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Gender Equality Plan Development in Universities: A Strategic Management Perspective

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Abstract: Gender equality and the empowerment of women of all ages are universal goals. Achieving gender equality necessitates actions that cut across many policy sectors, from education, social protection and the labour market to property rights, fiscal systems, infrastructure and governance. Gender equality plans (GEPs) are a component of European policies aimed at improving gender equality in higher education organizations such as universities.

This study focuses on the GEP development process through the use of action research. An Italian University is deemed as a suitable case study. The approach adopted in the study is the interventionist one. To this purpose, the authors were directly involved in the process of defining the GEP of the University of Messina, by engaging, training and coordinating the organization's stakeholders and by drafting the GEP document. This work contributes to both literature and practice. First, it provides a GEP development approach based on strategic planning and management theory that might be applied to other organizations and governmental sectors. Moreover, by describing the University's GEP development process, it also contributes to the literature and propagates analytical techniques connected to gender mainstreaming in Italian institutions.

Keywords: gender equality, universities, gender equality plan, Italy, action research

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1. Introduction

Equality between women and men represents a fundamental value of modern societies. It is one of the strategic objectives of the 2030 United Nations Agenda for Sustainable Development (Goal 5: Achieve gender equality and empower all women and girls). The gender issue represents a transversal priority of European policies; in fact, the gender dimension plays a pivotal role within EU research and innovation initiatives, in terms of equal opportunities and representativeness within governing bodies and commissions.

In recent decades gender equality has been framed among several paths of research that have underlined the need to implement a series of actions and behaviors aimed at guaranteeing equality between men and women.

In this respect, universities promote a culture that is inclusive and respectful of all identity differences (Robinson et al., 2017), as well as being attentive to differences in values, thus promoting individual, social and organizational well-being for students, teaching staff and technical-administrative staff (García-Holgado et al., 2020; Zippel et al., 2016). The scientific debate of the last few decades has shed light on a wide range of theories, stereotypes, labels and prejudices that have characterized the "gender equality discourse" in many fields of research and in which barriers that have hindered gender equality between individuals are rooted (Loots & Walker, 2015).

The concept of a "glass ceiling" is frequently used to depict gender disparities in job development. It highlights the impact of a series of intangible hurdles that prevent women from rising to the top of organizations (O'Keefe & Courtois, 2019). These barriers are hidden because, while formal organizational rules may promise that women will have a fair chance to compete with men in recruitment and promotion processes, informal rules and practices can undermine those chances by creating a ceiling against which women aspiring to the top positions will collide (Clavero & Galligan, 2021). The prominent and glaring manifestation of gender inequalities within the academic realm is the noticeable underrepresentation of women in both academic positions and university leadership roles. This, however, is only one facet of a problem that "resembles an unstoppable seven-headed monster" (Van den Brink & Benschop, 2012, p. 71). Even if women ultimately smash through the glass barrier and achieve parity with men at the top levels of companies, as studies on gender and organizations reveal, there is no assurance that such organizations will run in a more gender-equitable manner (Hamilton et al., 2019).

In this context, gender equality plans (GEPs) are essential tools for addressing gender equality in universities and for integrating the gender perspective into all university policies (Addabbo et al., 2018, 2020; Pulejo, 2011). Today, the existence of cultural and structural obstacles to women accessing a scientific career has prompted the academic population to solicit a discussion on these issues, involving the entire European university system (Loison et al., 2017). In this scenario, among scholars and practitioners, awareness has grown of how GEPs represent not only an important tool for analysing universities' institutional and environmental context, but also a tool for evaluating over time the adequacy of the commitment of universities to the enhancement of gender equality.

Gender equality plans are gradually becoming part of the eligibility criteria for public bodies, research organizations and higher education institutions for being part of European programs.

However, despite the relevance of the topic, few researchers have tackled the process of developing gender equality plans in universities and in public bodies in general.

To fill this gap, this paper focuses on the process of developing a GEP through the adoption of action research. This is an iterative strategy that combines theory and practice and involves researchers acting as assistants within the organizations being analysed. The case study examined is that of the University of Messina.

The remainder of the paper is structured as follows. The following section defines the GEP in universities.

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The third section presents the theoretical background of the study. The fourth section illustrates the methodology, while the fifth section presents the results. The article ends with conclusions and suggestions for further research.

1.1 Defining a Gender Equality Plan for the University

Gender equality and the empowerment of women of all ages are universal goals; achieving gender equality necessitates actions that cut across many policy sectors, from education, social protection and the labour market to property rights, fiscal systems, infrastructure, and governance. Gender equality plans are a component of European policies aimed at improving gender equality in higher education. They incorporate gender mainstreaming initiatives that have been cultivated especially since 2012 when the European directive "A Reinforced European Research Area Partnership for Excellence and Growth" was published (COM, 2012). The European Commission invites research-performing organizations (RPOs) to develop GEPs to identify gender bias within their organizations through impact assessments/audits of procedures and practices, implementing innovative strategies to correct any bias (Maes et al., 2012), and setting targets and tracking progress using indicators (Addabbo et al., 2020). Moreover, the European Commission's Gender Equality Strategy for 2020–2025 includes gender equality in research and innovation. The requirement for GEPs, which will be required to secure EU funds, will push further progress in gender equality in RPOs: "In the field of research and innovation, the Commission will introduce new measures to strengthen gender equality in Horizon Europe, such as the possibility of requiring a gender equality plan from applicants and an initiative to increase the number of women-led technology start-ups. Funding for gender and intersectional research will also be made available" (European Commission, 2020, p. 17).

The European Commission defines the GEP in the context of research organizations and higher education institutions as a series of actions aimed at achieving gender equality (EIGE, 2016): conducting impact assessments/audits of procedures and practices to identify gender bias; identifying and implementing innovative solutions to correct any prejudice; and setting goals and tracking progress using indicators. This collection of acts, which might range in complexity, is intended to explain a strategic approach to achieving gender equality. Adherence to a charter or the adoption of basic gender equality objectives does not constitute a gender equality strategy/plan in and of itself, as these commitments must be translated into a concrete set of steps and actions to be implemented.

For the same reason, having a larger diversity or anti-discrimination strategy and/or plan that addresses gender and other concerns is not the same as having a gender equality plan. Indeed, it is unlikely that gender equality will be achieved if such a strategy does not rely on sufficient data on gender and only targets gender through a restricted number of metrics and indicators. Depending on the type of organization, the institutional framework in which it is implemented, the disciplines addressed, and/or the sort of gender biases and inequalities discovered as part of the diagnostic, the breadth of a gender equality plan can vary significantly.

In light of the European policy indications and the results of some studies, the pursuit of objectives of equal representation of genders in organizations enables those organizations to improve their results, overall performance, and internal atmosphere, as well as to move their administration towards greater social sustainability (Powell et al., 2018). For these reasons, the commitment of universities – both public institutions that train young people in their cultural approach and value system, and scientific research institutions for which innovation is a constant objective – can be crucial in the national context (Verloo, 2018).

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2. Theoretical Background

2.1 Gender studies in higher education organizations

Several studies have dealt with the gender variable in the public sector ranging from a focus on hospitals (Naciti et al., 2022), municipalities (Galizzi et al., 2018; Cuadrado-Ballesteros et al., 2021), up to higher education (Addabbo et al., 2020; Barone and Assirelli, 2021).

In the context of higher education, previous studies show striking commonalities among Western nations in the qualitative structure of gender segregation (Charles and Bradley 2009; Vaarmets 2018). Indeed, it has been shown that in the science, technology, engineering and mathematics (STEM) disciplines, women are systemically underrepresented (Blackburn, 2017) and significantly overrepresented in the humanities, social sciences, and teacher education (Bradley, 2000).

Furthermore, the qualitative and quantitative patterns of gendered fields of study choices show a striking tendency to constantly conform to gender stereotypes, which is consistent with earlier research that shows gender segregation in higher education is relatively stable (England and Li 2006).

However, evidence of the voluntary positive action of gender equality in academia has been acquired, for example through systems of gender equality certification like the Athena Scientific Women's Academic Network (SWAN), to address disparities between men and women's careers in higher education institutions (Xiao et al., 2020). Kalpazidou et al. (2020) found that tying financing to the Athena SWAN silver award seems to have boosted the number of female topic leads but not the number of female directors.

In general, tying financial support to academic policies to promote gender equality can generate an extrinsic motivation to take action, which will increase gender equality (Erbe, 2015; Kalpazidou et al., 2020).

But whether or not these steps are legally enforceable, whether or not there is a monitoring mechanism in place, and which set of indicators are used to gauge the activities all affect how effective they are (Erbe, 2015; Salinas and Bagni, 2017).

The growth in gender imbalance inside academic institutions is the result of new public administration that prioritized academic achievement and allocated resources to sectors that were more heavily controlled by males (Conger and Dickson, 2017)

The reasons why women are still underrepresented in senior roles in academia are also the subject of a variety of theories. Some place the blame on an individual's traits, their level and type of human capital, or their lack of drive, ambition, or self-esteem (Herbst, 2020); others consider the role of organizational cultures and practices (Thomas, 2021); still others point to the macro contexts into which individuals and organizations are placed.

Indeed, many studies have shown a connection between the different welfare regimes and the way in which men and women build their life paths, the behaviors they implement with respect to participation in the labor market, fertility, participation in family work (Nakray, 2021) and the narratives leading up to such enactments (Grunow and Evertsson 2016). Among the central welfare policies are the so-called "reconciliation policies": how they are divided into their four pillars (monetary transfers, services, leave, hourly flexibility) and how they are oriented, especially if and how they "defamilize" care responsibilities and costs of children, while promoting greater gender equality in the distribution within the family of those responsibilities, towards a model that some authors have called dual earner- dual career.

Both literature and practice have identified gender mainstreaming, and in particular the development of GEPs and gender budgets (GBs), as the approach to pursue gender equality in public organizations and in higher education (Steccolini, 2019; Polzer et al., 2021). However, to the authors' knowledge, few research has been focused yet on how to develop GEPs for higher education organizations (Clavero and

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Galligan, 2021; Nì Laiore et al., 2020).

This article proposed the adoption of a strategic management approach to develop and implement GEPs in public universities.

2.2 Strategic planning and management in higher education organizations

The development of strategic plans is a practice that was introduced in public organizations in the last decades of the twentieth century and has evolved consistently with the changes in public sector organizational forms (Bryson & Roering, 1988; Poister, 2010). Higher education institutions have not escaped this trend (Akyel et al., 2012; Biondi & Russo, 2022; Deas et al., 2012; Dooris et al., 2004; Keller, 1983). In particular, Dooris et al. (2004) identified both opportunities and challenges in applying strategic planning to academic institutions, inviting new research to focus on this topic, while Akyel et al. (2012), Deas et al. (2012) and Biondi & Russo (2022) reported interesting experiences of strategic planning in universities.

The aim of strategic planning activities is to define the key organizational objectives consistently with the institutional mission and to categorize them into targets, strategic lines and actions (Bianchi & Tomaselli, 2015; Bryson, 1988, 1995; Mintzberg, 1994; Poister, 2010).

Strategic planning is characterized by the following phases: initial agreement, diagnosis, strategy formulation and design, and implementation (Akyel et al., 2012; Bryson, 1988; Cavenago & Margheri, 2006). These phases are supported by a transversal activity, namely stakeholder engagement (Noto & Noto, 2019; Thomas & Poister, 2009). The initial agreement concerns the alignment of governance bodies regarding the purpose, steps, timing and organization of the planning effort. The diagnosis comprises the analysis of the internal and external environment through a set of activities that allows the identification of the strategic issues. In this phase, the contribution of stakeholders is pivotal to properly assess threats, opportunities, strengths, and weaknesses of an organization in pursuing its goals.

Strategy formulation and design concern the development of a strategy to guide an organization toward its desired future (Mintzberg, 1994). Strategy development begins with the identification of practical alternatives to resolving the strategic issues identified. Planners should then identify the barriers to achieving those alternatives to ensure that the strategies deal with implementation difficulties directly. Lastly, the final step of the strategic planning process is about implementation. This phase is the realization of what was conceived and designed and provides important feedback on the previous phases. Strategic planning needs to be included in a broader strategic management process in which the actions implemented are monitored and evaluated through a set of performance indicators, which provides information on the overall strategic planning process (Akyel et al., 2012; Bianchi & Tomaselli, 2015; Biondi & Russo, 2022; Cosenz, 2014, 2022; Manes-Rossi et al., 2022; Poister, 2010). This implies that each objective and action of the strategic plan needs to be linked to a set of measures that enable monitoring and evaluation.

The transversal phase, i.e. stakeholder engagement, is instrumental in supporting each of the previously described activities as public organizations are accountable for their actions and performance (Tandilashvili and Tandilashvili, 2022) to third parties and the community (Noto & Noto, 2019; Thomas & Poister, 2009). Therefore, academic institutions are called to engage with their key stakeholders and broader citizens. According to various authors, the engagement approach with stakeholders should differ depending on the characteristics of the distinct groups – i.e. the more relevant the stakeholder is (in terms of power, legitimacy, and urgency), the more inclusive and proactive the engagement approach adopted should be (Bingham et al., 2005; Bryson, 2004; Burford, 2013; Gao & Zhang, 2006; Mitchell et al., 1997).

As mentioned in the previous subsection, the goals of achieving gender equality and promoting it in the

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reference community are today at the top of every university agenda. In their work, Deas et al. (2012) focused on a strategic planning approach to improve diversity in a medical university. Consistently with their idea, we can thus conceive and prepare GEPs as strategic plans that support universities, such as other public and not-for-profit organizations, to pursue these key goals.

This paper proposes the adoption of a strategic planning and management approach to develop GEPs in universities. According to the authors, the phases characterizing the strategic planning process – and in particular, stakeholder engagement, diagnosis, strategy formulation, and design – may represent a useful guide for the development of GEPs tailored to higher education organizations.

3. Methodology

This article is based on the action research (or praxis research) method (Eikeland, 2012). Action research is a form of practitioner research based on the practically acquired experience of the researchers involved. It is aimed at overcoming the deep split between theory and practice produced by a fundamentally contemplative, externalized, and spectator-based epistemology (Eikeland, 2012). The goal of action research is to generate practical information that can help an organization or a community build new understanding or solve specific practical challenges. Berg (2004) defines action research as a collaborative approach to research that involves strategic action and critical reflection and provides participants with the means to produce solutions to practical problems or improvements in practice based on individual and organizational needs. It is most commonly used in the organizational and educational fields. Bryman (2016, p. 397) stated that action research provides a valuable framework for organizational change because of its "commitment to involving people in the diagnosis of and finding solutions to problems rather than imposing on their solutions to predefined problems". The approach adopted in the study is an interventionist one (Jönsson, 2010; Jönsson & Lukka, 2006; Lukka & Vinnari, 2017). In this kind of approach, researchers play an active role within the organization/case that is being studied. In particular, the authors were directly involved in the process of defining the GEP of the University of Messina, by engaging, training, and coordinating the organization's stakeholders and by drafting the GEP document.

Our participation introduces knowledge developed by research dialogically into the development process in a way that addresses local needs and understandings (Heiskanen et al., 2014).

We simultaneously occupy positions as GEP leaders with an interest in promoting sustainable organizational change for gender equality in our universities, as researchers with an interest in understanding how gendering processes work in universities, and as staff employed (at various levels from professor to contract researcher) within the universities, we seek to change.

3.1 Empirical Setting: The Italian University of Messina

In the Italian context, overall, the percentage of women among full professors in Italy registered in 2018 was 24% (in 2008 it was 19%), while it was 39% among associate professors (in 2008 it was 34%), 42% among tenure-track researchers and 51% among research fellows (percentage more or less unchanged compared to ten years earlier). These data must be read together with those concerning graduates in Italy, who are mostly women (57% in 2018 and 59% in 2008), and the graduation marks, which are on average higher for women. Women face several challenges on their route from graduation to a career in academia, which is mostly typical in the rest of the workforce (Calabrese et al., 2021): first and foremost, the burden of family care labor, which is disproportionately placed on their shoulders due to the lack of welfare laws that would counterbalance it by interfering, for example, in fathers' parental.

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The University of Messina has been a privileged place for exchanges between different cultures. The University has historically been engaged in activities to raise awareness on GE issues: from 2004 to 2007, three editions of the "Women's course, politics, and institutions" and three cycles of seminars on "gender violence" in the years 2014–15 and 2015–16 (structured in over ten meetings and addressed to local professionals) were delivered. In compliance with Law 183/2010, the Guarantee Committee (CUG) was established to foster equal opportunities and to enhance organizational well-being, reducing discrimination. It aims to promote GE and fight discrimination among all university personnel and students, including gender discrimination. Since its recent establishment, the CUG has been very active in promoting actions to fight gender inequality and prevent sexual harassment. By Italian Law, gender-based policies at the University of Messina are designed and implemented by the CUG. Moreover, it is important to mention that within the University governance, a pro-rector for welfare and gender policy and a trusted consultant has been appointed.

However, despite the rising interest in gender equality demonstrated by the recent history of the University, a strategic view of the issue was missing until January 2020. In that year, the University of Messina joined – together with seven other partners – a project aimed at supporting the development and implementation of GEPs in research institutes and universities.

4. Results and Discussion

Results are organized according to the activities carried out to develop the GEP of the University of Messina. In particular, the process leading to the definition of the GEP was based on the key phases of strategic planning: i) Stakeholder engagement; ii) diagnosis; iii) strategy formulation and design.

4.1 Stakeholder Engagement

Universities deal with a wide set of internal and external stakeholders.

At the internal level, stakeholder engagement was carried out differently based on the stakeholder category. Key governance bodies – such as the pro-rector in welfare and gender policies and the CUG – with stakes in gender equality and with relevant decision-making power in the topic were proactively engaged by the research team. Indeed, they took part in the periodical meetings organized to develop the GEP document. Among them, important support was provided by the University's Technical Coordination Unit of Strategic Planning, Management Control and Reporting which assisted in the collection and elaboration of gender data.

Voluntary participation of other University members was also ensured through the arrangement of training on GEP and gender budgeting. The training call was opened to every member of the University administrative staff, who had been informed of the training by the general director of the University. The training was part of the Horizon project and was conducted together with the other project partners. During the training, the research team had the opportunity to jointly discuss the GEP under the guidance of the trainers.

Lastly, a survey was administered to the whole University staff (both teaching and administrative) to explore conscious and unconscious gender bias and to rate GEP priorities.

External stakeholders and the whole student population (student representatives were also involved in the CUG) were engaged through the organization of national and local meetings to which they were

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invited (in some cases as speakers) and where they were informed about the project and the GEP development.

The following table reports for each stakeholder category the level of engagement (proactive, listening, informing).

Table 1: Stakeholder Engagement Strategy

Stakeholder	Level of engagement
Pro-rector welfare and gender policy	Proactive
CUG	Proactive
Technical Coordination Unit of Strategic Planning, Management	
Control, and Reporting	Proactive
Voluntary member	Proactive
Organization staff	Listening
Students	Listening
Other external stakeholders	Informing

4.2 Diagnosis

Diagnosis is a process that every organization should carry out when it is about to implement changes that will have an impact on the socio-economic and territorial environment as well as on its organizational context. The diagnosis of the University of Messina was conducted according to three main activities, namely: analysis of the existing gender-based policies; data collection on gender balances in the different stakeholder categories (students, researchers, teachers); and a survey on conscious and unconscious biases.

4.3. Analysis of Existing Gender-Based Policies.

By Italian law, gender-based policies at the University of Messina are designed and implemented by the CUG and the pro-rector in welfare and gender policy. The welfare policy (2019–2021) – also called the "Positive Actions Plan" (PAP) – of the University of Messina is characterized by ten strategic lines.

The first (1) line concerns information, training, and awareness concerning the CUG role. This line, which includes actions such as website updating, press conferences and conferences, is aimed at engaging all the University stakeholders with the Committee.

The second (2) strategic line refers to actions to promote gender culture, equal opportunities, and organizational well-being. The relative activities concern conferences, seminars, research and study grants and other activities aimed at preventing sexual harassment and homophobia.

The third (3) line focuses on training and ICT alphabetization. Actions such as training courses on hate speech and ICTs for disability are considered.

The fourth (4) line concerns actions of prevention and promoting psychophysical health such as sports tournaments, screening, and awareness campaigns for food disorders.

The fifth (5) strategic line refers to work-life balance. The related actions include smart working, maternity and child protection, and investigations.

The sixth (6) line is about actions aimed at the prevention of violence and discrimination in the workplace.

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The seventh (7) strategic line concerns monitoring. The related actions are the preparation of a gender equality plan, the monitoring of careers, the investigation of administrative data and surveys directed at employees, students and researchers.

The eighth (8) line is called "networking". This focuses on the networking activities to be fostered with local, national and international gender and equity committees, associations and centres.

The ninth (9) strategic line is related to accessing European, national and regional funds to contrast any form of discrimination.

Lastly, the tenth (10) line considers the preparation of CUG mandate reporting.

4.4 Data Collection

Data were collected through the USTAT database (the Italian statistical universities data set) and internal information systems sources. Overall, 14 tables were prepared to provide a comprehensive view of gender equality within the organization. The data collection activity outlined some key issues that should primarily be tackled by the organization to address gender equality. First, a gap in student recruitment was identified concerning some areas, namely ICT, engineering – in which the percentage of women enrolled is particularly low – and education, which displays a high imbalance since women represent 94% of the students enrolled. These results are displayed in the following table.

Table 2: Students enrolled in tertiary education by sex and field of education (2019)

INDEX:	Student	s enrolle	d in tertiary	education	n by sex an	d field of ed	ducation (20	19)	
	M	%M	F	%F	тот	%ТОТ	%F/TOT	Italy F/TOT%	EU F/TOT%
Education	88	1%	1.431	10%	1.519	7%	94%	92%	78%
Arts and humanities	532	6%	1.617	11%	2.149	10%	75%	69%	64%
Social sciences, journalism and information	740	9%	2.209	16%	2.949	13%	75%	59%	64%
Business, administration and law	1.522	18%	2.320	16%	3.842	17%	60%	53%	55%
Natural sciences, mathematics and statistics	808	10%	1.329	9%	2.137	10%	62%	56%	49%
Information and Communication Technologies	348	4%	42	0%	390	2%	11%	13%	18%
Engineering, manufacturing and construction	807	10%	245	2%	1.052	5%	23%	29%	26%
Agriculture, forestry, fisheries and veterinary	267	3%	394	3%	661	3%	60%	48%	50%
Health and welfare	2.094	25%	3.553	25%	5.647	25%	63%	64%	72%
Services	1.013	12%	655	5%	1.668	7%	39%	39%	47%

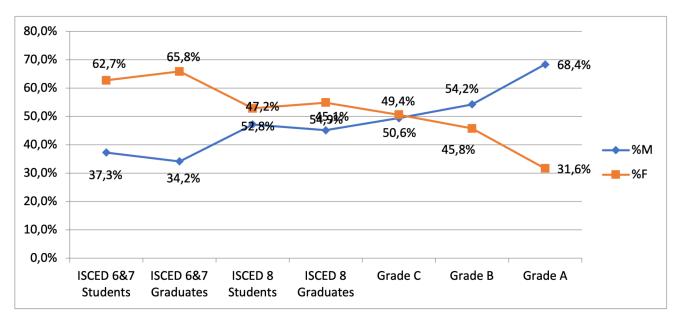
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Other	153	2%	284	2%	437	2%	65%	63%	57%
Total	8.372	100%	14.079	100%	22.451	100%	63%	53%	53%

This issue had already been considered in the PAP in the second (2/a - seminars and events) and seventh (7/c - student career monitoring) strategic lines mentioned above.

Figure 1 displays the trend in academic careers by gender. In particular, looking at the composition by gender along the academic career path starting from the position of student, passing through a research doctorate to becoming a researcher (C), associate professor (B) and full professor (A), the effect of the so-called "leaky pipeline" is easily recognized. In fact, with reference to the University of Messina, women represent about 63% of the population. In the later stages of careers, the presence of women is reduced progressively, falling to 47% among PhD students, to about 48% among associate professors and to 31.6% among full professors. Probably, the transition from PhD/researcher to the position of associate professor is the most critical phase for women, in which the establishment of an independent life with choices connected to the construction of one's family is normally highlighted.

Fig. 1: Proportion (%) of men and women in a typical academic career, students, and academic staff, (Complex index)



Another key issue emerges with respect to the career progression of women from grade C to grade B and A. As displayed in Figure 1, the University experiences a "scissor" behaviour when analysing gender in career progression. This is even more evident in some disciplines as portrayed in the following table.

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Table 3: Proportion (%) of women among grade A staff, by main field of R&D

INDEX: GRADE A:	Proportion (%) of women among grade A staff, by main field of R&D								
	М	%М	F	%F	тот	%ТОТ	%F/TOT	Italy F/TOT	EU F/TOT
Natural sciences	38	22%	24	30%	62	24%	39%	22,7%	18,1%
Engineering and technology	16	9%	2	2%	18	7%	11%	12,1%	12%
Medical and health sciences	50	29%	2	2%	52	20%	4%	14,6%	27,5%
Agricultural sciences	16	9%	9	11%	25	10%	36%	17,5%	25,5%
Social sciences	34	19%	27	33%	61	24%	44%	25,7%	28,1%
Humanities	21	12%	17	21%	38	15%	45%	36,8%	32,1%
Total	175	100%	81	100%	256	100%	32%	22,20%	23,65%

This issue had already been considered in the PAP in the second (2/c - scholarship) and fifth (5/a - smart working) working, 5/c - childcare services, 5/d - pink parking) strategic lines.

At the leadership level, the analysis highlights that although small gaps exist at the global level - i.e. considering the different leadership positions (bodies, groups, pro-rectors, BoD, senate, departments, etc.) – there are significant gender gaps in the BoD and the senate, which are the key government bodies of the University.

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Table 4: Proportion (%) of women on head of institutions and boards (members and leaders)

INDEX:	Proportion (%) of women on head of institutions and boards (members and leaders)								
	M	F	тот	%F/TOT	Coun try F/TO T	EU F/TOT			
Members (includ ing leaders)	55	39	94	41%	19,7%	27%			
Leaders	29	21	50	42%	7,7%	20%			
Head of institutions	1		1	0%	24,4%	21,7%			

Lastly, although the University of Messina is already playing an important role in the promotion of the prevention of discrimination and sexual harassment, it is important to foster this role since, not least due to the pandemic, this represents a key issue at the regional level.

This issue had already been considered in the PAP in the second (2/d - actions to prevent sexism and homophobia), third <math>(3/a - sexual violence training) and sixth (6/b - listening centre, 6/c - events against sexual violence) strategic lines.

4.5 Survey

The main objective of the survey was to measure conscious and unconscious gender biases, and to collect subjective assessments of possible implementable GEP actions. The survey, developed with the other project partners, has a main common body, and several questions have been tailored to the specific institutional features of the implementing RPOs, and to their foreseeable needs in terms of GEP actions. The survey was composed of several blocks of questions:

- Demographic questions: age, gender, marital status, number of children, age of youngest child, childcare service, share of household income, employment status of partner;
- Professional life questions: role at institution, research field, type and duration of work contract, preferences for smart working, promotion, wage, job satisfaction, relationship with boss;
- Work-life balance questions (some questions were selected from the Eurofound 3rd Living, Working and COVID-19 e-survey): trade-off work and family time, commuting time to work, housework/childcare time use, paternity leave, life satisfaction;
- Social value and gender policy-oriented questions: traditional gender role questions (taken from the Social Value Survey), discrimination (race, age, sexuality), feelings about it being easier/harder for women to obtain better careers (several contexts) than men, ranking of possible actions to implement in GEP;
- Leisure time questions: activities practised, holiday memories, time spent watching

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television/videos.

The survey also includes a computer-based behavioural test, i.e. the Implicit Association Test, in which subjects place words into categories; easier pairings (i.e. faster responses) are interpreted as more strongly associated with memory than more difficult pairings (i.e. slower responses). The data in this study were analysed anonymously.

Since the number of employees at University of Messina is 1,987, the number of respondents (354) corresponds to a sample size that allows us to reach a target of a 5% error margin (95% confidence interval).

Figure 1 shows as an example of the explored items the perception of equality in tasks and resource allocation by gender. In general, it emerged that men have a more egalitarian view of the distribution of resources or access to opportunities. Compared to men, a larger percentage of women believed that access to high positions or career development opportunities, access to offices or equipment and an informal circle of influence are more easily allocated to men.

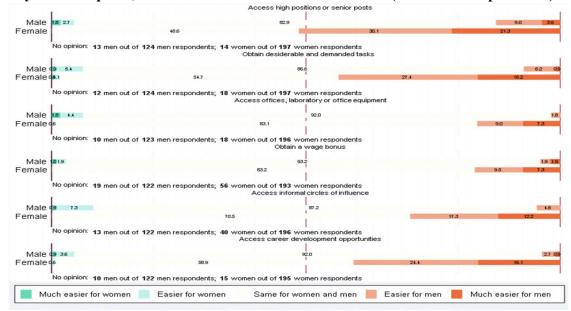


Fig. 2: In your workplace, it is easier for a woman or a man to: (% of total respondents)

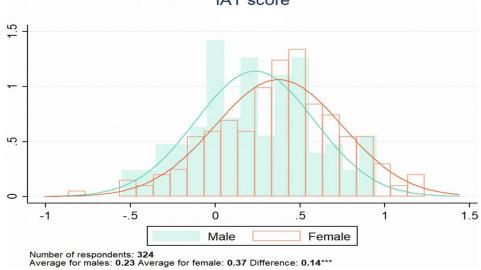
Note. Gender differences in perceptions of gender equality in the allocation of tasks and resources.

Figure 3 shows the distribution of IAT scores for the respondents. A positive score means a stronger association between masculine-sounding names and (negative) career attributes, while a negative score suggests a stronger association between masculine-sounding names and (positive) family attributes. Using the typical thresholds in the literature (Greenwald et al.1998), an IAT score between

-0.15 and 0.15 indicates no bias, a score between 0.15 and 0.35 (in absolute value) a slight association between the two concepts, and a score higher than 0.35 (in absolute value) a moderate to severe association. According to this metric, the IAT scores suggest that respondents are slightly biased against gender roles. The mean IAT score is 0.34. Female respondents (0.37) are significantly more biased than male respondents (0.23).

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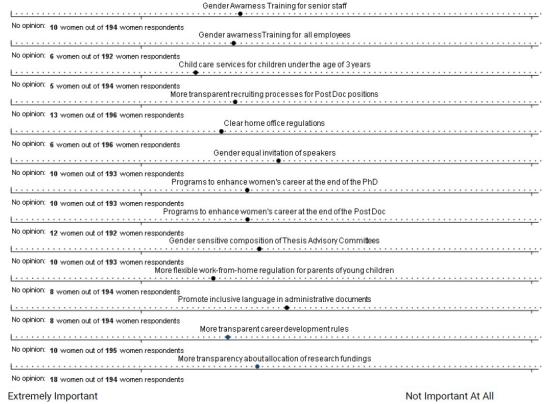
Fig. 3 Distribution of the gender-career IAT score across respondents $\ensuremath{\mathsf{IAT}}$ score



Notes: This graph shows the distribution of raw IAT d-scores for the respondents. A positive value indicatesa stronger association between "feminine"-"family" and "masculine"-"career".

Lastly, one section of the survey is aimed at ranking gender equality priorities. Figure 4 shows the results of the average ranking of GEP suggested actions.

Fig. 4 Gender Equality Plan Actions - Woman



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4.6 Strategy Formulation and Design: The Development of Actions and Measures to Address Gender Equality Objectives

Following the diagnosis results and the stakeholder engagement and participation process, University of Messina decided to focus its GEP on four main key areas.

As for the first key area, "Recruitment, maintenance, career progression", the University of Messina has selected three measures that include seminars on gender issues in STEM and non-STEM disciplines to promote a gender-inclusive and fair training and work environment, scholarships for advanced training courses on gender culture and the institutionalization of a gender reporting organizational unit to develop gender budgeting.

The second key area, concerning "Leadership in research and decision-making processes", envisages two measures to make a report to investigate the decision-making processes, and a specific survey on research projects in terms of gender.

The third key area, "Work-life reconciliation policies", is widely developed through seven measures that include the decision to extend and/or improve childcare services at the University of Messina, including through the activation of agreements with external providers, to develop nursing areas in every University facility, to develop a parcel delivery service, to organize summer schools for children and adolescents in agreement with the University sports association and activate agreements for sports activities for employees and their families, to develop smart working and to establish "pink (pregnant)" parking spaces.

The fourth area, "Prevention of discrimination or sexual harassment", concerns the organization of congresses, round tables, and seminars on this topic, and of other events and actions to combat sexism and homophobia.

Each action was then linked to a measurable key performance indicator (KPI) to monitor the organizational process over time. Moreover, each action was referred to a specific implementation time frame. Actions and KPIs were designed consistently with the other key University of Messina's strategies: the Strategic Document of Integrated Programming, the Performance Plan and the PAP. Table 5 identifies the set of KPIs for the above-described actions.

Table 5: Actions and key performance indicators

Area	Actions	Numerator	Denominator	Start	End
	Nr of seminars on gender issues	Target			
Recruitment, maintenance, career progression	Promotion of University's mission as a gender-inclusive and fair training and work environment	Nr of seminars on gender issues in STEM departments	Target	06/21	05/24
		Average nr of participants to seminars on gender issues	Target		

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	Scholarships for advanced training courses on gender culture	Financial resources for gender scholarships	Target	06/21	05/24
	Institutionalization of a gender	Attribution of responsibilities to a devoted organizational unit	1	06/21	05/24
	reporting organizational unit	Gender budget	1	01/22	05/24
Leadership in research and decision-	Investigation of decision-making processes (e.g. committees, board of directors)	Nr 1 report	1	06/21	01/22
making processes	Survey on research projects in terms of gender (e.g. PI, research project members)	Nr 1 report	1	06/21	01/22
	Extension / improvement of childcare services within the workplace	Nr of kindergarten places (directly managed or agreed with external provider)	Demand	06/22	05/24
	Development of nursing areas	Nursing areas	Facilities	06/21	05/24
	Parcel delivery service	Nr of facilities providing the service	Facilities	06/22	05/24
Work-life	Summer schools for children and adolescents	Nr 1 summer school	1	06/22	05/24
reconciliation policies	Activation of agreements for sports activities for employees and their families	Nr of employees and family members using the service	Nr of employees*4	06/22	05/24
		Actual lean workers	Potential lean workers	06/21	05/24
		Agile workdays	Workdays	06/21	05/24
	Smart Working	PCs for agile work	Target	06/21	05/24
		Agile workers equipped with devices and data traffic	Agile workers	06/21	05/24

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		Digital signature among agile workers	Agile workers	06/21	05/24
	"Pink (Pregnant)" parking spaces	Pink parking spot	University parking spot	06/21	05/24
	Congresses, round tables, seminars	Nr of hours of specific courses and seminars	Target	06/21	05/24
Prevention of		Average number of participants	Target		ı
discriminatio n or sexual harassment	Actions to combat sexism and homophobia	Nr initiatives on the topic	Target		
		Activation of "trust" consultant	1 06/21		05/24
		Nr consultation with devoted University services	1		

5. Discussion and Conclusions

This article is based on the action research experience of the GEP's development process of the University of Messina. Action research is an iterative method that blends theory and practice, with researchers serving as assistants within the organization being studied.

According to the gender mainstreaming approach, the GEP represents, together with gender budgeting (GB), one of the key tools for addressing gender equality in public organizations. However, defining and implementing this kind of tool and the related process is not an easy task. This research aims to suggest and discuss the contribution of strategic planning and management theory and practice (Bianchi & Tomaselli, 2015; Bryson, 1988, 1995; Dooris et al., 2004; Mintzberg, 1994; Noto & Noto, 2019; Poister, 2010;) to the GEP development.

The University of Messina's GEP was developed in three key phases: i) stakeholder engagement (transversal); ii) diagnosis; and iii) strategy formulation and design.

The engagement and participation of the key stakeholders and the leadership of the institution were pivotal in seeking legitimation of the process and the final document (Cavenago & Margheri, 2006). This activity also allowed researchers to obtain additional information and data with respect to those already collected through administrative sources of data. Moreover, the engagement and participation of multiple stakeholders allowed the team to define the targets related to the actions to be defined and pursued in the GEP time frame (3 years). Stakeholder engagement was encouraged by a national legal framework that encouraged the development of gender-based policies and the European Horizon 2020 framework according to which, in order to be financed by the programme, universities need to develop a GEP. This created an external push that made the development of the document a priority for the leadership and the key stakeholders of the University of Messina. Researchers felt that the involvement of representatives and team members of both genders (male and female) was an important success driver to go through the development process of the GEP and to find legitimation.

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In contrast to traditional strategic planning processes, the diagnosis phase developed in the preparation of the GEP had to take into account the complexity of the institutional environment, i.e. the university, and the complexity of the issue tackled, i.e. gender gaps. On the one hand, university careers are indeed different from other organizations since these can be seen as professional bureaucracy (Giacomelli, 2020; Mintzberg, 1989) in which professors and researchers are employees but also independent professionals. On the other hand, gender issues are not easily measurable, thus in-depth analysis on individual behaviours and perceptions needs to be addressed.

In order to deal with this complexity, the diagnosis was carried out thanks to three activities: i) existing gender-based policy analysis; ii) collection of administrative data according to the specificity of the academic career progression; and iii) administration of a survey to detect conscious and unconscious bias and policy suggestions and priorities.

First, existing gender-based policies were analysed in order to avoid effort duplication or leaving uncovered undetected gaps. Also, this step was key to legitimating the GEP development since it gave continuity and value to an effort already in place in the University. Not considering existing policies could have provoked resistance from those who designed them and still play a leadership role in the organization.

Second, the collection of administrative data was pivotal in order to represent a clearer picture of the existent and emerging gender gaps. As a famous management saying reports, "if you can't measure, you can't manage". In this sense, although the complexity of gender issues is not entirely measurable due to time lags and intangible aspects, obtaining data on end results (such as the percentage of women over men in different categories) allowed the researchers to detect the most evident gaps and issues related to gender. This was also facilitated by benchmarking the institutional results with those reported at the country and European level (Addabbo et al., 2020; Francis & Holloway, 2007).

Lastly, a survey and an IAT administered to all employees was greatly supportive in providing a deeper understanding of the detected gaps, allowing the researchers to understand their key determinants. The evidence collected during the diagnosis phase was then used to formulate and design the strategy. This was built by identifying four key areas specified into 14 actions oriented at tackling the previously identified gender gaps. A set of 24 KPIs and their related targets was defined to monitor the implementation of these actions — as also suggested by strategic planning literature (Bianchi & Tomaselli, 2015; Noto & Noto, 2019; Poister, 2010). According to the authors, the definition of the KPIs is pivotal to capture the attention of the University leadership, which committed itself to achieving their targets. KPIs also represent a great support in monitoring the GEP implementation progress. This work has relevant implications for practice since it outlines a process of development of a GEP that may be employed in other higher education organizations and public sectors. It aimed to contribute to the literature and spread analytical practices related to gender mainstreaming in Italian universities by presenting the GEP development process of the University of Messina.

The illustrated experience proposes an investigation of both the reasons for the document's creation and the contents exposed by it, with a focus on the vertical segregation phenomena that emerge from the data analysis. This was done in order to provide additional useful keys for the University policy in formulating positive actions aimed at improving the situation of gender equality.

The GEP was created with three key objectives in mind: to raise awareness; to execute structural reforms; and to involve stakeholders in a mindset shift. This last goal highlighted the importance of considering the point of view of the actors involved, paying special attention to their participation, in order to build a robust and solid foundation for the gender equality plan, ensuring its successful adoption and sustainability after the project's completion. Although this research and intervention

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procedure is extensive and requires a significant amount of time to change mindsets and structures, it is already regarded as a prerequisite for conducting long-term and productive studies on this topic.

The study also aims to raise gender awareness among the community, specifically among students, academics and administrative staff: increased awareness will lead to increased attention from each individual in their daily behaviours, both at the University and in their personal lives.

Overall, the presence of a GEP in a given institution does not ensure a gender-balanced set of outcomes. Those policies must be interpreted and put into practice. As a result, universities may participate in GEP initiatives for reasons other than a commitment to justice and equality, such as a legal obligation or the desire to remain competitive in the global market (Tzanakou & Pearce, 2019). Having a GEP in place is becoming increasingly important in obtaining research funding as well as attracting bright personnel and a larger pool of potential students.

This study presents limitations that are mainly related to the specific context analysed. In fact, the specific institutional and environmental contexts that characterize the University of Messina mean that the results obtained are not necessarily generalizable. Thus, further research may be addressed at comparing this case with other experiences of GEP development. Moreover, the study limits its analysis to the development process of the GEP. It is desirable that further researchers adopt a longitudinal perspective to follow the implementation results of the plan linking the strengths and weaknesses of the drafting process herein discussed.

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