Cross-country report on women in STEM

Prepared by: The WESTEM partnership

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Cross-country report

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About the project

WESTEM, is an Erasmus+ project running between 2022 - 2024, which aims to enable opportunities for girls and women to gain the skills and confidence to succeed in STEM. It also aims to increase the awareness of the gender gap in the areas of STEM (Science, Technology, Engineering and Maths). It is mainly focused on creating a platform for empowering young women to take the steps into the STEM-field. The project is funded by the European Union.

Disproportions of representation of women in STEM, as other inequalities, affect overall economic growth in many countries, in addition to difficult social issues it entails, as the Global Sustainable Development Report (2019) acknowledges, based on robust empirical evidence.

The STEM Gap is not easy to tackle, and requires sustainable strategies for long term impact. In WESTEM, the intention is to set the tone for such a path, through meaningful support and services.

Our aim

The following concrete objectives are envisaged in WESTEM:

Enable opportunities for girls and women to gain the skills and confidence to succeed in STEM.

- Develop a self-assessment tool for assessing HEIs faculty readiness in promoting participation of women in STEM fields of study
- Develop and apply suitable professional development and training to faculty to promote inclusive STEM education and support for women coming from marginalised backgrounds.
- Attract, recruit and retain women into STEM majors and fields in colleges and universities through dedicated role model mentoring

Methodology

The WESTEM project is informed by a design-based research (DBR) methodology. Design-based research (DBR) is a methodology used by researchers in the learning sciences, a subfield of education. Its main features involve:

Process: DBR entails creating "interventions," or solutions, to particular issues. After that, the efficacy of these solutions is evaluated through testing and implementation.

Iterative Approach: Using a series of iterations and adjustments depending on data collected during testing, researchers develop and improve interventions. Continuous progress is possible because of this iterative procedure.

The goal of DBR is to produce new theories and frameworks pertaining to instruction, learning, design, and educational reform. By taking into account learning as a complex system with emergent qualities, it goes beyond conventional study.

From the perspective of learning sciences, DBR is used because it fits with their emphasis on researching learners, their communities, and the local contexts in which they exist.

In the context of the WESTEM project, we developed this cross-country report aiming to provide with the overarching picture of the project lifecycle since it especially relates to project result 3 which runs through the 24 months of implementation of the project. The cross-country report derives from the 5 country reports developed by the partner organisations of the Consortium - Sweden, Austria, Italy, Greece and Cyprus.

Specifically, the following procedures were undertaken in order to generate the cross-country report:

- The creation of main and secondary research research guidelines. This uses design-based research principles to participate in intervention through solution prototyping.

- Data gathering and analysis: Information necessary to identify the needs, gaps, and requirements for gender gap in STEM was obtained through this data collection procedure.

- Five national reports were drafted: The partner organisations obtained a comprehensive understanding of the state of gender equality in STEM studies and careers, through the systematic literature review, desk research, interviews and fieldwork from implementation of the WESTEM project. Each partner used desk

research, survey questionnaires and semi-structured interviews to gather data for the national reports.

- Examining and evaluating five national research studies

- Composing the cross-country report

The cross-country report serves a significant purpose. The analysis and experiences shared through implementation of the WESTEM project, offer a descriptive and contextualised assessment of the state of the art for gender equality in STEM studies and careers in the partner countries and other regions. In practical terms, it is crucial to establish a deeper understanding of challenges for the subject matter, outline long-term objectives, characterise the difficulties in a global setting, and create conditions and recommendations to reverse the gender gap in STEM in the future.

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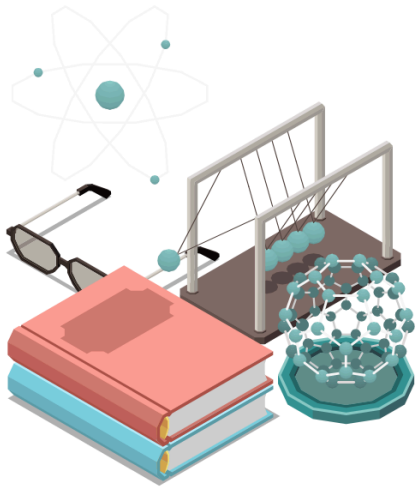
Part 1: SYSTEMATIC LITERATURE REVIEW



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Part 1: SYSTEMATIC LITERATURE REVIEW

Definitions

STEM

The four overlapping areas of science, technology, engineering, and maths are grouped together as STEM. The educational strategy that integrates the disciplines into a single, well-structured programme is sometimes summed up in this acronym. Fundamentally therefore, STEM is an interdisciplinary method of instruction that combines Science, Technology, Engineering, and Math into one demanding course of study.

STEM education, according to The National Science Teachers Association, is "an experiential learning pedagogy in which the application of knowledge and skills are integrated through in-context projects or problems focused on learning outcomes tied to the development of important college and career readiness proficiencies." Its objective is to support students in acquiring science-based frameworks and skills so they can assess complicated problems, explain ideas and arguments, and participate in a technologically advanced society.

It's crucial to remember that STEM isn't a single field, but rather the integration of all four through practical teaching. A student who obtains a scientific degree, for instance, does not always receive instruction in STEM fields. Despite being a STEM subject, maths needs to be combined with science, engineering, and technology in order to make sense in the context of STEM discussion.

Gender gap in STEM

Walk into a company's premises not involved in science, technology, engineering and maths (STEM). Take 10 employees at random, and it's likely that 5 will be women and 5 will be men. Now, head to a company packed with STEM workers, and pick 10 random employees. How many do you think will be women? The answer is 3, according to the World Economic Forum's Global Gender Gap Report 2023.

According to the European Institute of Gender Equality, 4% of women work in STEM related jobs compared to 27% of men in Europe. Overall, gender differences in education persist even if more girls than ever before are enrolled in school.

Despite the fact that 74% of females are interested in a STEM profession, only 24% of them actually become STEM students. While women constitute almost 50% of the labor market, there are only 28% of women in STEM fields as opposed to 72% of men.

Girls are underrepresented in STEM areas because biases, social norms, and expectations frequently hold them back and have an impact on the quality of their education and the subjects they choose to pursue. Given that STEM fields are seen as the ones of the future that will spur innovation and sustainable development, this is particularly concerning. It is now more crucial than ever for women and girls to participate equally in STEM fields, both as an economic requirement and for the advancement and innovation of technology. As Sven Blumberg, a senior partner at McKinsey, suggests, increasing the proportion of women in the tech workforce by half may potentially increase the GDP of Europe by up to €600 billion.

Overview about the gender equality in STEM at a national context

This section examines the current status in relation to gender equity and STEM studies and careers in the partner countries of the WESTEM project.

Austria

Gender equality and the advancement of STEM (science, technology, engineering, and mathematics) fields and careers are two areas where Austria is showing signs of improvement. Austria has implemented a number of initiatives to advance gender parity. These consist of national and European laws, regulations, and initiatives. There is a push to improve the balance between work and family life, decrease pay disparity, and raise the percentage of women in managerial roles. Gender equality policies and women's empowerment are deeply ingrained in many facets of public life.

In the context of STEM careers and education, initiatives are underway to increase female students' interest in and engagement in these fields. There are now programmes in place to motivate women and girls to study STEM topics and seek careers in the field. In order to address the demand for educated professionals in STEM sectors, collaboration between educational institutions, industry, and government organisations has also been strengthened. Through initiatives like the

"MINT Girls Challenge" and "Girls Day" at the Federal Chancellery, the Austrian Minister for Women's Issues hopes to encourage women in STEM.

Still, a relatively small percentage of women are represented in STEM. Women choose just 38.1 percent of standard STEM courses at universities, compared to 53.9 percent of all topics. Among university graduates, women make up 37.9% of STEM degree holders, compared to 55.8% of degree holders overall (BMBWF, 2022).

Greece:

Nowadays, women's empowerment in STEM fields is crucial since it not only promotes gender parity, but also acts as a major driving force behind advancement and creativity. Though there has been some improvement recently, women remain underrepresented in STEM fields (science, technology, engineering, and mathematics) in Greece, which limits the variety needed to foster innovation and holistic problem-solving. In order to better understand the state of women in STEM in Greece today, this report will concentrate on the cooperative efforts of mentors, Higher Education Institutions (HEIs), and educational institutions. Understanding the vital role mentoring plays in professional growth, we investigate programmes that foster a mutually beneficial relationship between aspiring persons, HEIs, experienced mentors, and schools. Like in many other nations, women have historically been underrepresented in STEM fields in Greece. There was a clear underrepresentation.

Italy:

Though there are still obstacles to overcome, Italy has made strides in recent years to address gender equity in STEM education and employment. Italian university STEM female underrepresentation is a result of institutional as well as cultural factors. Structural issues include organisational practices like homosociality, where PhD applicants may be selected based on how similar they are to their supervisors, while cultural ones include discrimination and gender role expectations. This may lead to fewer women working in departments, which may have an impact on future participation. Inadequate childcare services, flexible work schedules, and inequalities between unpaid caregiving and family obligations also frequently influence women's professional decisions. The importance of helping industries devise ways to lessen the pay penalty linked to more flexibility in terms of time is also emphasised, as opposed to concentrating only on equalising the distribution of men and women in different industries and professions.

Italy has enacted legislative frameworks to support gender equality in academic research and other fields. To replace the former Equal Opportunities Committees, Law 183/2010 established Unique Guarantee Committees for Equal Opportunities in Public Administrations. The purpose of this law is to protect people from discrimination and to guarantee equal chances in public agencies, which includes research institutions and universities. Public administrations must create a Positive Action Plan to remove obstacles to equal chances in accordance with the 2006 National Code on Equal chances between Women and Men. This involves promoting work-life balance, balancing the representation of women in underrepresented fields, and favouring women in hiring and promotion processes. Additionally, the National Research Programme is coordinated by the Ministry of Education, University, and Research, which places a strong emphasis on encouraging equal opportunities and gender dimensions in research as well as guaranteeing gender parity in recruiting and selection panels.

However, in spite of these initiatives, there are still gender wage inequities in STEM professions, which results in differences in incomes in later life. Italy still experiences volatility in this area even if the gender wage gap has shrunk throughout the EU. One of the main causes of the gender pay gap is the underrepresentation of women in high-paying, male-dominated industries like STEM. The overrepresentation of women in lower-paying industries like care and education accounts for about 30% of the overall gender pay gap. Even while more women are pursuing careers in historically male-dominated industries, there are still occupations where a large percentage of workers are men, which lowers women's pay. The gender pay gap persists in part because women's labour is undervalued in some industries.

In conclusion, despite the fact that Italy has achieved progress towards gender equality in STEM disciplines through a variety of legislative and policy initiatives, there are still major obstacles to overcome in terms of ingrained pay disparities, structural obstacles, and cultural views. In order to fully achieve gender parity in STEM education and employment in Italy, further work must be done.

Sweden:

Sweden is one of the countries with the most equal gender culture. Its legislation and practices place Sweden alongside Scandinavian countries at the top of the list of countries in which gender equality is closing, providing more opportunities for women in school and work.

Nowadays there are more women than men in high education careers, and the participation in STEM Careers is also increasing, however there is still room for improvement as women participate in leader positions and higher participation in the labour market.

Cyprus:

The need for educational reforms in the context of encouraging women's participation in Science, Technology, Engineering, and Mathematics (STEM) related sectors is emphasised by Cyprus Commissioner for Gender Equality Josie Christodoulou. Through her role, Commissioner for Gender Equality aims to address the significant gap in STEM fields in Cyprus. The Commissioner frequently attends initiatives promoting women in STEM, including the final WESTEM conference held in December of 2023, and the 1st Women in Mathematical Sciences (WMSC) Workshop which was held at the Cyprus Institute of Neurology and Genetics in Nicosia in May of 2023. In her speech, the Commissioner acknowledged that the gender gap in STEM-related fields is significant in Cyprus and revealed that the government is taking steps to address the issue through various initiatives. She also mentioned that Cyprus has one of the lowest percentages of men and women working in STEM fields in the EU.

The government has identified gaps in order to focus on these issues, and as a result, Ms. Christodoulou announced that her office, in collaboration with the Cyprus State Scholarships Foundation, will launch ten undergraduate scholarships targeted at women aged thirty and over who were not able to pursue their education earlier. Women who want to pursue studies in the fields of innovation and technology will be given these grants.

The Commissioner also disclosed that her office is organising a number of initiatives, including a monthly web campaign that showcases a female role model or a woman's accomplishment in the STEM fields, in collaboration with the Deputy Ministry of Research, Innovation, and Technology. In addition, the Ministry of Education is organising a number of gender-related training programmes for teachers and career counsellors. The objective is to dismantle implicit prejudices that frequently entice boys and girls to pursue careers in the so-called "traditional women's and men's career professions" and into fields based on stereotypes.

Lastly, the Commissioner emphasised how critical it is to recognise female role models and inspire other women to pursue similar careers. "We need to celebrate the

accomplishments of women and inspire more of them to pursue careers in STEM related fields.

Legal Framework (from desk research) - indicative

This section enquiries into the national strategies to prevent gender gap in the workplace and labor market in STEM fields, including any legal framework that addresses gender biases and ensures gender equality in STEM industries. Further to this, we delve into available statistical data on female representation in STEM Higher Education studies and careers, national regulations and the approaches of formal governmental organisations ensuring gender inclusion in STEM hiring practices and recruitment procedures.

Austria:

Gender equality and the prevention of gender-specific disparities are priorities in Austria. The following factors are frequently taken into consideration by national policies and legislative frameworks in Austria:

Equality laws and anti-discrimination measures: Laws that support gender equality and forbid discrimination in the workplace are in effect in Austria. The Federal Equal Treatment Act (Gesamte Rechtsvorschrift für Bundes Gleichbehandlungsgesetz, 2023) and the Equal Treatment Act (Gleichbehandlungsgesetz GlBG) are important pieces of legislation that forbid gender discrimination at the federal level and outline policies to advance equality.

Promotion of women and quota regulations: Steps have been taken to raise the percentage of women in leadership roles. Compliance with gender quotas on supervisory boards may be mandatory for companies.

Promotion of STEM professions for women: There are programmes in place to support women's interest in STEM fields and occupations. Events that provide knowledge, mentoring programmes, and focused educational initiatives can do this.

Awareness-raising and sensitization: Public awareness campaigns aimed at combating gender stereotypes and prejudices are a common component of national plans. This may contribute to the development of a more welcoming workplace.

The legal framework for gender equality in Austria, which includes the promotion of women in STEM fields, is implemented and overseen by government agencies and organisations. Among these companies are:

Federal Ministry for Women, Family and Youth (Bundesministerium für Familie, Senioren, Frauen und Jugend, BFSFJ): A key role in the creation and execution of gender equality policy is played by the **BMFSFJ**. It is in charge of national issues pertaining to gender policy and women's empowerment.

Federal Ministry of Education, Science and Research (Bundesministerium für Bildung, Wissenschaft und Forschung, BMBWF): In addition to being in charge of research and teaching, the **BMBWF** is crucial in encouraging women to pursue careers in STEM. It puts gender equality policies into practice in research and education.

Ombud for Equal Treatment (Gleichbehandlungsanwaltschaft, GWA): The mission of the Ombud for Equal Treatment is to advance equality and fight discrimination. We provide impartial, cost-free counsel and assistance to those impacted by discrimination.

Large gender discrepancies exist in the STEM focus area, according to analyses from the study report from the "Institute for Advanced Studies (IHS)" with a focus on "Gender situation using the example of STEM focus and pedagogical studies." Over the evaluation period, which spanned around 20 years, the percentage of women in the STEM concentration area improved at a relatively modest pace and is still less than 25% of all students. The percentage of female students who finished their prior schooling in Austria is much lower, suggesting that the Austrian educational system has a more pronounced gender-segregating effect.

The 2021 project report on "Developments in the STEM field at universities and on the labour market" contains the following statistical findings:

The gender distribution in STEM fields is very different from other educational domains. Women make up 37% of STEM students at public universities, with a notably low percentage (20%) in the STEM concentration area. It is much higher, at 61%, in non-STEM studies. At universities of applied sciences, the disparity is even more noticeable: women enrol in just 25% of STEM programmes, compared to 64% in other areas of education. However, this may also be partially explained by the fact that 86% of STEM programmes at these universities are focused on STEM topics.

The percentage of women studying these topics is slightly greater than that in the STEM concentration area in public universities, at 23%.

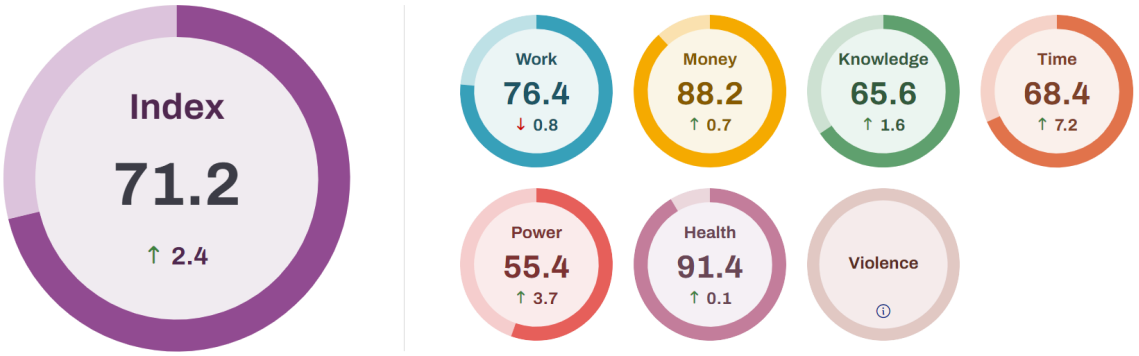
In recent years, there has been a minor increase in the percentage of female STEM students. In public universities, it increased from the winter semester of 2014–15 to the winter semester of 2019–20 by over 3% points, or 37%. The fields with the biggest growth were physics, chemistry, and geosciences (up 4% points), engineering and manufacturing, architecture and construction, computer science and communication technology, biology, and the environment (up 3% points apiece).

Due to increases in computer science and communication technology (+3% points) and engineering and manufacturing (+4% points), women were enrolled in STEM programmes at universities of applied sciences in the 2018–19 winter semester, accounting for a total of 25% of the student body. This represents a 2% increase from the 2014–15 winter semester. Conversely, the percentage of women studying biology and the environment decreased somewhat (by 1%).

Statistics from the Gender Equality Index

Austria is ranked 10th in the EU on the Gender Equality Index, scoring 71.2 out of 100. It has a score that is 1.0 points higher than the EU average.1.

Austria's score has improved by 12.5 points from 2010, mostly as a result of gains in the power domain (+ 27.0 points). Austria has remained ranked in 10th place since the last edition of the Index. The nation's score has risen by 2.4 points since 2020. This higher score has mostly been caused by improvements in the areas of time (+ 7.2 points) and power (+ 3.7 points). Nonetheless, the nation has also seen a decline in its score (-0.8 points) and a nine-place decline in its ranking in the work sector.



Best performance

With 88.2 points in the money category, Austria has the highest ranking (4th out of all Member States). Austria now ranks two spots higher in this sector, with a marginal gain in score of 0.7 points since 2020. The nation excels in the financial resources sub-domain within this area, ranking fifth in the EU with 83.3 points. Austria is ranked ninth in the sub-domain of economic situation, with a score of 93.4.

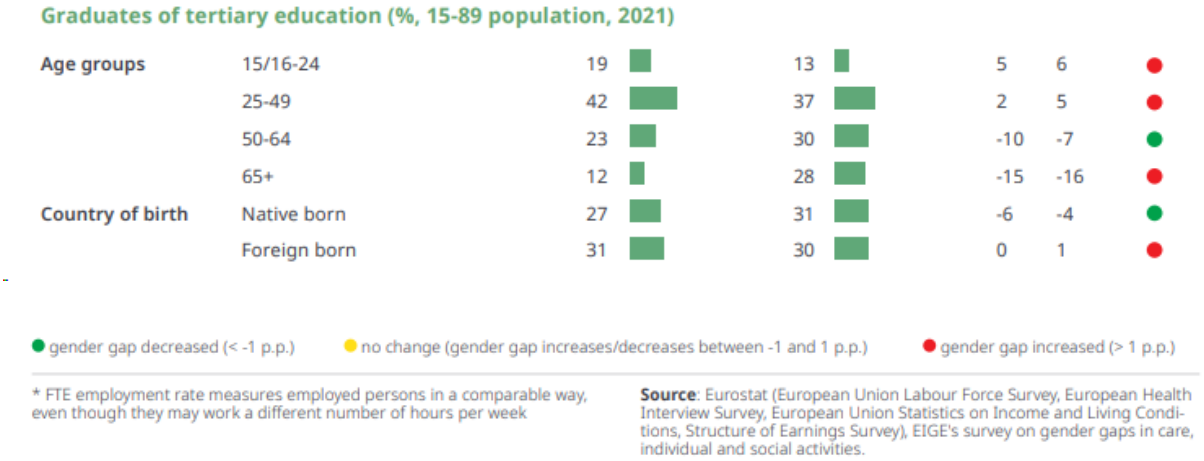
Biggest improvement

Austria's score has improved the most since 2020 in the area of time (+ 7.2 points), which has helped the nation move up from 15th to 10th place. This shift has been primarily driven by an improvement in the sub-domain of care activities (+ 14.2 points). As a result, the nation is now ranked in 15th place in this sub-domain, up six spots from before. Austria's score has improved (+ 1.1 points) in the sub-domain of social activities since 2020. Austria now holds sixth place with 60.8 points in this sub-domain, six spots higher than before as a result of this improvement.

Most room for improvement

Austria ranks 15th in the domain of power (55.4 points), where gender disparities are particularly noticeable. Due to other Member States making faster development, even if its score has improved by 3.7 points since 2020, its position in the list has remained same. At 32.0, Austria is ranked 20th in the sub-domain of economic decision-making, where there is the most potential for improvement. Austria is ranked 10th in the sub-domain of social decision-making with a score of 65.3 points, having moved up four spots since 2020.

				Gender gap		Gap change
		Women	Men	2014	2021	
Full-time equivalent employment rate (%, 15-89 population, 2021)*						
Family type	Couple without children	37	42	-6	-5	
	Couple with children	54	90	-36	-36	
Level of education	Low educated	21	41	-16	-20	
	Medium educated	42	61	-18	-19	
	High educated	61	70	-9	-9	
Country of birth	Native born	42	59	-18	-17	
	Foreign born	42	63	-21	-21	



Greece:

Legal framework

National laws and regulations make up Greece's legal framework for gender equality. One important organisation in charge of carrying out and overseeing gender equality policy is the General Secretariat for Gender Equality. Legal databases, government publications, or discussions with legal experts would be necessary to identify specific legislation that address gender biases and ensure gender equality in STEM fields.

Greece has attempted to bring its laws into compliance with EU guidelines supporting gender equality; nonetheless, the intricacies of laws pertaining to gender in STEM fields would necessitate a thorough review of national policies. While there may be national strategies in place to prevent gender gaps in the workplace, official reports, gender equality offices, or relevant government departments may have detailed information on Greek governmental organisations that are specifically implementing gender inclusion in STEM hiring practices and recruitment procedures. More general EU policies may also have an impact on efforts to promote gender diversity and inclusion in STEM education and professions.

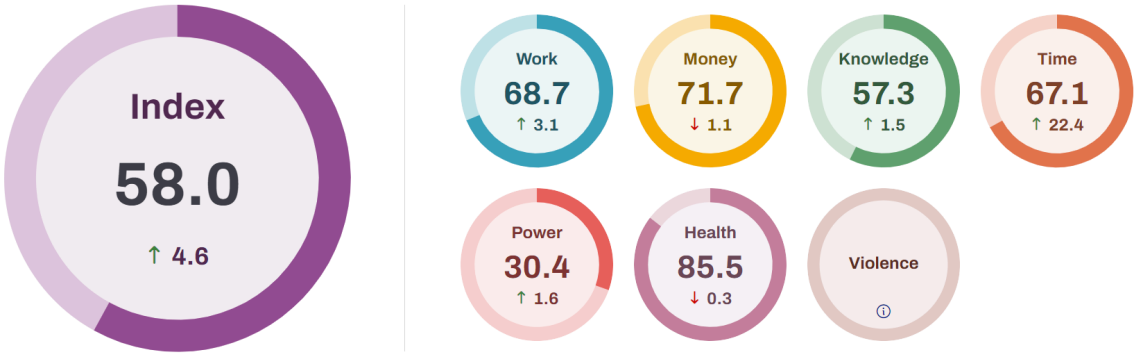
As stated in Ministerial Decision No. 146/29-12-2020, the Ministry of Health has set important strategic goals that will be carried out between 2021 and 2023. These goals are intended to combat health risk factors, provide quality healthcare to everybody, and safeguard and advance health and wellbeing for people of all ages.

The Ministry views health as a social benefit and a right, in line with the Sustainable Development Goals (SDGs) included in the 2030 Agenda of the United Nations. Achieving gender equality and empowering all girls and women is the main goal of SDG Objective 5. It places a strong emphasis on how gender theory should be incorporated into policies for successful sustainable development, such as ending violence, guaranteeing women's full participation in society, and granting everyone access to reproductive health care.

Statistics

According to the Gender Equality Index 2023 for Greece, Greece is ranked 24th in the EU on the Gender Equality Index, scoring 58.0 out of 100. It has a score that is 12.2 points lower than the EU average.1.

Greece's score has improved by 9.4 points from 2010, mostly as a result of gains in the time domain (+ 31.5 points). Greece's total score has improved by 4.6 points since 2020, making it one of the Member States with the largest improvements. Greece's higher total score has mostly been attributed to improvements in the time domain. Greece has also made progress in the area of work since 2020 (+ 3.1 points). Greece's overall rating has increased by three spots since 2020 as a result of quicker progress as compared to other EU nations.



Best performance

Greece ranks 17th in the health sector, with the highest score of 85.5 points. Greece has improved its standing in the health sector since 2010, moving up two spots from 19th in 2010 to 17th in 2021. The nation excels in this domain most in the

sub-domain of health status, placing sixth out of all Member States with a score of 94.3.

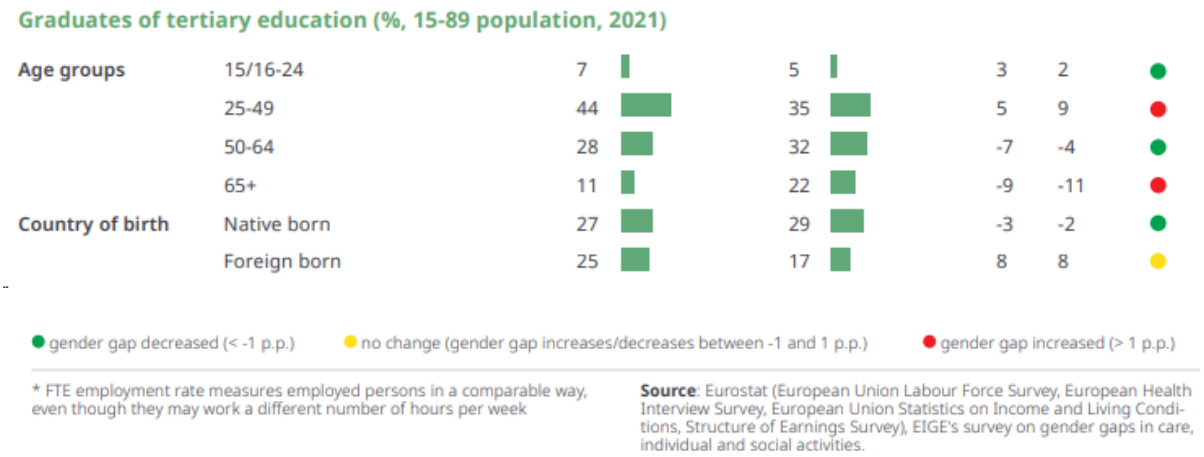
Biggest improvement

Greece's score has improved the most since 2020 in the area of time (+ 22.4 points), moving the nation up from 26th to 13th position. Of all the Member States, this represents the greatest improvement. This change has been mostly driven by progress in the sub-domain of care activities (+ 23.9 points since 2020). Greece's score in the sub-domain of social activities has also improved significantly (+20.9), moving the country up 16 spots to seventh position.

Most room for improvement

In the area of work, gender disparities are very noticeable (68.7 points). Greece is ranked 25th in this domain, which is its lowest rating. Greece's score has increased by 3.1 points since 2020, yet the country's position has only moved up one spot since 2010. Greece receives its lowest score (64.6 points) in the sub-domain of segregation and quality of work, but its lowest ranking within the domain of work is in the sub-domain of participation in employment (second to last among all Member States).

				Gender gap		Gap change
		Women	Men	2014	2021	
Full-time equivalent employment rate (%, 15-89 population, 2021)*						
Family type	Couple without children	29	33	-5	-4	
	Couple with children	61	92	-29	-31	
Level of education	Low educated	12	30	-16	-18	
	Medium educated	35	61	-19	-26	
	High educated	63	69	-5	-6	
Country of birth	Native born	34	53	-15	-19	
	Foreign born	34	62	-17	-28	



An extensive quantitative analysis was conducted on the underrepresentation of women in the field of information science. The study specifically focused on the alumni of the University of Crete's Computer Science Department from 1985 to the most recent academic year (2016–2017). In computing and engineering, women were persistently underrepresented compared to men at all academic levels. At all academic levels, there were equal numbers of men and women studying mathematics and physics. In the STEM and IT fields, female teachers were likewise less common than male teachers. In the categories of freshmen, undergraduate graduates, and master's programme graduates over the course of the study decade, the number of females constantly exceeded that of boys. Nonetheless, each year fewer women than men graduated from PhD programmes.

Overall, female representation was greater among freshmen (60.53%), bachelor's degree graduates (64.33%), and master's degree graduates (57.37%) throughout all Greek Universities and Engineering Schools. The percentage of female PhD students has drastically decreased, to just 38.78%. The findings were deemed credible and reliable given they were sourced from the official statistical service of Greece, the Hellenic Statistical Authority (ELSTAT).

Compared to young males, young women continue to have much lower rates of participation, employment, long-term unemployment, and NEET. A portion of the divergence happens after women reach their mid-20s because of family obligations and a decline in the need for female labour in particular age groups.
Using the DSGE (dynamic stochastic general equilibrium) model, specifically the QUEST III R & D model developed by the European Commission, the macroeconomic effects of the Equal Society Development and Integration Fund (ESDIF) initiatives in Greece were examined.

First, a scenario with an annual increase in public spending of roughly 20 million euros from 2021 to 2025 was examined. In order to illustrate the suggestive impact of ESDIF initiatives, a marginal increase in the female labour force participation rate of one percentage point over a ten-year period was also taken into consideration. In comparison to the scenario in which the ESDIF was not implemented, the model predicted improvements in potential real GDP of 0.16% after five years, 0.34% after ten years, and as much as 0.42% over the long run.

Three further scenarios aimed to close the difference between Greece's female labour market participation rate and the average for the euro region. The impact on real GDP was projected to vary from 0.31% to 0.9% by the conclusion of the implementation term in 2025, assuming partial convergence to euro area standards by 25%, 50%, and 75%, respectively. This corresponds to an increase in the percentage of women in the labour force by 2, 4, and 6 percentage points. Additionally, the possible distributional consequences of a 1–6% percentage point increase in female labour market participation were investigated. The official microsimulation model of the European Union is the tax-benefit model known as EUROMOD.

Initiatives

To inspire more women to pursue STEM education and careers, a number of programmes and awareness efforts were being carried out. Gender inequities were being aggressively addressed by several universities and organisations. Organisations and advocacy groups were pushing for improvements in the workplace and educational settings as well as increasing awareness of the value of gender diversity in STEM fields. Attitudes towards women in STEM may have been influenced by cultural and socioeconomic influences. There were continuous efforts made to solve these issues and provide opportunities for women in STEM.

Italy:

In order to address gender disparities in the workplace and labour market, Italy has put in place a number of national strategies and legislative frameworks, with a special emphasis on gender equality in STEM and other fields.

1. National Strategy for Gender Equality: Italy's National Strategy for Gender Equality was enacted in 2021 and is effective from 2021 to 2026. This method focuses on a number of topics, such as employment, income and salaries, competencies, time, power, and the COVID-19 effect. Promoting and coordinating government initiatives to guarantee the execution of laws pertaining to equal opportunity and gender rights is the strategy's main goal. To guarantee the complete implementation of policies on equal chances between men and women, particularly in entrepreneurship, self-employment, and public and private work, it involves a number of departments and ministries, including the Department for Equal chances.

2. Legislative Measures: Law No. 162, which was passed in 2021, is essential to the battle against gender inequality. It also requires the National Equality Counsellor to report to the parliament every two years on the state of the implementation of gender equality laws, therefore expanding the definition of "discrimination." The aforementioned legislation encompasses provisions aimed at guaranteeing gender parity in the workplace, with particular attention to matters like employment, career advancement, professional development, compensation, termination, resignation, and pensions.

3. Equal Pay Law and Certification System: Significant requirements were created by the Equal Pay Law (Law 162/2021) with the goal of encouraging gender equality in the workplace and closing the gender pay gap. For both private and public firms with more than 50 employees, the legislation requires reporting on the status of male and female employees. The law also created a certification programme for gender equality in businesses. This approach evaluates businesses according to a number of factors, including strategy and culture, governance, HR procedures, chances for women to advance and be included in the workforce, gender pay parity, and safeguarding work-life balance and parenting. Businesses can receive tax breaks and other advantages if they fulfil these requirements and receive a minimum score.

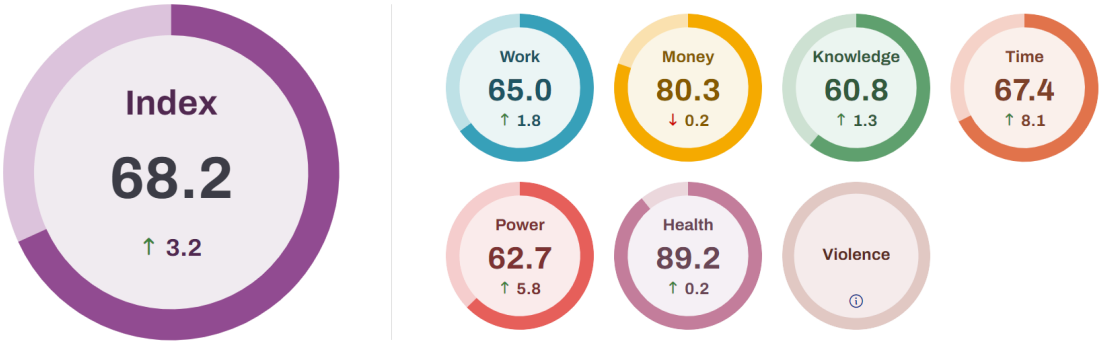
4. Addressing Maternity and Work-Life Balance: Studies have indicated that having children causes gender disparities in Italy to increase. Compared to women without children, employed women are far more likely to be unemployed in the two years after giving birth. And even fifteen years after giving birth, women who continue working after giving birth make significantly less money than women who do not have children. These fines are caused in part by cultural differences and flaws in family-friendly legislation. Contributing reasons include the scarcity of daycare centres and the less generous paternity leave policy in comparison to other European nations.

Italy is committed to resolving gender disparity in the workplace and labour market, as seen by these initiatives and legislative frameworks, with a focus on guaranteeing gender equality in STEM and other fields. Italy has taken a diverse approach to addressing these issues, including a national strategy, legislative measures, certification programmes, and specific policies geared at maternity and work-life balance.

Statistics:

Italy is ranked 13th in the EU on the Gender Equality Index, scoring 68.2 points out of 100. It has a score that is 2.0 points lower than the EU average.1.

Of all the Member States, Italy's score has improved by 14.9 points since 2010, which is the largest gain in overall score and has caused the biggest advance in ranking—eight places. The primary cause of this shift was advancements in the power domain (+ 37.5 points). Italy's total score has risen by 3.2 points from 2020. Improvements in the domains of time (+ 8.1 points) and power (+ 5.8 points) have been the primary causes of this rise. Italy's total ranking has therefore increased from 2020 by one spot to 13th.



Best performance

Italy ranks ninth out of all Member States in the health domain, where it performs the best with 89.2 points. The nation's score has increased by 0.2 points, but its ranking

in this category has climbed by one spot since 2020. With 94.6 points in the sub-category of health status, the nation excels in this domain and is ranked fifth, up one spot since 2020. Italy presently ranks ninth in the EU in the sub-domain of health access, where it received the maximum score of 98.6 points.

Biggest improvement

Italy's score has improved the most from 2020 in the area of time (+ 8.1 points), where it is now ranked 12th instead of 16th. This shift has been mostly driven by an improvement in the sub-domain of care activities (+ 13.0 points). As a result, the nation is now ranked 18th in this sub-domain, having moved up four spots.

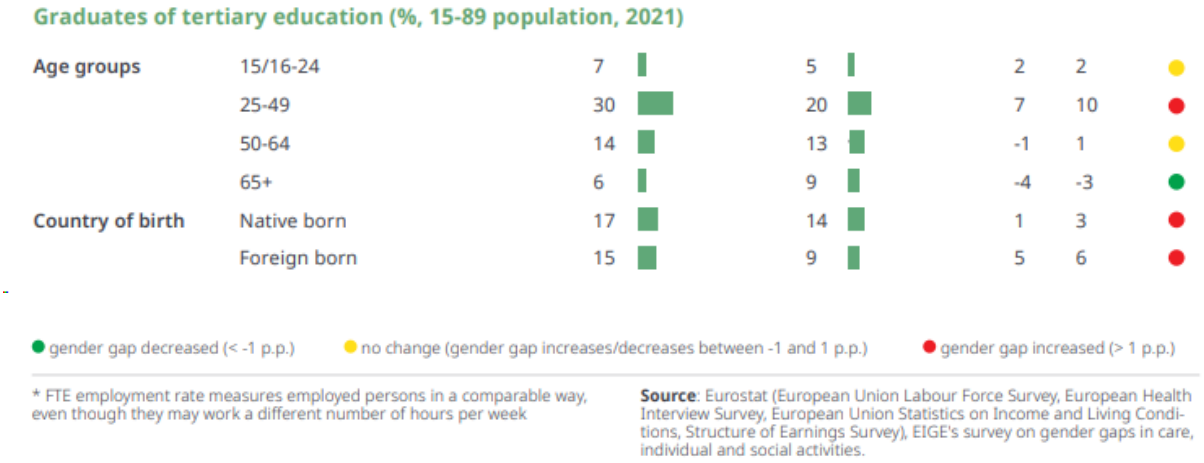
Italy has also improved (+ 3.8 points) since 2020 in the sub-domain of social activities, climbing from 15th to 5th position.

Most room for improvement

In the area of work, where gender disparities are most noticeable (65.0 points), the nation has continuously ranked lowest out of all Member States since 2010. Italy has improved its score in this sector by 1.8 points since 2020.

Italy receives 68.9 points in the sub-domain of participation, which is the lowest ranking sub-domain in this domain (27th). Italy's lowest score (61.4 points) comes from the subdomain of segregation and quality of work, where it has fallen from 19th to 22nd place since 2020 as a result of moving more slowly than other EU nations.

		Women	Men	Gender gap 2014	Gender gap 2021	Gap change
Full-time equivalent employment rate (%, 15-89 population, 2021)*						
Family type	Couple without children	24	31	-8	-7	
	Couple with children	51	88	-36	-37	
Level of education	Low educated	13	37	-23	-24	
	Medium educated	41	62	-19	-21	
	High educated	65	72	-9	-7	
Country of birth	Native born	31	49	-19	-18	
	Foreign born	36	68	-25	-32	



Sweden

Legal Framework

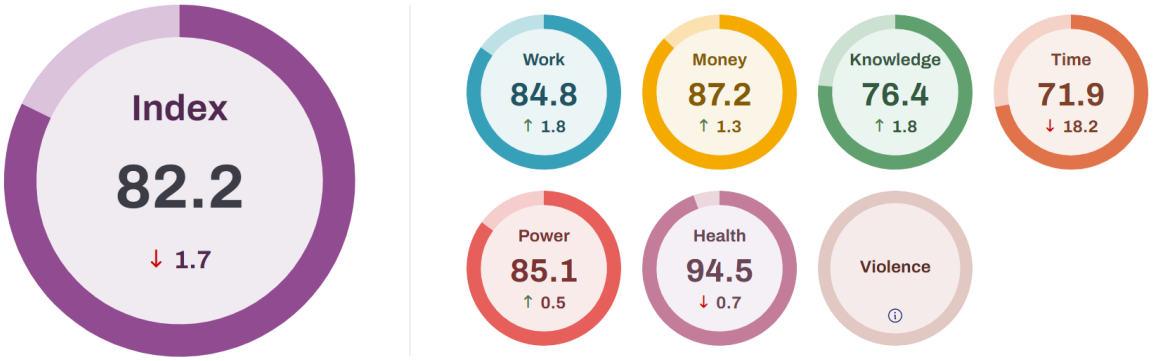
Sweden works to promote gender equality by enacting laws that forbid discrimination and guarantee equal treatment. To be more precise, administrative and labour market laws such as the Parental Leave Act (1995:584), which protects the rights of expectant mothers and fathers, and the Swedish Discrimination Act (2008:567), which advocates for "Equality of opportunity and treatment in work, employment, working conditions and further training"—fighting discrimination and advancing equal rights and opportunities regardless of sex, transgender identity or expression, ethnicity, religion or other beliefs, disability, sexual orientation, or age—apply to government agencies, including high education institutions and research organisations.

The Discrimination Act permits hiring practices that provide the underrepresented gender a modicum of preferential treatment, so long as they advance gender equality and don't violate EU laws. According to the European Institute for Gender Equality (2024). According to this law, employers must actively seek to stop discrimination and advance gender equality for both staff and students. More precisely, the Swedish Higher Education Act (SFS 1992:1434) and Higher Education Ordinance (SFS 1993:100) mandate that universities take steps to ensure equal opportunities and to increase the proportion of female professors. These laws were designed by the Swedish Council for Higher Education through a Swedish Government Bill (Silander, 2023).

Statistics

The proportion of women in traditionally male-dominated fields of study has been rising, to the point that four national upper secondary programs—including the scientific sciences—have an even sex distribution, according to the Sweden Statistical Office (SCB, 2020). In 2019, there were more women than males enrolled in universities, with 56% of them taking courses that are typically taken by men, with the exception of manufacturing and technology. Specific to academic level, women are more likely to enrol in undergraduate and graduate programmes, achieving parity in recent postdoctoral courses, after which their involvement declines (Scb, 2020).

With 82.2 points out of 100, Sweden ranks 1st in the EU on the Gender Equality Index. Its score is 12.0 points above the score for the EU as a whole.
Since 2010, Sweden's score has increased by 2.1 points overall, mainly due to improvements in the domains of power (+ 7.3 points) and knowledge (+ 5.7 points). Since 2020, Sweden's score has decreased (– 1.7 points), but the country remains in 1st place in the ranking out of all EU Member States. Increasing gender inequalities in the domain of time (– 18.2 points) have been the main drivers of the fall in Sweden's score.



Best performance

Sweden ranks highest (first out of all Member States) in the area of power, scoring 85.1 points. This domain's development has stagnated since 2020 (+ 0.5 points). The nation excels in this domain most in the sub-domain of political decision-making, ranking first in the EU with 95.9 points. In the sub-domain of social decision-making,

the nation also scores highest (92.9), having increased its score by + 1.5 points since 2020.

Biggest improvement

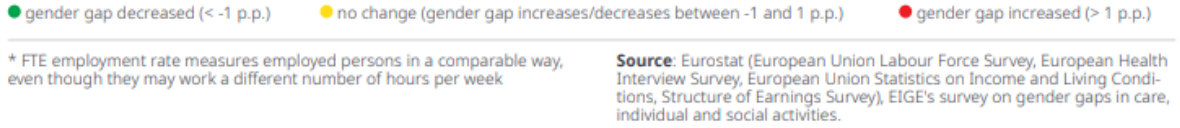
With an increase of 1.8 points in the labour category, Sweden's score has improved the most since 2020, maintaining its top ranking of 84.8 points. This higher score has mostly been driven by improvements in the sub-domains of segregation and job quality (+ 4.9 points). As a result, the nation is now ranked first in the EU with a score of 77.1 points, moving up two spots in this sub-domain. Sweden ranks first and achieves 93.3 points in the participation sub-domain.

Most room for improvement

With 87.2 points in the money category, Sweden has the lowest rating (8th in the EU). Sweden has maintained the same rank in this area since 2020, with a modest increase of +1.3 points. Sweden ranks 12th with a score of 91.2 points in this domain, and the sub-domain where the nation has the most opportunity for development is the economic situation. The nation ranks sixth among the Member States with a score of 82.6 in the subdomain of financial resources.

		Women	Men	Gender gap 2014	Gender gap 2021	Gap change
Full-time equivalent employment rate (%, 15-89 population, 2021)*						
Family type	Couple without children	43	46	-3	-3	
	Couple with children	81	93	-14	-12	
Level of education	Low educated	19	34	-14	-15	
	Medium educated	54	66	-12	-12	
	High educated	69	74	-5	-5	
Country of birth	Native born	54	61	-9	-7	
	Foreign born	48	61	-11	-13	

Graduates of tertiary education (%, 15-89 population, 2021)						
Age groups	15/16-24	8	6	4	2	
	25-49	60	44	13	16	
	50-64	44	30	12	14	
	65+	35	28	4	7	
Country of birth	Native born	45	31	11	14	
	Foreign born	41	36	6	5	



Cyprus:

Legal framework

As of August 2021, Cyprus has not put in place any laws or regulations explicitly promoting gender equality in research and innovation.
The Strategic Plan for the Equality of Women and Men in Education 2018-2020, which replaced the previous 2014-2017 Plan, is the most recent policy document on gender mainstreaming in education and research. It supports three goals, two of which are relevant to universities and were created by the interdepartmental Gender Equality Committee of the Pedagogical Institute of the Ministry of Education, Culture, Sports, and Youth.

First, gender equality is to be incorporated into the Cyprus Educational System (CES) framework. Secondly, gender equality is to be incorporated into CES training programmes. Encouraging gender equality by strengthening the family is the third goal. The Department of Higher Education (DHE) started promoting and tracking the gender equality target as its first intermediate goal. It assigned one person to form an action group or team to advance gender equality at each higher education institution (HEI). Promoting gender equality in classrooms and/or other educational settings (via research, prevention, interventions, and other programmes) was the third intermediate goal. Three activities were specified for the Department of Higher Education (DHE) to take:

- keeping track of and updating gender-related programmes and initiatives that higher education institutions are running or have planned that could affect students, faculty, staff, or administration;
- gathering and showcasing of works of art, writings, and images that support gender equality and are created by students, faculty, and administrative personnel at universities;
- encouraging higher education institutions to create a gender action plan (GAP) that includes institutional policies and processes for advancing gender equality. Policies pertaining to equal opportunities, inclusion, (sexual) harassment, and bullying, gender equality in research programmes, increased

participation of women in decision-making bodies, parental leave, equal pay for equal work, training and development, and childcare (for students and parents of both sexes) are a few examples of this[2].

A fresh plan of action for 2021–2023 is in the works.

Soft laws govern gender mainstreaming in research institutions and business. For instance, the Council of Ministers approved the National Action Plan for Equality between Women and Men (NGEP), making it legally required for all parties involved. Gender mainstreaming is one of the topics included in the National Action Plan for Equality between Women and Men 2019–2023 (Ministry of Justice and Public Order, 2019), among other areas. In accordance with the RESTART 2016-2020 research projects, the NGEP includes measures for the Ministry of Justice and Public Order to certify compliance with national and European legislation on gender equality.

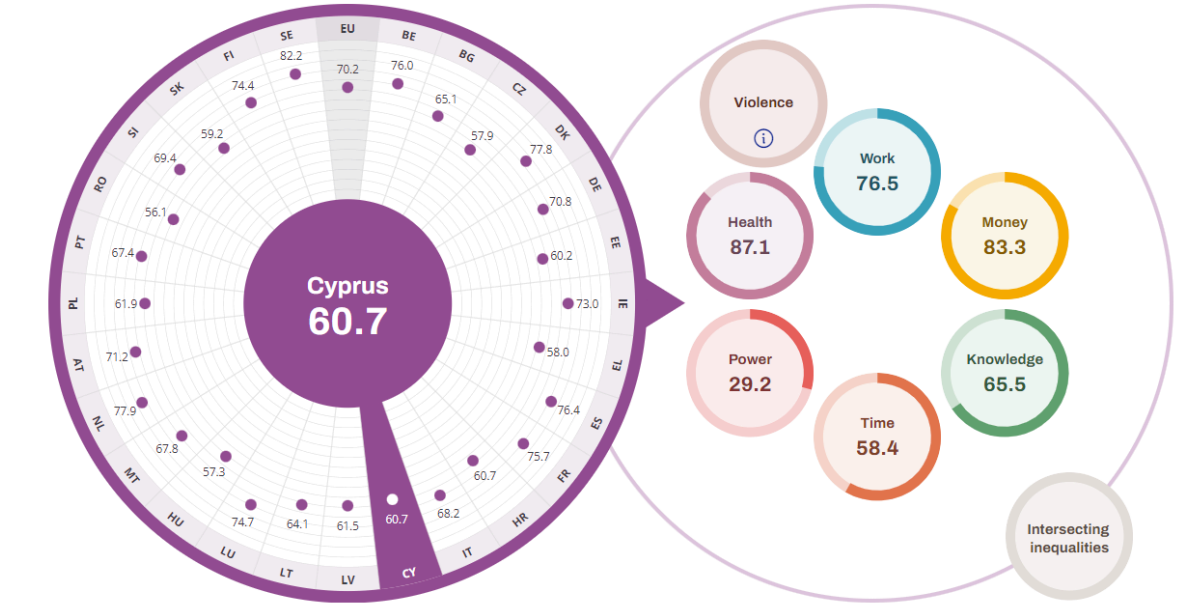
In a similar vein, it deals with the Ministry of Labour, Welfare, and Social Insurance's (National Gender Equality accreditation Body) accreditation of corporations[3]. The Europe 2020 Cyprus National Reform Programme (European Semester) took into consideration the different barriers, problems, and difficulties that women have while attempting to integrate and get familiar with the realm of digital technology. The third Action Plan on Gender Equality 2019–2023 outlines a number of initiatives aimed at addressing the problem via ICT education and training for women. The NGEP plan will work to improve women's professional technical abilities and boost the proportion of women studying computers. In a similar vein, a number of initiatives falling under the theme of "Eradication of Stereotypes and Social Prejudices" aim to boost women's involvement in technical fields. On April 5, 2019, the Minister of Transportation, Communication, and Works signed the Declaration on the Commitment on Women in Digital (WiD), therefore reporting to the European Commission (EUROPE 2020 Cyprus National Reform Programme) pertinent national actions.

As a component of the "Actions for Reducing the Gender Pay Gap" project, a gender equality certificate was established. The project was carried out by the Ministry of Labour, Welfare, and Social Insurance's Department of Labour Relations from July 2010 to December 2015. It included a wide range of actions to address the underlying reasons of the gender wage disparity.

Statistics

As per the Gender Equality Index 2023 produced by the European Institute for Gender Equality, Cyprus is ranked 21st in the EU on the Gender Equality Index, scoring 60.7 out of 100. It received 9.5 fewer points than the EU as a whole.1.

Due to advancements in the areas of power (+ 13.8 points) and time (+ 12.5 points), Cyprus's score has grown by 11.7 points since 2010. Cyprus's overall Index score has risen by 3.4 points since 2020. Increases in the knowledge and time domains (+10.7.7 and +7.1 points, respectively) are responsible for this. Cyprus has moved up from 22nd to 21st place since 2020 as a result of consistent progress made in comparison to other Member States.



Best performance

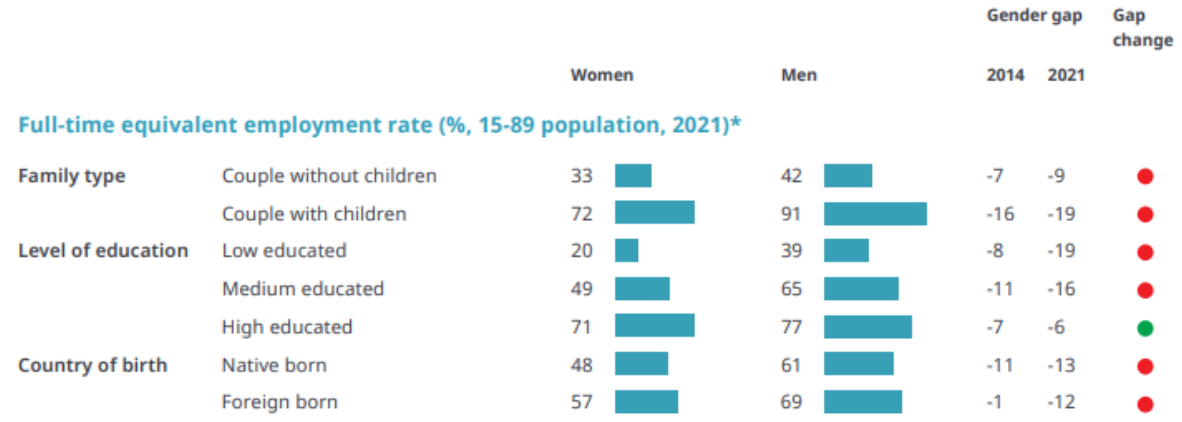
Cyprus receives 65.5 points in the knowledge category, which is where it has the greatest ranking (10th out of all Member States).

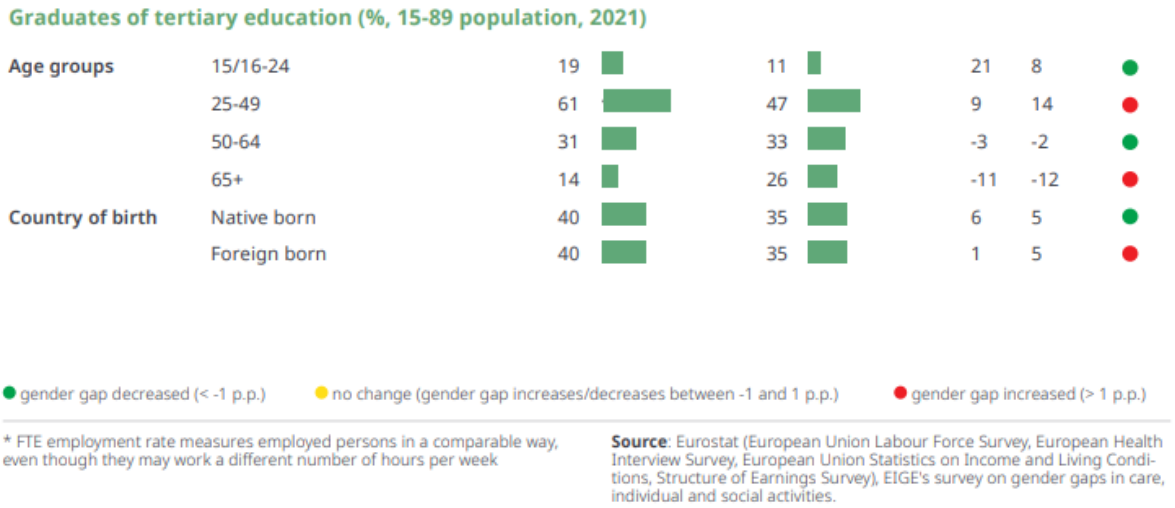
Biggest improvement

Cyprus has made the largest improvement across all domains during this time, with its knowledge score rising by 7.7 points since 2020. Consequently, the nation has moved up from 15th to 10th place in this category since 2020. Cyprus scores most in the knowledge domain in the sub-domain of attainment and involvement (78.9 points), where it has improved its ranking from 13th to 10th place by 7.3 points. With a 7.7-point gain in score, the nation ranks 12th in the EU with a sub-domain of segregation score of 54.4.

Most room for improvement

Cyprus, which received 29.2 points in the power category in this year's Index, has the most opportunity for development. Cyprus was ranked lowest in any domain until 2020, when it dropped from 24th to 26th in this particular domain. This resulted from Cyprus's stagnant progress (-0.9 points) in contrast to other Member States' quicker advancement. Cyprus's lowest ranking sub-domain in the domain of power is political decision-making, where it is ranked 25th. Cyprus receives 34.5 points in this sub-domain, which is 26.9 points less than the EU average.





Practices and institutional policies (from desk research)

This section provides insights into practices/initiatives/activities, manifestos and institutional agendas from different stakeholders in the partner countries regarding gender equality and the gender gap in STEM. Also, we highlight any stories and issues shared in the public media that address the topic of women in STEM careers and studies.

Austria:

Several female-led projects tackle the issue of women in STEM fields: The goal of Let's Empower Austria (LEA) is to establish a framework for programmes and actions that dispel antiquated myths, foster potential, and promote individual freedom. The mission of LEA is to advance women's issues in all spheres of society, bolster girls' and women's economic independence, and ultimately advance true gender equality. https://letsempoweraustria.at/about/

The Federal Ministers of Labour and Economy, Women, Family, Integration, and Media, as well as the Federation of Austrian Industries, are the organisations behind the Austria-wide MINT Girls Challenge. The MINT Girls Challenge seeks to address the lack of competent workers in Austria as a business site and to encourage more girls and young women to pursue careers in mathematics, computer science, natural sciences, and technology (MINT). Held for the first time in 2021, the Austria-wide STEM Girls Challenge aims to raise awareness of the issue of "girls and young

women in STEM subjects" in Austria while also promoting children's and youth engagement with the matter.

As part of the STEM competition, girls and young women between the ages of 4 and 19 are invited to develop concepts and solutions for today's problems. They can demonstrate how they would use STEM topics to make the world a more sustainable and living place through experiments and presentations.

https://www.mintgirlschallenge.at

Non-governmental organisations (NGOs) and initiatives working to close the gender gap in STEM professions and promote gender equality are widely available in Austria. "Femtech.at" is one Austrian organisation dedicated to promoting gender parity in STEM fields. The Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK) offers equitable opportunities in industrial and non-university research and encourages women in research and technology through FEMtech. For us, it is also crucial to give women who experience prejudice on the basis of other factors like age, ethnicity, religion, handicap, and gender identity more visibility and assistance. (https://www.femtech.at).

The Austrian Academy of Sciences honors pre-scientific work by female students in mathematics, computer science, natural sciences and technical subjects.

https://www.oeaw.ac.at/news/maedchen-in-mint-faecher-oeaw-verleiht-preise-fuer-maturantinnen-1

The Federal Chancellery, among other things, supports a number of projects and workshops. Like "MINT your future" (https://mintyourfuture.at/projekt/), which aims to increase accessibility to the STEM fields for all.

MINT-Salzburg is another programme to bring kids and teens to the field of STEM. (https://www.mint-salzburg.at)

Greece:

A group of Greek women employed in science sectors founded and oversee Greek Women in STEM, an autonomous project. The nonprofit AEGIS provides them with support and legal representation. By ensuring that these stereotypes progressively

fade into the past, they hope to promote an inclusive future for all women in the sciences. (https://greekwomeninstem.com/gr/about/).
They conduct educational activities such as:

- Interviews with the researchers themselves.
- Articles, podcasts, and events on issues concerning news and developments in the sciences and in the fields of science with reference to the contribution of Greek women researchers and scientists.
- Mentoring programmes

The EU-funded projects CALLIPER - Gender Equality in STEM Research and RESET - Redesigning Equality and Scientific Excellence Together, along with their pilot institutions, the School of Electrical and Computer Engineering of the National Technical University of Athens and the Aristotle University of Thessaloniki, respectively, have collaborated to create the Women in STEM & Entrepreneurship - Greece (G-WISE) network.
The network's goal was to provide an open forum for women involved in STEM and entrepreneurship, or who aspire to be involved, to interact, exchange ideas and experiences, share knowledge, establish themselves as role models, and incorporate gender equality into these fields.
(https://www.ece.ntua.gr/gr/article/625).

Italy:

To address the underrepresentation of women in STEM professions, NGOs and the corporate sector in Italy are spearheading a number of noteworthy initiatives. certain programmes show a strong dedication to advancing women's empowerment and gender equality in certain domains.

1. TechWomen Program 2024: The goal of this programme is to connect, empower, and support the next wave of female STEM leaders. It gives women the tools and chances they need to succeed in their jobs, follow their passions, and set an example for other women and girls in their communities. This is an illustration of a global movement that affects women in STEM everywhere, including Italy.

2. EIB and UniCredit's Pilot Project for Female Entrepreneurs: A pilot project was initiated by the European Investment Bank (EIB) and UniCredit with the express purpose of encouraging female entrepreneurship in Italy. This project, which focuses mostly on women-owned enterprises, offers better lending conditions and maybe joint

credit risk coverage. An excellent illustration of a public-private collaboration to assist women in business, particularly those in STEM disciplines, is this project.

3. Girls Go Circular and EIT's STEM Initiative: The European Institute of Innovation and Technology (EIT) is in charge of the Girls Go Circular programme, which aims to equip schoolgirls in Italy and throughout Europe with digital and entrepreneurial skills, particularly in the context of the circular economy. Furthermore, as part of this programme, EIT's Women and Girls in STEM Forum has raised the number of young women participating in STEM, demonstrating the potential and talent of women in these subjects.

4. Private Sector Support for Gender Equality Campaigns: UN Women and a number of commercial businesses have teamed up to support International Women's Day and expand the Generation Equality campaign. These businesses support projects for women and girls and promote gender equality by using their platforms and audiences. This includes programmes and initiatives created expressly to dispel gender stereotypes and promote women's involvement in leadership and STEM professions.

5. Department for Equal Opportunities (DEO) in Italy: In order to guarantee that laws pertaining to equal opportunities and gender rights are carried out, the DEO collaborates and promotes government initiatives. Despite being a government organisation, it works on issues that tangentially affect NGOs and the private sector with a number of departments and ministries. Promoting equal opportunities and a culture of rights in subjects including health, education, training, and research is part of the DEO's job description. These areas are vital for the representation of women in STEM disciplines.

These programmes show how Italy is making a deliberate effort to empower women in STEM fields and advance gender equality by pooling resources and knowledge from the public and commercial sectors as well as from international organisations.

Sweden:

A variety of STEM programmes and subject-specific initiatives have been launched by schools, universities, trade groups, businesses, not-for-profit organisations, and others in addition to Sweden's policies and plans. Concerns about the lack of STEM skills and the demand for them in a variety of areas (such as the green transition, energy, housing, transportation, and welfare) have fueled discussions about the

creation of a STEM policy in Sweden, which has been spearheaded by businesses, industry, and other groups.

Initiatives to enhance mathematics instruction and provide instructional materials (such as Matematiklyftet and NT programming) have been launched in response to the PISA results that indicate declining maths competency in recent years. Trade associations have advocated for the provision of focused career advisory programmes in recent years, highlighting the significance of young people possessing the skills required for today's labour market. Freeman, Brigid (2023).

In those programmes, the involvement of civil society has been crucial in raising the profile and employment of women in STEM. There are women's associations with an emphasis on STEM in most of the cities with technical occupations and high education levels. WiTEC Sweden, a professional organisation that has supported women in STEM (Science, Technology, Engineering, and Mathematics) since 1988, is an example of an organisation that works for women in STEM (WiTEC, 2023). These kinds of organisations can be found, for instance, in Linköping, Uppsala, Malmö, Stockholm, and Gothenburg. Owing to the relationship between the institutions' curricula and the established industries and technologies in the area, the organisations support initiatives that inspire, attract, mentor, and upskill women.

in establishments of higher learning. Unions are student clubs that unite students around shared interests and objectives. These associations were founded as non-profit organisations using funds contributed by the student body and cooperative campus support to assist students in their academic, professional, and social growth over the course of their careers. For example, the unions have expanded their partnership with nearby businesses to offer seminars, internships, mentorships, and job shadowing possibilities.

Examples of this associations in Lund University dedicated only to supporting women in STEM are:

Dchip – Women´s association for the Computer Technology students. -https://dchip.dsek.se/

Elektra- Women´s association for students in Civil Engineering in Electrical Engineering at Lund University. - http://www.elektra-lth.se/

Freya - Women´s association for students in physics, mathematic and nano-Sciences. https://www.frejalth.se/

Hera- Women´s association for students the civil engineering programs, Mechanical Engineering, Technical Design and Industrial Economics at LTH. -www.hera-lth.se

Another example of Swedish initiatives is the The L'Oréal-Unesco For Women in Science Sweden Prize with support of The Young Academy of Sweden. This prize delivered every two years since 2016 seeks to " *identify, encourage and reward women in research who have demonstrated great potential in science (…)"* . The Sweden's Young Academy founded by the Swedish King seeks to create a platform for young researchers increasing participation and debate around research policy, which in this case, leverages women, contributing to close the gap and strives for gender equality in Sweden (Sveriges unga akademin, 2023).

Cyprus:

The Cyprus Agency of Quality Assurance and Accreditation in Higher Education was established in 2015 by Law 136 (I) of 2015. It aims to promote student enrollment and establish favourable conditions for the delivery of postsecondary education and training in academic and professional study courses. The Agency has taken on the duties of the Evaluation Committee for Private Universities (ECPU), the Advisory Committee on Higher Education (ACTE), and the Council of Educational Evaluation-Accreditation (CEEA)[18]. As much as is practical, it strives to maintain an equal representation of men and women on its External Evaluation Committees and in all aspects of its operations. The Agency exhorts HEIs to create policies that address equal opportunity and gender equality for men and women. Additionally, it underlines how crucial language that is inclusive of all genders is in influencing attitudes and advancing gender equality.

The Cyprus Institute (CyI) actively promotes women in STEM. On International Women's Day, they launched a series of short videos featuring CyI women scientists. These videos showcase their expertise, career choices, and insights into the challenges faced by women in STEM fields.
By increasing visibility, CyI aims to inspire and encourage the next generation of Cypriot women to actively participate in STEM.
She.Can.STEM Program:

Deloitte Cyprus runs the She.Can.STEM Internship Program, which aims to empower female secondary students. The program provides first hand experience in STEM careers, bridging the gender gap in these fields.
Currently, only 4% of women work in STEM occupations in Cyprus, compared to 27% of men. Gender stereotypes persist, with STEM often perceived as masculine. Efforts like She.Can.STEM challenge these stereotypes and encourage girls to pursue STEM paths3.

Initiatives:
The 1st WMSC Workshop was organized by the Women in Mathematical Sciences in Cyprus (WMSC) network, on May 12, 2023. The workshop aimed to provide a platform for women in mathematical sciences to showcase their work and scientific journeys, promote diversity and inclusion. The event was inspired by the exhibition "Women of Mathematics from around the world; A gallery of Portraits" which is hosted at the same venue -Institute of Neurology and Genetics- from May 10 to 26, 2023.

The EU STEM Forum focuses on empowering girls and young women. Through discussions with policymakers, scientists, and entrepreneurs, they aim to eliminate gender bias in STEM.

Projects like Girls Go Circular equip thousands of Cypriot girls aged 14-19 with digital and entrepreneurial skills, fostering their interest in STEM4.

The Girls in STEAM Academy is a non-profit initiative of the Be an Ally Foundation, which aims to reduce the gap in the representation of women and girls in Science, Technology, Engineering, Arts and Mathematics, in Cyprus and abroad. Their vision is to eliminate stereotypes and prejudices that prevent girls and women from developing an interest in careers in STEAM fields. The activities offered aim to empower girls and women, foster an inclusive culture in STEAM organisations, and raise awareness among educators and the wider community. Their main activities are aimed at teenage girls and professionals through BridgeSTEAM programs. We aspire to create a world where women and girls are equally represented in all STEAM fields and to enable organizations and educators to join us in this effort. Together, we can break down barriers and provide new opportunities for the next generation of women.

It is worth noting that the Robotics Academy is a key contributor to Frederick University's long-term campaign "To all women and girls: join the Journey in

Engineering and Technology", which aims to encourage more girls to get involved in STEM (Science, Technology, Engineering and Mathematics) fields. As part of the campaign, Frederick University is offering free robotics workshops to girls aged 9-12 and 13-16 as part of its STEM Day and STEM Camp activities, respectively. By actively participating in the University's campaign and through its multi-dimensional activities, the Robotics Academy contributes to the goal of gender equality and the elimination of gender stereotypes.

WESTEM

Co-funded by
the European Union

Part 2: PRIMARY RESEARCH AND IMPLEMENTATION

Part 2: PRIMARY RESEARCH AND IMPLEMENTATION

Experience from Implementation as part of the project

In this part, the partner organisations of the WESTEM project, provide insights into their experience as project managers, staff, the organisational culture, from involvement in the project implementation. In particular, the following issues are addressed:

- What were the obstacles and challenges faced to reach participants?
- How did you approach the target groups?
- What improvement in knowledge, attitudes and skills did you gain from implementation of the project and delivery of project results?
- Your overall impression on the benefits and downsides.

Austria:

Despite the fact that desk research indicates that the Federal Chancellery, the Federal Ministry, and numerous other organisations have a political commitment to women in STEM, there were difficulties encountered throughout the project's implementation.

There were two mentors from two different universities recruited in Austria as part of the WESTEM project for the BrainPlus organisation. They did not receive any additional days from the university for their commitments, and both of them contributed to the project in addition to their regular job there. The positive aspect was that they were both very motivated, which led to a decent level of participation in the project. The technological orientation proved to be problematic for both of them, particularly when it came to using DISCORD. The participants had trouble signing up for this platform, because none of them had any prior familiarity with DISCORD. Finally, these technological issues were resolved as well, allowing us to complete the project's work as planned. Overall, the project was quite engaging and opened up new avenues for Brainplus.

Greece:

Obstacles and Challenges Faced to Reach Participants

Addressing different accessibility levels and little awareness was necessary to get past barriers and get to the participants. Expanded outreach was made possible by collaborating with academicians and professors and by utilising internet resources. Even with these efforts, getting through the barriers to get to the participants was challenging, especially when it came to getting women involved in extracurricular activities.

A notable obstacle faced by women was the limited amount of time they had available, which was mostly caused by domestic duties and pregnancy obligations. Understanding this, the UTH team who represent the partner organisation in Greece, devised outreach tactics that included choices for virtual involvement and flexible scheduling to meet a range of time restrictions. In addition, there were obstacles associated with prejudiced beliefs that discouraged women from pursuing professional opportunities.

Approach to target groups

The UTH team used a variety of strategies to reach the target audiences. Utilising social media's ubiquitous use, they started outreach initiatives aimed at students. This involved using internet platforms to create interesting material, spread project information, and foster a feeling of community. Social media's interactive features made it easier to communicate directly, enabling us to determine what people are interested in and answer their questions.
The UTH team also implemented a proactive engagement approach with academic stakeholders at the same time. The project's goals and content were explained to professors, emphasising the significance of their role in promoting women's participation.
In recognition of the importance of interpersonal interactions, in-person encounters were crucial. We were able to get in touch with possible partners and participants directly thanks to these encounters. Furthermore, word-of-mouth marketing—in which contented participants talked about their great experiences—showed to be a successful grassroots strategy for raising awareness in the academic community.

By combining these tactics, they were able to inform pupils through contemporary means and attract the assistance of experts.

Benefits and downsides

The UTH team admits that it recognises the downsides, such as unavoidable time constraints and occasional communication barriers. Balancing the different

expectations of participants and managing unforeseen challenges were aspects that required constant adaptation.The benefits of the project are multiple. Not only did it empower participants with valuable skills and knowledge, but it also strengthened the sense of community and common purpose. Networking opportunities were important benchmarks, promoting a global perspective.

Italy:

The WESTEM project turns out to be an intriguing project of significant importance when considering the socio-economic and socio-cultural framework that is presented here as well as the policy context that is discussed. The project's goals really aligned with the limits and demands of the Italian setting about the difficulty of promoting women's participation in stem sectors and professions. It also introduced some novel components, such as the use of digital tools to facilitate international experience sharing by bringing together women from partner nations and introducing a European comparison of these concerns, which might enhance public discourse in Italy.

Nevertheless, the challenges faced by the target group demonstrate how little awareness of these issues exists in colleges, organisations, businesses, and civil society.

The WESTEM efforts were shared via S-Nodi's newsletter, social media platforms, and personal connections with influential people who are either directly or indirectly concerned in the problem of gender discrimination in STEM. It turned out that the local context was less permeable than anticipated.

The S-Nodi project managers involved in WESTEM attests that the skills, knowledge, and sensitivities of the working group and the internal organisation with which the project was shared were greatly impacted by the ongoing idea sharing with the project partners, the development of the project activities, and the associated study and research activities.

This project's positive effects as the S-Nodi team reports, are evident in the increased focus on these issues in the discussions and initiatives the Italian partner carries out with local partners to support women's inclusion in the workforce. These initiatives have also given the S-Nodi staff the opportunity to critically approach the academic community by piquing their interest in gender equality.

Sweden:

Obstacles and challenges faced to reach participants

Reaching secondary schools with focus in STEM subjects. The KC staff approached the schools in Malmö city to involve students in the project in an effort to reach secondary school students who are considering STEM careers, however the schools did not commit time for the initiative. It is a fact that educators are overworked, and any additional task demands a level of commitment that is difficult to obtain from those not directly involved in the project.

Engaging university students as part of the mentoring program. Engaging university students as part of the mentoring program. The project has reached two major universities. Malmö University is gaining prominence and expanding as an academic institution. Despite not being known as a STEM university, it offers more technical courses and programs that draw in more female students. The project activities seemed relevant, but the students were interested in consolidating a female STEM group first because their efforts were diluted during the pandemic. Lund University, a venerable, well-established institution with a large offer of STEM careers was also addressed. Here, the WESTEM project's activities for the students didn't offer anything new as they have already implemented similar strategies in the four student unions dedicated to suppor women studying STEM careers.

Using the Online Community on Discord. Numerous organisations in Sweden currently utilise this platform for various kinds of communities. There is a collection of alternatives for women in STEM, such as the discord community for girls who code and female web developers, in addition to the two Lund University female clubs that have their own communities. Although the concept of an online community appeared doable, it requires a large number of participants and sustained activity to be successful. The initiative included setting up the WESTEM discord community, which provides a wealth of information already. However, without significant participant participation and a clear advantage from an established local organisation, it is more difficult to get

Engaging faculty members to use the WESTEM material. The primary obstacles were the teachers' reluctance to take on additional tasks that would require their time and provide no reward. They ask, "What's there for me?" since they have a lot on their plate and little time, and they want more than just the material generated for practical use. Nevertheless, following numerous discussions and the project's conclusion, the engineering faculty at LTH in Lund got the project's materials to integrate into their staff's teaching methods in an effort to enhance the number of women pursuing certain career paths. Furthermore, Malmö University is thinking about forming a group and beginning to work towards the consolidation of a gender group in their STEM fields of study and employment.

Target groups

Two methods of contacting the universities were used: direct communication through the network of KC personnel with some researchers and instructors in many faculty, and email correspondence to the gender groups and administrative groups of the STEM faculties.

Additionally, women in STEM were contacted through social media platforms, as well as several Women in STEM groups and events held in Malmö. A number of women in STEM organisations were contacted directly on a local and national level. Additionally, local non-governmental organisations that may provide information on females in secondary education and women in STEM were contacted.

Improvement in knowledge, attitudes and skills gained from implementation of the project and delivery of project results

This project was ambitious and challenging to implement from the start, and the KC staff now at the end of the project lifecycle attest on how important it is to involve the target groups, both in the partnering of the suggested projects and in the initial stages of writing the intellectual products. The issue of women in STEM is well-known and actively supported in Sweden due to the large and diverse movements that support women's rights and equal access to various forms of education and employment opportunities. While the efforts through WESTEM are important, they are considerably less in comparison to the work that is being done in this area already in Sweden. However, the idea is exactly the reason why KC was the leading applicant, as it serves to provide role model practices from Sweden to inform the other partner countries in the Consortium, who are still relatively behind on the subject matter of women in STEM.

As the staff at KC points out, they have now opened a channel of communication and received attention from several STEM faculties in Lund that have prior experience working to engage more women in their groups and advance women into careers. We have also partnered with Malmö University to support their efforts in combining staff practices, knowledge, and activities aimed at promoting women in STEM.

Working with online hubs and communities has taught us that these groups function best when there is an established local effort or organisation that will support and hold online activities as an add-on, not as the primary endeavour. It was well-intentioned, as the epidemic necessitated special precautions, but in the current climate, women who have not previously engaged with local assistance will not use online groups.

Overall impression on the benefits and downsides

Overall, it seems that the project could have operated more effectively if there had been a shared understanding of the objective from the start. Every intellectual effort was regarded as a benchmark, with occasionally a strong link between the original concept and what was suggested and occasionally a weak one between them. This project has promise and addresses a problem that, depending on their experience working with students, is more apparent in some colleges than in others. A drawback of the project is that colleges were not included from the start to guarantee participation in every facet of execution.

The KC Kompetenscenter's primary gain from the WESTEM project is its expertise working with Higher Education; also, the faculty connections have raised awareness of KC Kompetenscenter and provided avenues for future collaboration to be explored.

The staff now possesses both theoretical and practical knowledge regarding the state of STEM in Sweden, including how it affects students in universities and the labour market. In particular, there is a boom in employment opportunities for foreign women in the technology sector, and we anticipate more opportunities for women to be included in this field.

Additionally, the KC Kompetenscenter personnel have improved our abilities to create media content, interact with users on social media, and design websites. Additionally, the workforce is better equipped to work with quality and effect monitoring because they are more aware of the hazards associated with larger projects.

The downsides of the project in terms of the lack of participation from the younger target population, relates to a lesser degree of the final impact of the project as it was very challenging to reach, but at the same time is a valuable lesson for KC Kompetenscenter as it is the first Erasmus project ever done. It is essential to have a solid management providing clear guidance since the starting point of the project. To engage the target group is the main challenge perceived, thus the greatest lesson learned for future projects.

Cyprus:

Obstacles and challenges

SYNTHESIS is an organisation that is active in the field of social innovation for more than 20 years. In this respect, and as an adult education provider, has an established relationship with different stakeholders and a dedicated team of experts with experience in STEM and gender equality. This facilitated the different activities of the project and therefore the main challenges related mostly to recruitment of girls and students from secondary education. The reason for this is related to the national exams taking place concurrently with the completion of the mentoring programme. In a similar sense, it was difficult to recruit HED faculty since the exam and marking of papers coincided with the call for active participation in the implementation phase of the project.

Target groups

The recruitment of participants for the different stages of piloting and implementation for the WESTEM project in Cyprus, derived from reaching out to the extended network of universities and associations with which SYNTHESIS collaborates. There is also a communication list with different professionals and stakeholders whom we reach depending on the subject of the projects implemented and the needs for participation. These channels of communication as well as social media platforms, were utilised to recruit participants.

Knowledge, skills and attitudes

The personnel from SYNTHESIS involved in the project, benefited significantly in terms of knowledge, skills and attitudes relevant to promoting gender equality in STEM studies and careers. The knowledge gained from developing the assessment tool, the inclusive toolkit for HED and the intense work in PR3 for the Mentors Academy and webinars, informed the team's understanding, skills and attitudes in regards to stereotypes, statistics and representation in STEM by women in the partner countries and beyond. Importantly, the team feels that their expertise is strengthened to empower girls and women to pursue STEM studies and careers, while also are equipped with practical knowledge on strategies for inclusive design in STEM studies.

Benefits and downsides

The project benefited the organisation from Cyprus as it created a line of communication with STEM professionals, but also allowed to connect with the Cyprus Commissioner for Gender Equality who was invited to the final conference held in

Cyprus and hosted by SYNTHESIS. The Commissioner and SYNTHESIS will now work systematically to promote gender equality in Cyprus in STEM fields and beyond.

Case studies (from interviews with mentors)

This section provides insights from the discussion with the role models/mentors from the partner countries in the WESTEM Consortium. The intention was to grasp more insights into the stories of women with studies or careers in STEM. Specific guidelines were developed and shared with the partners, whereas a dedicated semi-structured interview protocol and templates were used, to facilitate data collection and analysis (See Appendix1). A total of 13 interviews were conducted during May-June 2023, at least 2 in each partner country. The main target groups were: female professionals in STEM careers, interested to become mentors for the WESTEM project. The following sections present the summary from these interviews in the form of stories-case studies. The interviews of women role models are also available in the project website under the Mentors Academy page.

Austria:

AT, Case study 1

Item	Starting Question/Topics/Notes
Demographics	Dipl.-Ing. Christina Ipser Christina Ipser has been part of the scientific staff and a research project manager at Danube University Krems since 2012. At the Centre for Real Estate and Facility Management of the Department of Building and Environment, her research and teaching focus is on topics such as life cycle costing, planning and operation of energy-efficient and climate-sensitive buildings, adaptation to climate change in buildings and neighbourhoods, as well as the complex interactions between humans and the built environment. She is currently head of the department's internal research co-ordination unit and deputy head of the Centre for Real Estate and Facility Management. Christina Ipser studied architecture at the Vienna University of Technology and worked at an architectural

	office in Vienna from 2001 to 2007. In 2008 she set up her own architectural drawing office and started to work on research projects for the Sustainable Building Group at Vienna University of Technology under direction of Karin Stieldorf and Klaus Kreč on topics such as climate-friendly and energy-efficient construction, building certification, the impact of sustainability criteria in real estate valuation, as well as building-integrated renewable energies and building concepts such as plus- and zero-energy buildings.
Experience as a female STEM student (how was the experience of studying in STEM fields) - prejudices and stereotypes if any	She experienced several obstacles and difficulties. She had the feeling that she didn't fit in the architecture student surrounding. She had to work for living and the discrepancy what she learned at university and the tasks from her job didn't fit together. Most of her colleges were interested in the design part but she was more interested in de technical part. She did courses for civil engineer and met other students with the same experiences. They build partnerships and corporations to help and motivate each other. In architecture there are a lot female students but when it comes to work in that field female architects seem to disappear. The construction industry is a very traditional male dominated sector in Austria. She saw some efforts in the last years to support women, but she has the feeling that she is still in a male dominated and conservative work environment.

Workplace approaches/strategies/practices experienced related to being a female STEM professional	Even though her profession is very male dominated, during her studies and work she met a lot of interesting women, colleges, project partner as role models. Advice for her to girls and women in STEM: Do it. Create partnerships to share experiences and celebrate success. She is convinced that a more diverse society is a more resilient society to face all the challenges.
Intentions and motivation to be a mentor	Increasing the number of female students

AT, Case study 2

Item	**Starting Question/Topics/Notes**
Demographics	Barbara Reiter, BSc Barbara Reiter has been working at FH JOANNEUM at the Institute Software Design & Security since 2019. The institute's courses deal with many different areas of computer science and, of course, with the associated application possibilities. IT security and mobile development are just two of the main research areas at the institute. Barbara Reiter studied the bachelor program “Internet Technologies” at the FH JOANNEUM in Kapfenberg and is currently in their master program “IT Law & Management”. Already during her bachelor studies, she worked as a student assistant at FH JOANNEUM and after finishing her bachelor studies she worked as a researcher in different EU projects which mainly dealt with the transfer of IT knowledge to children and young people. Currently Barbara Reiter is project coordinator

	of the project KAIT Green Startupmark, which deals with support for sustainable and green IT startups.
Experience as a female STEM student (how was the experience of studying in STEM fields) - prejudices and stereotypes if any	Before she studied IT she studied management. She didn't really know how she landed in IT but thought "why shouldn't I do it". She also experiences obstacles and difficulties. Without any technical experience and background it was a very interesting start, she says. Difficulties in IT was the different logic in what you are thinking. So she had to learn that different thinking. Another difficulty was that there were very few women in her studies. Most of the male students had technical experience and formed their own group. It was very difficult for her to join the group but managed it very well.
Workplace approaches/strategies/practices experienced related to being a female STEM professional	5 Years ago, a lot of people in her environment were very critical about her discission to work in the IT field. Now she thinks the overall view of Women in STEM is much better and very supportive for Women in STEM. She didn't really had role models. Her father inspired her to choose a technical study. Within the IT sector she has a lot of opportunities to work in different sectors and fields. She thinks that woman in STEM bring more diversity and it makes it more reachable for girls if more women would work in STEM.

Intentions and motivation to be a mentor	Barbara was nominated from the head of eh department, Sonja Gögele, for the project.

Greece

GR, Case study 1

Item	**Starting Question/Topics/Notes**
Demographics	Elisavet Cha Graduated with a Master in Architecture of the University of Liège, she has working experience in architecture, fine arts and industrial design. Strong communication skills and educational spirit lead me to teach STEM classes including engineering and applied mathematics for children and teenangers in schools of Spain and Greece.
Experience as a female STEM student (how was the experience of studying in STEM fields) - prejudices and stereotypes if any	Her experience as a STEM student was very inspiring, she luckily didn't experience any genre gap or stereotypes of any kind. Learning to apply her theoretical knowledge on real-life practical issues, it helped her cultivate an inquisitive mind that constantly seeks for discovery and innovation.

Workplace approaches/strategies/practices experienced related to being a female STEM professional	As a female STEM professional, her approach is not only to evaluate her training skills and knowledge, but also to learn and apply pedagogical strategies that are welcoming and attractive for girls and women. Also, during the activities, it was important for her to inspire the children to cultivate from a very young age a collaborative and respectful environment that considers boys and girls as equal and focuses on working as a team.
Intentions and motivation to be a mentor	Motivate and increase the number of females in STEM fields.

Italy

IT, Case study 1

Item	**Starting Question/Topics/Notes**
Demographics	Michela Minigher, Italian Neuroscience trainer and consultant digital designer More than 15 years of experience

Experience as a female STEM student (how was the experience of studying in STEM fields) - prejudices and stereotypes if any	She is a media Educator, Coach, Lecturer at the Pearson Academy for teachers, a trainer for young people and adults on personal growth paths, a Mindfulness Trainer with Masters in Neuroscience and Meditation from the University of Udine, and Masters in Digital Psychology. She is a consultant in support of parenting and school, focusing on the topics of cyberbullying, emotional education, and digital literacy. She specialises in communication both online and offline, as well as neuromarketing. She collaborates with experts in neuropsychiatry on research related to addictions resulting from continuous web use. She is a member of the Technical Scientific Committee of the National Association of Pedagogical Educators, serving as an expert consultant in the field of digital education. The study experience was challenging as her interest in STEM subjects clashed with the family environment, which favoured a different path.
Workplace approaches/strategies/practices experienced related to being a female STEM professional	
Intentions and motivation to be a mentor	The importance of engaging with female colleagues/professionals is a crucial resource for young female students/professionals entering the world of STEM. She's happy to do so, knowing that she would have also benefited from it at the time of her career beginning.

IT, Case study 2

Item	**Starting Question/Topics/Notes**
Demographics	Martina Lavagnini 5 years of experience ICT Learning Designer

Experience as a female STEM student (how was the experience of studying in STEM fields) - prejudices and stereotypes if any	Martina Lavagnini is a learning designer within Gruppo Pragma a private female enterprise in Italy. Her research focuses on how technologies can help and innovate learning paths and experiences. Her interests in learning design born thanks to her university research in analysing how learning programs in primary schools are affected by gender bias.
Workplace approaches/strategies/practices experienced related to being a female STEM professional	
Intentions and motivation to be a mentor	Martina believes in education as a powerful tool for empowerment of people. She dedicated her career to that, mentorship is a way to fulfil this goal giving her senior experience to support young women.

Co-funded by the European Union

Sweden

SE, Case study 1

Item	Starting Question/Topics/Notes
Demographics	Cindy Urena Colombian Geologist, 33 years old More than 12 years of experience in the Geology Field, Living in Sweden until 2023 She completed her Ph.D. doctoral studies at Lund University (Sweden) in 2023. Currently, she is starting a post-doctoral position at the University of Bern (Switzerland). Her work includes both field and laboratory activities leading to understanding the crucial role that the study of the composition, processes, and minerals of the Earth has in daily life and the sustainable development of societies.
Experience as a female STEM student (how was the experience of studying in STEM fields) - prejudices and stereotypes if any	By the time, the career was not popular so there were many misconceptions about what the career could provide afterwards (job, financially, etc) so there was reluctance as to why to study something very little known or with a very limited field of action. Furthermore, there were only a few women throughout the entire career as teachers or advisors and students which is crucial to support and understand many concepts that are already challenging to understand in the field of study. Only 4 out of 40 students were women in her bachelor´s career and not all of them completed the program. This is something even more evident in the academic ladder through masters and Ph.D.s) but there are more and more women involved in the research pathway here in Europe.

	The picture about women in STEM has changed throughout the years, but initially there was reluctance to work or collaborate with women for example in fieldwork as this can bring more complications when organizing the teams and the field explorations. As more women started to study and work in the field, more views have been accepted including the fact that throughout history behind the great paradigms and concepts in Geology have been solved by women.
Workplace approaches/strategies/practices experienced related to being a female STEM professional	Before it was thought that there should be more considerations when women are part of expeditions and fieldwork. This is a quite masculine perception that has been changing gradually as more women are into research fields and are prioritizing career over other more traditional roles attributed only to women. More women as advisors and professors have been crucial to involve a variety of approaches to solve the research questions and challenges presented in the daily work.
Intentions and motivation to be a mentor	Even though there are more (but few) role models in the career, sometimes her legacy or work can be seen as something out of the scope when you are starting your career, which is why having contact with peers that are closer can have a great difference and can be positive even for the personal development. I was already participating as mentor in Women mentorship groups in Colombia and I want to help other women around me to follow the path of STEM.

SE, Case study 2

Item	**Starting Question/Topics/Notes**

Demographics	Elsa Norden Sweden, software Engineering, 32 years old 4 years of experience working in Computer engineering After a change of career from Biology sciences with a master in Geomatics (Digital map systems), Elsa worked as an environmental consultant for 3 years doing among other things landscape analyses to investigate where to place animal road overpasses. Nowadays she has moved to another STEM career, software developing in which she has been working for the last four years in specific applications developed for specific client needs.
Experience as a female STEM student (how was the experience of studying in STEM fields) - prejudices and stereotypes if any	Her experience is different studying Biology as to what it could happen in other STEM careers or even her current work in computer engineering. Biology sciences have more women in the program, so you are not that aware of stereotypes or prejudices for women in STEM. But that changes when you get into Ph.D. levels where women struggle to continue the careers and there are many who drop out. Also, due to the workload of academia (you are expected to work long hours) and many women who want a family can't do this unless their partner is willing to take main responsibility for the kids which is rare.
Workplace approaches/strategies/practices experienced related to being a female STEM professional	In IT the number of women in the workplace is roughly 10-15% and it is more macho environment. Here is more questioned the fact that more women are hired just because the gender gap needed to be filled as a number in the company. This adds to the experience of women´s knowledge being underestimated leading to women needing to "prove its worth" for the people that doesn´t know them. As a stereotypical IT person is a white man,

	we subconsciously assume women have other roles, and in this way women get sidelined. In addition, some men are uncomfortable speaking or dealing with women, and this creates a barrier between us and in some situations feelings of being left out of the group. This might mean not being asked for opinion, or reluctance to help, avoidance to talk with me…etc. The macho environment can also repel women, the jokes are harsh, no one is expected to show vulnerabilities and as a woman I don't feel comfortable. There is a trend going in a right direction increasing the number of women in STEM Careers and workplaces, like pink programming for example, nevertheless, is always good to be aware of the prejudices that exist and that women will encounter, while trying to stay positive and connect with likeminded women. Is always good to be brave enough and speak out for yourself, but if not, then is just fine with keep working as long as you enjoy it
Intentions and motivation to be a mentor	I like the idea of being a mentor to be able to support women in the same situations as I have experienced. I might be able to give some advice so more young women take the steps into a stem career themselves. More women in STEM positions are needed, and I think more would do it if their options and support would be better. So being a mentor is a right step to help the women near me.

SE, Case study 3

Item	Starting Question/Topics/Notes
Demographics	Ximena Cardozo Colombian working in IKEA Sweden, Electrical Engineering working in information security. 41 years old 13 years of experience working in Computer engineering
Experience as a female STEM student (how was the experience of studying in STEM fields) - prejudices and stereotypes if any	Already in her bachelor studies she encountered a wide gender gap with only 5 women vs. 200 men in the courses. This was challenging as she thought she had to prove to everyone that she deserved to be there among them and that she was intelligent enough. Hence the extra effort was to prove herself “like men”. There were many situations in which gender bias happened, both with students and teachers, especially referring to the idea of what women could and could not work with. To cope some of the difficulties, she used her abilities to communicate and being empathic to convey the messages that she needed to deliver. In addition of men challenging her because of her gender, there was also a negative competition amongst the few women, not talking to each other as they considered themselves as “oponents”. Later on, she realized that she just had to be the best version of herself and that by doing the opposite, helping other women and creating a sense of sorority or community so all women grow

	together and all raise awareness about the STEM pathway for women.
Workplace approaches/strategies/practices experienced related to being a female STEM professional	The work environment is also hard as being among men it is expected to behave like them. Women in general have to do more effort to prove that they know and can do the job. But once people get use to have more women around, it gets easier. Nevertheless, women have to be aware of these challenges and overcome them. The mindset that is needed is never surrender and make the extra effort to complete the career chosen. At the beginning of STEM Careers, you have to work a lot, sometimes with difficult schedules, supporting many areas, but once you have experience, you also get recognized and working is more interesting.
Intentions and motivation to be a mentor	She realized over the years we gain knowledge and experience, and that that is something you can use you teach others, to share what you have. She has already been involved as STEM groups for women, so she wants to continue working and helping women to realise their potential and what is needed to overcome some of the challenges that comes for women in this area.

CY, Case study 1

Item	Starting Question/Topics/Notes
Demographics	Anna Valianti Born in Thessaloniki, Greece Physicist in the field of Applied Physics from Aristotle University of Thessaloniki and a Medical Physicist-Radio physics MSc Graduate. PhD Candidate in Medical Physics -Radio physics
Experience as a female STEM student (how was the experience of studying in STEM fields) - prejudices and stereotypes if any	She has had instances and experience where she was discouraged from staying in this STEM field She considers that push backs are expected, but an individual should be their own advocate and fight through challenges. She could not find a mentor because of being a woman, and it was difficult but grew stronger and was confident in herself and abilities.
Workplace approaches/strategies/practices experienced related to being a female STEM professional	Did not come across specific approaches related to being a female STEM professional.
Intentions and motivation to be a mentor	As a very motivated person herself, she would like to pass the torch and be a mentor and role model for women, which she did not have when she was studying. She considers that it is crucial to have female mentors in STEM. The advice is to never give up, despite the challenges and strive to achieve their dreams.

CY, Case study 2

Item	Starting Question/Topics/Notes
Demographics	Sotiroula Thrasyvoulou Born in Nicosia, Cyprus Molecular Biologist, working as a laboratory scientist at the General Hospital in Nicosia. Mostly

	focusing on next generation sequencing and cancer patients. Master in biotechnology from Greece and a PhD in Cancer Biology.
Experience as a female STEM student (how was the experience of studying in STEM fields) - prejudices and stereotypes if any	no prejudices or discrimination experiences, or stereotypical approaches, she had a very positive experience as a female student and also has a lot of women classmates and colleagues.
Workplace approaches/strategies/practices experienced related to being a female STEM professional	She believes that the way women are viewed has changed in Cyprus and beyond in Europe, and more and more women are encouraged to pursue careers in STEM.
Intentions and motivation to be a mentor	she would like to share the knowledge gained and passion for STEM and her specific field of study.

CY, Case study 3

Item	**Starting Question/Topics/Notes**
Demographics	Maria Kola Computer Science, Born in Paleometocho, a village in Nicosia. She is a graduate of the Department of Mechanical Engineering and Manufacturing of the University of Cyprus Masters in Data Analysis of the UCLAN Cyprus University.
Experience as a female STEM student (how was the experience of studying in STEM fields) - prejudices and stereotypes if any	Male-dominant study - engineering, however in her entry year at the university, almost half of the students were girls

	professors had prejudices for the female students and did not think they will be able to graduate engineering school
Workplace approaches/strategies/practices experienced related to being a female STEM professional	there have been prejudices and stereotypical behaviors, but also an effort to increase female representation in STEM fields from institutions in Cyprus.
Intentions and motivation to be a mentor	Involved in youth council boards, teaching at the University, very passionate about empowering women and especially showcasing to girls and women that they can do whatever they make their mind up to do and can definitely pursue STEM careers and be successful.

Conclusions

In this project, it was evident as exhibited by the Gender Equality Index (2023) that Sweden is by far the most advanced in relation to reducing gender inequalities related to STEM. Whereas this is to the advantage of the project since the coordinator was strategically selected to origin from Sweden, when it came to actual implementation serving as a role model country was not as feasible since the HED institutions reached, already considered that they are addressing the topic substantially and therefore did not have that increased interest to invest time and effort and be involved in the WESTEM project. This was unexpected and created some challenges for the partnership and anticipated hands-on activities, which were overcome with the diligence of the coordinator and the partners involved.

For the rest of the Consortium, the situation regarding gender equality in STEM, is one where steps are taken towards the right direction, including in terms of legislation and policy frameworks. More specific conclusions for each partner country follows.

Austria:

In Austria, non-governmental organisations (NGOs), government agencies, and other stakeholders are addressing gender equality and STEM (science, technology, engineering, and mathematics) at different levels. Gender equality legislation and regulations have been put into place by the Austrian government to support gender equality in a variety of disciplines, including STEM. Gender discrimination is illegal and gender equality is promoted by the Equal Treatment Act (GlBG) and the Federal Equal Treatment Act (B-GlBG). Organisations and educational institutions are taking focused steps to raise the percentage of female students enrolled in STEM degree programmes. These consist of informational gatherings, mentorship initiatives, and initiatives to encourage females' interest in STEM fields.

Programmes and initiatives are being created to facilitate women's entry into STEM fields. Among them are mentoring programs, career support and measures to overcome gender-specific barriers in the workplace.

Organisations that actively promote gender equality in STEM sectors include "Femtech.at" and other NGOs. They provide tools, chances for networking, and assistance with educational projects. Organisations gather and examine gender statistics through research. This aids in planning focused actions and tracking the advancement of gender equality in STEM professions. To design and implement comprehensive plans to promote gender equity in STEM, collaboration between educational institutions, businesses, government agencies, and non-governmental organisations is essential. Despite the fact that a lot is being done, women in STEM are still notably underrepresented. Compared to other academic domains, the percentage of women in STEM courses is notably lower. However, there are a lot of fascinating job options in the STEM fields that have excellent earning potential and high growth potential. Thus, it's critical to dismantle traditional roles.

In order for young women to play a significant role in influencing the future as experts, innovators, and technicians in STEM disciplines, it is crucial to dispel outdated role stereotypes and inspire them to explore the profession. It's critical to promote a diversified job profile and to encourage women to choose non-traditional careers. Girls' interest in STEM subjects should be piqued early on in order to guarantee that women will find technological and scientific phenomena more appealing in the future. This ought to open girls' eyes to fresh viewpoints and possibly even reveal hidden abilities.

Greece:

Women's time is severely limited when it comes to extracurricular activities because of childcare and pregnancy obligations. Furthermore, discriminatory actions discourage women from pursuing careers by acting as deterrents. Implementing educational webinars with flexible scheduling and virtual participation options to accommodate women's restricted time is one way that national efforts are being made to solve these difficulties.

A significant part was played by focused awareness initiatives meant to dispel prejudices and promote an inclusive atmosphere. Approaches to outreach involve a blend of digital and face-to-face techniques. Social media sites are effective tools for connecting with women because they offer a forum for sharing project details and creating an online community. National research results emphasise how important customisation is.

Italy:

In summary, the situation regarding women's involvement in STEM subjects in Italy, when viewed within the framework of the European project, is dynamic and ever-changing. Recognising that gender diversity is essential for fostering innovation and economic expansion, Italy has taken a multipronged strategy to addressing the low number of women in STEM fields.

The National Strategy for Gender Equality and the Equal Pay Law are two examples of the legislative and strategic frameworks that the Italian government has put into place at the national level. The goal of these regulations is to foster an atmosphere that actively promotes and nurtures women's pursuit and success in STEM fields. In order to coordinate these initiatives, incorporate gender equality into more expansive policy areas, and promote a culture that recognises and supports female talent in STEM fields, the Department for Equal Opportunities (DEO) is essential.

These top-down strategies are supplemented at the grassroots level by a variety of programmes run by NGOs, educational institutions, and the commercial sector. Women's groups and local NGOs play a crucial role in empowering women by providing networking opportunities, mentorship programmes, and training. In an effort to support women in STEM, universities and colleges have started organisations, mentorship programmes, and scholarships.

Additionally, through a variety of outreach programmes, mentorship programmes, and scholarship initiatives, the corporate sector has demonstrated admirable efforts to boost female participation in STEM fields. Prominent instances comprise the

TechWomen Initiative and partnerships between organisations such as the European Investment Bank and UniCredit, who are committed to promoting female entrepreneurship, particularly in the STEM domains.

Young women's participation in STEM has increased dramatically thanks to creative initiatives like the Girls Go Circular programme and the Women and Girls in STEM Forum by the European Institute of Innovation and Technology (EIT). various programmes not only offer assistance and useful skills, but they also operate as forums to highlight the enormous potential that exists for women in various professions.

Despite these initiatives, problems with work-life balance—particularly for working mothers—remain, as do cultural preconceptions and a dearth of positive role models. In order to overcome these obstacles, sustained dedication and creative approaches involving support networks, workplace regulations, education, and cultural attitudes are needed.

In short, a combination of regulatory measures, grassroots movements, and corporate sector engagement characterise Italy's approach to increasing women's participation in STEM fields. This all-encompassing strategy is necessary to cultivate a more varied and inclusive STEM workforce, which is critical for advancing technical innovation and economic growth in Italy and throughout Europe. It also benefits gender equality.

Sweden

In Sweden, the gender gap in STEM is narrowing at the school level as more women are pursuing graduate-level opportunities. There are numerous local, regional, and national initiatives that support women throughout their careers to help them find the opportunities, skills, aptitudes, and mentality required to work in STEM fields. Women are encouraged to take any professional path and to acquire the abilities necessary to achieve their goals.

However, the challenges of advancing into mid- and senior-level positions, locating positions that align with their qualifications and expertise, and assisting those who have opted for the research road must continue to be addressed. The difficulties in recruiting participants for the WESTEM project are a reflection of the efforts made by women's associations as well as the things that need to be emphasised in educational institutions where the number of female students is rising yet STEM vocations are not prioritised.

Instead of concentrating more efforts on consolidating online hubs that are beneficial when a sizable number of players are engaged and active, more efforts should be directed into developing local initiatives.

Cyprus

The gender gap in STEM in Cyprus is still present despite significant strides to promote gender equality in STEM, Cyprus faces some of the lowest rates of both women and men in STEM professions within the EU. Although there are some soft laws and directives in place, there is no strict legislation for the provision of gender equality in STEM. The gender equality commissioner of Cyprus Josie Christodoulou plays an important role in this respect, and has recently announced plans to address gender gaps in STEM professions through education and scholarships. In order to combat the unconscious biases that frequently push girls and boys into careers based on stereotypes, a series of seminars for educators and career advice counsellors will be arranged as part of these initiatives. The idea is to dispel the stereotype of "gendered occupations" and inspire boys and girls to follow their passions in STEM disciplines.

In order to do this, cooperation between the public and commercial sectors is required, as well as the development of an accepting culture that values gender equality. Improving the representation of women not only makes the world a safer and more welcoming place for everyone, but it also provides a diversity of viewpoints for decision-making across all industries, which is unquestionably a competitive advantage.

In summary, Cyprus recognizes the importance of addressing gender disparities in STEM and is actively working toward promoting equity and opportunities in these fields.

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Women in STEM & Entrepreneurship - Greece (G-WISE) Greek Women in STEM

WESTEM

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Appendix 1

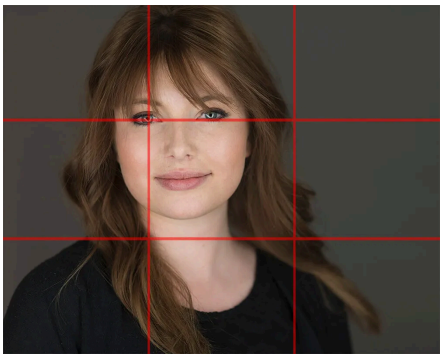
Documentary and interview script WESTEM

What?
The WESTEM documentary is going to be a film of maximum 15 minutes that will be available on social media, website etc., and will be presented during the final conference. Parts of it can also be shown at multiplier events.

The documentary will include films, shots, pictures, quotes, short interviews with the mentors in the community hub, capturing and highlighting womens' success stories within the STEM field.

Why?
For young women in STEM, role models are crucial to combat and overcome stereotypes and obstacles and help more girls and women pursue careers in STEM. Role models initiatives have been supported in Erasmus Plus with beneficial results, especially in underprivileged regions. Taking up the challenge to respond to this gap in role models for girls, this project result (PR3) refers to **showcasing the portraits of women** from **different cultural and socio-economic backgrounds**.

How to do the interview:
The person to be interviewed is a mentor, a woman in STEM.
– You can film either with a phone with good quality or a camera.
– Use an external microphone (they are available for a low cost for both phone and camera) and NOT the built in one.
– Make sure the lighting is good, as natural as possible. No sharp sunlight directly on the person and no harsh shadows on their face. You can use a studio light if you want, or just a bright room with daylight (do not put the interviewee directly in the sun or with the sun behind them though).
– Use a stand for the phone or camera.
– You can crop the image in two ways:



– Make sure to put the interviewee in front of a solid colored wall, or if you film using a camera you can use the largest possible aperture setting (the lowest number possible) to make the background blurry so that the background doesn't “compete” for attention).
– The interviews should be no more than 10 minutes, preferably even shorter

PORTRAIT FOR THE WEBSITE AND SOCIAL MEDIA

Before the interview, you should take a picture that will be used as a portrait that will be published on the website, along with the name and profession of the model.

A quote from the video can be used along with the photo.

The script / Questions:

1. Tell us your name and introduce yourself and how are you involved in STEM?
2. Can you tell us shortly how your journey into STEM? How did you get into STEM?
3. Which are the obstacles and difficulties that you remember having during your studies? How did you overcome them?
4. The way that women are viewed in STEM has changed or developed since you got into you work/career?
5. Do you have women role models in STEM? – Who inspired you to go into STEM?
6. What do you find the most rewarding about working in STEM or what is the best thing about your profession?
7. What advice would you like to give to a girl who would like to pursue a career in STEM profession?
8. Are there any societal benefits from more women and girls into the STEM?

Photograph, Video or Audio Recording Consent Form

The WESTEM Project under the guidelines of the Erasmus + Funding want to encourage women and girls to inspire future generations taking part or interested in STEM (science, technology, engineering and mathematics) career by sharing photographs, videos or audio recordings of women role models in the project website (www.weste.eu), the WESTEM social media accounts (facebook, instagram and linkedin) and a final documentary that will be released in December in a conference in Cyprus.

The picture and/ or the interviews are part of portraying women in STEM alongside with quotes extracted from the interaction with participants, the partners of the project or the content of the interview. The interviews will be only accessed by the consortium of the WESTEM project. The interviews might be presented to the Swedish National Agency as part of the auditing material of the project. The information that you reveal in the interviews might be quoted in the presentation for stakeholders as well. If you require any further information about the interviews or the project, you can contact the project responsible soley@ckc.nu.
Thank you for your valuable contribution to our project!

I, Name (recorded person's full name), do hereby consent to the use by the WESTEM Project consortium of my image, video, voice, or all three of them, in the item described above.

In addition, I waive any right to inspect or approve the finished video recording.

I agree that all such pictures, video or audio recordings and any reproduction thereof shall remain the property of the author and that the WESTEM project may use it as it sees fit.

I understand that this consent is perpetual, that I may not revoke it, and that it is binding.

I understand that these images may appear publicly as part of the WESTEM project website and/or other marketing materials.

Name: _____

Date of Birth: _____

It is understood that this material will be used in a legitimate manner, both internally and outside WESTEM Project and is not intended to cause any harm or undue embarrassment to the parties involved.

Signature:_____

Date: _____

WESTEM

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Contact us