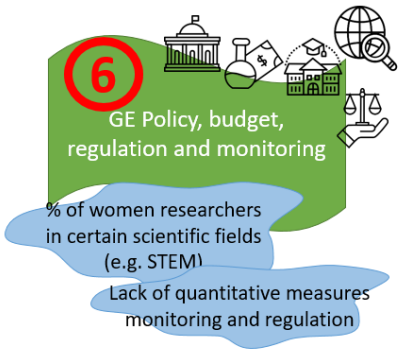
*"The bottom line is that men get more [*research funds] than women […] the problem is […] the proposals submission phase. Therefore, the*

*[*intervention] work should focus on the [*submitting] institutions. Are women in those institutions networked and know exactly what to do? Do they need assistance with managing the submission, maybe a research assistant etc."*
(IL_RFO9_F_EI11)

5.1.3 Good practice examples

The next part of this section presents three good practice categories, which are analysed according to the suggested model in order to evaluate its effectiveness in providing a good enough generalisation for discussion and analysis.

5.1.3.1 Gender policy, regulation, budgeting, and monitoring on the national level (Germany)



Almost all interviewees describe gender equality-oriented policies and legal instruments as the most powerful and effective tools to assimilate gender equality in their funding processes:

*"The presence of women in research should be taken into consideration as one of the [*budgeting] parameters. This should give results (...)"*
(IL_RFO8_F_EI10)

"That is because we are responsible for implementing the law...we are required to fill the positions with women on a regular basis. And this is also evaluated quite well...how many women we have...this is published. So there is also a sensitisation." (DE_RFO3_F_EI03)

In Germany, research funding on the federal level is an example of good practice of regulation and monitoring, as follows:

- The highest national ministries are strictly obliged by law and are therefore forced to have a distribution of 50:50 between women and men.
- All funding organisations (beside the industrial-based funding organisations) are monitoring their numbers regarding the distribution of women and men.

- Information especially from the monitoring of public funding organisations: In the past 10 years, the numbers have changed significantly and more women are present.

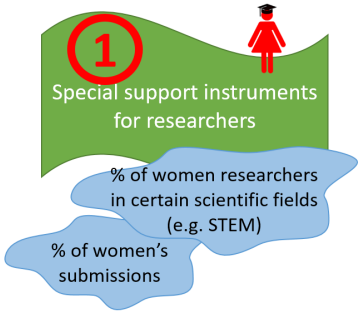
The advantage of this practice is that it is obligatory by law and that all public institutions comply with it, a fact that bears fruits in terms of increasing rates of female presence in research:

> *"All the department heads have to answer questions and the quotas are thrown up ... for each department, where they stand and how they want to achieve the goal. From then on, all managers are sensitised and asked to do something. This is already very much on the agenda. But this is only for in-house...This is what needs to be implemented here in the house and where I would say that every manager is aware of."* (DE_RFO3_F_EI03)

> *"The chair remains empty, if no woman is found, it is not filled by a man, but the chair remains empty. This is due to the changes in the last amendment of the Federal Equality Law and it is bearing fruit. "* (DE_RFO4_F_EI05)

This good practice can be identified as category no. 6 – policy, regulation, and monitoring. As mentioned above, its advantage is being mandatory for public institutions and therefore effective. Moreover, its success indicators are clear and measurable. The weakness of the tool might be in it being implemented (or rather enforced) externally. Meaning, there seems to have no attempt to raise awareness or to educate employees about gender through gender or mainstreaming. In summary, the public institutions comply with the rules, but do not seem to internalise the gender issue in their organisational culture. That means that once there is no mandatory regulation (as is the case with industrial funding organisations) no steps towards gender equality are initiated.

5.1.3.2 Supportive postdoctoral programmes for women researchers (Israel)



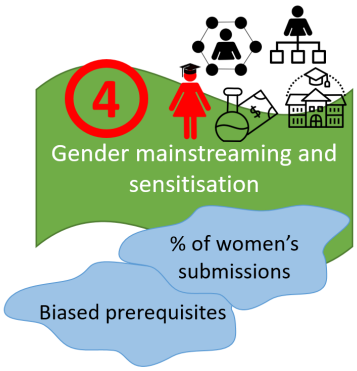
Out of the organisations which were examined through expert interviews, two organisations in Israel operate good practice post-doctoral programmes for young excellent female researchers in the field of life sciences. The aim of these programmes

is to assist young women to relocate abroad, by funding both them and their spouses, thus supporting their families as a whole:

> *"We have learned that the source of the problem is the spouse's position. There is no difference in the abilities of men and women. [...] We have realized that when a man has to go [*abroad] to his postdoc, [...] A male scientist's mobility with his family is much more common and accepted than a female scientist's [...] Women don't even get to the point where they raise and discuss the question of mobility. [*postdoc abroad]" (*IL_RFO6_M_EI06*)*
>
> *"Women don't have a problem in finding a place for their post-doctorate. We decided to add a scholarship of 25 thousand $ [*to the husband] to make it easy on the family to economically adjust to this change. We have found out that this tool encourages women to go to postdoc. This programme has been operating for the last 12 years and has impressive achievements so far."* (IL_RFO6_M_EI06)

This good practice is identified as category no. 1 – special support instruments for researchers. This practice contributes directly to women researchers, and in that aspect is very effective in promoting the careers of the granted women. However, it is very specific and aimed at a certain sector within all women researchers – only young female researchers in their postdoc, and only in the STEM fields. Therefore, the impact of this practice is rather narrow, and should be broadened by other types of good practices in order to make a more visible change in the research and academia landscape in the country.

5.1.3.3 Comprehensive programmes of gender mainstreaming (Austria)



Out of all the countries participating in CHANGE, Austria demonstrates the most comprehensive gender mainstreaming in research programmes on the national level. These programmes are of course a combination of several good practices and tools. The following example demonstrates the implementation of gender mainstreaming (category no. 4) in all areas of one organization's research support.

Beside funding instruments specifically directed towards supporting women in R&D, gender issues represent an integral part of the standard criteria for funding, which the RFO applies for any type of its managed programmes. This means that gender issues are considered in the project evaluation as part of the assessment of social aspects of R&D projects, which embrace criteria such as the value of society, the level of qualifications, labour and social law norms, etc. This was initiated in 2010 for funding within a basic programme, and was then stepwise expanded to all other programmes in order to foster equal opportunities for women and men (thus not focused solely on women). The evaluation criteria include gender aspects in the project content and potential impacts, gender-balance in the project team, and gender-balanced working conditions. The quantitative weighing of gender related evaluation criteria varies between different programmes, in average it counts for 10% of the overall evaluation. However, in case shortcomings are detected, adequate measures are required to be implemented by the projects, which are in consequence also monitored in the scope of project progress evaluations. In one programme five goals are evaluated, one of them is focused on human resources, which comprises career models in the respective competence centre and gender equality, which needs to be tackled with a gender equality plan. One interviewee explains how RFOs can increase gender equality in research with such an instrument:

> *"However, we do have indicators for human resources as well. Generally, about the structure of the centre, how many persons are there, but we also take a look at how many female researchers are there. And if we see that these are not very ambitious goals, then we … with our jury … set the goals higher, … each RFO has this leverage. When we do not get what we want then there is no money flow. … And yes we are connecting such requirements with paying the instalments. And our competence centres must be a limited liability company. And this means this is connected to liquidity, … so this is really critical, if the money would not come, and we handle this with care, because we do not want to – and we never had a case – that a centre gets problems with their liquidity, but we can make pressure. Yes and then we receive the gender concept and we let them evaluate internally."* (AT_RFO02_M_EI06)

So, if gender mainstreaming is not already part of the initial concept, this has to be considered at the midterm review, and the organisation evaluates this with concrete indicators, which are dependent on women's share in respective disciplines, etc. Only then the next part of the budget is paid. To support the research centres in developing a gender mainstreaming concept they can additionally request funding for external gender expertise and implementation of a gender equality plan.

6 RECOMMENDATIONS

6.1 AUSTRIA

(Anita Thaler, Sandra Karner)

Austria declared in 2011 the aim of becoming an 'innovation leader' within the European research landscape by 2020 (Republik Österreich 2011). According to Statistics Austria, the Austrian national statistics office, in 2019, 12.8 billion euro had been spent on research and experimental development in Austria. The gross domestic expenditures on R&D as percentage of the nominal gross domestic product (GDP) – representing the research intensity – has increased from 3.05 % in 2015 to 3.19 % in 2019. This is the second highest share spent on R&D (behind Sweden) in the EU (Federal ministry of education, science, and research; federal ministry of transport, innovation, and technology, and federal ministry of digital and economic affairs, 2019). In Austria, the total budget for research and development comprises 12.69 billion euro, 3.66 billion euro from that total budget stem from public funding and 6.04 billion euro from Austrian companies. As a logical consequence the largest proportion of research expenditure is with 69.9 % in the BE sector and the HE sector is far behind with 22.4 % the GOV sector accounted for 7.1 % and the PNP sector 0.5 % (Federal ministry of education, science, and research, et al. 2020; see Figure 13).

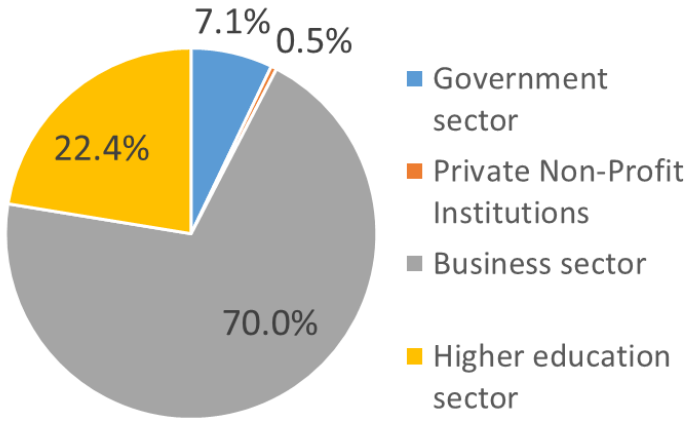


Figure 13: Proportion of research expenditure in Austria by sector in %
(source: Federal ministry of education, science, and research, et al. 2020)

Promoting gender equality in research has been explicitly mentioned in the Austrian Research and Technology Report:

> *"Women have represented over 50% of university graduates in Austria since 2000, but they are still under-represented in many areas of research, especially at higher hierarchical levels, in industrial research, in many natural sciences, and in most engineering sciences. The RTI strategy*

therefore included the goal of gender balance amongst those involved in research work." (ibid. p. 111)

This is defined by three actions (ibid. p. 112):

1. Gender budgeting in all research funding measures.
2. Individual support measures for early stage female researchers.
3. Measures to improve compatibility between career and family.

However, although this strategic aim and its actions have been declared in 2011 already, gender balance (let alone gender equality) is still not reached: Austria's share of women researchers is with 29.5% generally below the EU average (33.4%). But while the share of women researchers in the higher education sector is 39.9%, only 17.1% of researchers in the business sector are women (European Commission, 2019).

As pointed out, Austria's share of women researchers lies below the European average. However, the field work done by IFZ researchers indicated that especially the gender imbalance in industrial research is a huge issue, which cannot be governed as easily as gender mainstreaming in universities. This has to do with several Austrian regulations and laws.

Since 1995 Austria is member of the EU, and several results from the field work demonstrate that this fact is a catalyst for gender equality efforts. In 2000, the Austrian government committed to gender mainstreaming (which goes back to Austria signing the treaty of Amsterdam in 1998), and since 2002 gender equality is a leading principle for all universities (regulated by a university law: "Universitätsgesetz 2002"), and since then gender equality offices and gender equality plans are obligatory at all Austrian universities.

Additionally, policy makers from ministries pointed out that several judicial changes and budget reforms helped tremendously in governing changes towards more gender equality. For instance, in the budgeting reform of 2009/2013 gender has been included as one of five impact goals, which should also lead to more gender equality in Austria. Although the consequent implementation of gender budgeting is seen as international good practice example, the data to assess the gender impact and the assignment of resources to the gender impact goals could be improved (Saliterer and Korac 2018).

However, the private business sector cannot be governed like the public sector, therefore research and innovation funding has been recognised as important steering tool and leverage point. One interviewee explains the motivation for implementing gender mainstreaming and diversity issues in businesses and industrial research:

"There are three motives: One motive is justice. But, the second motive is that innovation comes from diversity and because there are verifiably product developments, which stumbled, because mono-cultural teams worked on them. And the third is that there is a skilled labour shortage and with the leaky pipeline there is an underused potential of labour there. I think, we already stated that in 2005 and I believe it is still true." (AT_RFO07_F_EI09)

In summary, the Austrian government put forth enormous efforts in the past two decades in order to promote gender equality in research and innovation. However, it seems that policymaking and regulation as well as good practice examples are more evident and effective in the higher education sector on the national level, mainly thanks to national legislation and governmental funding ("Universitätsgesetz 2002"), and less on regional levels or in the business and industrial sectors.

Based on the research performed within CHANGE and further merging and analysing studies carried out by the Austrian CHANGE researchers together with other project partners (Thaler et al, 2021), it was possible to formulate a range of general recommendations for Austria. It would be important, that knowledge sharing takes place between research institutions and regional research organisations to identify gender differences and biases in their organisational processes, as well as overlaps or points of agreement where women may face greater challenges and procedures could therefore be adapted or gender-sensitised. The causes of gender differences in funding processes need to be further investigated and tailored solutions (e.g. one-sided requirements) developed. Gender should be integrated as a cross-cutting issue with detailed explanations and examples in the guidelines for applicants in research funding programs. Furthermore, gender should be integrated as a general evaluation criterion in the review of funding applications with detailed explanations for the reviewers. In order to achieve an improvement in the implementation of gender equality in the individual areas of a research funding organisations, management needs to play a supporting role. Mandatory training on gender issues (unconscious bias, etc.) should be required for RFO staff and reviewers to raise their awareness and foster RFO staff commitment to promoting GE within their organizations. As further supporting measures, monitoring and impact evaluation of research funding programs and their budgets should be mandatory and the gender dimension should be taken into account throughout the research funding cycle. National gender policies and legislation should be implemented in the field of all research funding (incl. non-university and industry-related research) similar to the way they are implemented in universities. Finally, an important step would be if the existence of a GEP would also be considered as a funding criterion for the business enterprise sector when applying for research funding from the European Commission.

Austria is a role model for other countries in many areas regarding gender equality in research funding. Nevertheless, a more detailed examination shows that there are still various approaches to improve the situation. There is a shortage of female researchers in STEM fields. This is even more evident in the business enterprise sector. Gender equality and the corresponding funding are not sufficiently accepted, especially in the SME sector. Gender balance in review panels would also be important, and the level of evaluation of the gender dimension in research funding programs is still insufficient or even not considered at all.

Successful models (such as the women's bonus of the Vienna Business Agency) need to be brought in line with existing regulations. One idea would be to link project management bonuses for the gender underrepresented in this discipline at the respective RPO. In general, more attention needs to be paid to the implementation of women's advancement plans and gender equality plans to ensure that this is actively operationalised as well as monitored in order to increase their impact. Therefore, GEPs should be part of the governance mechanisms at universities.

In Austria, exchange between the federal and state governments would be important to harmonize standards. For example, the federal and state governments each finance the universities of applied sciences at 50%. A joint approach to gender policy is necessary here.

From the recommendations of the Austrian CHANGE researchers based on the expert interviews, the RFO workshop and an additional validation meeting with two gender experts of the Standing Working Group on Gender in Research and Innovation[8] (each associated with relevant ministries in Austria), the following next strategic steps have been identified:

1. **EC guidelines as base for national research funding**: Legal anchoring of EC requirements in other countries is to be determined and the possibilities of a transfer to Austria are to be examined. GEPs as eligibility criteria should be legally anchored in Austria (at least for research funding provided by federal ministries and their RFOs).
2. **Competence centres as pioneers for GEP implementation in industry-related research**: The COMET centres ("Compentence Centres for Excellent Technologies") operated by the Austrian Research Promotion Agency FFG[9] conduct applied high-quality research. GEPs will be implemented in these

[8] This SWG-GRI under the European Research Area and Innovation Committee is a policy advisory committee that advises the Council of the EU, the European Commission and member states on gender equality policies and initiatives.

[9] Further information: https://www.ffg.at/en/comet-compentence-centers-excellent-technologies-k1-centers

centers, in order to fulfill the eligibility criterion for Horizon Europe research funding. Data on these implementations can be used as best practice evidence to communicate GEP-implementation in industry-related and industrial research to the ERA community.

3. **GEPs in industrial research and in the business enterprise sector**: Cooperation with the Chamber of Commerce and the Federation of Austrian Industries will be pursued and intensified via existing topics and goals (shortage of skilled workers, women in STEM fields, etc.). By formulating shared goals, the responsible ministries will be encouraged to provide support. In a next step, national efforts will also be continued at the European level.

6.2 GERMANY

(Janne Haack, Madlen Baumert)

Germany is classified as a 'strong innovator' country with higher than EU average gross domestic expenditures on research and development as percentage of GDP (see Table 4) – 3.19% (EU: 2.12%) (OECD 2021). Consequently, its research landscape is large and extensive with many different kinds of funding organisations. In total, 109.5 billion euro were spent on research and development in Germany in 2019: 66% of the budget comes from the private sector, 28% from the public sector, and 6% from abroad (Federal Statistical Office, 2021a). The largest amount of R&D finance goes back into the BE sector: in 2019, 75.6 billion euro (69 %) of the research and development expenditure was spent in the BE sector, 19.0 billion euro (17.3 %) in HE institutions (HEI), and 15.0 billion euro (13.7 %) in PNP (non-university research institutions) and the GOV sector (see Figure 14).

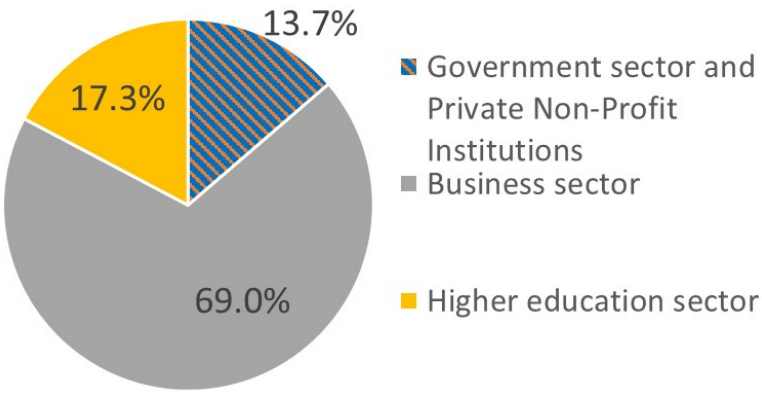


Figure 14: Proportion of research expenditure in Germany by sector (source: Federal Statistical Office, 2021a)

Public research funding in Germany is available both at national and regional levels. At the national level the public funding originates mainly from five (out of 14) ministries. This funding is aimed at a variety of topics and research types, both basic and applied. The calls are managed by different project executing organisations which are subordinate to the terms of the ministries. At the regional level the public funding is administered by the individual federal states or their project executing organisations, which are often supported by the national ministries and work on their behalf.

The public funding is oftentimes allocated to certain groups, institutions, or economic sectors by certain research interests or research types. For example, industry driven RFOs which are usually focused on applied research in SMEs organised by industrial associations; Private and public foundations which are focused on special topics and are sponsored to a large extent by promoters; or institutional funding which is mainly aimed at departments within institutions, sometimes in cooperation with other organisations, and is dedicated to a variety of topics in either individual or joint projects.

Regarding gender equality, Germany demonstrates some high scores, for example the Gender Equality Index (EU: 68; DE: 68.6 – OECD 2021), the Global Gender Gap Index (score: 0.796, rank:11 – World Economic Forum, 2021), women share among doctoral graduates (EU: 47.9%; DE: 56.9%, SHE Figures 2018) and even funding success rate differences which are in favour of women in Germany (EU: 3.0;DE: -0.5 – SHE Figures 2018). However, its Glass Ceiling Index indicates lesser chances for women to be promoted to grade A positions in academia (EU: 1.64; DE: 1.77 – SHE Figures 2018) and a lower rate of women's authorship of R&D (EU: 0.55; DE: 0.41 – SHE Figures 2018) – see table 3.

Gender equality is a declared goal of the German Federal Government. In 2020, the national GE strategy "Towards a stronger future" was agreed. In the strategy, the Federal Government specifies how equality between women and men is to be implemented in legislation and in its funding programmes. The GE strategy sets out nine goals for GE and corresponding measures to achieve these goals. One goal is equal presence and participation of women and men in culture and science (Federal Ministry of Family Affairs, Senior Citizens, Women and Youth, 2020). However, the share of women researchers is lower than EU averages in the various R&D sectors: 28% over all sectors (EU: 33%), 38.7% in the HE (EU: 42%), 35 % in the GOV (EU: 43%) and 14.7% in the BE (EU: 20%) (SHE Figures 2018 – figures 4.1, 4.5, 4.6, 4.7).

Based on the above, it seems that gender gaps in Germany prevail in all R&D sectors, but apparently are more dominant in the BE sector, compared to the academia. The reason for that might be that governmental policies and budget regulates German academia more, to promote or encourage certain participation of women, while industry research is driven by industrial money and therefore is not regulated by gender-inclusive

governmental policies. Another reason for the gender gap in BE might be connected to the vertical segregation of disciplines. In countries where the profession can be freely chosen, those branches are chosen which correspond to the interest and not the highest financial income, resulting in choice of lower income professions by women (Stoet & Geary, 2018). Furthermore, based on IFAM observations it seems that unconscious bias and sexism still hinder women engineers by assuming they are not as technically competent as men. In addition, women in Austria and Germany have a higher probability of being unemployed even when they have studied engineering or other high-demand disciplines (Thaler 2006).

Regarding the gender gap in academia, as reflected in the glass ceiling index (SHE figures 2018, Figure 6.6 – p. 124) the explanation is somewhat more complicated. The proportion of women professors in higher education has risen in the past years (see Figure 15 below), however so has the glass ceiling index between 2013-2016 (see Figure 16), which indicates increased gap between promoted men and women in academia. This gap may be explained for instance by higher increasing levels of men in professorships, compared to women, or by other factors that should be further examined. Germany is taking measures to change the percentage of female professors, for example through the implementation of the "Professorinnenprogramm": a programme that aims since 2008 to increase the number of female professors on the one hand and to strengthen the equality structures at universities on the other.

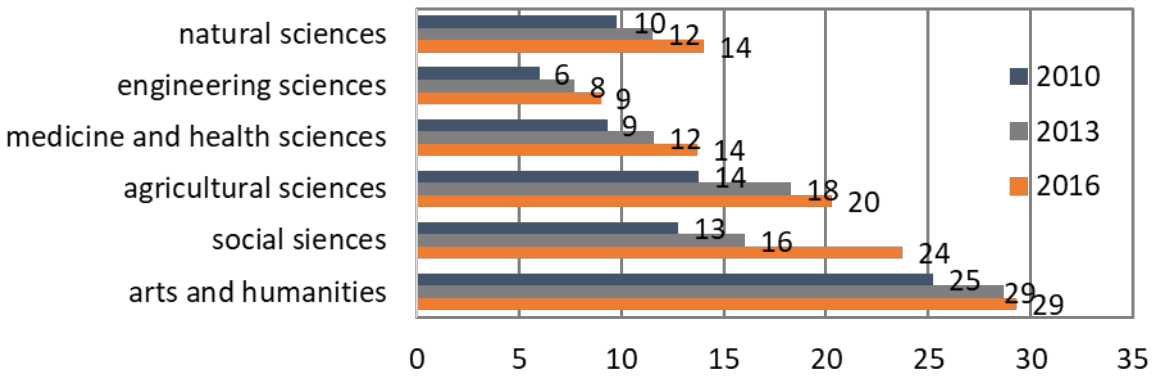


Figure 15: Increase in the number of female professors in the higher education sector in Germany since the start of the Professorinnenprogramme by scientific discipline from 2010, 2013, 2016
(extract of FEMtech (2020a))

Figure 16: The glass ceiling index in Germany 2004-2016 based on FEMtech (2020b)

Lower women to men ratios in R&D authorship might indicate less interest of women to publish. One explanation may be that supervisors less support women within their scientific careers or sometimes do not even see them as potential young researchers. Thus, they do not introduce women to the scientific community. Another possibility for the lower publication rate of women is that they sometimes specialize less and therefore cannot gain efficiency from this specialization. Women who do their PhD often don't aim to pursue an academic career afterwards and therefore do not initiate many publications (Jaksztat 2017).

Gender gaps in research funding might also result from unconscious biases in organisational sructures or procedures; For instance, the IFAM team identified in their field work some cases of non-transparent or confidential processes of appointment and nomination for influential positions in decision-making bodies, a tendency to recruit persons who are similar to the person who makes the selection, or non-blind peer reviews where the applicant's identity is revealed to the evaluators. In all these cases, processes might be unconsciously influenced by the applicant's connections, networks, or relationships. But since women are currently less networked or supported by their supervisors in their careers (cf. Schulz et al., 2019), they might have less access to these promotion or funding opportunities. Thus, more opportunities might be more available to men from existing networks, and the entire scientific research landscape is structured in a very masculine way.

As for gender sensitisation and gender as a crosscutting issue in research, based on IFAM field work, these aspects are usually more evident in public RFOs, and missing or play a subordinate role in industry driven calls and programmes. Public RFOs and or executing organisations working on behalf of ministries have a political background. Therefore, they are more likely to consider gender issues such as: equal distribution between male and female board members, hiring gender experts to work in the organisations, gender sensitive calls, and statistical monitoring of gender aspects. However industry driven

RFOs examined in the scope of this work have been found to have 10% or less female evaluators, partial or no gender-sensitive calls, and lack of gender mainstreaming in their funding processes. Moreover, because many of them are smaller-scale organisations with few employees, they usually don't hire gender experts. Thus these RFOs' employees are expected to be self-instructed or self-trained on several themes, including gender.

Consequently, IFAM estimates that the main reason for low percentage of women in research funding grants is mainly their low percentage in researchers in general, especially in STEM and industry, and their tendency to submit less grant applications. As identified in the IFAM field work the percentage of approved grants of women matches their percentage in the total submitted applications. This supports the assumption. In some settings, the percentage of grants approved by women is even higher than the percentage of grants submitted by men. Meaning, the gap is mainly a result of lack of women in certain research fields and their tendency to submit less than their potential (Aguinis, Ji, & Joo, 2018). Further examination of the roots of this tendency is recommended in order to develop adequate solutions to mitigate the gaps.

In summary, based on the abovementioned observations, the IFAM team recommends the following measures:

1) **Targeted gender training for key persons in RFOs:**

   Managers, consultants, and evaluators are three important groups with substantial influence on research funding processes from different aspects. Managers set the organisational direction, consultants design and shape call for proposals, and evaluators review the calls and choose applicants. Therefore, each group should be provided with targeted training and 'soft' communication on gender, in order to raise awareness and knowledge on unconscious biases and thus to implement gender mainstreaming in work procedures.

2) **Mandatory gender training for RFO consultants and evaluators:**

   Among RFO employees, the consultants are probably the most influential persons in the evaluation processes. They are involved in preparing the calls, select the evaluators, and often moderate and intervene in evaluation or applicant interview sessions. Therefore, it is highly recommended that well-trained evaluators will be present in evaluation sessions, and that their presence would be defined as mandatory. Alternatively, gender experts or practitioners could also be present.

3) **Adapting gender-inclusive good practices from federal to regional level by RFO CoPs:**

Smaller-scale RFOs orient often at the big ministries and big RFOs, both in themes for calls and in organisational procedures. Therefore, good practices which are implemented at the federal level could initiate similar practices at the regional and local levels. This kind of impact could be achieved by the initiatin of RFO stakeholder networks or CoPs, where practical knowledge could be shared and transferred between national and regional levels.

4) **Gender-inclusive work environment:**

As many organisations are male-oriented (especially in the BE sector), it is recommended to structure and design more gender-friendly work environments in in a way which can be more interesting and appealing for both men and women.

6.3 ISRAEL

(Hana Himi, Maya Ashkenazi)

Israel is considered a strong innovator country with higher than EU average of national expenditures on civilian R&D – 4.93 % of the national GDP (OECD 2021). More than half of civilian R&D expenditure (52.5 %) is financed by funds from abroad, about one third (35.7%) is financed by the BE sector, 10.7% by the GOV, 0.3% by the HE and 0.8% by the PNP sector (Central Bureau of Statistics 2020 – table 14, p. 83). In terms of performance, most of the research budget in the country is spent in the BE sector (88.9%), and the rest is spent in the HE (8.6%), GOV (1.5%) and PNP (1%) sectors (Central Bureau of Statistics 2019 – diagram 2, p.3, Figure 17).

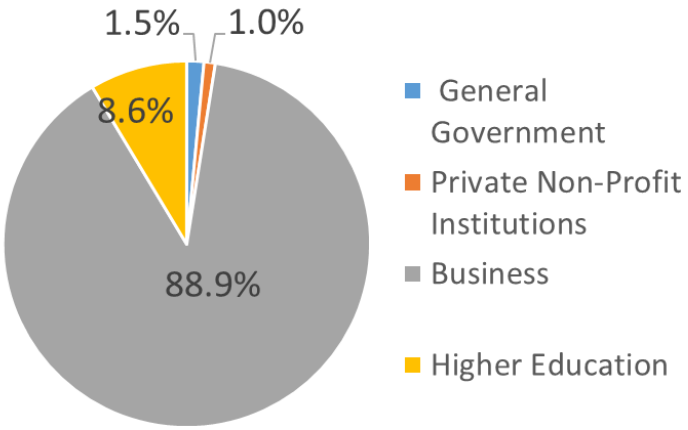


Figure 17: Proportion of research expenditure in Israel by sector (Source: State of Israel, central bureau of statistics, 2019)

Despite its relatively modest share of R&D expenditure, most, if not all, of Israel's basic scientific research[10] takes place in the HE sector, meaning research universities and some academic colleges, although research infrastructure in colleges is described 'modest' and college researchers are less supported in their research work (the Israeli Academy of Sciences and Humanities, 2013 and 2019). The HE sector is mainly funded by the government through the Council for Higher Education (CHE) and its Planning and Budgeting Committee (PBC) and through public research funds (partly financed by the government). Other sources for research in the HE sector are private donations from abroad, the business sector (whether local or from abroad), foreign funds or internal budget (ibid). In summary, researchers in HEIs are mostly funded by public money, either by their academic institutions (CHE/PBC budget) or by research funds and programmes (mainly public or semi-public) of all sorts and kinds: national, binational, scholarships, grants for either basic or applied research.

Regarding gender equality, all public institutions in Israel are subordinate to state laws and government resolutions regarding GE in the work force and the civil service (CHANGE 2018). In addition, there are governmental bodies or policymaking committees that examine gender issues and promote gender equality national policies and regulations in certain sectors, such as:

- The authority for the advancement of the status of women in the Prime Minister's office
- The ministry for social equality
- The committee on the status of women and gender equality in the Israeli parliament
- The steering and judgment committee for the promotion of gender equality in the CHE/PBC; and
- The council for the advancement of women in science and technology in the ministry of science and technology (consisting of three sub-committees: academia, industry and education)

In recent years there has been a growing concern regarding gender gaps in Israeli R&D. However, regulatory efforts to mitigate these gaps have been especially evident in the Israeli academia, as for instance, by means of all public HEIs are obliged to nominate gender equality officers (GEO), or by financial incentives given to HEIs based on their GE outputs. However, to the best of the gained knowledge, no such regulations exist for promoting GE in RFOs or RPOs in other R&D sectors.

In terms of representation of women researchers in Israel, gender imbalances are demonstrated in various indicators. On the one hand, the share of women among doctoral graduates is higher than EU average (IL: 53.1 %, EU: 47.8 %, SHE Figures, 2021).

[10]In recent years the distinction between basic and applied research is sometimes "blurry" (source: the Israeli Academy of Science, 2013).

On the other hand, the share of employed women in all R&D sectors is below 50 %: BE: 29.7 % (Central Bureau of Statistics, 2011a), HE: 32 %[11] (The Knesset, Research and Information Centre 2018), GOV: 42.7 %[12] and PNP: 48 %[13] (Central Bureau of Statistics 2011b). Gender imbalances are also demonstrated in other indicators: The Global Gender Gap Index (IL score: 0.724, rank: 60), women to men ratio of authorship (IL: 0.52; EU: 0.55; 1 indicates parity between men and women), funding success rate differences (IL: -2.7; EU: -3.6; 0 indicates parity) or the Glass Ceiling Index, the highest and worst score among the CHANGE partners (IL: 2.33; EU: 1.59), as shown in Table 4.

A recent report by the Israeli ministry of science (Ministry of Science & Technology, 2019a) indicates several gender gaps in four of the leading public research funds in the country[14]. Women apply less for funds (23 % of all grant applications), which is less than their respective share in senior academic staff members (34 %)[15]. In average 68 % of grants are given to men, 24 % to women, and 8 % to combined teams of women and men. The sums of grants are in average 16 % higher for men than for women, resulting from the fact that men ask for more in their applications, in comparison to women. Finally, women are less represented in evaluation committees as Chairs or as members, although in most cases this imbalance reflects their lower share in senior academic positions in HEIs (ibid), see Figure 18 and Figure 19.

[11] Percentage of women in senior faculty positions (FTEs) at universities in 2015/16 – **32%;** Percentage of women in senior faculty positions (FTEs) at publicly funded academic colleges in 2014/15 – **43%.** Note that these figures do not include women researchers in junior and non-tenured positions.
[12] Share of women employees in R&D governmental institutions – those holding doctorates in 2009 – **30.9%** (Central Bureau of Statistics 2011b).
[13] Share of women employees in private non-profit and public non-profit R&D organizations – those holding doctorates in 2009 – **24.9%** (Central Bureau of Statistics 2011b).
[14] Major governmental academic funds, Ministry of Science and Technology, Israel Scientific Foundation (ISF), The U.S.-Israel *Binational Science Foundation* (*BSF*) and The German-Israeli Foundation for Scientific Research and Development (GIF) in 2017-2018 (Ministry of Science & Technology 2019a)
[15] Senior academic staff members in universities (ibid)

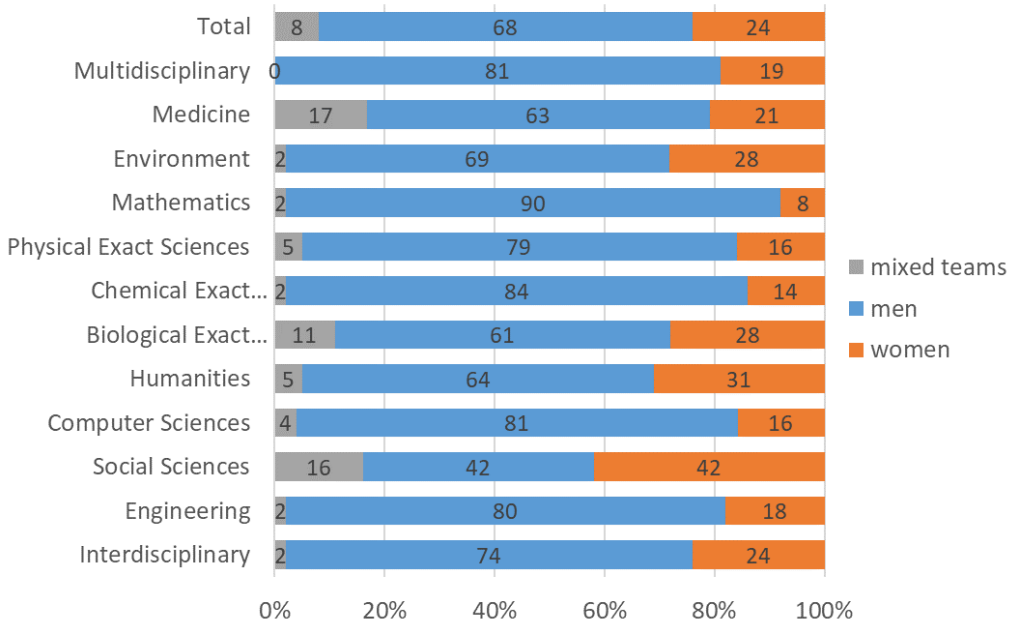


Figure 18: Division of research grant winners out of all applicants by gender and field (Ministry of Science & Technology, 2019a)

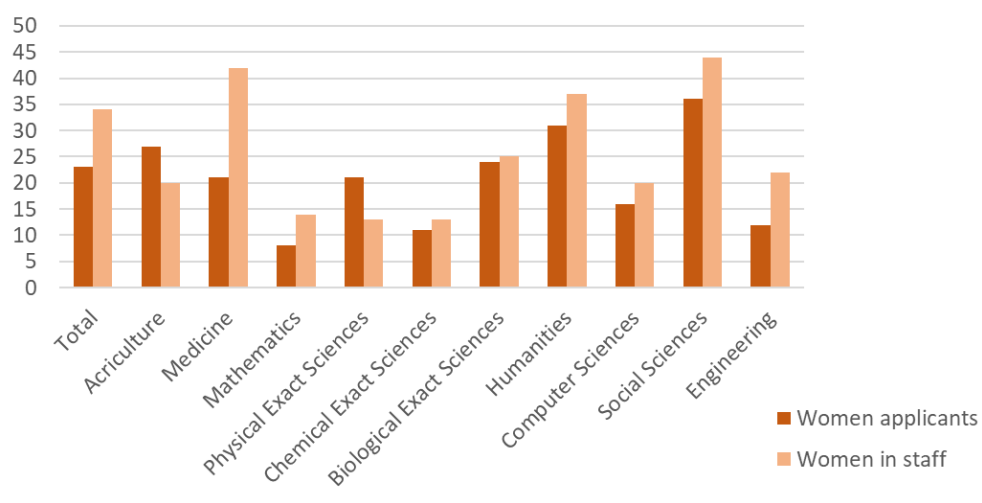


Figure 19: Proportion of women's applications compared to women's proportion in academic staff (Ministry of Science & Technology, 2019a)

Further biases and barriers in research funding processes and organisations were unravelled through BBC field work which included:

1) Mapping of 25 RFOs
1) 11 expert interviews in RFOs
2) A stakeholder RFO workshop dedicated to the research funding topic
3) Another stakeholder workshop partly dedicated to research funding processes in Israeli colleges
4) Feedback from national representatives in the EU Standing Working Group on Gender in Research & Innovation

A major observation from BBC field work is, that basic research funding organisations and processes in Israel are interrelated with the RPO and the higher education system. As mentioned earlier, almost all basic research in Israel is performed in the HE sector, which is financed by public resources. Therefore, most of BBC field work was performed in either GOV or HE organisations. In fact, almost the only way for researchers in HE to apply for funds is by being affiliated or in senior/tenure positions and/or recommended by their HEIs. Therefore, funding processes are not stand-alone procedures, but rather a continuation of higher education processes of recruitment, retention, and promotion. Since most non-tenured junior staff members in Israeli HEIs are women[16] and the current academic promotion system does not seem to be in their favour, as indicated by the Glass Ceiling Index, the prerequisite of being in senior and tenure position might be one of the barriers to prevent women researchers from applying for funds.

Other limiting prerequisites for women's application that were identified in some funds are age limit, funding duration limit or mandatory relocation abroad. These conditions are especially challenging in the context of work-life balance for women with care duties, e.g. mothers of younger children, caregivers of elder family members, etc.

Another explanation for the lower percentage of applications from women might be related to the lack of supportive tools provided to them by their home institutions to apply for funds. For example, women publish less frequently than men, a fact that might limit their chances to be acknowledged, promoted and/or supported by their institutions in funding applications. Other biases could stem from the fact there are more women researchers in 'less affluent' scientific fields as SSH, or in what is described in the Frascati manual as "*sector-specific activities that are challenging with regard to the concept of R&D [...] in particular related to education and training and specialised health*

[16] For example, in 2017 57% of the junior staff members in all HEIs were women (Ministry of Science & Technology, 2019b); and 52.5% women in junior staff members in 2019 – 51.4% in universities and 55.1% in colleges (Central bureau of statistics 2020).

care" (OECD, 2015 - p. 34). Moreover, since the share of women in senior academic positions is lower than the men's, they have higher chances to be employed in precarious conditions (as in non-tenure positions, or part time jobs), sometimes leading to a necessity to teach and work in several workplaces. In this respect, women academics are often faced with multiplicities of roles and a need to regulate their work-life imbalances (Ben-Uri and Himi 2019; Shidlo-Hezroni and Himi 2021a and 2021b). Overall, it seems women are often less networked, emotionally available, supported, or have less access to research funding opportunities. However, further examination and analysis of this issue is needed, for better understanding of the roots of the gap.

A further observation is that researchers in academic colleges in Israel – both women and men - face additional challenges regarding research funding, due to structural differences and lower supportive resources in academic colleges compared to universities. Consequently, some college researchers lack research funding within their institutions. Respectively, some external funding programmes are not adapted to colleges and therefore college applicants might sometimes be denied equal opportunities when applying for them.

In addition, unlike HEIs, where an institutional position of GEO is mandatory and some efforts are made to foster gender-inclusive work environments, in most examined RFOs gender is not a crosscutting issue in the organisational culture. On the contrary, in many cases gender mainstreaimng is perceived as a threat to meritocracy and academic excellence. Most (if not all) public funds in Israel lack GEOs, GE experts, gender awareness, or gender mainstreaming in their procedures and processes. Although gender sensitive language is applied in some calls, there is no explicit gender policy or regulation, gender experts or any special reference to gender issues, nor is there (in most cases) gender-segregated data publicly available in RFOs.

As for evaluation processes in RFOs, according to the Ministry of Science & Technology report (2019a) in most cases the share of women funding success rate in four examined RFOs is proportionate to their share in total applicants (except for physical exact sciences). However, the share of women in evaluation committees is usually lower than that of the men's due to their under-representation in senior academic positions (ibid). BBC field work also revealed that evaluation processes in most of the examined RFOs are not gender blind or fully transparent. Meaning, the evaluator's identity is unknown whereas the one of the applicants is, and the assessment criteria or evaluation procedures are not always transparent. Further in-depth investigation in RFOs is still needed, in order to explore the effect of gender balance and transparency in evaluation processes on women's submissions.

In summary, there is gender equality-oriented legislation on the State level and initial efforts to promote gender mainstreaming in HEIs. However, much work still needs to be

done to promote gender equality awareness and gender-sensitive funding processes in Israel. First and foremost, special attention should be given to the lower rates of women submissions to funds, in parallel to their proportionate success rates once they do apply – 23% and 24% repectively (Ministry of Science & Technology 2019a). This finding, suggests that the gap stems not from lesser competence of women researchers, but maybe from the fact they are less networked or supported in their HEIs, hence less available to engage in research. Therefore, RPOs should give special attention and provide more instrumental support for women researchers to apply for funds. Second, RFOs and RPOs should communicate and share knowledge to identify gender gaps and biases in their organisational processes, as well as intersections or matching points where women might face more challenges, and thus procedures could be adapted or gender sensitisised. Third, RFO employees in all hierarchy levels should be more educated and therefore more aware of gender unconscious biases and their implications on women in science and research. Fourth, special attention should be given and certain adaptations should be made in order to enable researchers from academic colleges to apply for grants equally to their university peers. Finally, the implementation of gender-inclusive good practices could generate significant change towards GE. But in order for this change to be sustainable, long-term action towards socially resposnsible gender-inclusive national policy, legislation, and budgeting in research funds is essential.

6.4 PORTUGAL

(Teresa Carvalho, Sara Diogo, Zélia Breda, Carina Jordão)

Portugal is a member of the European Research Area (ERA) and is currently classified as a 'moderate innovator'. Over time performance relative to the EU has increased up until 2020, where it was classified as a 'strong innovator', and then decreased in 2021 (European Comission, 2021). Gross domestic expenditure on R&D amounts to 1.617 % of GDP (OECD, 2020). This domestic expenditure is divided between the different R&D sectors of performance as follows: BE - 57%, HE - 36%, GOV – 5%, PNP – 2% - see Figure 20.

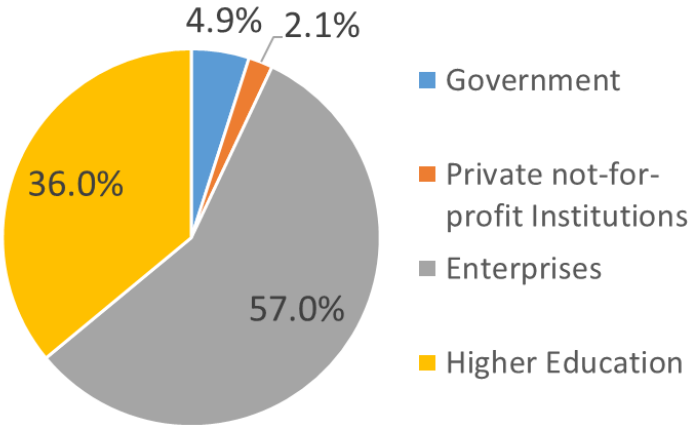


Figure 20: Expenditure in research and development activities (R&D) by sector of performance in Portugal 2020 – (PORDATA 2021)

The national higher education, research and innovation system (HERI) in Portugal functions at four broad levels, as depicted in Figure 21: (1) the government, (2) individual line ministries, (3) agencies with implementation or regulatory responsibilities, and (4) organisations that carry out the work of teaching, research and knowledge-based innovation, including higher educational institutions and public research organisations affiliated to them.

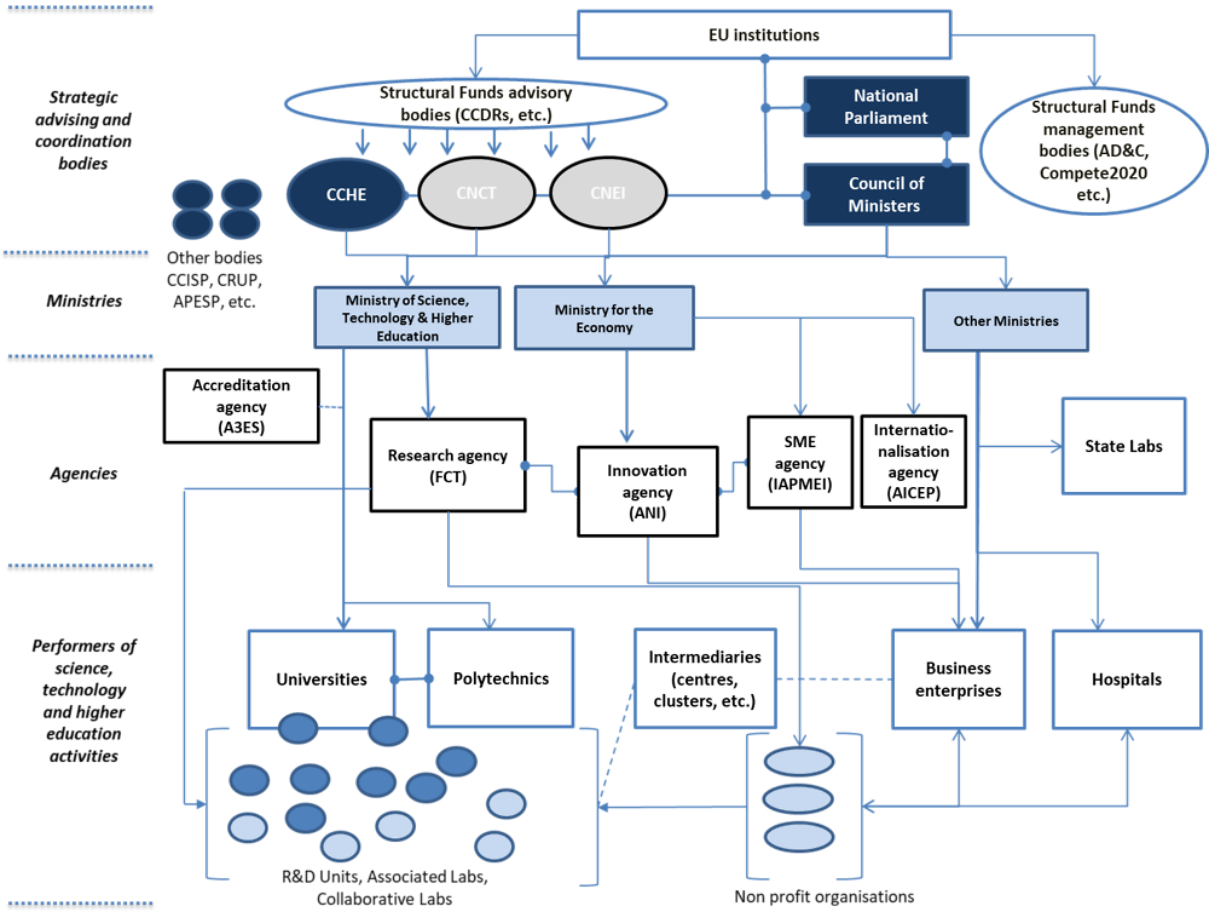


Figure 21: Structure of the Portuguese HERI system (OECD 2019)

The central government has exclusive responsibility for the governance and funding of the higher education, while most European funding for research and innovation is administered at the regional level through regional operational programmes, Portugal's regional managing authorities (OECD 2019 – chp. 2). To conclude, most of the research funding in Portugal is public and administered by public entities which are affiliated to the national-level governance.

In the scope of this report, the UAVR team focused mainly on three types of RFOs: level 1 Structural Funds advisory bodies, such as CCDRs; level 3 agencies, in particular The Foundation for Science and Technology (*Fundação para a Ciência e a Tecnologia*, **FCT**) which is the largest national funding agency; and level 4 non-profit Think Tanks in the public and private sectors. FCT manages project-based funding of public research and carries out associated ex ante evaluations of research projects and centres, whereas Think Tanks are entities where specific studies are developed by researchers in the scope of certain interests of each entity, therefore, they have identical organisational structures. Most of the programmes and calls are public funding and a minority is private. In addition, the programmes fund either joint research projects or smaller-scale individual grants.

Regarding gender equality, especially in academia and research, Portugal demonstrates scores which are better or very close to EU averages, based on table 3: the percentage of women among doctoral graduates (PT: 52.9 %, EU: 47.8 %), the Glass Ceiling Index (PT: 1.71. EU: 1.59; a score of 1 indicates equality), women to men ratio of authorship in R&D (PT: 0.78, EU: 0.55; a score of 1 indicates equality), and funding success rate differences (PT: -2.9, EU: -3.6; a score of 0 indicates equality). Although its Gender Equality Index is lower than the EU average, (62.2 compared to 68 - see table 3), according to the global gender gap index, Portugal is ranked rather high (PT: 0.775, rank 22). These scores, combined with other social and cultural contexts, are perhaps the reasons why gender equality in research is not formally defined as a policy priority in Portugal (ERAC 2018, p. 19). However, gender imbalances in decision-making processes persist and gender perspective is still not normally integrated in research (ibid).

The field work of the UAVR team included:

5) An initial mapping of 11 RFOs at national and regional levels;
6) An in-depth examination of FCT's individual 2017 competition for stimulating scientific employment (CEEC). The examination included the identification of gender imbalances in calls, applications, projects, evaluation panels and awarded

contracts based on available data in the RFO website, summing up to more than 4,900 people;

7) 5 expert interviews in RFOs;
8) A stakeholder workshop dedicated to the research funding topic;
9) An online meeting with the Portuguese representative of the standing working group in the area of gender.

Based on the abovementioned, the UAVR team notes the following observations on the examined Portuguese RFOs:

1) Gender equality is not, per se and in a specific way, a subject that receives special attention. The measures adopted in this field are those arising from existing national and supranational legal frameworks, which are used to argue that gender equality is guaranteed and to justify the practices/measures/actions adopted in this field.
2) The concept of gender equality tends to be associated exclusively with the presence/proportion of women in organisations and in management positions. In that context, the increased presence of women and/or their participation in the leadership positions of RFOs are arguments often used to demonstrate that gender is not a problem. Nevertheless, it seems that the presence along the research funding process is not always gender balanced. For example, the UAVR team identified gender gaps in evaluation panels in the examination of the 2017 FCT's CEEC programme. This means that gender gaps may exist in other cases as well.
3) Merit is considered an objective and unbiased evaluation criterion. The blind and external peer review system is perceived as the best to promote gender equality because it is not known who the proposer is, and the focus is placed on the merits of the proposal. Affirmative action is regarded as harmful and something to avoid.
4) Quantitative data disaggregated by gender are usually neither processed nor provided publicly.
5) Institutional efforts to integrate a gender perspective into research are non-existent, incipient and/or established informally.
6) There are a few gender-related calls, which cover a variety of topics in some RFOs. In most cases, however, there are no specific funding lines or programmes dedicated to gender equality issues or to women researchers.

Considering this unfavourable scenario for gender equality in Portuguese RFOs, the UAVR recommends the following strategic actions summarised in Table 5.

Table 5: Recommended strategic actions with potential for implementation in Portuguese RFOs

Identified problem	Recommended strategic action	Comments
Non-existence of specific norms and/or procedures regarding gender equality	• Gender Equality training for people in leadership positions • Articulate national policies with European standards and recommendations • Adoption and implementation of gender equality plans in RFOs Availability/publication of data disaggregated by sex (gender composition of scoreboards, funding allocated to women and men, number of women and men applying, etc.).	The importance given to the topic of gender equality stems mainly from the sensitivity of leaders (and national policies), since there are no formally instituted norms and/or procedures in this area in RFOs.
Non-existence of specific calls for tender related to gender equality.	Revision of the institutional policy on gender equality.	E.g., There is a protocol between FCT and CIG (2008) that foresees specific calls for tender in the scope of gender in/equality; more recently other initiatives, also related to gender issues, were adopted by FCT (e.g., Gender Research 4 COVID).
Gender balance in evaluation panels is a concern in RFOs, but it has not always been possible to guarantee equity because there are fewer women available to join them according RFOs representatives.	Create a platform with content/resources related to gender inequality and a pool of researchers/evaluators.	It is a concern currently, namely in the FCT.
There is no training of evaluators in gender in/equality.	• Provide some guidelines to the evaluation panelists on the topic of gender (e.g. through short videos).	According to RFOs representatives, evaluators do not recognize the need

		for training in this area; there is a lack of resources to enable professional training and lack of time/availability of the evaluators.
New challenges related to gender equality.	• Creation of an office of Gender Equality specialists (people who have training in the area). • Mandatory gender equality training (also for leadership positions).	These strategic actions are key to meet national and European requirements (e.g., ENIND, Horizon Europe). It would give visibility/availability to already existing data and help overcome the existing difficulties in allocating time to this topic by professionals.
Integrate the gender dimension in the content of research proposals	• Integrate gender specialists in the RFO and/or specific training in this field • Standardization of criteria for evaluating proposals on gender equality (inclusion of gender perspective in the proposal, balance in research teams, presentation of gender equality evidence by promoters/proponents when projects are funded in organisations).	There is sensitivity to this issue; efforts are being made in this direction, but in practice it has not yet been implemented.
Applications that are forwarded to panel members are not anonymized in all Portuguese RFOs.	Establish procedures for anonymizing applications at all stages of the evaluation.	

6.5 SLOVAKIA

(Veronika Meskova)

Slovakia is considered a moderate innovator, with overall research and development expenditures of 0.89 % of the GDP in 2017 and only 0.84 % of the GDP in 2018, much below the EU average (2.07 % in 2017 and 2.12 % in 2018, according to preliminary data by Slovak republic 2020)[17]. According to the report 'Research and Development Funding System from Public Sources in Slovak Republic' (NKU SR 2018, p.18)[18]:

> *"…The Slovak Republic doesn't coordinate the support of the R&D systematically and due to the fragmentation of the coordinating political and administrative framework and the insufficient coordination of the main actors, weren't in 2007-2017 created suitable conditions for improving of the Slovak R&D results in terms of international comparison."*

Quoting further from the same report:

> *"…In years 2007-2017, 14 strategic documents were approved in Slovakia for the R&D, only half of them were realized."*

The provision of funding for R&D from the state budget in the Slovak Republic is legislatively based on two key acts. Public financial resources for R&D funding in the Slovak Republic come from the state budget and European structural funds and frame programmes. According to the EUROSTAT definition, the two types of public expenditures are state expenditures and foreign expenditures.

R&D funding is being realised irreversibly through the budget chapter of the Ministry of Education, Science, Research, and Sport of the Slovak Republic basically in 2 forms: A) based on the competition (e.g. through APVV), B) in the form of the institutional support (e.g. of the universities, KEGA, VEGA, Slovak Academy of Sciences).

According to the report Research and Development Funding System from Public Sources in Slovak Republic, the main actors of funding system are:

- Ministry of Education, Science and Sport of the Slovak Republic
- Agency for the Support of Research and Development
- Research Agency and Slovak Academy of Sciences (SAV)
- Scientific Grant Agency of the Ministry of Education, Science, Research, and Sport of the Slovak Republic (VEGA: internal grant system of the Ministry of Education and of the SAV for the projects of basic research designed for universities and SAV)

[17] Štatistický úrad SR (2020)/Statistical Office of the Slovak republic

[18] Najvyšší kontrolný úrad Slovenskej republiky/Supreme Audit Office of the Slovak republic (2018). Systém financovania výskumu a vývoja z verejných zdrojov v SR/Research and Development Funding System from Public Sources in Slovak Republic, p. 18.

- Cultural and Educational Agency of the Ministry of Education, Science, Research, and Sport of the Slovak Republic (KEGA: Internal grant system of the Ministry of Education designed for universities for the support of applied research in the fields of education pedagogy and creative and interpretative arts)

The Ministry of Labour, Social Affairs, and Family with its "Department of Gender Equality and Opportunities Equality" (after the parliamentary elections in 2020 and following establishment of new government renamed to the "Department of Equality of Men and Women and Opportunities' Equality") has some affiliation to the R&D funding through structural funds and one of its so called "horizontal principles": *equality of men and women and non-discrimination.* The department is the only body overseeing the principle of the equality of men and women across the research and development funding structures of the Slovak Republic. The principle is thus put into practice through the application criteria of the operational programmes and in the past through providing of the gender trainings. As one of the respondents stated, having the horizontal principles centralized under one unit is beneficial because of the higher level of the topic`s professionalism. On the other hand, it means lower knowledge on the side of other units.

The only principle applied in the evaluation process of all the funding programmes is the quality principle. There are no gender equality rules related to the evaluation process or to the composition of the evaluation committees or to the evaluators themselves.

Compared to the EU-27 average (32,8% in 2018), there is quite a high percentage of women researchers in Slovakia (in 2018: 41.2 %; 46,2% in higher education sector), however other figures from SHE Figures 2021 indicate gender gaps in research – e.g. glass ceiling index (SK: 1.74, EU: 1.58) or funding success rates (SK: -7.7, EU: -3.9). The UNIZA team anticipates that the reason for the positive proportion of women among researchers might be related to the fact that Slovak academia is characterised by relatively low salaries, as is the case in other female-dominated professions in the public sector such as education or nursing. The same occurs in RFOs, in which many women work in administrative roles which in turn can lead to the confusion of facts, as we have experienced during one of the interviews in a particular RFO. The respondent claimed that there was no problem with GE because many of the employees are women, not taking the type of their working positions into account; the number of grant applications of female researchers and their success rates highlight the necessity of providing gender expertise to the RFO employees.

According to the statistics, important in relation to the proportion of researchers by gender in Slovakia is the role of the assistant professor after the postgraduate studies. In 2016 the proportion of men and women in this role was the same (see Figure 22).

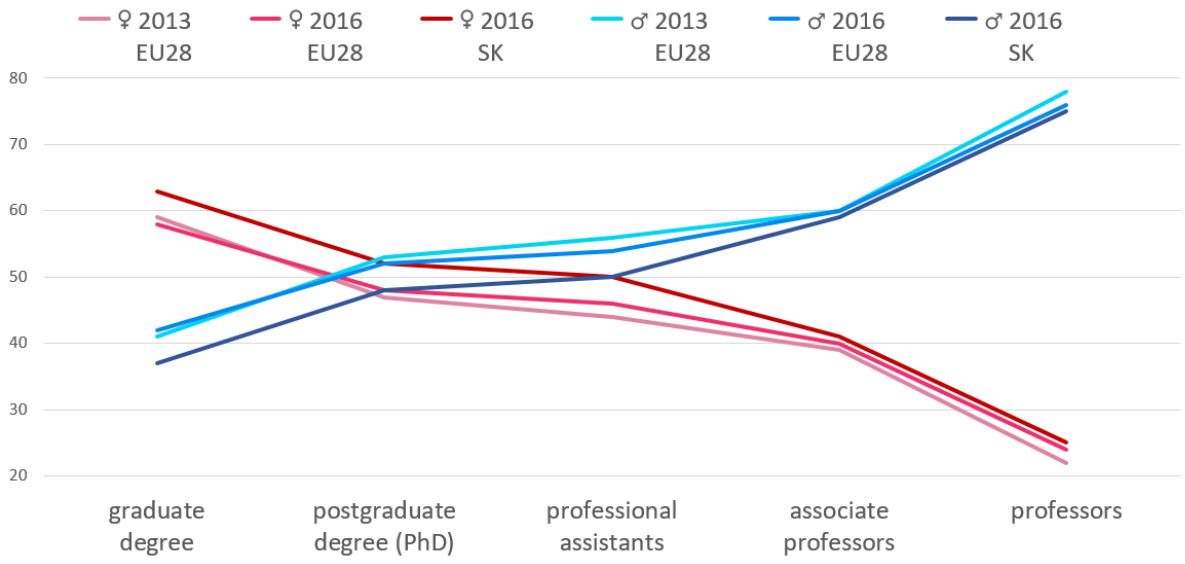


Figure 22: Proportion of men and women in the academic career, comparison between the EU-28 average and Slovakia (SHE Figures 2018 EU-28)

After this role, the "scissors" of the proportion of male and female researchers widen significantly. This might be explained by care duties women face in this phase of establishing families.

The field work of the UNIZA team included:

1. An initial mapping of Slovak RFOs
2. 9 expert interviews with RFOs' representatives performed at the end of year 2019
3. Organization of a stakeholder workshop dedicated to the objectivity of the funding process (October 2020)
4. Feedback from national representative in the EU Standing Working Group on Gender in Research & Innovation on recommended strategic actions (January 2022)

Based on the field work, the research funding processes is considered to be biased in the following aspects:

Criteria for applicability: As the Slovak research funding system copies the strong hierarchy of the academic sector, it is important to have, as a project leader/deputy of the project leader or at least as a team member, a person with higher academic titles (e.g. professors, associate professors). Of course, this is an unwritten rule explained by the

fact that the project leader should be experienced enough to be able to lead a project and achieve results with their scientific work. On the other hand, this unwritten rule creates a disadvantage for professionally younger scientists, including women, with a potential but without sufficient proof of their work. A current alternative to having professors or associate professors in the project team would be to have team members with high H-index and with more publications in top international scientific journals with a high impact factor.

Funding decisions: The small size of the country, along with the limited pool of evaluators, creates the risk of conflict of interests.

Training of the evaluators: Evaluators are not gender sensitized due to lack of training on gender equality or unconscious biases. UNIZA identified this as a key issue in the Slovak national context, since basic GE knowledge is generally unfamiliar and missing in the funding environment.

Generally, the Slovak R&D funding faces more challenges as described above in the NKÚ 2018 report and further were identified through the UNIZA field work, e.g. inconsistency and fragmentation of the Slovak R&D support; struggle between transparency and flexibility including the massive bureaucratic burden reported by one of the respondents in operational programmes; lack of personal capacities (small pool of evaluators; persons processing the grants) and confusion towards gender equality (related to the lack of gender awareness and expertise). Each of the named challenges is complex. Therefore, the team decided to concentrate within the framework of the CHANGE project on the issue of gender training and sensitisation on RFOs. Two strategic actions, which could help to mitigate the barriers in achieving GE in RFOs, were consulted with the Slovak representative of the Standing Working Group on Gender in Research & Innovation and other representatives involved as gestors in the national action plan for equality of women and men.

Almost all RFO representatives have no GE knowledge and have never been trained in GE. For this reason, one of the recommended strategic actions is *training on unconscious bias for all RFO employees involved in R&D funding, including the external evaluators*. In the timeframe in which the interviews were conducted, the GE knowledge was concentrated in the abovementioned department of the Ministry of Labour, Social Affairs, and Family - the department of GE and equal opportunities which provided trainings. However, due to its lacking capacities, the department was, according to the respondent from this organizational unit, not able to cover the real need.

The Ministry of Labour, Social Affairs, and Family has issued the document 'The state strategy of equality of women and men and of opportunities' equality in the Slovak Republic for the years 2021-2027' along with the subsequent 'Action plan of the equality

of women and men and opportunities' equality for the years 2021–2027'. The action plan involves, similarly to the previous plan for years 2014–2019, a category labled *Education, Science and Research*, which includes educational activities in the area of equality of women and men. The targeted groups are: youth, teachers, and expert workers in schools. However, the document does not address specifically RFOs, or RPOs. On the other hand, board members and evaluators are employees of universities and research institutes. Any kind of gender training provided by or to RPOs would be therefore beneficial. From a general point of view, a necessity to explain basic terms, e.g. gender, gender equality, has been identified in order to mitigate misunderstandings.

As gender equality is perceived very sensitively in the Slovak society and the word 'gender' often carries negative connotations, the topic needs to be communicated in a sensitive manner.

In October 2020, the UNIZA CHANGE team organised a workshop session for RFO representatives, called *New trends in the evaluation of the R&D project proposals,* explaining the topic of unconscious prejudices occurring in everyday life and in the process of project evaluation, providing recommendations on applying gender aspects in the phase of calls drafting and evaluation. The workshop targeted the chairs of the Slovak grant agencies as well as directors of different sections and departments of the Ministry of Education, and further guests. It was the first event of its kind organised for Slovak RFOs.

Trainings provided by the team of experts appointed for this task by the ministry would be beneficial. A logical next step would be the preparation of guidelines on how to incorporate gender aspects into different procedures of RFOs (selection of evaluators, appointment of panel members, evaluation itself, project monitoring, etc.). Based on this, an additional training module could be prepared.

The Slovak Republic has endorsed the Ljubljana declaration at the end of year 2021. The document emphasizes achieving of GE as one of the core, shared values of ERA. However, commitment to this value was not properly communicated to the public. The Slovak Republic has not drafted the national ERA roadmap. Further strategic action for the Ministry of Education **should be an official commitment to gender equality.**

Another significant aspect is the missing GE structure. At the ministry level, there is no person officially appointed as a person responsible for GE, although the ministry fulfils the actions stipulated in the action plan. The UNIZA team considers that official assignment of GE agenda to one employee would be a practical demonstration of the ministry's commitment towards GE. Moreover, the GE agenda would in this way gain a spokesperson able to coordinate all the activities of the ministry in this field. The commitment of the particular RFOs would be welcome, as well.

CVTI SR (Slovak Centre of Scientific and Technical Information), which is a subsidiary organization of the ministry of education, introduced in autumn 2021 a consultancy support for universities and research institutions in GEP preparation. The trigger for this activity was the introduction of GE requirements in the Horizon Europe programme. Consultancy service was the only activity of the ministry or its subsidiaries in this area. Recently, CVTI represented by individuals has started to make an effort towards the advancement of GE at ministry level. **The extension of these activities towards RFOs would be welcome.**

RFOs have a significant impact on shaping the R&D sector through research funding, starting with the funding distribution, through the project evaluation, to the project monitoring. However, the Slovak Republic is only making its first steps towards GE in science and research. Therefore, the recommendations in this chapter have been concentrated on the first steps that are needed to be taken. It follows the fact that Slovak RFOs do not yet have any shareable best practice in gender mainstreaming.

The *Slovak Research and Development Agency* (APVV) has joined the H2020 project GRANTED for gender analysis. The UNIZA CHANGE team was the intermediary between the project and agency management, which proves the importance of the EU projects in shaping of the R&D funding environment of certain countries, especially the ones less advanced in implementing GE.

As described above, gender equality in R&D (funding) in the Slovak Republic lacks support mechanisms at the national level. The driving force of the GE is individuals involved in European projects. Therefore, the initiatives of the European Union are of crucial importance and should continue. On the other hand, the state institutions cannot shift its responsibilities to the European Union. Rather, they should use their resources wisely, with regard to sustainability of the measures, towards excellent and equitable research.

6.6 SLOVENIA

(Ana Rotter, Ernesta Grigalionyte-Bembič, Katja Klun)

Slovenia is one of the smallest countries in the European Union with around 2 million inhabitants. It is considered a moderate innovator, with a gross domestic expenditure on R&D of 2.05 % of the GDP (OECD 2021), divided into four R&D sectors: BE 73.3 %, GOV 13.7 %, HE 12.2 %, PNP 0.7 %. The sources of funding stem mostly from the BE (48.7 %), GOV (25 %), and abroad (24.6 %), see Figure 23 and Figure 24.

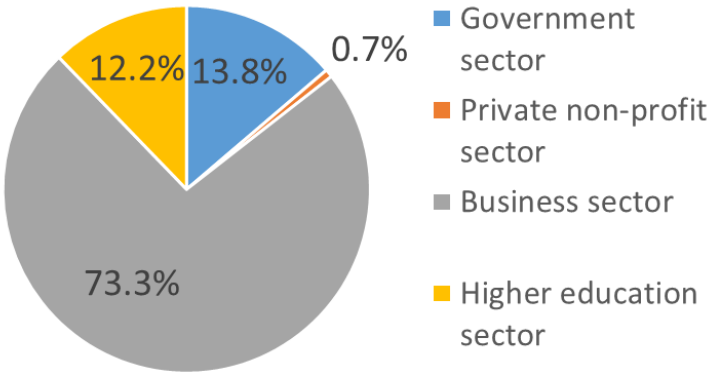


Figure 23: Gross domestic expenditure on R&D by sector of performanve in Slovenia, 2020 (Republic of Slovenia – Statistical Office 2021)

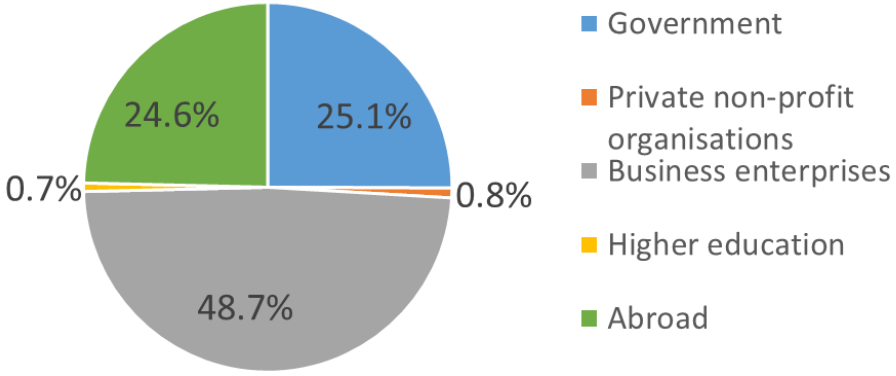


Figure 24: Gross domestic expenditure on R&D by source of funds in Slovenia, 2020 (Republic of Slovenia – Statistical Office 2021)

As a moderate innovator, research funding opportunities in Slovenia are rather limited and centralised. Most of the research funding in the country is organised by the national *Slovenian Research Agency*. This RFO is connected to the ministries, and is mainly engaged in public funding, both for joint research projects and individual grants. Another regional RFO secretariat, the *Local Action Group*, prepares strategic documents for public-private funding regional calls. In addition, sporadic calls are offered by ministries, mainly the Ministry of Education, Science, and Sport or the Ministry of the Environment and Spatial Planning (the latter often in the form of contractual agreements).

In terms of gender equality and women's representation, as mentioned earlier, the Gender Equality Index of Slovenia is rather high (67.6; EU average: 68; EIGE 2021), yet its Global Gender Gap Index indicates relatively lower scores especially in the politics dimension (Slovenia score: 0.741, rank: 41; World Economic Forum, 2021). The share of women among doctoral graduates in Slovenia is higher than the EU average, and generally a high value in EU, 54 % as opposed to the EU average of 47.8 % (SHE figures, 2021). However, the share of women researchers is especially high in the GOV (46.3 %)

and HE (41.8 %) sectors, but lower in the BE sector (22.7 %) (SHE figures 2021). These indicators suggest relatively high representation of women researchers in the public sector, but *under-representation of women researchers in the BE sector, where most of the research funding opportunities are available* (73.3 % of the gross domestic expenditure on R&D).

Gender gaps are also evident in terms of application and success rates in research funding in Slovenia. For example, of 796 applicants for research funding in Slovenia in 2019, only 297 (37.3 %) were women, and of 266 beneficiaries, 100 (37.6 %) were women (SHE Figures 2021). Funding success rate differences between women and men are better than the EU average 0.4 compared to EU-27 average of -3.9 (SHE Figures 2021). A closer examination of research funding success rates in Slovenia between women and men in different fields of R&D reveals gender gaps in all scientific fields, except for social sciences: natural sciences -4.45, engineering and technology -2.15, medical sciences +**9.39**, agricultural and veterinary sciences -3.03, social sciences **+5.86**, humanities and the arts +**2.27**. Meaning, *women researchers in Slovenia are less likely to benefit when applying for research funds in more technical fields*. Regarding research productivity, the women- to- men ratio of authorships in all fields of R&D in Slovenia is 0.59, which is better than the EU average of 0.55 (SHE Figures 2018), yet still indicates gender inequality in scientific publications[19].

Based on RFO mapping, expert interviews and RFO workshop, the NIB team depicted the research funding system in Slovenia as highly connected to the academic promotion system. More specifically, a crucial element of academic promotion is mentoring and postdoctoral projects abroad for young researchers. This promotion system is quite rigid, non-transparent and often based on personal acquaintance between researchers and mentors, therefore might be characterised as including non-meritocratic elements. In addition, criteria are often not taking into account female researchers career breaks related to family reasons, which negatively affect scientific productivity or experience. Consequently, women researchers in RPOs often occupy lower positions and are less 'scientifically productive', hence have less access to research funding opportunities. This observation in RPOs could explain the relatively low percentages of women's applications to research funds as mentioned above (37.5 %).

Regarding RFOs, gender aspects do not seem in high priority and are not given a prominent role in their strategies or work programmes. Equal gender opportunities are envisioned in the revision of the Scientific Research and Innovation Activity Act, where public research organizations have to adopt and implement measures for equal opportunities and revise and report them at least once per year. This is also facilitated

[19] A ratio of 1.0 indicates parity between women and men (SHE Figures 2018 – figure 7.1, p. 138).

through gender equality plans (GEPs) which have mostly been adopted by Slovenian RPOs. The Scientific Research and Innovation Activity Act also states that the composition of management committees of Slovenian RPOs and the Research Funding Agency must take the gender balance into consideration. However, a national verification of GE-related trends or changes in RPOs functioning and career advancement as well as equal opportunities in the funding processes are difficult to track. The reason is that most of the monitoring activities demand time and personnel resources and commitment. Finally, the RFOs lack gender expertise, gender experts, information regarding equal opportunities, or training on gender bias in their application and evaluation processes. Additionally, they do not use gender sensitive language in their calls.

Another important aspect in Slovenian RFOs is lack of transparency in their procedures and processes. The NIB team pointed out a lack of available information on how the evaluators are chosen, information regarding the composition of evaluation teams, the fact that pools of eligible evaluators are limited, some cases of former acquaintance between applicants and evaluators, and lack of well-justified argumentation in rejection notices. All these raise doubts about the transparency of procedures, and the concern whether research funding processes might be biased or imbalanced.

Despite these discrepancies, there is the *Commission for equal opportunities* (formerly called the *Commission for women in science*), a working body within the Ministry of Education, Science, and Sport, which supports a variety of activities to promote equal opportunities in science, such as equal gender representation for nomination in administrative bodies and preparation of legal acts and strategic scientific documents. In addition, a recent rise in the participation of Slovenian organisations in gender related H2020 SwafS projects (e.g. ACT project) has contributed to the establishment of a Community of Practice (CoP) consisting of persons from different academic institutions in Slovenia who are interested in implementing gender equality measures in their institutions. This active volunteering CoP could foster a change of trends, in terms of vocalizing inequalities and collaborating on a national level towards gender-inclusive research funding processes.

In summary, although awareness towards GE exists to some extent in national policy and in local initiatives which are evolving from H2020 SwafS projects, gender is still not highly prioritised in research funding processes, as well as academic promotion processes. Moreover, these processes seem non-transparent, partially non-meritocratic, and gender biased. Therefore, it is highly recommended to raise the awareness towards gender issues through legislation and regulation of science and research funding systems, gender training to senior managers, and the continuation of bottom-up initiatives of GE related CoPs and Horizon EU SwafS projects. To address the

policy making sector, a higher engagement and presence in media is recommended. This is partially already done through a new initiative called *Ona ve – she knows*, an entity which was organized by some prominent Slovene researchers and publicly exposed female individuals, that offer a presentation of their expertise in order for the media (or any stakeholders) to be able to contact them directly, addressing their expertise domain (https://onave.si/kdo-smo/). The entity is also present on social media (https://twitter.com/ker_onave) since November 2021, alongside several gender-related awareness raising activities, and providing opinions, especially regarding policy-related national issues.

Additionally, through policy briefs and direct communication with the EC, the input can be provided for future calls that need to focus on sustainability of achievements of former SWafS projects.

To address the scientific community, two additional recommendations are envisaged:

1. Maintain the self-organized networks (i.e., the network stemming from the ACT project – Alt+G (*Alternative infrastructure for gender equality*, https://altg.act-on-gender.eu/) which enables the exchange of information through the mailing list. These activities should be supported financially (e.g., through national project calls enabling such activities) as most of the work is done on a voluntary basis and is subject to personal commitment and other availability bottlenecks.
2. Proactively participate in European research proposals that would enable the sustainability of achievements and validate the knowledge and expertise of researchers that have already been involved in similar projects. The resistances within the institutions, especially those that do not have gender (humanities or social sciences) in their core activities, is partially still high. The continued involved of selected individuals in these activities would confirm their expertise internationally, hence they would be more recognized and listened to within their institutions.

7 CONCLUSION

Starting with the screening of research funding organisations, this task allowed gaining basic information about the research landscapes in the participating countries. Then, the situation within various RFOs was examined in more detail by means of 62 expert interviews and the gathered good practices for supporting gender equality in research funding were shared with RFO stakeholders in six RFO workshops. Findings from these three tasks show that many aspects within the different funding processes are similar across the partner countries. Research agendas and topics are decided politically, a call for proposals is prepared, there is an application phase, the applications are evaluated, and sometimes the process and the project itself are monitored.

However, it is also clear that not every section of the overall sequence is transparent for the applicants, nor is it gender-balanced or gender-inclusive. The prerequisites for submission might challenge women in terms of academic affiliation, position, disciplinary field or work-life balance issues. The evaluation processes as well as the evaluation criteria are not always clear, gender-blind, or completely transparent. In addition, evaluators' pools are in some cases limited to the local or national level, hence increasing the chance of former acquaintance between evaluators and applicants and a less objective process. Most examined RFOs in the framework of the expert interviews did not have formal or explicit gender policies nor gender experts in their committees. Moreover, in most cases RFO seniors or evaluators were not trained about gender issues. Some of them either regarded themselves as self-educated or skilled for dealing with gender issues or failed to understand why gender unconscious bias should be a topic on their agendas.

In summary, it is not always clear whether all applicants have the same chance of a positive evaluation and whether they are treated equally by the RFOs. Although it is difficult to identify all obstacles and challenges, it seems that research funding processes might indeed be unconsciously gender-biased regardless of place, policy, or regulation. However, there are also good practice examples for gender-balanced or gender-inclusive research programmes and processes. For instance, in some places the RFOs strongly implement EU gender policy through legislation and regulation. Thus, some RFOs are in the process of implementing effective measures such as: mandatory training courses for the evaluators focusing on unconscious biases, presence of gender experts in committees, and supportive instruments or programmes for young female researchers. RFOs in other places might lack formal regulation. However, individuals will often express good attitudes towards issues of diversity, equity and gender equality. Therefore, raising gender awareness in those organisations will in itself have a positive impact on leverage their cooperation. Those good practices are a basis for shared learning and joint improvement of the CHANGE partners towards gender-fair research funding processes

and organisations. In the course of the project, joint workshops lead to the organisations learning from and with each other.

Concerning the RFO workshops, findings have proven how diverse and complex is the research landscape in different countries, and even within the same country on different levels - whether national, regional, or local. This complexity is multiplied when examining different types of research (basic or applied) in different sectors (academia, industry or non-profit organisations) and different fields of research (STEM, SSH, or interdisciplinary fields).

It seems that major funding resources in Germany and Austria are allocated in industrial and business fields. Those fields have initially lower percentages of women researchers, due to gender vertical segregation of professions. Consequently, fewer women will apply to respective funding programmes in these fields, and fewer women will likely position networks or evaluation committees connected to them. In addition, gender inclusive regulation and budgeting prevails more in the public HE national sector, and less so in the regional, private, or BE sectors and levels. Therefore, one of the main challenges is to transfer knowledge and gender-inclusive good practices from the national to the regional level and from HE or GOV to the BE and PNP sectors. In Slovakia and in Israel more emphasis is given on gender gaps at the individual levels, mainly challenges of young female researchers in the postdoc phase to cope with other care and family duties in parallel with meritocratic requirements of research productivity and publications. Moreover, it seems that much action is needed to raise awareness of GE and unconscious bias issues, in order to foster a sense of necessity and commitment of RFO practitioners to indeed promote the issue within their organisations. Portugal showcases a unique situation, where according to rough figures the women's presence in research seems quite high, therefore it is very challenging to convince RFO practitioners that there is such an issue of gender gaps or imbalances in research funding processes. Consequently, RFOs are not very cooperative with CHANGE initiatives at the moment. Slovenia is another special example of a small-scaled country with relatively limited and very centralised governmental resources of research funding. Its history and cultural context, along with higher education structures seem to result with several discrepancies and biases in evaluation, promotion and funding processes.

Overall, regardless of local differences between the change countries, it seems that further investigation still needs to be done, in order to reveal and decipher the power relations and rigid structures of the scientific research funding systems. It seems that gender inclusive or exclusionary practices in each country are embedded in cultural context, but also in old traditions and male-dominated perceptions of science and scientific research. Regardless of regulative measures and some good practices in some

RFOs, it seems that women researchers in all countries still face inherent gender gaps in research funding processes, as is well manifested in 'scissors curves' and other quantitative figures all over the world. These findings lead us to the inevitable question - are those good practices enough? Are there hidden barriers we have missed? Or maybe we should deal not only with standardising procedures, gender mainstreaming and unconscious bias training to managers, in order to enable women enter 'the boys' club' of scientific research as it is, but also question the very fundamentals of this 'club' all together?

Radical and critical discourse regarding scientific research paradigms is being more vocalised in recent years. Some aspects of this discourse have been even manifested in parts of the expert interviews we have conducted. More researchers question nowadays many aspects of scientific research, such as rigid mono-disciplinary division versus a multi-disciplinary reality, external and biased ranking of scientific publications excluding other cultures and languages than English, the prestige of research as opposed to other expert practices (such as arts, education and clinical practices) and many more.

The POV (point of view) perspective for exclusionary gendered practices mentioned in the introduction section might serve as a practical tool to critically question and examine those rigid scientific research criteria that may no longer be exclusive in this post-modern era. Thus, in addition to applying intervention methods to empower women researchers on the one hand and to neutralize gender unconscious biases of RFOs on the other hand, maybe we should also intervene and change the way we perceive science and research? Such an innovative and broader 'out of the box' thinking might offer more flexibility in procedures and criteria thus enabling a genuine diverse and gender-balanced scientific playground to all, women and men.

Nevertheless, parallel to pointing out the faults of the system, it is fundamental to develop and implement practical measures to raise awareness and to educate people about gender equality and unconscious bias at all hierarchy levels and in all R&D sectors. Raising awareness and educating people about gender equality and unconscious bias is a fundamental and useful tool to all people at all hierarchy levels worldwide. Moreover, there are power issues too. Even when all know about the gender inequities, some do not want to change the system, which favors them.

8 BIBLIOGRAPHY

Aguinis, Herman, Young Hun Ji and Harry Joo. 2018. "Gender Productivity Gap among Star Performers in STEM and Other Scientific Fields." *Journal of Applied Psychology, 103*(12), S. 1283–1306. doi:https://doi.org/10.1037/apl0000331.

Almog, Oz and Tamar Almog. 2020. "The academia's lies: what went wrong in the university model and what will come in its place." Rishon Lezion *Yediot Ahronot Press*, Israel (in Hebrew). Chapter 3.

Benschop, Yvonne and Verloo, Mieke. 2011. "Gender Change, Organizational Change and Gender Equality Strategies." In E. Jeans, D. Knights, & P. Yancey-Martin, *Handbook of Gender, Work and Organization* (pp. 277-290). London: John Wiley.

Ben-Uri, Ina and Hana Himi. 2019. "The gender perspective of Work-family Relations among college teachers." *Inequality vs inclusiveness in changing academic governance: policies, resistances, opportuniti*es - International Conference, Naples, Italy, 16-17 September 2019.

Berkovich, Izhak. 2014. "A Socio-ecological framework of social justice leadership in education." *Journal of Educational Administration, 52*(3), pp. 282-309.

Bronfenbrenner, Urie. 1979. *The ecology of human development: Experiments by nature and design.* Cambridge, MA: Harvard University Press.

Bustelo, Maria, Lucy Ferguson and Maxime Forest, eds. 2016. *The politics of feminist knowledge transfer: gender training and gender expertise.* New York: Palgrave Macmillan.

Central Bureau of Statistics. 2011a. *Table 25: R&D Personell in the business sector international comparison.* Retrieved from https://www.cbs.gov.il/he/publications/DocLib/2014/1550/excel/t25.xls.

Central Bureau of Statistics. 2011b. *Press release: Survey on Research and Development in Government Institutions and in Research Institutions and Units 2009.* Retrieved from https://www.cbs.gov.il/he/mediarelease/doclib/2011/292/12_11_292e.pdf.

Central Bureau of Statistics. 2019. *The National Expenditure on Civilian R&D 2019, Media release 345/2020.* Retrieved from https://www.cbs.gov.il/he/mediarelease/DocLib/2020/345/12_20_345e.pdf.

Central Bureau of Statistics. 2020. *National Expenditure on Civilian Research and Development 1990-2018, publication no. 1777.* Retrieved from https://www.cbs.gov.il/he/publications/DocLib/2020/1777_civilian_rd_2018/e_print.pdf.

CHANGE. 2018. *Deliverable D4.1: Summary of Gender Benchmarking Report.* Retrieved from https://mfr.de-1.osf.io/render?url=https://osf.io/emyj3/?direct%26mode=render%26action=download%26mode=render.

Coleman, James S. 1986. "Social Theory, Social Research, and a Theory of Action." *American Journal of Sociology, 91*(6), S. 1309-1335.

Dahmen-Adkins, Jennifer, Sandra Karner and Anita Thaler. 2019. "Co-producing gender equality knowledge in a European project setting." *Critical Issues in Science, Technology and Society Studies - STS Conference 2019*, (pp. 50-66). Graz.

Dubois-Shaik, Farah and Bernard Fusulier, eds. 2015. "Academic Careers and Gender Inequality: Leaky Pipeline and interrelated Phenomena in Seven European Countries." In *GARCIA working papers 5 - **G**endering the **A**cademy and **R**esearch: combating **C**areer **I**nstability and **A**symmetries.* Deliverable D6.1. EU Horizon 2020 grant agreement n. 611737.

EIGE. 2016a. *Integrating gender equality into academia and research organisations.* Retrieved from https://eige.europa.eu/publications/integrating-gender-equality-academia-and-research-organisations-analytical-paper.

EIGE. 2016b. *Institutional Transformation: Gender Mainstreaming Toolkit.* Retrieved from https://eige.europa.eu/publications/institutional-transformation-gender-mainstreaming-toolkit.

EIGE. 2016c. *Gender Equality in Academia and Research – GEAR tool*. Retrieved from https://eige.europa.eu/gender-mainstreaming/toolkits/gear.

EIGE 2021. *Gender Equality Index.* Retrieved from https://eige.europa.eu/gender-equality-index/2021.

ERAC. 2018. Report on the Implementation of Council Conclusions of 1 December 2015 on Advancing Gender Equality in the European Research Area. *Brussels: European Commission.*

European Commission. 2020a. *European Innovation Scoreboard.* Retrieved from https://ec.europa.eu/growth/industry/policy/innovation/scoreboards_en, Luxembourg: Publications Office of the European Union.

European Commission. 2020b. *Gendered Innovations 2: How Inclusive Analysis Contributes To Research and Innovation: policy review, Publications Office. https://data.europa.eu/doi/10.2777/53572.*

European Commission. 2020c. *COM 152 – final communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions: A Union of Equality: Gender Equality Strategy 2020-2025.* Retrieved from *https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0152&from=EN*

European Commission. 2021. *European Innovation Scoreboard.* Retrieved from https://ec.europa.eu/docsroom/documents/46013. Luxembourg: Publications Office of the European Union.

Federal Ministry of Education, Science and Research; Federal Ministry for Transport, Innovation, and Technology and Federal Ministry for Digital and Economic Affairs. 2019. *Austrian Research and Technology Report*. Retrieved from https://www.bmbwf.gv.at/dam/jcr:2edd3ea0-c373-456e-8f09-faf5f984d3f7/FTB_2019_english.pdf (April 21, 2020).

Federal Statistical Office (2021a). "Bildungsausgaben – Budget für Bildung, Forschung und Wissenschaft 2018/19." Retrieved from: https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Bildungsfinanzen-Ausbildungsfoerderung/Publikationen/Downloads-Bildungsfinanzen/bildungsausgaben-pdf-5217108.pdf?__blob=publicationFile (May 24, 2020).

Federal Statistical Office (2021b). „Press release regarding the expenditures for research and development in Germany 2019." Retrieved from: https://www.destatis.de/DE/Presse/Pressemitteilungen/2021/02/PD21_079_217.html (May 24, 2020).

FEMtech. 2020a. *ProfessorInnen im Hochschulsektor nach Wissenschaftsfeldern für 2010 und 2013 im internationalen Vergleich.* Retrieved from https://www.femtech.at/daten/professorinnen-im-hochschulsektor-nach-wissenschaftsfeldern.

FEMtech. 2020b. *Glass Ceiling Index für 2004, 2010, 2013 und 2016 im internationalen Vergleich.* Retrieved from https://www.femtech.at/daten/hochschulsektor-glass-ceiling-index.

Higher Education Authority. (2016). *HEA National Review of Gender Equality in Irish Higher Education Institutions.* Retrieved from https://hea.ie/resources/publications/hea-national-review-of-gender-equality-in-irish-higher-education-institutions/.

Jaksztat, Steffen 2017. "Gender and Research Productivity." *Zeitschrift für Soziologie, 46*(5), S. 347–361.

Karner, Sandra, Bettina B. Bock, Femke Hoekstra, Heidrun Moschitz and Anita Thaler. 2014. *Knowledge Brokerage in Communitites of Practice – Hands on recommendations.* IFZ: Graz. ISBN 987-3-9502678-6-0.

Karner, Sandra; Bettina B. Bock, Femke Hoekstra, Heidrun Moschitz, Anita Thaler and Han Wiskerke. 2016. "FOODLINKS: Buildings communitites of practice for learning on sustainable food consumption and production." In: Martinuzzi, Andre and Michal Sedlacko, eds. 2016. *Knowledge Brokerage for Sustainable Development.* 2016. Greenleave Publishing Sheffild.

Karner, Sandra, Anita Thaler and Magdalena Wicher. 2017. „Wie durch gemeinsame Wissensproduktion in der Gender-Forschung soziale Geschlechtergerechtigkeit in Wissenschaft und Forschung befordert werden kann." (How co-production of knowledge can raise gender equality in science and research). In: Dahmen, Jennifer and Anita Thaler, eds. 2016. *Soziale Geschlechtergerechtigkeit in Wissenschaft und Forschung.* Opladen, Berlin, Toronto: Verlag Barbara Budrich. S. 127–141.

Lasinger, Donia, Elisabeth Nagl, Jana Dvořáčková and Marcel Kraus. 2017. "Best practice examples of gender mainstreaming in Research Funding Organizations." In *GECCO – Gender Equality in Englineering through Communication and Commitment.* EU Horizon 2020 grant agreement no. 741128.

Lehrer, Zeev and Hadass Ben Eliyahu. 2019. *Handbook of Organizational Gender Consultation and Intervention.* Jerusalem, Israel: Van Leer Institute Press.

Miller, David. 2015. A Metaphor to Retire. Retrieved from https://www.insidehighered.com/views/2015/03/03/essay-calls-ending-leaky-pipeline-metaphor-when-discussing-women-science.

Ministry of Science & Technology. 2019a. "The State of Gender Equality in Research Funds in Israel 2017-2018." In *Ministry of Science and Technology and The Council for the Advancement of Women in Science and Technology.* Jerusalem, Israel: Ministry of Science & Technology (in Hebrew).

Ministry of Science & Technology. 2019b. "The State of Gender Equality in Research Funds in Israel 2015-2017." In *Ministry of Science and Technology and The Council for the Advancement of Women in Science and Technology.* Jerusalem, Israel: Ministry of Science & Technology (in Hebrew).

Murgia, Annalisa and Barbara Poggio. 2019. *Gender and Precarious Research Careers A Comparative Analysis.* London and New York: Taylor & Francis Ltd.

NKU. 2018. "Systém financovania výskumu a vývoja z verejných zdrojov v SR / Research and Development Funding System from Public Sources in Slovak Republic." Najvyšší kontrolný úrad Slovenskej republiky / Supreme Audit Office of the Slovak republic.

O'Connor, Pat and Gemma Irvine. 2020. "Multi-Level State Interventions and Gender Equality in Higher Education Institutions: The Irish Case." *Administrative Sciences*. 10(4), pp. 1-21, ISSN 2076-3387.

OECD. 2015. *Frascati Manual 2015: Guidelines for Collecting and Reporting Data on Research and Experimental Development, The Measurement of Scientific, Technological and Innovation Activities.* Paris, France: OECD Publishing.

OECD. 2018. "Gross domestic spending on R&I (indicator)". doi: 10.1787/d8b068b4-en (May 23, 2021).

OECD. 2019. "OECD Review of Higher Education, Research and Innovation: Portugal" OECD Publishing, Paris, https://doi.org/10.1787/9789264308138-en.

OECD. 2021. *Main Science and Technology Indicators.* Volume 2021 Issue 1. OECD Oublishing, Paris. https://doi.org/10.1787/eea67efc-en.

PORDATA. 2021. "Expenditure in research and development activities (R&D): total and by sector of performance." *Fundação Francisco Manuel dos Santos*. Retrieved from: https://www.pordata.pt/en/Portugal/Expenditure+in+research+and+development+activities+(R+D)+total+and+by+sector+of+performance-1106 (March 01,2022)

Republic of Slovenia – Statistical Office. 2021. "Research and Development Activity, Slovenia, 2020 – Slovenia allocated EUR 1 billion for research and development in 2020" Retrieved from: https://www.stat.si/StatWeb/en/News/Index/9919.

Republik Österreich. 2011. *Realising potentials, increasing dynamics, creating the future. Becoming an Innovation Leader. Strategy for research, technology and innovation of the Austrian Federal Government*. Retrieved from https://www.bundeskanzleramt.gv.at/en/topics/rti-strategy.html (Feb. 19, 2020).

Roberts, Alasdair. 2020. "Bridging Levels of Public Administration: How Macro Shapes Meso and Micro." *Administration & Society, 52*(4), pp. 631-656.

Roxborough, Lori, Lisa Rivard and Dianne Russel. 2009. "Knowledge Brokering in Health Care." Published and distributed by CanChild Centre for Childhood Disability Research. Retrieved from: https://www.canchild.ca/en/resources/41-knowledge-brokering-in-health-care.

Saliterer, Iris and Sanja Korac. 2018. *Externe Evaluierung der Haushaltsrechtsreform des Bundes im Jahr 2017.* Retrieved from https://www.bmf.gv.at/themen/budget/haushaltsrechtsreform/externe-evaluierung-bundeshaushaltsrecht.html (Feb. 28, 2020).

Sato, Sayaka, Pascal Mark Gygax, Julian Randall and Marianne Schmid Mast. 2020. "The leaky pipeline in research grant peer review and funding decisions: challenges and future directions." *Higher Education.* 82, 145–162.

Schulz Astrid, Matthias Dorgeist, Christoph Heckwolf, Andrea Wolffram, Jennifer Dahmen-Adkins, and Anne Göttgens. 2019. "How Informal Processes and Relationships Shape Gendered Careers in STEM." *International Conference on Gender Research.* Roma Tre University, Italy.

Science Europe. 2017. *Practical Guide to Improving Gender Equality in Research Organisations.* Retrieved from: https://www.scienceeurope.org/our-

resources/practical-guide-to-improving-gender-equality-in-research-organisations.

She Figures. 2018. Published by *European Commission*. 2019. Retrieved from https://ec.europa.eu/info/publications/she-figures-2018_en, Luxembourg: Publications Office of the European Union (March 03, 2022).

She Figures. 2021. Published by *European Commission.* 2021. Retrieved from https://ec.europa.eu/info/publications/she-figures-2021_en, Luxembourg: Publications Office of the European Union (March 03, 2022).

Shidlo-Hezroni, Vered and Hana Himi. 2021. "Challenges facing women coping with multiple roles in academia, An Israeli College as a case study: A Gender Equality Plan within the framework of the CHANGE project." [submitted].

Shidlo-Hezroni, Vered and Hana Himi. 2021. "Women in academia coping with the challenge of multiple roles: A gender equality plan, in the CHANGE project Beit Berl Academic College, as a case study." *ICGR 4th International Conference on Gender Research (ICGR)*, Aveiro, Portugal, June 21-22, 2021.

Slovak republik. 2020. *Štatistický úrad SR. / Statistical Office of the Slovak republik.*

Straus, Sharon. E., Jacquline Tetroe and Ian Graham. 2009. "Defining knowledge translation." *Canadian Medical Association Journal*, 181(34), 165-168.

Stoet, Gijsbert, and David C. Geary. 2018. "The Gender-Equality Paradox in Science, Technology, Engineering, and Mathematics Education." *Psychol Sci, 29*(4), S. 581-593.

SUPERA. 2020. "Guidelines foir gendersenistive communication in research and academia." In *Supporting the Promotion of Equality in Research and Academia.*

Thaler, Anita. 2006. *Berufsziel Technikerin?* (Vol. 53). Technik- und Wissenschaftsforschung.

Thaler, Anita and Birgit Hofstätter. 2014. "Promoting women researchers' careers. An evaluation of measures in life sciences and ICT." *8th European Conference on Gender Equality in Higher Education. September 3-5, 2014.* Vienna University of Technology, Austria. Retrieved from: https://gender2014.conf.tuwien.ac.at/fileadmin/t/gender2014/Full_Papers/Thaler_GEHE_Paper_2014_Thaler_Hofstaetter_final-bio.pdf (April 22, 2020).

Thaler, Anita, Maya Ashkenazi, Madlen Baumert, Janne Haack, Hana Himi, and Sandra Karner. 2021. *The Hidden Potential: Gender in Research Funding of Three Strong Innovators.* 10.3217/978-3-85125-855-4-20. Retrieved from: https://diglib.tugraz.at/download.php?id=6188f9f344e7e&location=datacite (February 02, 2022).

The Israel Academy of Sciences and Humanities. 2013. *Report on the State of the Sciences in Israel – 2013 (full report in Hebrew).* Retrieved from https://www.academy.ac.il/SystemFiles/21708.pdf.

The Israel Academy of Sciences and Humanities. 2019. *Report on the State of the Sciences in Israel – 2019 (full report in Hebrew).* Retrieved from https://www.academy.ac.il/SystemFiles2015/State_of_Science_report_digital_7.1.2020.pdf.

The Knesset, Research and Information Center. 2018. *Representation of Women in the Israeli Academia - Compilation of Data.* Retrieved from https://m.knesset.gov.il/EN/activity/mmm/me040618.pdf.

van Wijk, Jakomijn, Charlene Zietsma, Silvia Dorado, Frank G. A. de Bakker and Ignasi Marti. 2019. „Social Innovation: Integrating Micro, Meso, and Macro Level Insights From Institutional Theory." *Business & Society, 58*(5), pp. 887-918.

World Economic Forum. 2021. "Global Gender Gap Report 2021." Insightreport, March 2021. Retrieved from: https://www.weforum.org/reports/global-gender-gap-report-2021 (March 01, 2022).

Wroblewski, Angela. 2017. "Das Gleichstellungsparadox in Wissenschaft und Forschung in Österreich." In: Dahmen, Jennifer and Anita Thaler. 2017. *Soziale Geschlechtergerechtigkeit in Wissenschaft und Forschung.* Wiesbaden: Budrich Verlag: Retrieved from: https://www.researchgate.net/publication/316830144_Soziale_Geschlechtergerechtigkeit_in_Wissenschaft_und_Forschung (June 23, 2020).

Wroblewski, Angela. 2022. "Monitoring of ERA priority 4 implementation – update and final assessment" In *GENDERACTION – GENDer equality in the ERA Community To Innovate policy implementatiON.* Deliverable 3.3. EU Horizon 2020 grant agreement no. 741466.