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Deliverable

D9.3 Case study/discussion document of methods used to reduce gender and diversity gaps in Smart Mobility

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Authors	Miriam Pirra, Angela Carboni, Marco Diana, Jacquie Bridgman, Cathleen Schöne
Reviewers	Michala Hvidt Breengaard, Mireia Calvo Monteagudo, Stefan Roseanu
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Abstract

The aim of this report is to present empirical work carried out in order to explore the gender imbalances in the educational provision at European level in STEM education, especially in the transport sector and Smart Mobility. Specific indicators , such as percentages in the gender composition or the number of university courses or research projects dealing with mobility and transport, have been defined and their values in different countries were collected. Then a desktop review of practices for encouraging and supporting women in those studies is presented, underling their main characteristics, such as the kind of initiative, the methods and tools used, the target group or the type of promoter, and the results of activities. Finally, three case studies are analysed in order to discuss main features, obstacles, results, and opportunities.

Contents

1. Context: educational issues in STEM and smart mobility disciplines

TInnGO (Transport Innovation Gender Observatory, https://www.tinngo.eu/) is a European Project funded under the H2020 programme aimed at creating a framework and mechanism for a sustainable game change in European transport through a transformative strategy to achieve a gender and diversity sensitive Smart Mobility system. The project includes the creation of 10 national hubs and associated 'ideas factories' (TInnGIdLabs) covering Sweden/Denmark, UK, Spain, Portugal, Italy, Greece, France, Germany, Romania, Lithuania and Baltic states: each hub addresses issues of local importance in gender and diversity sensitive Smart Mobility.

Smart Mobility is a concept usually involving four main areas: vehicle technology, Intelligent Transport System, data and new mobility services (Jeekel, 2017). It is often associated with Smart City initiatives, i.e. urban strategies using technology to increase the quality of life in urban space, both improving the environmental quality and delivering better services to the citizens (Hall, 2000). The Smart City can be described as "a city performing well in a forward-looking way in economy, people, governance, mobility, environment, and living, built on the smart combination of activities of self-decisive, independent and aware citizens" (Giffinger et al., 2007). Smart Mobility, although just one component of a Smart City, is seen as a means of delivering key benefits such as reducing pollution, traffic congestion, noise pollution and transfer costs, while at the same time increasing transport safety and improving transfer speed (Bencardino & Greco, 2014). On the whole, gender has been marginal in research of Smart Mobility and Smart Cities, even though Smart Mobility provides promising opportunities for social inequity reduction (Staricco, 2013). TInnGO project aims at filling this gap focusing on a "Gender Smart Mobility", which refers to forms of transport that take gender and diversity into consideration (TInnGO, 2019). "Gender Smart Mobility" is expected to connect to actual actions of transport research, policy-making and planning, which react on and meet the needs and aspirations of different genders as well as other social groups.

Smart Mobility is based on the development of new technologies and on the use of innovations in the field of transport. As the common understanding of Smart Mobility lacks social dimensions, focusing exclusively on the technological aspects, gendered imbalances in the sector, including the position of women not only as final users but also as "providers" of such content, has not yet been investigated. In other words, the investigation of the opportunities for women's employment and education in this new field is another key issue that is addressed by the TInnGO project. In fact, the roots of Smart Mobility lie in traditionally male-dominated STEM (Science, Technology, Engineering and Mathematics) subjects such as computing, engineering, manufacturing and planning. These subjects have become associated with fractured and gender-biased transport ecosystems (embracing education, employment, operation, data collection and innovation) that severely impede the ability of Smart Mobility to deliver equitable transport. Therefore, the starting point to address gender gaps in the transport sector is necessarily an analysis of gender-related educational issues in the above-mentioned sectors.

A first action

The European Commission underlines the importance of changing the European transport to meet the ambition of a safe, efficient, technologically advanced, sustainable and accessible transport system (European Commission, 2011). Moreover, the concept of equality between women and men is a core value of the European Union, which has provided a large body of legislation intending to promote gender equality in various areas: equal pay, work-life balance, health and safety at work, social security, access to goods and services, and protection from human trafficking, gender-based violence, and other forms of gender-based crime (European Commission, 2019). However, the relevance of this topic has a worldwide dimension, due to the 17 United Nations' Sustainable Development Goals (SDGs), which include a gender-specific Goal 5 (Razavi, 2016). Gender equality "does not mean that women and men will become the same but that women's and men's rights, responsibilities and opportunities will not depend on whether they are born female or male" (European Commission, 1998). Albeit wealth and income inequality are topics currently debated at academic and policy level, gender inequality remains largely on the margins despite its serious adverse effects on the welfare of women and on a country's development (Agarwal, 2018). On the whole, this theme is considered in various fields such as gender discrimination against working women (Verniers & Vala, 2018) or subjective well-being (Meisenberg & Woodley, 2015). A consistent part of the literature focuses on the gender gap in science and in STEM disciplines at university (Holman et al., 2018) or college level (Stoet & Geary, 2018) down to pre-schoolers (Bakker et al., 2019). However, the debate on the transport careers of women is still a rather niche topic, with some recent examples coming from Japan (Kitada & Harada, 2019) and India (Varghese & Kumari, 2017).

The presence of women in the transport industry is not simply desirable to reach a certain gender equality, but it is expected because they can be a true source of innovation and creativity in new services. This sector is, in fact, in need of all talents in order to meet the pressing challenges of climate change, urbanization, growing population etc. At both European and national levels, there are still serious gaps when it comes to the recognition and inclusion of gender aspects in transport strategies, research, and innovation. On the whole, the inclusion of women in the transport sector is a relatively new topic even if research on equality and women has been a topic since the early 1980s. A recent review by Ortega Hortelano et al. (2019) showed that European regulations considered women and transport issues since the beginning of the XXI century, but also the funding of relevant European research projects began about 20 years ago. Several reasons can explain the underrepresentation of women in the transport sector: "difficulty to find a work-life balance in shift work, lack of appropriate working environment and equipment, lack of training and life-long learning opportunities or inadequate targeted recruitment, persistence of stereotypes, harassment, and bullying" (Ortega Hortelano et al., 2019). Similar issues can be spotted in the transport labour market, where women form only 22% of workers in Europe (European Commission, 2018). As depicted in TInnGO Roadmap (TInnGO, 2019), the transport sector is a highly gender-biased workplace where the female staff is mainly found in service jobs and seldom in areas of technology, manufacturing and construction. These gendered imbalances in the transport sector as the labour market are mainly due to issues of education, stereotypes and work environment. The main aim of this document is to focus on educational issues, through the collection of data and experiences in TInnGO countries to propose a set of guidelines provided to educators on how it is possible to improve gender imbalances in STEM education and R&D.

2. Purpose and scope of the present deliverable

While demand for STEM professionals and associated professionals is expected to grow by around 8% by 2025, much higher than the average 3% growth forecast for all occupations, women's participation in STEM studies, in particular in engineering, remains low in most EU countries: in 2012, graduates in STEM-related subjects account for 12.6% of female graduates as compared with a share of 37.5% among male graduates (Caprile et al., 2015). As shown by the Danish Technological Institute (Danish Technological Institute, 2015), computing and engineering are the two STEM disciplines most heavily male-dominated in EU, with more than 80% male graduates in both disciplines in 2012, while life science - the third-largest STEM discipline - is dominated by women. The remaining three STEM disciplines (physical science, mathematics and statistics, manufacturing, and processing) have a fairly equal participation rate of males and females.

As previously observed, the field of transport and Smart Mobility is mainly connected with the former group of STEM topics and, so, it is a deeply gender-biased domain. Many elements contribute to this including barriers to the participation of women in STEM which take the form of stereotypes, social norms and cultural practices, welfare policies, family backgrounds and the absence of female role models, and limited access to networks, information, funding, or institutional support. As depicted in the work by Caprile et al. (2015), recruitment difficulties have been experienced in many EU Member States in relation to STEM skilled labour, mainly concerning technological jobs in the field of engineering and ICT, which is connected to an insufficient number of graduates and a lack of experienced staff. At the same time, underrepresentation of women persists in most of those domains.

The gender gap in STEM disciplines has many facets, including a form of horizontal segregation that favors the presence of men or women in some sectors and excludes them in others. Women commonly are not so present in technical-scientific jobs, although they are attending scientific high schools. However, a series of mechanisms linked to specific systems of expectations and identity definitions seem to influence the work choices of women, who tend to exclude themselves from occupations in the IT, technical and scientific sectors. According to the work presented by Berra & Cavalletto (2019), based on an academic research project, it is important to work in combination both at school and at labour level to try to bring young women closer to those technical disciplines.

On the basis of the above framework, the purpose of the present research is to build a unified knowledge base on the gender (im)balance in the educational provision related to STEM and smart mobility disciplines across TInnGO countries, and to deepen the knowledge of specific case studies that can be useful to provide guidance to policy makers to address such unbalances.

To achieve such goals, a data collection procedure was designed and implemented to gain knowledge on staff and students distribution of a selection of about 10 STEM universities, possibly dealing with the transport and Smart Mobility field both in teaching and research, and 10 secondary schools covering STEM subjects in each of the TInnGO national hubs listed in section 1. This preliminary data collection was followed by a desktop review of best practices for encouraging and supporting women in STEM implemented in some selected European countries, according to the National Hubs of the TInnGO project. A selection of three representative case studies coming from different countries has been used to investigate in more detail the activities and the results of those initiatives. The knowledge gained through this data collection can help in providing a set of guidelines that could be used by policy makers to address skills, opportunities, and training needs in the mobility ecosystem to reduce gender gaps.

3. Data collection and analysis methods

The main point in the proposed approach lies in the investigation of the current situation of the gender gap in STEM disciplines at the European level. As depicted previously, our analysis will focus on aspects related to this domain being this strictly correlated with the Smart Mobility concepts. The principal contribution that helps in having a clearer vision on the present state passes through a data collection procedure.

The first part of this section is devoted to the description of how we gathered the information necessary to conduct our analysis and which kind of data we were interested in. The second subsection focuses on the availability of those data, according to the easiness of their collection as reported by TInnGO hub managers.

It is important to recall that, despite being the main subject of this document, we want to stress the fact that the Smart Mobility approach must require technical skills in different areas including transport, mechanical, computer, management, energetics, and telecommunications engineering, or also land-use and urban planning.

All these competencies can be found in the courses of study defined as STEM. Therefore, the starting point to address gender gaps in the transport sector is necessarily an analysis of gender-related educational issues in the above-mentioned sectors.

3.1. Data collection for a set of indicators

The current subsection presents the three main approaches adopted to collect the data necessary to conduct the following analyses.

The first focus goes on the definition of a set of specific indicators that are proposed in order to compare the level of awareness on the topic in different countries at educational level. These indicators are, in fact, chosen to describe the gender composition of staff and student in universities and secondary schools covering STEM subjects. They are collected in several European countries (TInnGO Hub countries, see Table 1), more specifically targeting the Smart Mobility field whenever possible.

In particular, the focus is on 10 selected STEM Universities and 10 Secondary schools covering STEM subjects. These institutions were chosen in such a way that the situation in the country related to gender issues in STEM education is adequately represented within such sample.

Table 1 TInnGO Hubs

Country/TInnGO HUB
Sweden/Denmark
UK
Spain
Portugal
Italy
Greece
France
Germany
Romania
Lithuania (+ Baltic states)

A descriptive analysis using these indicators was carried out to assess the level of imbalance in the education provision in the considered European countries and derive some benchmark values. Some of these indicators can be commonly found in documents and reports providing an overview of the STEM studies and occupations (Caprile et al., 2015; Danish technological Institute, 2015) or on gender equality in research and innovation (European Commission, 2019).

However, the current document aims at focusing on those indicators which specifically target the Smart Mobility field in a more gender-sensitive way. Besides, information was collected on each indicator to understand whether its value is either publicly available, collected but not available, or not collected, considering both the national level, i.e. aggregated values for the entire educational system, and the universities or schools within the selected sample.

The identified indicators can be divided into two main parts: the first one is related to gender staff breakdown, teaching and research activities and the second part focuses on students. In detail, the collected indicators are:

- TEACHING, RESEARCH AND STAFF
    1. Gender staff composition in Universities, irrespective of the covered role.
    2. Gender staff composition in Secondary schools, irrespective of the covered role.
    3. Gender staff composition in Universities, only considering the personnel employed in teaching and/or research.
    4. Gender composition in Universities, only considering the personnel employed in teaching and/or research in the transport and smart mobility fields.
    5. Gender composition of the University governing bodies (e.g. head or management roles).
    6. Number of university courses dealing with transport or smart mobility.
    7. Number of ongoing national and international research projects dealing with transport and smart mobility in which the university is involved.
    8. Gender composition of the research teams involved in projects related to transport and smart mobility.
- STUDENTS
    1. Gender composition - Secondary school students
    2. Gender composition – Students taking part in university admission tests
    3. Gender composition - First year students (university)
    4. Gender composition - First year students (university) in subject related to transport and smart mobility
    5. Gender composition – University students (all levels)
    6. Gender composition - Bachelor's degrees
    7. Gender composition - Bachelor's degrees in transport and smart mobility
    8. Gender composition - Master level students
    9. Gender composition - Master level students in transport and smart mobility
    10. Gender composition - Master's degrees
    11. Gender composition - Master's degrees in transport and smart mobility

12. Gender composition - Post-master students excluding PhD
13. Gender composition - Post-master students in transport and smart mobility excluding PhD
14. Gender composition - PhD students
15. Gender composition - PhD students in transport and smart mobility
16. Gender composition - Erasmus students
17. Gender composition - Winners of grants/scholarship
18. Number of grants/scholarships specifically designed for women
19. Number of grants/scholarships in transport and smart mobility
20. Number of students involved in associations and teams dealing with transport and smart mobility.

3.2. Identification of best practices in supporting women in STEM education and selection of three case studies

This above set of indicators can help in assessing the gender balance situation at educational level in the subjects related to Smart Mobility. It is, then, important to know if specific actions have been taken to reach more positive outcomes or if some initiatives are underway to ameliorate it. So, the second part of the data collection is based on the identification of best practices for encouraging and supporting women engaged in STEM education at the European level in the TInnGO countries, either on a teaching/research or on a student side. The aim is to focus on actions that are specifically targeted to the transport educational sector (e.g. transport engineering, transport planning, vehicle design, etc.), if possible.

The practices for encouraging and supporting women in STEM can be quite different, but it has been interesting to gather information, especially on the following aspects: the way subjects are taught, student-centred and problem-based approaches, learning cultures and the promotion of gender balance through associations, communication campaign, and awards.

The main information that all hubs collected to compare the initiatives included: the title of the initiative, the type of initiative, the geographical level (national or local), if the initiative was in progress or concluded, the start and end years, who was the initiative promoter, the funder, target group, the source for the information, the method used to support and encourage women in STEM and the main results if available. The detailed structure of the data collection scheme is reported in Appendix I, whereas the answers have been aggregated in a restricted number of options as shown in Table 2 to better present the results.

Table 2 Collected information on European best practices for encouraging and supporting women in STEM

	Options
Country	Name of TInnGO country
Name	Name of initiative local and English language
Kind	Association/network
	Mentorship/courses
	Communication campaign/events
	Awards/scholarship
Promoter	Regional/National/EU policy
	School/University
	STEM Company
	Association/NGO
Funding	Project funding/EU funding
	Financed by the company
	Public/national funding/University funding
	Donations/fees
Target groups	Primary school students
	Secondary school students
	University students
	PhD students
	Researchers/ PhD
	Educational staff
	Women in general
Methods and tools	Workshops/conferences
	Games/hackathon/camp
	Social network campaign/dissemination materials
	Mentoring
	Awards/internship
Transport-specific	Yes
	No

As it will be seen in the following, a great number of initiatives are available across European countries. Obviously, not all the initiatives collected show their effectiveness, either because of lack of feedback mechanisms or because they are still ongoing. A selection of successful case studies has been provided and subjected to a more detailed analysis; three of them will be presented in the last part of this discussion document (section 5). For each case study, a more developed investigation is proposed where the following information has been requested:

- Details reported in Table 3 to summarise the main information
- Goals, to explain and describe what was the motivation to create the initiative.

- Method and tools to the focus on how the initiative supports and encourages women in STEM (workshop, conferences, games, hackathon, camp, mentoring, awards, internship, dissemination materials, social network, communication campaign, surveys, etc.). Each activity was described in detail (type, period, target group, results, etc.)
- Monitoring/Results/Evaluation, if available, to describe the main results obtained until the date of the survey, including e.g. how they have been evaluated.

Table 3 Collected information on the selected European case studies

Initiative details	
Country	Main country of the initiative
Name	Name of initiative local and English language
Kind	Association/network/Mentorship/courses/communication campaign/events Awards/scholarship Define only one kind (the most descriptive one)
Promoter	Regional/National/EU policy/ School/University/ STEM Company/ Association/NGO Define in detail the promoter/promoters
Implementer	Regional/National/EU policy/ School/University/ STEM Company/ Association/NGO Define in detail the implementer (who is the actual performer of the initiative if different from promoter)
Funding	Project funding/EU funding/ Financed by the company/ Public/national funding/University funding/ Donations/fees Define in detail the type of funding or other relevant information about that
Temporal extension	Indicate the starting year and if it is concluded or in progress
Info source	Website, Social account, link…

3.3. Data availability related to indicators

The data collection is important because it gives the possibility to evaluate the current and the past trends in a certain domain under investigation. However, it is not always possible to collect data: sometimes they are not publicly available, or they are collected but not easily accessible or, even worst, they are not collected at all. At the same time, this could be done differently depending on the country. The availability of raw data is one of the first issues to be tackled: in fact, it is not easy to find this kind of information. However, the numbers associated to the previously described indicators can help in understanding the female interest and participation in STEM studies and they can be exploited to evaluate the effectiveness of practices proposed for encouraging and supporting women in transport sector education.

For each indicator introduced in subsection 3.1 it is possible to analyse whether the values are either publicly available, or collected but not available, or not collected, considering both the national level (i.e. aggregated values for the entire educational system), and none/some or all the universities or schools selected for each country. An example of the data availability description for one indicator is shown in Table 4. The semantic scale mentioned in the header of the last three columns (i.e. many – some – few) can be interpreted as follows:

- *Many*: the level of information described in the row applies for at least 8 institutes in your sample
- *Some*: the level of information described in the row applies for 4 to 7 institutes in your sample
- *Few*: the level of information described in the row applies for at less than 3 institutes in your sample.

Table 4 Example of data availability characteristics for collected indicator

1) Gender staff composition - University	Aggregated at national level	In many universities	In some universities	In few universities
Publicly available				
Not collected				
Collected but not publicly available				

Rows of Table 5 and Table 6 present the indicators cited in subsection 3.1 that the hubs were asked to analyse, respectively referring to staff (Table 5) and students (Table 6) in universities and secondary schools. The columns of the two tables refer to the level of availability of each indicator, while each cell is listing the hubs where a specific indicator has a given level of availability. Options in column are not mutually exclusive, since an indicator could be available for some schools but not for others, or available both as an aggregate result at the national level and for some specific institutions, but not for all.

Table 5 Indicators referring to staff in university and secondary school.

Indicators	Publicly available		Not collected		Collected but not publicly available	
	At national level	At university/school level	At national level	At university/school level	At national level	At university/school level
Gender staff composition in Universities, irrespective of the covered role	FR, GE, IT, PO, RO, SP, UK	FR, GE, IT, RO, DE, SP	DE	BS, RO		
Gender staff composition in Secondary schools, irrespective of the covered role	FR, GE, PO, RO, SP, GR, UK	FR, IT, RO, DE	DE	BS		
Gender staff composition in Universities, only considering the personnel employed in teaching and/or research	FR, GE, IT, PO, RO, SP. GR, UK	FR, GE, IT, RO, DE, SP	DE	BS, RO		

Gender composition in Universities, only considering the personnel employed in teaching and/or research in the transport and smart mobility fields	FR	FR, IT, RO, UK	GE, IT, PO, DE, SP	GE, RO, DE, SP		PO
Gender composition of the University governing bodies (e.g. head or management roles)	FR, IT, UK	FR, GE, IT, RO	GE, PO, DE, SP	BS, RO, DE, SP		PO
Number of university courses dealing with transport or smart mobility	FR	FR, IT, PO, RO, SP, UK	GE, IT, DE	GE, DE		RO
Number of ongoing national and international research projects dealing with transport and smart mobility in which the university is involved		FR, IT, PO, RO, DE, SP	GE, IT, DE	GE, UK		RO
Gender composition of the research teams involved in projects related to transport and smart mobility		RO, DE, SP	FR, GE, IT, PO, DE	GE, IT, PO, UK		RO

NB: BS Lithuania and Baltic States, DE Denmark, FR France, GE Germany, GR Greece, IT Italy, PO Portugal, RO Romania, UK United Kingdom, SP Spain

Table 6 Indicators referring to students in university and secondary school.

Indicators	Publicly available		Not collected		Collected but not publicly available	
	At national level	At university/school level	At national level	At university/school level	At national level	At university/school level
Gender composition - Secondary school students	FR, GE, PO, RO, DE, SP, GR, IT	BS, IT, RO		BS, DE		FR, RO
Gender composition – Students taking part in university admission tests	FR	FR, DE, RO	GE, PO, DE	BS, GE, PO, RO		IT, SP
Gender composition - First year students (university)	FR, GE, IT, SP	FR, GE, IT, DE, SP, RO	PO	BS, PO, RO		
Gender composition - First year students (university) in subject related to transport and smart mobility	FR	DE, RO	GE, IT, DE	GE, IT, RO		FR, SP, RO
Gender composition – University students (all levels)	BS, FR, GE, IT,	FR, GE, IT, SP	DE	BS, DE		

	PO, SP, RO					
Gender composition - Bachelor's degrees	FR, GE, IT, PO, SP, RO	FR, GE, IT, SP	DE	BS, DE		
Gender composition - Bachelor's degrees in transport and smart mobility	FR	IT	GE, PO, DE, SP	GE, DE, SP, RO		FR, RO
Gender composition - Master level students	FR, GE, IT, SP	FR, GE, IT, SP, RO	PO, DE	BS, DE, RO		
Gender composition - Master level students in transport and smart mobility	FR	FR, GE, RO	GE, IT, PO, DE, SP	IT, DE, SP		RO
Gender composition - Master's degrees	FR, GE, IT, SP, RO	FR, GE, IT, SP	PO, DE	BS, DE		
Gender composition - Master's degrees in transport and smart mobility	FR	FR	GE, IT, PO, DE, SP	GE, IT, DE, SP, RO		RO

Gender composition - Master's degrees	FR, GE, IT, SP, RO	FR, GE, IT, SP	PO, DE	BS, DE		
Gender composition - Master's degrees in transport and smart mobility	FR	FR	GE, IT, PO, DE, SP	GE, IT, DE, SP, RO		RO
Gender composition - Post-master students excluding PhD	FR, SP	FR, IT, SP	PO, DE	BS, DE		PO
Gender composition - Post-master students in transport and smart mobility excluding PhD		IT	GE, PO, DE	GE, DE	FR	FR, PO
Gender composition - PhD students	FR, GE, SP, RO, IT	FR, GE, IT, DE, RO	PO, DE	BS,RO		
Gender composition - PhD students in transport and smart mobility	FR	IT, RO	GE, PO, DE	GE, DE, RO		FR, SP, RO
Gender composition - Erasmus students	FR, IT, SP	FR, RO	DE	BS, DE, RO		IT
Gender composition - Winners of grants/scholarship	FR	FR	GE, IT, DE	BS, IT, DE, RO		SP, RO
Number of grants/scholarships specifically designed for women			GE, IT, DE	DE	FR	SP

Number of grants/scholarships in transport and smart mobility	FR	FR	GE, IT, DE	DE, RO		SP
Number of students involved in associations and teams dealing with transport and smart mobility	FR	FR, IT	GE, IT, DE	GE, DE, RO		SP, RO

NB: BS Lithuania and Baltic States, DE Denmark, FR France, GE Germany, GR Greece, IT Italy, PO Portugal, RO Romania, UK United Kingdom, SP Spain

The number of hubs falling into each cell ofTable 5 and Table 6 demonstrates how the availability of data varies across TInnGO countries that are Sweden/Denmark, UK, Spain, Portugal, Italy, Greece, France, Germany, Romania, Lithuania and Baltic states. Such a result is certainly influenced by the possibility of accessing specific academic databases, while another rather strong barrier lies in the fact that most of the information is available only in the relevant national language and, so, easily accessible only by people living in that specific country. These factors do not allow a straightforward comparative analysis of the situation at the European level; however, some trends can be noticed in order to assess the level of imbalance in the education provision in the considered European countries and derive some benchmark values. The analysis in the following section includes the comparison of the presence of women in technical universities at the national level with the above-mentioned European benchmark to gain a better trend knowledge. The investigation can be twofold, including an analysis both at the staff and at the student level.

3.4. Availability of information related to best practices

As regards the data available for the desktop review about best practices for encouraging and supporting women in STEM, a difficulty emerged in the whole procedure, especially concerning the possibility of finding specific and relevant initiatives in the field of transport. The number of reviewed practices in different countries is listed in Table 7. Surely this aspect speaks against the effectiveness of the promotion of gender balance in this sector, since the visibility of these initiatives should be a peculiar element.

It is also important to underline that the availability of information was not homogeneous in different countries. The experiences collected are certainly not accounting for the whole offer on the theme at European level. This could be seen as a limit of the initiative themselves, meaning that they are not so widespread and easy to be found despite a specific research operated on the topic. However, this aspect could also be seen as an incentive to overcome such deficiency in the initiatives diffusion and dissemination.

Table 7 Data availability of best practices for encouraging and supporting women in STEM

Country/TInnGO hub	N. Of initiative Collected	Gender topic	Transport focus
Italy	4	4	1
Denmark	2	2	0
UK	5	4	1
Greece	3	3	0
Germany	3	2	0
Portugal	3	1	0
Spain	6	4	0
Romania	3	3	0
Lithuania, Latvia, Estonia	10	10	0
France	5	3	0

4. Analysis of the results

The data collection procedures presented in section 3 allowed the acquisition of a good amount of information on the topic of this discussion paper. As cited previously, the availability of data is one of the main limitations in the subsequent operations of data analyses and comparisons. This issue occurs mostly for the indicators assessing the level of gender balance in the education provision in the considered European countries. So, the organisation of the current section is affected by the limitation in the data availability: an overview on some comparisons that can be done at the European level on those indicators is then proposed. The main focus is, thus, on a desktop review of initiatives that promote specifically gender balance in STEM education that will lead up in the successful case studies selection that will be the core of section 5.

4.1. Indicators

Some analyses can be carried out comparing the information deriving from the data collection procedure on the indicators. For example, the comparison of gender staff composition, irrespective of the covered role, on a selection of Universities in Germany, Spain and Italy demonstrates that the percentage of women is commonly lower than the national average in those dealing with more technical degree courses, namely engineering schools. These values decrease even more when considering only the personnel employed in teaching and/or research, due to the considerable presence of women covering administrative roles in those institutes. Numerically speaking, the average percentage of females in the whole staff in German universities is equal to 43.8%, with this number decreasing to 39% when considering only those involved in teaching and/or research. Despite the latter value is similar to the Italian one (40%), in this nation, instead, the former indicator rises to 47% (see Appendix I).

Some other analyses can be carried out on the students' datasets at the national level. For instance, Fig. 1 (a) shows some data for Italy. The chart on the left reveals that three universities dealing only with technical courses, namely POLIBA, POLIMI and POLITO, have a female presence lower than the average. In fact, the other institutions also offer other kinds of studies, like the humanistic ones, that usually attract more women. The chart also shows the trends of women's presence at three different stages of the university career, namely first year, at master graduation and as PhD students. Given the focus of this research on transport and Smart Mobility, Fig. 1 (b) shows the percentages of females who gained masters degrees in courses related to those topics, whenever those data are available: the presence of males is always stronger, but the equality is not so far to be reached in some cases.

a b

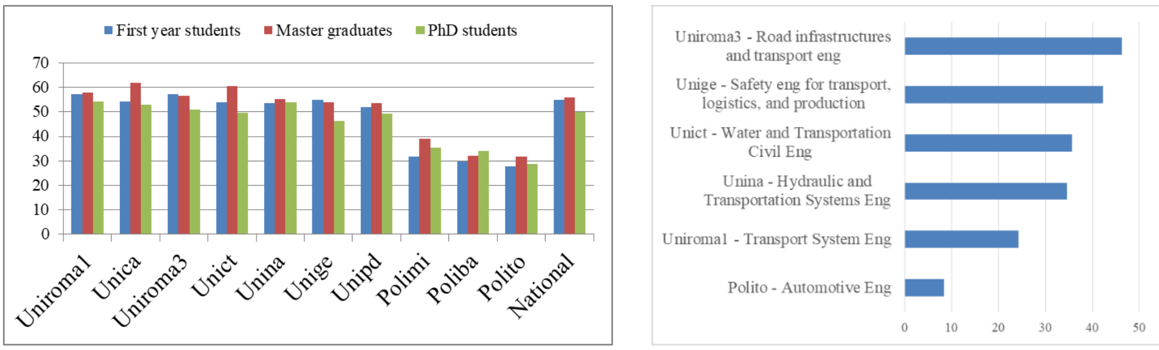

Fig. 1 (a) Percentages of female students in 10 Italian universities; (b) percentages of females graduating in transport and SM master's degrees

4.2. Desktop review

Appendix II reports all the collected information, while a selection is here proposed in order to focus only on initiatives that specifically promote gender balance in STEM education (Fig. 2). According to the data availability summarised in Table 7, 44 initiatives were considered from 9 hubs.

The desktop review is useful to define a base framework of European practices, by categorising them through their main features reported in the first two columns of

Table 8. This table shows the numbers of initiatives partitioned according to the possible choice available for 6 main categories of interest, namely “Kind of practice”, “Promoter”, “Funding”, “Target groups”, “Methods and tools” and “Transport-specific”. It is important to observe that summing these numbers inside each category could provide a total greater that the values found in Table 7. In fact, more than one option is acceptable per category: for example, the tools used can be both workshops and hackathons and this increases the possible choices in the rows corresponding to “Methods and tools” in Table 8. The results of this table shows how initiatives to involve women in STEM and transport sector widely differ and a comparison could be inefficient, but an overview is nevertheless reported. As underlined in subsection 3.4, the availability of information was not homogeneous in the countries and, consequently, the number of useful practices for the desktop review is currently not homogeneous among the nations.

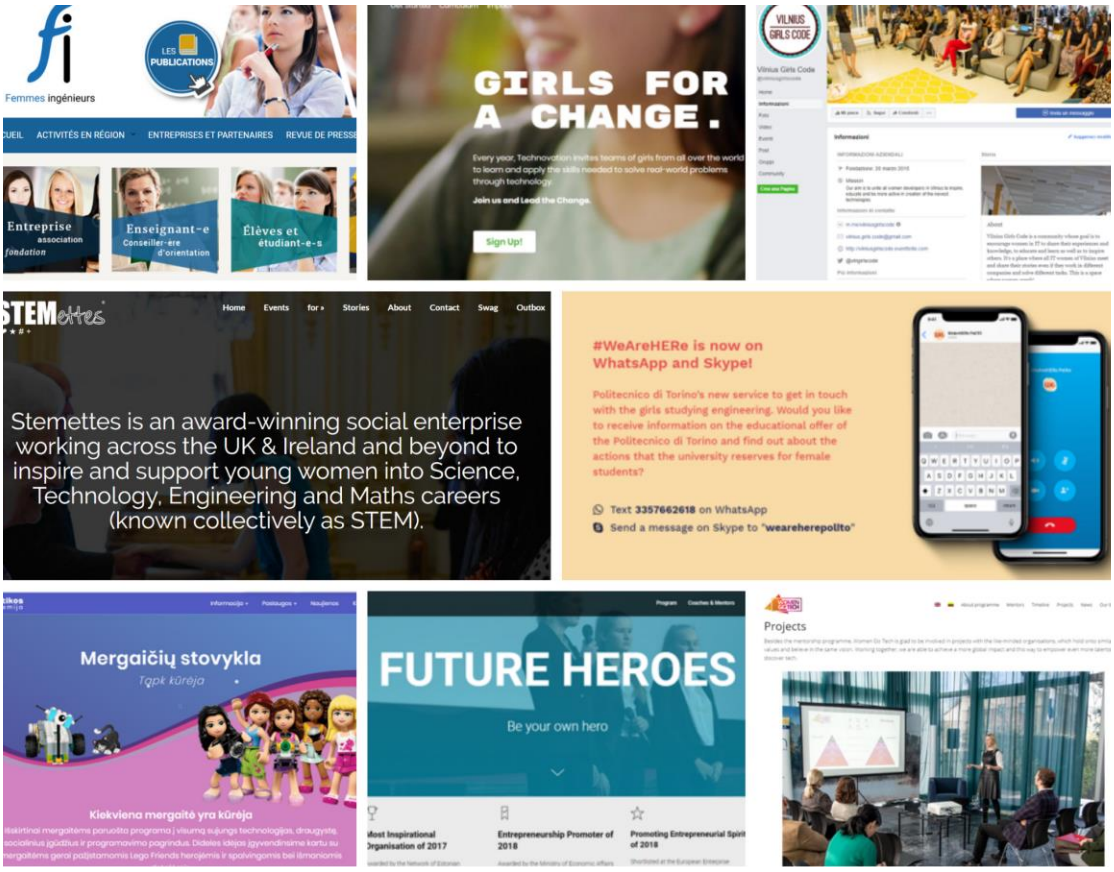

Fig. 2 Example of web pages of some collected European initiative within the desktop review (source: initiative’s internet sites)

Table 8 Cross tabulation of the number of reviewed European practices for encouraging and supporting women in STEM: practice characteristics by country

		IT	DE	UK	GR	GE	PO	SP	RO	BS	FR
Kind of practice	Association/network	2	1	3	0	2	1	1	0	3	3
	Mentorship/courses	2	0	1	0	0	0	2	1	3	0
	Communication campaign/events	3	1	1	3	1	0	1	0	4	0
	Awards/scholarship	1	0	0	0	0	0	0	2	0	0
Promoter	Regional/National/EU policy	1	0	2	1	1	1	1	2	2	0
	School/University	3	2	1	0	2	0	0	0	1	0
	STEM Company	2	0	1	1	2	0	0	3	2	0
	Association/NGO	0	1	1	2	0	0	3	1	5	3
Funding	Project funding/EU funding	1	1	0	1	0	0	0	0	2	0
	Financed by the company	1	0	4	0	1	0	1	2	4	1
	Public/national funding/University funding	2	0	0	2	0	1	1	0	1	1
	Donations/fees	0	0	2	0	0	0	2	0	2	2
Target groups	Primary school students	1	0	0	2	0	0	2	0	1	1
	Secondary school students	3	1	3	3	2	0	3	1	4	3
	University students	3	0	3	0	2	1	1	0	3	1
	PhD students	0	0	0	0	1	1	0	2	0	0
	Researchers/ PhD	0	0	0	0	1	0	0	2	0	0
	Educational staff	0	0	0	2	0	0	0	0	0	1
	Women in general/selected women categories	0	1	0	0	0	0	0	0	4	2
Methods and tools	Workshops/conferences	1	2	4	3	2	0	3	0	8	3
	Games/hackathon/camp	3	1	0	1	0	0	1	0	1	1
	Social network campaign/dissemination materials	1	0	0	1	0	0	0	0	1	1
	Mentoring	3	1	2	1	2	0	3	1	4	2
	Awards/internship	1	0	3	0	0	0	0	2	1	1
Transport-specific	Yes	1	0	1	0	0	0	0	0	0	0
	No	3	2	3	3	2	1	4	3	10	3

BS Lithuania and Baltic States, DE Denmark, GE Germany, GR Greece, IT Italy, PO Portugal, RO Romania, UK United Kingdom, SP Spain, FR France

The overall view reported in Fig. 3[1] shows that the kind of practice that is generally more widespread is the association (38%) followed by the communication campaign (33%): probably the second type of approach recently raised because of the ever-increasing diffusion of social networks as an effective communication tool. As regards the promoter of initiatives, the situation is quite balanced with a 34% of practices proposed by associations or NGOs, 24% by regional/national/EU policies, 23% by STEM companies and finally 19% by schools or universities. In addition, funding to promote the initiatives is coming in a balanced way from both the public and private sectors. This finding means that also STEM companies are interested in practices to encourage and support women in their fields.

The desktop review demonstrated that the most used implementation method is the organisation of workshops or conferences (40%) but mentoring is widespread (29%). Finally, an interesting results concern the target group to which the initiative is addressed: secondary school girls (38%) are the main beneficiaries of this type of activities. In fact, as shown by the findings of a survey presented by the Italian association “STEM by Woman”, girls (like all students) make decisions about their future typically in the age range 14-18 and therefore this is the moment when the initiatives may become more effective (Berra & Cavalletto, 2019).

Albeit many of the initiatives are recent and still ongoing, sometimes interesting outcomes emerge. For instance, a Danish communication campaign, addressed to secondary school students and made up of workshops, mentoring and camp, brought the female students admitted at the IT University of Copenhagen (ITU) from 25% to 34% in the period 2016-2018[2]. In the United Kingdom, just one event was proposed by an association which aims to inspire and support young women into those careers[3], after which 95% of attendees have reported an increased interest in STEM. A communication campaign proposed by an Italian technical university through mentoring approach and targeted scholarships contributed to increase the percentage of women enrolled from 15.8% to 19.3% between 2001 and 2007[4]. These results show the effectiveness of the initiatives proposed, so that these can be taken as examples and replicated in other countries. Some of the previously presented experiences are, thus, discussed in more detail in the following section in order to highlight their main characteristics and depict the reasons behind their success.

[1] See Appendix IV – Collected European practices for encouraging and supporting women in STEM for more details.

[2] https://en.itu.dk/about-itu/gender-diversity-among-students

[3] https://stemettes.org/about-us/

[4] https://laboratoriopolito.org/file/47

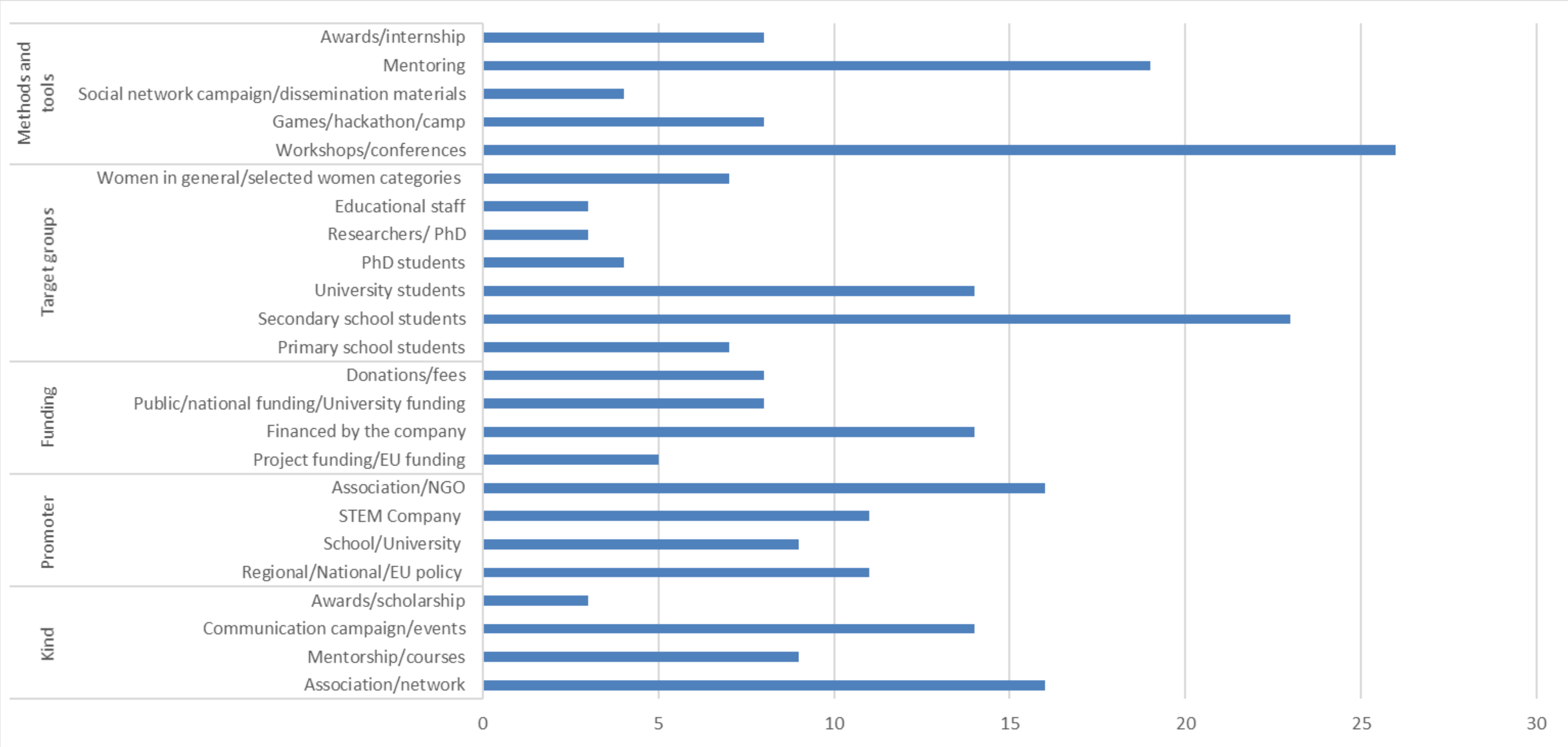

Fig. 3 Overall view of number of collected information of European practices for encouraging and supporting women in STEM

5. Selected case studies

Subsection 4.2 presented a collection of initiatives available at the European level which aim to specifically promote gender balance in STEM education. A selection of successful initiatives developed in three different countries, namely Italy, Germany and UK, is presented in the following. This focus aims at providing suggestions of how to organise this kind of experiences and would like to be seen as successful examples that could lead to a change in the perception of technical discipline among women and girls.

5.1. ITALIAN CASE STUDY: PoliWo – PoliTO for Women

Table 9 Italian case study details

Initiative details	
Country	Italy
Name	PoliWo – Polito for Women
Kind	Project
Promoter	Politecnico di Torino (University)
Implementer	Small group of Politecnico di Torino staff
Funding	The Politecnico di Torino University is funding all the activities
Temporal extension	The first activities of the association started in late 2018 and they are still going on
Info source	General information on University and its actions for women: https://wstemproject.eu/team/politecnico-di-torino/ Enrolment social campaign: https://wearehere.polito.it/ Hackathon site: https://www.shehackspolito.it/
Contact people	Claudia De Giorgi, Vice Rector for Quality, Welfare and Equal Opportunities (claudia.degiorgi@polito.it) Arianna Montorsi, Rector's Representative for Gender Equality (arianna.montorsi@polito.it)

5.1.1. Goals

Established in 1859, Politecnico di Torino (POLITO) is the oldest technical University in Italy. For more than 150 years it has been one of the most prestigious public institutions in Italy for education, research, technological transfer and services in all sectors of architecture and engineering. Ranking among the first twenty European technical universities, it is worldwide recognised as a high-quality centre for education and research. At POLITO 900 Professors and Researchers carry out research and provide education to 34.000 students, of which 5.000 international from 100 different countries.

Since 2002, Politecnico di Torino has developed a project to enhance women's presence in Engineering University and overcome the image of the engineer as a predominantly male figure.

This initiative is named "PoliWo – PoliTo for Women". It is a project in line with the objective "Education" of the new POLITO Strategic Plan 2018-2024, in order to raise the average percentage of female students enrolled in first year of engineering programmes and to achieve full gender equality in some degree programmes. The project provides for the adoption of positive actions aimed at removing the obstacles that prevent the realisation of equal opportunities.

The idea of proposing something innovative to achieve these goals originated during 2017-2018 through the interest of a group of women professors who wanted to take charge actively of those aspects at the university level. The new rector, who took office on 17/03/2018, gave official approval for those actions and demonstrated the interest towards the themes appointing two specific figures, namely the Vice Rector for Quality, Welfare and Equal Opportunities and the Rector's Representative for Gender Equality. The official nature of POLITO's willingness of committing to those themes can be seen in the minutes of the resolutions taken in the sessions of the Academic Senate and of the Board of Directors. In fact, the meetings that took place at the end of 2018 approved officially:

"the activation of a project called PoliWo - PoliTo for Women, aimed at encouraging students to enroll in Engineering courses for which the following actions have been foreseen with relative budgets:

- *a competition of ideas - addressed to the student population – "Create a communication campaign for the PoliWo initiative";*
- *actions aimed at operationally promoting the Engineering training offer among high school female students: these actions will be the subject of a proposal made by a specially appointed commission;*
- *part-time collaborations to carry out tutoring activities in order to sensitise them on characteristics of the student path and the profession of engineer."*

Since September 2018, a cycle of bimonthly meetings opened to the teaching staff (both women and men) has started in order to talk about actions, policies and gender studies in the academic community of POLITO. Possible proposal of initiatives to increase students enrolled in engineering degree courses in the academic year 2019/20 are discussed during those events.

5.1.2. Specific actions

5.1.2.1. *She Hacks Polito*

The competition of ideas aimed at creating the previously cited communication campaign took the form of a hackathon named "She Hacks Polito". POLITO promoted the event and the organisation was in charge of the students' team "Visionary Days". The challenge took place on 8th and 9th March 2019 and involved 70 male and female POLITO students that competed in teams. The participants (55% were women) had 20 hours to implement the concept of a communication campaign to be adopted by the University to enhance the role of the female engineer and promoting the enrolment of the women in

STEM courses. Good communication coverage implemented before and during the event itself through social media (see Figure 4). The first three won a total price of 8000€ while the winning idea has been carried out as a campaign for the enrolment in academic year 2019/20.

Fig. 4 Pre-event social media communication campaign

5.1.2.2. We Are HERe

"We Are HERe" (https://weareherepolito.it/en) is the communication campaign endorsed by POLITO as a part of the project to promote enrolment in Engineering courses by women. It was the proposal who win the "She Hacks Polito" challenge. An external society managed the communication campaign, because POLITO does not hold the proper knowledge and personnel. The main concept proposed is based on the fact that students would need to be inspired more by people a little older than them who are attending University, rather than mentoring by more experienced women at a higher level (from industry, science etc).

So, the "We Are HERe" campaign was mainly based on a "mentoring" rather than an "inspirational" approach which wants to represent the support from the students already present in the University to future fresh women, but also the concrete possibility of realising a dream, that of being a woman and an engineer. The name is mainly based on two concepts: "We are Her", as we – as high school students- can recognise in her (female student at POLITO) and "We are here", as we are women at POLITO, we can support you.

The main aim is to propose support for future students following the stories of women studying at POLITO and discover all of the university's initiatives for equal opportunities. In fact, it is mainly based on the presentation of the stories of POLITO female students through the social media mostly used by teenagers, namely twitter (https://twitter.com/weareherepolito) and Instagram (https://www.instagram.com/weareherepolito/) –see Figure 2-, with the recent addition of WhatsApp and Skype. A selection of female students report weekly their experience as a student, as girls in a typically male university, presenting their ambitions, their dreams and their fears. In addition, high school students can interact with them by asking specific questions and presenting their doubts. The aim of the social campaign was to bring the students of the last years of high school into contact with the students who were already studying at POLITO.

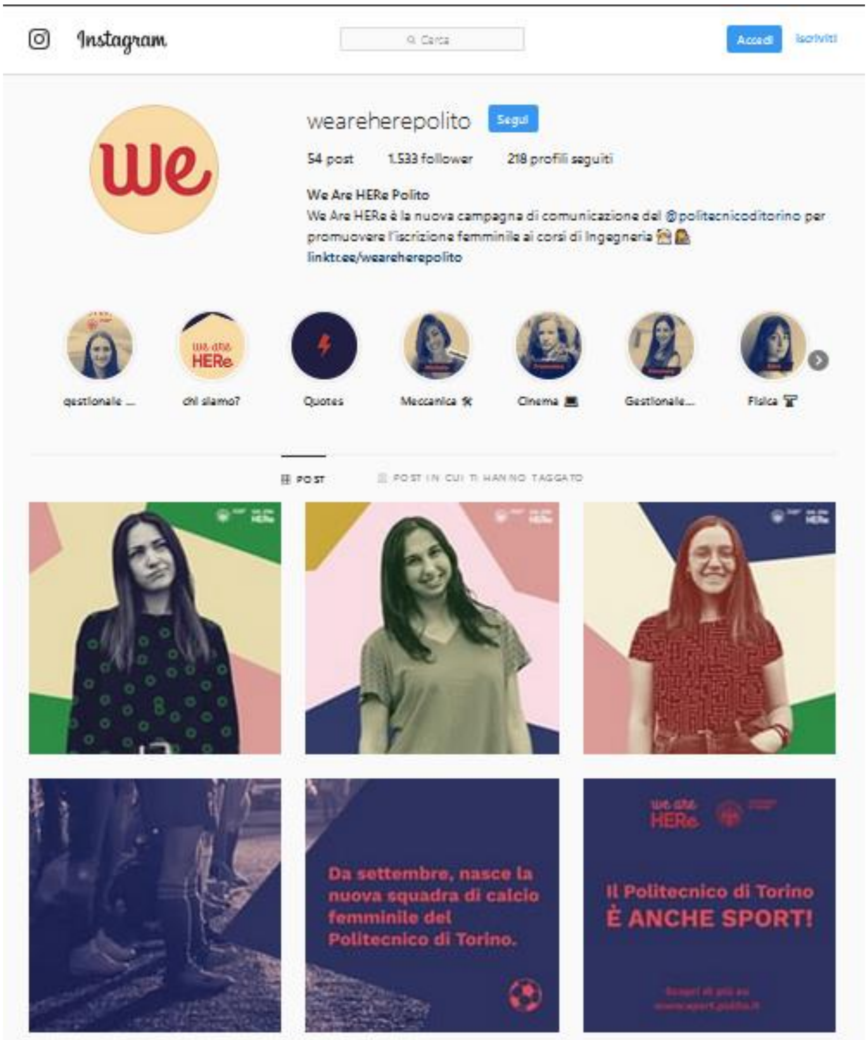

Fig. 5 Instagram page of "We Are Here"

5.1.2.3. Summer school

As part of the PoliWO initiatives, the Academic Senate approved in Spring 2019 the appointment of a Commission formed by Prof. Claudia De Giorgi, Arianna Montorsi and Anita Tabacco for the coordination of the project "PoliWo Summer School - SAperI: Spatial Ability for Engineering". This action has been taken in collaboration with the research group "TEACH: Teaching Engineering Avant-garde Challenge Host" and aimed at raising awareness of students' potential and strengthen spatial skills which, according to the most recent studies, are strongly correlated with scientific careers. Spatial Abilities mainly include 3 skills: Mental rotation - the ability to rapidly rotate 2D and 3D objects, Spatial perception - spatial relations with respect to orientation and composition, Spatial visualisation - complex and multi-faceted manipulation. The Summer school took place from 17 to 21 June 2019 and was addressed to 4th-year high school girls based on Prof. Sorby spatial ability course[5]. The goals of the training are the increase of the knowledge of one's potential and the improvement of personal spatial ability that are aspects that are not commonly presented during girls' childhood due to less use of games like "Lego" and similar toys. It has been found by Engineering Education Research (EER) researchers that Spatial Abilities influence the way of thinking. They help to solve problems and improve the way people learn, with a strong correlation between these skills and a career in science. This experience has shown that female students are able to gain these new qualifications thanks to specific works and exercises like the one proposed in this course.

5.1.2.4. Mentoring

Since 2019, POLITO has proposed part-time collaboration scholarships for the 2019/2020 academic year students enrolled in master's degree programs in the Engineering Area, as part of PoliWo project. Activities start with tutoring, through an online interface, of students of the Engineering courses of the Polytechnic to encourage orientation for high school female students in order to sensitise them to the characteristics of the student path and the engineering profession.

A second set of activities requires POLITO female students to mentoring activity newcomers enrolled, possibly in degree courses in the same area. They have the task of promoting the insertion of newly registered students in the polytechnic community, providing adequate support in the resolution of academic and environmental-relational problems. The action of the scholarship holders, therefore, consists in organising meetings to better facilitate the integration process of newly registered students.

5.1.2.5. Financing

Starting from December 2019, the Board of Directors and the Academic Senate approved the allocation of specific funds for initiatives proposed at the university level. Two main domains are the objective of the financing: on one side the activities regarding the orientation and the increase of women's enrolment, on the other the promotion of equal opportunities in the academic careers.

5.1.3. Monitoring/Results/Evaluation

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[5] https://www.higheredservices.org/

Initial feedback indicates that the trend is starting to change thanks to information and mentoring campaigns: in fact, the historical peak of female enrolment in Engineering has been reached this academic year 2019/20, with 1,307 newly registered female students, equal to 26% of the total and with a growth of over 5% over last year. A growing percentage that remains far below the female potential, but it is, however, a positive result.

Prof. Alessandra Colombelli proposed two surveys with the aim of investigating the effects of the proposed initiatives. A survey was addressed to new female students: among the newly registered, 63% said that the main reason that led them to choose a path in the STEM field was linked to a personal interest. Only 59 out of 343 were motivated by the choice of career prospects, 32 undertook STEM to provide opportunities to find work, 5 were encouraged by their family and 8 were stimulated from schools. Above all, it emerged that it is a choice of passion made in solitude. In fact, almost 70% indicated "myself" as the main guide for choosing.

5.2. UNITED KINGDOM CASE STUDY: Stemettes

Table 10 UK case study details

Initiative details	
Country	United Kingdom
Name	Stemettes
Kind	Organisation who arrange public Events/School trips/ mentoring/App
Promoter	Stem Company – Social Enterprise
Implementer	National Social Enterprise Stem Company supported by industry partners
Funding	Industry partners, Deutsche Bank, Accenture, Salesforce No details are available for their funding.
Temporal extension	2013 - current
Info source	Website: Stemettes.org Twitter @stemettes

5.2.1. Goals

Stemettes (a Stemette can be defined as a female who has the capacity to go into one or more of the STEM fields) is a social enterprise which encourages girls aged 5–22 to pursue careers in STEM in a new way. Co-founder Anna-Marie Imafidon decided to start Stemettes after hearing a keynote while attending the Grace Hopper Celebration of Women in Computing in 2012. After attending a spotlight on STEM workshop run by Business in the community, Anne Marie learnt that there is a real problem in the UK and decided to take a new form of action centred on being free, being fun and having food. Their mission is to inspire the next generation of women into science, technology, engineering and maths (STEM) by showing them female role models already in STEM via a series of panel events, hackathons, exhibitions and mentoring schemes.

Partners and interested parties listed are:

Lead Partners

Partnering to scale our programmes

In partnership with BORN TO BE The Deutsche Bank youth engagement programme

GO THINK BIG | O2

MONSTER FIND BETTER

Long-term Partners

Regular partners

BANK OF AMERICA

centrica

DXC.technology

CANDY KITTENS GOURMET SWEETS

Event Partners

ABBEY ROAD STUDIOS
ACCENTURE
AIR PRODUCTS
ANGLO AMERICAN
ASOS
BAE SYSTEMS
BARCLAYS/RISE LONDON
BENTLEY SYSTEMS
BIPB
BLOOMBERG
BLUEWOLF
BOMBARDIER
BP
BT
CDW
CHICESTER UNIVERSITY
CITY UNIVERSITY LONDON
CORNERSTONE ONDEMAND
DELOITTE
DUBLIN CITY UNIVERSITY
DURHAM UNIVERSITY
EDF TRADING
ENGINEERS IRELAND
EVERYWOMAN
EXCELIAN/LUXOFT
EY
FORD
G-RESEARCH
GLASGOW UNIVERSITY
GLOBAL
GOOD ENERGY
HERE EAST
IMPERIAL COLLEGE LONDON
INNOVATEHER
ITV
JUST EAT
LEGAL & GENERAL INVESTMENT MANAGEMENT
LONDON LEGACY DEVELOPMENT CORPORATION
MAKE HAPPEN ESSEX
MEDIACOM
MEGGITT
METASWITCH
METHODS DIGITAL
MICROSOFT / MICROSOFT RESEARCH
MILLENNIUM POINT
MORGAN STANLEY
MORRISON FOERSTER
NGBAILEY
NHS DIGITAL
NHS ENGLAND
NTT COMMUNICATIONS
ORACLE
POST OFFICE
PLEXAL
PWC
QUANTUMBLACK
R/GA
ROYAL SOCIETY OF ARTS (RSA)
RULLION
SALESFORCE
SCHRODERS
SEMPRE ANALYTICS
SHEFFIELD HALLAM UNIVERSITY
SKIMLINKS
SOFTWIRE
STARBUCKS
TD SECURITIES
TECHNORTH
THE OR SOCIETY
THOUGHTWORKS
UST GLOBAL
VEOLIA
VISION CRITICAL
W5 BELFAST
WESTFIELD
WINTON CAPITAL

Collaborators

AppShed
Barbican Centre
The Big
Bang/EngineeringUK
British Science Association
CloudCannon
Camden Collective
Edit Development
Elekta
Flux Dance
The Geekettes
Hobs 3D
Inspirational YOU
ItIs3D
Kuato Studios
LateRooms.com
Makers Academy
PulseCSI
Rolls-Royce
Somewhereto_
UK Youth
UnLtd
WAH Nails
WISE

Our Friends

Women's Engineering Society
The IET Women's Network
The Women in Technology Network
ASPIRES Report
Forensic Outreach
WoInCo
WomenShiftDigital
body>data>space
CAS #include
ScienceGrrl
Ada Lovelace Day
Excellence in Education (EIE)
Imperial Women in Computing
Tomorrow's Engineers
Ladies of the Roundtable
Technology Will Save Us
Jeremy King
Engineering in Schools
Code First: Girls
TechMums
Mums in Technology

5.2.2. Specific actions

Stemettes runs public events, workshops and online outreach activities to promote Science, Technology, Engineering and Maths (STEM) related careers to female students, using a network of women working in the STEM industry. They enable young women, their parents, and other influencers to see the possibilities and make an informed decision about STEM careers, in an attempt to boost the number of women in the UK's STEM workforce.

They have supporters in the UK Government & EU Commission, industry employers (such as Bank of America Merrill Lynch, Telefonica/O2, Centrica and Deutsche Bank) and fellow STEM outreach organisations and have been featured in Forbes, the BBC, the Guardian, the Observer, the Times and the Huffington Post. Since their inception in February 2013, they have given more than 40,000 females across the UK and Europe positive experiences with STEM.

In 2015 Stemettes ran outbox incubator in London, a residential business incubator held over 2 months for young women with STEM start-ups which helped 115 of them from across the EU launch science or tech-based businesses. The focus was on the young women and how they would be different coming out of the incubator; confident in their abilities to execute their ideas along with a network of industry leaders and mentors.

5.2.2.1. The outbox programme

The outbox programme for girls under the age of 22 was an intensive residential programme delivered over 6 weeks during the school summer holiday, delivered to cohorts of 45 girls at a time. Industry professionals delivered over 90 sessions on business development fundraising marketing and design along with 30 downtime sessions including yoga, art, knitting and rock climbing.

The programme was split into two phases:

- 3 weeks of germination, followed by a public demo day during this time the girls learnt about themselves as entrepreneurs, the mechanics of running a business and ideation. On the demo day the girls pitched their ideas to angels and mentors who pledged money and time.
- 3 weeks of incubation – during this time the girls worked on refining their business models, prototyping, building traction and going live.

On the demo day, angels and mentors pledged money, time and support to 29 of the girls' start-ups, most formed during the first three weeks at Outbox. £30,000 funding was awarded across the start-ups. The girls attending did not have to pay to participate in the programme, all costs and materials were funded by The Salesforce Foundation.

5.2.2.2. OtotheB App

In 2016 the OtotheB app was launched. The app is a free online platform for young female students interested in STEM and entrepreneurship and is available through Apple iTunes and Google Play. The app provides a resource for girls interested in careers in STEM. The app gives girls access to:

- Motivational Mondays – access to exclusive interviews with inspiring women in STEM and the chance to win an opportunity to shadow them
- Win Wednesdays – Access to competitions to win exclusive merchandise, stem gadgets and networking opportunities
- Thought Time Thursdays – Google hangouts with industry role models, which will allow girls to ask agony aunt style questions and watch the conversations live via the app
- Featured Fridays - Find out about recommended STEM related products books and services

OtotheB has been described as a pioneering initiative, designed to engage, motivate and nurture young women, and is the first app of its kind to specifically target the next generation of women in STEM. The website states that highlights include meeting NASA's chief scientist, tickets to The Gadget Show Live and learning about Service Design.

5.2.3. Monitoring/Results/Evaluation

Outbox was deemed a great success. 35 companies were launched by the girls during their stay. Many concerned the most pressing issues of our age; food security, biodiversity and chronic illness. Solutions to these problems are being found through better germinating seeds, habitats for bees and wearable technology devices for chronic illness.

One of the most important outcomes of this programme was the spirit of collaboration between all the girls. They really brought their whole selves to the program and created a network of peers and friends for life. Evidence for continuation of the scheme in subsequent years was not found.

5.3. GERMAN CASE STUDY: FEMTEC

Table 11 German case study details

Initiative details	
Country	Germany
Name	FEMTEC GmbH
Kind	Network
Promoter	STEM (limited) company
Implementer	Founded by **EAF Berlin** = Europäische Akademie für Frauen in Politik und Wirtschaft Berlin e.V. (European Academy for Women in Politics and Economics Berlin) & **Technische Universität Berlin (Technical University of Berlin)** Cooperation with renowned technology companies, leading scientific institutions and technical universities
Funding	Financed by the company
Temporal extension	Founded 2011 current
Info source	https://www.femtec.org/ https://www.facebook.com/Femtec.Network/ https://www.instagram.com/femtec.network/ https://www.linkedin.com/company/femtec-network/

5.3.1. Goals

The goal of FEMTEC is to better connect female STEM students in business and science and to support them in their personal career development [6]. Promotion of female junior staff for the MINT [7] professions: Femtec qualifies STEM talents already at school and offers career perspectives to determined female students with the Career-Building Program. The offer is complemented by career advice for professionals and personnel advice for high potentials. These women, well-known technology companies as well as leading scientific institutions and technical universities together form the successful Femtec network. Their vision is to establish diversity in the teams of companies so that male-dominated structures are broken up - to create space for a sustainable and socially just society. In times of rapid technological progress, they are creating new opportunities for exchange and synergies - so that the diversity they strive for is also represented in tomorrow's world with all its facets and perspectives.

The partners of the initiative are:

[6] https://www.femtec.org/ueber-uns/#unsere-vision
[7] MINT is the German acronym for STEM and means Mathematik, Informatik, Naturwissenschaften, Technik.

- COMPANIES & RESEARCH INSTITUTES[8]

The Femtec Network currently comprises eleven well-known, internationally operating technology companies as well as top-class research institutes, such as the Fraunhofer-Gesellschaft. Together they lay the foundation for a successful career of female students in the STEM sector.

- UNIVERSITIES[9]

Femtec cooperates with leading technical universities and colleges in Germany and Switzerland. All of them share the goal of preparing STEM-enthusiastic women for their professional careers in the best possible way during their studies.

[8] https://www.femtec.org/partner/unternehmen-forschungsinstitute/

[9] https://www.femtec.org/partner/universitaeten/

- FEMTEC ALUMNAE E. V.[10]

Femtec Alumnae e. V. is an association by and for women scientists, engineers and experts from the STEM sector (mathematics, computer science, natural sciences, technology). It was founded in 2008 by female graduates of the Femtec Career-Building Program and has since grown into a network of more than 600 women.

The Femtec Alumnae e. V. represents women working in the STEM sector and is committed to an equal work culture. With their role model, the association members encourage schoolgirls to decide on a career in the STEM sector. The professional development of the members is supported by seminars and workshops. The association also offers the opportunity to exchange information and network with each other - throughout Germany and worldwide.

- COOPERATIONS[11] with:

[10] https://www.femtec.org/partner/#femtec-alumnae

[11] https://www.femtec.org/partner/#kooperationen

5.3.2. Specific actions

5.3.2.1. Career Building Programme

The Career Building Programme prepares female students who are enthusiastic about STEM for professional practice and future management tasks. They offer:

- Challenging career training that helps women to develop their talents
- Inspiring discussions of career-relevant topics
- Exclusive contacts to exciting employers as well as universities and research institutes

They also offer career counselling:

- to discuss career and ambitions for change in a professional and concentrated manner
- to analyze the values and needs
- to sharpen strengths, key competences and talents
- and to develop a convincing profile and an individual career strategy from it.

Interested women can book an individual session to work on a specific question. This is often used, for example, to prepare for a job interview or to decide on several options. Or they are basically looking for a (new) orientation and follow a holistic consulting process.

5.3.2.2. Talent Take Off

They discuss vocational training and career-related issues:

- Which contents and activities belong to certain professions?
- Which skills and abilities are important for which professions?
- Which (initial) training paths lead to which occupations?
- What personal strengths and skills do interested women need to bring with them?

The "Talent Take Off" study orientation programme is aimed at STEM enthusiasts who want to gain insights into STEM subjects and professions, who want to know more about what "applied research" actually means and who are interested in exchanging ideas with other STEM talents.

5.3.2.3. Personnel Consulting

Support in personal career development in cooperation with Nistler Consulting:

- change professionally
- have a demand for a current topic from your daily work
- need information about a partner company.

They have many years of experience in personnel consulting as well as broad industry and market knowledge. The establishment and expansion of long-term relationships based on trust and the personal guidance and professional positioning of Femtec-Alumnae (also non-alumnae) is their special concern. Seriousness and discretion combined with a high degree of empathy for the goals and motives of our contact persons - whether they are candidates or companies - are a matter of course.

5.3.1. Monitoring/Results/Evaluation

Femtec also cooperates on a project-related basis with many partners from business, science and the media. Nationwide and regional. Here are two already completed projects.

Project KIM - Karriereverläufe hochqualifizierter weiblicher (Young) Professionals im STEM-Bereich[12]

Career paths of highly qualified female (young) professionals in the STEM sector

October 2014 – September 2015

The focus of the KIM project of Femtec.GmbH was the manifold experiences of working femtec-alumnae at different employers. The project initiated the exchange with and between these STEM professionals in order to obtain experience-based information and assessments on topics related to career entry and career paths in business and science. The project results were presented and discussed with the expert public at a conference in Berlin on 10 September 2015.

To attract young female graduates to engineering and science, to support ambitious female students in shaping their career paths and to improve the entry and promotion opportunities of highly qualified female STEM graduates in the long term - these are the goals of Femtec.GmbH. Eleven

[12] https://www.femtec.org/programme/#projekte
https://www.komm-mach-mint.de/MINT-Projekte/BMBF-gefoerderte-Projekte/Ehemals-gefoerderte-Projekte/KIM

leading international corporate partners, the German TU9 universities and ETH Zurich work together in the Femtec.network, which is unique in Europe, to find and promote female STEM talent.
Femtec's study-accompanying career-building programme has now been completed by 650 female STEM talents. Almost 500 of these Femtec alumni have already successfully entered the profession. It is precisely this target group, who act as seismographs of their generation, that the KIM project has targeted.
The core of the project were workshops with Femtec-Alumnae and a "practice dialogue" between these (young) female professionals on the one hand and employers from industry and science on the other. On the one hand, these came from Femtec's partner companies and universities, and on the other hand, selected technology-oriented small and medium-sized enterprises were able to take part in the "practice dialogue".
The project ran from October 2014 to September 2015 and was financed by the Federal Ministry of Education and Research, the partner companies in the Femtec.Network and Femtec.Alumnae e.V.

Technik braucht Vielfalt![13]

Technology needs diversity!

End February 2014

New strategies and networks for more young women in STEM subjects. The population in Germany is becoming more and more varying - as is the group of schoolgirls with A-levels. With the project "Technology Needs Diversity", Femtec.GmbH and LIFE e.V., together with universities and colleges, have opened up new paths for young women with and without a migration background into the so-called STEM subjects. For this to succeed, many must work together: Universities/colleges, civil society actors, schools, especially migrant self-organisations and companies.
In our project we have succeeded in integrating these diverse partners into sustainable networks. The activities of the project were aimed at schoolgirls of the Secondary School level who are aiming for a high school diploma and/or a university degree and took place in three model regions: Berlin, Darmstadt / Frankfurt, Stuttgart / Esslingen. The joint project "Technology Needs Diversity" - New Strategies and Networks for More Young Women/Migrants in STEM Subjects" was implemented by the two partners Femtec.GmbH and LIFE e.V. between March 2012 and February 2014, and was part

[13] https://www.technik-braucht-vielfalt.de/

of the National Pact for Women in STEM Professions "Komm, mach MINT. It was funded by the Federal Ministry of Education and Research (FKZ: 01FP12-25 and -27).

6. Recommendations and key considerations

This discussion document presented the activities carried out and some results of a desktop review conducted at the European level aiming at evaluating the imbalances in educational provision in the STEM domain, given the active link with the Smart Mobility and transport framework. Currently, European universities rarely offer study courses focused on Smart Mobility, as emerged in subsection 3.3 of this document. As a consequence, it has been necessary to extend the study to the STEM world with a focus on the transport sector, given the correlation between gender gaps in STEM and gender gaps in Smart Mobility. Furthermore, as discussed in section 4, also the practices for encouraging and supporting women in transport and Smart Mobility sectors are often included in more general solutions proposed by STEM studies.

Some difficulties had to be faced: numbers are not always easily accessible, especially from outside the academic context. As showed in subsection 3.3, more information can be found while searching for specific initiatives aiming to increase the interest of women towards STEM disciplines at both academic and secondary school level. For example, the effectiveness of campaigns proposed by technical universities for promoting this kind of studies among secondary female students could be inferred by the increase of the percentage of women enrolled over the years, as emerged from some of the past European practices reviewed in subsection 4.2.

A wide network of associations and mentoring can be found operating in various European nations: most of them organise workshops and communication campaigns trying to make female aware of their potentialities in a deeply gender-biased field like the STEM one. Unfortunately, a low number of initiatives is explicitly focusing on bringing women closer to the transport sector and this is certainly a domain where the TInnGO project can give a contribution by supplying new knowledge and suggesting specific ways to address this issue. All these results have been investigated and exploited also thanks to the focus on some available successful case studies. More specifically, the information collected can help to propose a set of guidelines that could be used by policy makers to address skills, opportunities and training needs in the mobility ecosystem to reduce gender gaps.

One of the fundamental points is the combined work of education institutions (mainly university, but also secondary schools) and companies to explain the potentialities of female students in the technical disciplines and fighting some stereotypes that would keep women far from some male-dominated labour ambits. Overcoming the gender gap in the STEM would produce advantages both in terms of equity and efficiency. Already in 1999 Katy Matzui, an analyst at Golden Sach, had coined the term "Womenomics" to indicate to the business world a new strategy that would enhance the female component as a resource and not as a constraint for the development of companies (Berra & Cavalletto, 2019). An increased number of women entering the labour market would produce an increase in the economy with benefits that could be perceived by the whole population (Del Boca et al., 2012). This aspect is necessary for an era like the current one, which is characterised by a broad technological change through the development of new products and processes. Design of the technology and the organisation addressed only to the male component of the population would produce the risk of not exploiting the innovation and the creative proposal that the other half of the population would bring (Berra & Cavalletto, 2019).

The initiatives collected in the current document show that this path is starting to be followed. Most of the time, the actions are taken directly from the companies that are beginning to run public events, workshops and online outreach activities to promote STEM-related careers to young women and female students. It is common to observe the creation of networks, which women working in the STEM industry made up of companies and educational institutes that combine their effort and their activities. These networks are commonly built at the national level, but some international experiences could be found too, mainly proposed by companies operating worldwide or through cooperation agreements established among different academies.

Most of the initiatives are directed to secondary school students to show women's potentialities in technical universities and propose the experiences of successful women operating in commonly male-dominated jobs, as, for example, within Smart Mobility. In these cases, the mentoring approach can involve either female university students or working women. In the first case, the goal is to present the experiences of female students in courses characterised by a vast majority of boys, highlighting both problems and satisfactions. The first potentiality of this activity lies in the not too large age difference between the mentors and the participants, who can, thus, feel closer in the life experience. The meetings with working women may have the intent, instead, of highlighting the persistence of the gender gap and its effects in the many areas of professional life, with differences in the entry into the labour market, barriers during career paths, conflicts between working times, family obligations, and careers. However, these women can be seen as a living example of how it is possible to face these issues, demonstrating their ways of overcoming those barriers. This kind of workshops can also be proposed in universities, mainly in technical ones, in order to bring the female students closer to the job market, which will absorb them soon.

Some activities can also be proposed in primary schools, commonly to show that girls hold technical capacities too. In fact, recent research showed that that gendered notions of brilliance are acquired early (at six years of age) and have an immediate effect on children's interests (Bian et al., 2017). Moreover, some experimental activities proposing the use of digital technologies to primary students do not reveal differences in the ability comparing girls and boys, despite comments collected among scholars revealed a tendency to associate this kind of exercises mainly to males (Berra & Cavalletto, 2019). These feedbacks gathered directly on the field show the strong presence of models that can direct behaviours and attitudes since childhood. This result demonstrates that the creation of gender roles, and the corresponding expectations, arises before the secondary school attendance and is related to socialisation processes at family and school level.

As shown so far, the school is the primary environment where it is suggested to propose initiatives aiming at the increase of the interest of women towards STEM topics. The examples provided in the previous sections come from various European countries, each of them being characterised by a different perception of the female situation and awareness of the topic. Therefore, the replicability of a successful experience is not guaranteed simply through the exact reproduction of the actions undertaken. The suggestion is to study in detail each initiative so that it should be proposed in a manner fitting the context correctly, also bearing in mind the social situation. For that reason, it could be necessary to operate some investigations, preliminarily of the overall development, to prevent possible drawbacks.

Last but not least, the way the initiatives are disseminated is another fundamental point that deserves proper attention during their implementation. Despite the initiatives themselves can be proposed through different kinds of methods and tools, commonly workshop, conferences or mentoring experiences, it is important to say to the world that they are going on. Therefore, the rapid increase of the diffusion of social media, mainly among the new generations, should be exploited to propose events and to provide examples of successful experiences and people that could be seen as good examples and role models.

Acknowledgements

As regards section 5.1, we would like to kindly acknowledge Arianna Montorsi for the information provided and Alessandra Colombelli for the provision of the surveys' results. We would also like to thank all the participants to the PoliWo meetings for the always interesting exchange of ideas and discussions.

7. Appendix I – Data collection for a set of indicators

This appendix is collection some of values collected in different TInnGO countries for the indicators presented in section 3.1.

7.1. Spain

GENDER STAFF BREAKDOWN				
Indicator number / name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
Number of women, all staff in Universities	48.1	%	National	Available at http://estadisticas.mecd.gob.es
Number of women (all staff) by University where available	49.2	%	Oviedo	All 2017/18 Figures
	44.4	%	Las Palmas	
	50.4	%	Autonomous Barcelona	
	36.6	%	Polytechnic Catalunya	
	39.7	%	Polytechnic Valencia	
	46.8	%	Universida de Seville	
	34.4	%	Polytechnico Madrid	
	49.8	%	University of Zaragoza	

Total number of teaching and research staff aggregated nationally	41.7%			Figures sourced from above ministry.

VALUES OF INDICATOS RELATED TO STUDENTS				
Indicator number / name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
Percentage of Students as women		%	National	http://www.educacionyfp.gob.es/servicios-al-ciudadano/estadisticas/universitaria/estadisticas/alumnado/desde-2015.html National figures listed - breakdown by individual university included in the above link 2018/2019
Undergraduate Private University Public University	 57.9 50.8	%	National	
Masters Private University Public University	 33.1 49	%	National	
Doctorate Private University Public University	 44 47	%	National	

7.2. Portugal

GENDER STAFF BREAKDOWN				
Indicator number / name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
Women as teaching staff in higher education	44.8	%	National level	https://www.pordata.pt/en/Subtheme/Portugal/Teaching+Staff-43
Women as teachers in Preschool, primary, lower secondary and upper secondary education	78	%	National level	https://www.pordata.pt/en/Subtheme/Portugal/Teaching+Staff-43 values for 2018
Women as teachers in University Polytechnic	42.6 48.2	%	National level	
Universidade De Lisboa			Website link	https://www.ulisboa.pt/en/info/smart-urban-mobility-redemov REDEMOV – Smart Urban Mobility
Women as leaders of Universities	13	%	Article	http://www.theportugalnews.com/news/portugal-behind-on-gender-equality-in-higher-education/49812

VALUES OF INDICATOS RELATED TO STUDENTS

Indicator number / name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
Women as a percentage of students enrolled in higher education overall	53.8	%	National level	2018
Science maths & Computing	43.3	%	National level	2018
Engineering manufacturing and construction	27.7	%	National level	2018
Women students enrolled in private higher education	57.7	%	National level	2018
Women students enrolled in public higher education	53	%	National level	2018
Women as students at university Polytechnic	53.9 53.6	%	National level	2018

7.3. Italy

GENDER STAFF BREAKDOWN

Indicator number / name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
1) Female-Gender staff composition – University (*)	259/833 (31%)	absolute value, %	Politecnico di Bari	http://dati.ustat.miur.it/dataset/2015-2018-personale-universitario/resource/7b6ef846-5942-46aa-80bb-95029af7764f
	1773/3546 (50%)		Università degli Studi di Cagliari	
	2078/4319 (48%)		Università degli studi di Catania	
	2418/4710 (51%)		Università degli studi di Genova	
	1891/4748 (40%)		Politecnico di Milano	
	3690/8039 (46%)		Università degli Studi di Napoli Federico II	
	5859/12041 (52%)		Università degli Studi di Padova	
	5977/11286 (53%)		Sapienza Università di Roma	
	1142/2370 (48%)		Università degli studi Roma Tre	

	1185/2952 (40%)		Politecnico di Torino	
	71885/152329 (47%)		national	http://ustat.miur.it/dati/didattica/italia/atenei
2) Female-Gender staff composition – Secondary school	78/151 (52%)	absolute value, %	ISTITUTO TECNICO “EUCLIDE – CARACCIOLO”	http://cercalatuascuola.istruzione.it/cercalatuascuola/istituti/BATH040009/it-euclide-caracciolo/personale/ 2018/19
	110/220 (50%)		I.T.I.S. P. Paleocapa	http ://cercalatuascuola.istruzione.it/cercalatuascuola/istituti/BGTF010003/pietro-paleocapa/personale/ 2018/19
	132/176 (75%)		Liceo Scientifico Galilei	http://cercalatuascuola.istruzione.it/cercalatuascuola/istituti/CTPS040009/ls-galileo-galilei/personale/ 2018/19
	93/204 (46%)		ISTITUTO TECNICO STATALE “Luigi Galvani”	http://cercalatuascuola.istruzione.it/cercalatuascuola/istituti/NATF130009/iti-lgalvanigiugliano/personale/ 2018/19
	69/141 (49%)		ITTL “Caio Duilio”	http://cercalatuascuola.istruzione.it/cercalatuascuola/istituti/METH01000T/ittl-caio-duilio/personale/ 2018/19

	87/124 (70%)		Liceo Scientifico Statale VITTORIO VENETO	http://cercalatuascuola.istruzione.it/cercalatuascuola/istituti/MIPS070007/vittorio-veneto/personale/ 2018/19
	88/110 (80%)		LICEO SCIENTIFICO STATALE “GIUSEPPE MERCALLI”	http://cercalatuascuola.istruzione.it/cercalatuascuola/istituti/NAPS05000G/ls-gmercalli/personale/ 2018/19
	104/174 (60%)		IT IS Enrico Fermi	http://cercalatuascuola.istruzione.it/cercalatuascuola/istituti/RMTF040002/e-fermi/personale/ 2018/19
	88/129 (68%)		Liceo Scientifico Statale “A. Righi”	http://cercalatuascuola.istruzione.it/cercalatuascuola/istituti/RMPS280004/righi/personale/ 2018/19
	101/192 (53%)		ITTS C.Grassi Torino	http://cercalatuascuola.istruzione.it/cercalatuascuola/istituti/TOTF14000A/c-grassi/personale/ 2018/19
3) Female- Personnel employed in teaching and research – University (*)	146/580 (25%)	absolute value, %	Politecnico di Bari	http://dati.ustat.miur.it/dataset/2015-2018-personale-universitario/resource/7b6ef846-5942-46aa-80bb-95029af7764f
	1218/2599 (47%)		Università degli Studi di Cagliari	

	1406/3059 (46%)		Università degli studi di Catania	
	1543/3340 (46%)		Università degli studi di Genova	
	1101/3463 (40%)		Politecnico di Milano	
	2653/5753 (46%)		Università degli Studi di Napoli Federico II	
	4434/9737 (46%)		Università degli Studi di Padova	
	3659/7380 (50%)		Sapienza Università di Roma	
	706/1691 (42%)		Università degli studi Roma Tre	
	674/2097 (32%)		Politecnico di Torino	
	38379/ 96126 (40%)		national	http://ustat.miur.it/dati/didattica/italia/atenei
4) Female- Personnel employed in teaching and research in the field of	0/11 (0%)	absolute value, %	Politecnico di Bari	https://cercauniversita.cineca.it/php5/55ocent/cerca.php?SESSION=

transport and smart mobility – University (*)(**)				
	4/13 (31%)		Università degli Studi di Cagliari	
	5/11 (45%)		Università degli studi di Catania	
	3/5 (60%)		Università degli studi di Genova	
	2/14 (14%)		Politecnico di Milano	
	6/21 (29%)		Università degli Studi di Napoli Federico II	
	0/6 (0%)		Università degli Studi di Padova	
	8/22 (36%)		Sapienza Università di Roma	
	3/12 (25%)		Università degli studi Roma Tre	
	7/21 (33%)		Politecnico di Torino	
5) Female- Governing bodies – University	188/476 (39%)	absolute value, %		http://ustat.miur.it/dati/didattica/italia/atenei 2017
	½ (50%)		Politecnico di Bari	
	5/10 (50%)		Università degli Studi di Cagliari	

	2/8 (25%)		Università degli studi di Catania	
	7/12 (58%)		Università degli studi di Genova	
	3/12 (25%)		Politecnico di Milano	
	4/9 (44%)		Università degli Studi di Napoli Federico II	
	3/11 (27%)		Università degli Studi di Padova	
	9/12 (75%)		Sapienza Università di Roma	
	1/7 (14%)		Università degli studi Roma Tre	
	3/7 (43%)		Politecnico di Torino	
6) Number of university courses in transport or smart mobility	1		Politecnico di Bari	https://poliba.esse3.cineca.it/Guide/PaginaPercorso.do?corso_id=10014&percorso_id=10014*2013*10002&ANNO_ACCADEMICO=2019 (master's degree, Civil Eng. Transports orientation)
	1		Università degli Studi di Cagliari	https://www.universitaly.it/index.php/public/schedaCorso/anno/2014/corso/1516244 (master's degree, Civil Eng Curriculum Transports)
	1		Università degli studi di Catania	https://www.unict.it/it/didattica/lauree-magistrali/2017-2018/ingegneria-civile-delle-acque-e-dei-trasporti

				(master's degree in Water and Transport Civil Eng.)
	2		Università degli studi di Genova	https://corsi.unige.it/8698 https://courses.unige.it/10377#chapter-2 (Bachelor's degree in Economics of maritime companies, logistics and transport; Master's degree in Safety engineering for transport, logistics and production)
	1 (+1)		Politecnico di Milano	http://www.ingciv.polimi.it/percorsi/infrastrutture-di-trasporto/ (Master's degree in Civ Eng. Transports orientation) http://www.poliorientami.polimi.it/cosa-si-studia/corsi-di-laurea-magistrale/ingegneria/mobility-engineering/ (Master's degree in Mobility Eng.from 2019/20)
	1		Università degli Studi di Napoli Federico II	http://www.unina.it/-/1484133-ingegneria-dei-sistemi-idraulici-e-di-trasporto-isit (Master's degree in Civil Eng. Hydraulic and Transport systems engineering orientation)
	1		Università degli Studi di Padova	https://it.didattica.unipd.it/off/2018/LM/IN/IN0517/004PD (Master's degree in Civ Eng. Transportation Systems and infrastructures orientation)

	1		Sapienza Università di Roma	https://corsidilaurea.uniroma1.it/it/corso/2016/27592/home (Master’s degree in Transport Systems Engineering)
	1		Università degli studi Roma Tre	http://www.uniroma3.it/corsi/dipartimento-di-ingegneria/lm/2018-2019/ingegneria-delle-infrastrutture-viarie-e-trasporti-0580707302400001/ (Master's Degree in Engineering of Road and Transport Infrastructures)
	3		Politecnico di Torino	https://didattica.polito.it/pls/portal30/sviluppo.offerta_formativa.corsi?p_sdu_cds=32:30&p_lang=IT&p_a_acc=2020 https://didattica.polito.it/laurea/ingegneria_autoveicolo/it/presentazione (Master’s degree in Civil Eng. Transports orientation; Bachelor’s and Master’s degree in Automotive Eng.)
7) Number of ongoing projects dealing with transport and smart mobility in which the university is involved	3		Università degli studi di Catania	http://www.dicar.unict.it/it/attivit%C3%A0-di-ricerca

	6		Università degli studi di Genova	https://unige.it/ricerca/prog_euint (search for those dealing with transport)
	6		Politecnico di Milano	https://www.polimi.it/index.php?id=6413&L=1&sel_programma=Horizon+2020&sel_ruolo=&sel_search_name=transport (search for transport, mobility)
	0		Università degli Studi di Napoli Federico II	http://www.unina.it/progetti-finanziati-federi-ii
	0		Università degli Studi di Padova	https://www.unipd.it/en/horizon-2020-projects#
	0		Sapienza Università di Roma	https://www.uniroma1.it/it/pagina/archivio-finanziamenti (2017,2018)
	4		Politecnico di Torino	https://www.swas.polito.it/services/ricerca/

VALUES OF INDICATORS RELATED TO STUDENTS				
Indicator number / name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
1) Female-Gender students composition - Secondary school	68/1046 (7%)	absolute value, %	ISTITUTO TECNICO "EUCLIDE – CARACCIOLO"	http://dati.istruzione.it/opendata/opendata/catalogo/elements1/leaf/?area=Studenti&datasetId=DS0030ALUCORSOINDCLASTA *all courses

	45/1443 (3%)		I.T.I.S. P. Paleocapa	*all courses
	658/1707 (39%)		Liceo Scientifico Galilei	*only scientific course
	75/1280 (6%)		ISTITUTO TECNICO STATALE "Luigi Galvani"	*all courses
	98/986 (10%)		ITTL "Caio Duilio"	*all courses
	493/1219 (40%)		Liceo Scientifico Statale VITTORIO VENETO	*only scientific course
	478/1189 (39%)		LICEO SCIENTIFICO STATALE "GIUSEPPE MERCALLI"	*only scientific course
	62/1039 (6%)		ITIS Enrico Fermi	*all courses
	504/1256 (40%)		Liceo Scientifico Statale "A. Righi"	*only scientific course
	60/1188 (5%)		ITTS C.Grassi Torino	*all courses
	1272483/2622545 (49%)		national	https://dati.istruzione.it/espscu/index.html?area=anagStu
3) Female- First year students – University	16139/293934 (55%)	absolute value, %	National level	http://ustat.miur.it/dati/didattica/italia/atenei http://anagrafe.miur.it/index.php

	528/1770 (30%)		Politecnico di Bari	http://anagrafe.miur.it/index.php
	1948/3598 (54%)		Università degli Studi di Cagliari	
	3314/6158 (54%)		Università degli studi di Catania	
	2967/5405 (55%)		Università degli studi di Genova	
	2399/7582 (32%)		Politecnico di Milano	
	6740/12555 (54%)		Università degli Studi di Napoli Federico II	
	5720/11024 (52%)		Università degli Studi di Padova	
	9246/16172 (57%)		Sapienza Università di Roma	
	3292/5749 (57%)		Università degli studi Roma Tre	
	1417/5089 (28%)		Politecnico di Torino	

5) Female- all levels– University	954968/1728419 (55%)	absolute value, %	National level	http://ustat.miur.it/dati/didattica/italia/atenei http://anagrafe.miur.it/index.php
	3093/9910 (31%)		Politecnico di Bari	http://anagrafe.miur.it/index.php
	14857/25449 (58%)		Università degli Studi di Cagliari	
	24230/41988 (58%)		Università degli studi di Catania	
	17668/32399 (55%)		Università degli studi di Genova	
	15072/45544 (33%)		Politecnico di Milano	
	41953/76281 (55%)		Università degli Studi di Napoli Federico II	
	31384/59337 (53%)		Università degli Studi di Padova	
	57363/100556 (57%)		Sapienza Università di Roma	

	19120/32491 (59%)		Università degli studi Roma Tre	
	9425/33115 (28%)		Politecnico di Torino	
6) Female- bachelor's degrees–University	103346/180126 (57%)	absolute value, %	National level	http://ustat.miur.it/dati/didattica/italia/atenei http://anagrafe.miur.it/index.php 2016/17
	285/1000 (29%)		Politecnico di Bari	http://anagrafe.miur.it/index.php 2016/17
	1495/2463 (61%)		Università degli Studi di Cagliari	
	2093/3511 (60%)		Università degli studi di Catania	
	1930/3311 (58%)		Università degli studi di Genova	
	2074/6018 (34%)		Politecnico di Milano	
	3568/6461 (52%)		Università degli Studi di Napoli Federico II	

	4420/7757 (57%)		Università degli Studi di Padova	
	5898/9929 (59%)		Sapienza Università di Roma	
	2128/3489 (61%)		Università degli studi Roma Tre	
	1053/3505 (30%)		Politecnico di Torino	
7) Female- bachelor's degrees in transport and smart mobility– University	34.1% (tot stud 88)		Università degli studi di Genova	https://www2.almalaurea.it/cgi-php/universita/statistiche/framescheda.php?anno=2018&corstipo=L&ateneo=70011&facolta=tutti&gruppo=tutti&pa=70011&classe=10017&corso=tutti&postcorso=0100106201800004&isstella=0&presiui=tutti&disaggregazione=&LANG=it&CONFIG=profilo
8) Female- master's level students– University	173332/321075 (54%)	absolute value, %	National level	http://ustat.miur.it/dati/didattica/italia/atenei http://anagrafe.miur.it/index.php
	635/2222 (29%)		Politecnico di Bari	http://anagrafe.miur.it/index.php
	2185/3608		Università degli Studi di Cagliari	

	(61%)			
	3858/6285 (61%)		Università degli studi di Catania	
	2639/5125 (51%)		Università degli studi di Genova	
	6388/17271 (37%)		Politecnico di Milano	
	7229/13672 (53%)		Università degli Studi di Napoli Federico II	
	6482/12516 (52%)		Università degli Studi di Padova	
	11734/21505 (55%)		Sapienza Università di Roma	
	3623/6419 (56%)		Università degli studi Roma Tre	
	3555/12004 (30%)		Politecnico di Torino	
10) Female- master's degree– University	53136/95346 (56%)	absolute value, %	National level	http://ustat.miur.it/dati/didattica/italia/atenei http://anagrafe.miur.it/index.php 2016/17

	187/586 (32%)		Politecnico di Bari	http://anagrafe.miur.it/index.php
	589/950 (62%)		Università degli Studi di Cagliari	
	1008/1661(61 %)		Università degli studi di Catania	
	852/1575 (54%)		Università degli studi di Genova	
	1956/5012 (39%)		Politecnico di Milano	
	2360/4277 (55%)		Università degli Studi di Napoli Federico II	
	2023/3765 (54%)		Università degli Studi di Padova	
	3365/5808 (58%)		Sapienza Università di Roma	
	1113/1969 (57%)		Università degli studi Roma Tre	
	1005/3177 (32%)		Politecnico di Torino	

11) Female- master's degree in transport and smart mobility– University	35.7% (tot stud 14)		Università degli studi di Catania	https://www2.almalaurea.it/cgi-php/universita/statistiche/framescheda.php?anno=2018&corstipo=LS&ateneo=70008&facolta=tutti&gruppo=tutti&pa=70008&classe=11028&corso=tutti&postcorso=0870107302400001&isstella=0&presiui=tutti&disaggregazione=&LANG=it&CONFIG=profilo
	42.3% (tot stud 26)		Università degli studi di Genova	https://www2.almalaurea.it/cgi-php/universita/statistiche/framescheda.php?anno=2018&corstipo=LS&ateneo=70011&facolta=tutti&gruppo=tutti&pa=70011&classe=11209&corso=tutti&postcorso=0100107302400003&isstella=0&isstella=0&presiui=tutti&disaggregazione=&LANG=it&CONFIG=profilo
	34.6% (tot stud 52)		Università degli Studi di Napoli Federico II	https://www2.almalaurea.it/cgi-php/universita/statistiche/framescheda.php?anno=2018&corstipo=LS&ateneo=70018&facolta=tutti&gruppo=tutti&pa=70018&classe=11028&corso=tutti&postcorso=0630107302400002&isstella=0&presiui=tutti&disaggregazione=&LANG=it&CONFIG=profilo
	24.2% (tot stud 33)		Sapienza Università di Roma	https://www2.almalaurea.it/cgi-php/universita/statistiche/framescheda.php?anno=2

				018&corstipo=LS&ateneo=70026&facolta=tutti&gruppo=tutti&pa=70026&classe=11028&corso=tutti&postcorso=0580107302400001&isstella=0&presiui=tutti&disaggregazione=&LANG=it&CONFIG=profilo
	46.3% (tot. stud 41)		Università degli studi Roma Tre	https://www2.almalaurea.it/cgi-php/universita/statistiche/framescheda.php?anno=2018&corstipo=LS&ateneo=70117&facolta=tutti&gruppo=tutti&pa=70117&classe=11028&corso=tutti&postcorso=0580707302400001&isstella=0&presiui=tutti&disaggregazione=&LANG=it&CONFIG=profilo
	8.3% (tot stud 121)		Politecnico di Torino	https://www2.almalaurea.it/cgi-php/universita/statistiche/framescheda.php?anno=2018&corstipo=LS&ateneo=70032&facolta=tutti&gruppo=5&pa=70032&classe=11036&corso=tutti&postcorso=0010207303400005&isstella=0&presiui=tutti&disaggregazione=&LANG=it&CONFIG=profilo
12) Female- Post-master students excluding PhD	3/10 (30%)	absolute value, %	Politecnico di Bari	http://dati.ustat.miur.it/dataset/formazione-post-laurea
	77/130 (59%)		Università degli Studi di Cagliari	
	181/305(59%)		Università degli studi di Catania	

	499/897 (56%)		Università degli studi di Genova	
	1097/2410 (46%)		Politecnico di Milano	
	370/664 (56%)		Università degli Studi di Napoli Federico II	
	725/1041 (70%)		Università degli Studi di Padova	
	1271/2035 (62%)		Sapienza Università di Roma	
	498/711 (70%)		Università degli studi Roma Tre	
	81/263 (31%)		Politecnico di Torino	
13) Female- Post-master students in transport and smart mobility excluding PhD	8/23 (35%)		Università degli studi di Genova	http://dati.ustat.miur.it/dataset/formazione-post-laurea “assicurazioni marittime e dei trasporti masmet”
	1/15 (7%)		Politecnico di Milano	“transportation & automobile design”
	15/36 (42%)		Sapienza Università di Roma	“ingegneria delle infrastrutture e dei sistemi ferroviari”
	4/15 (27%)		Politecnico di Torino	“electrified and connected vehicle”
14) Female- PhD- students	41/121 (34%)	absolute value, %	Politecnico di Bari	http://dati.ustat.miur.it/dataset/formazione-post-laurea

				2016/17
	190/358 (53%)		Università degli Studi di Cagliari	
	151/305 (50%)		Università degli studi di Catania	
	457/983 (46%)		Università degli studi di Genova	
	357/1009 (35%)		Politecnico di Milano	
	510/944 (54%)		Università degli Studi di Napoli Federico II	
	605/1228 (49%)		Università degli Studi di Padova	
	1670/3080 (54%)		Sapienza Università di Roma	
	259/508 (51%)		Università degli studi Roma Tre	
	182/637 (29%)		Politecnico di Torino	
	14178/28335 (50%)		national	http://dati.ustat.miur.it/dataset/formazione-post-laurea/resource/eb5cb75e-367d-4732-9282-22a9e2e745c8
15) Female- PhD- students in transport and smart mobility	11/38 (29%)	absolute value, %	Università degli studi di Genova	http://dati.ustat.miur.it/dataset/formazione-post-laurea

				2016/17 "ingegneria delle macchine e dei sistemi per l'energia, l'ambiente e i trasporti"
	0/1 (0%)		Università degli studi di Genova	"logistica, trasporti e territorio"
	13/36 (36%)		Sapienza Università di Roma	"infrastrutture e trasporti"
20) female-Number of students involved in associations and teams dealing with transport and smart mobility	2/45 (4%) 5/77(6%) 9/85 (11%) 14/115 (12%)		Politecnico di Milano	http://www.sport.polimi.it/it/squadre https://www.dynamisprc.com/ http://www.polimimotorcyclefactory.it/
	9/88 (10%) 1/14 (7%)		Università degli Studi di Napoli Federico II	https://eteam.uninacorse.com/ https://cteam.uninacorse.com/
	6/76 (8%) 1/23 (4%)		Università degli Studi di Padova	http://www.raceup.it/ https://www.quartodilitro.com/
	1/26 (4%)		Sapienza Università di Roma	http://www.fastchargesae.it/
	11/79 (14%) 3/35 (9%) 6/64 (9%)		Politecnico di Torino	http://www.policumbent.it/ https://www.squadracorsepolito.com/ https://areeweb.polito.it/didattica/h2polito/

7.4. Romania

GENDER STAFF BREAKDOWN				
Indicator number / name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
1) Female staff University	32	%	University Politehnica of Bucharest	
	47	%	'Dunărea de Jos' Unversity Galați	https://www.ugal.ro/informatii/organizare 2018-2019
2) Female staff Secondary school	70	%	'Sfantul Sava" National College	http://www.licsfsava.ro/profesori/ http://www.licsfsava.ro/noutati/personal-didactic-auxiliar-si-personal-nedidactic/
	83	%	'Matei Basarab' National College	http://basarab.ro/personal/ 2018-2019
	82	%	'Tudor Vianu' National College of Informatics	http://portal.lbi.ro/profesori/ 2018-2019
	62	%	'Horia Closca si Crisan' Național College	School Secretariat 2018-2019
	71	%	'Mihai Viteazul' National College	https://sites.google.com/a/cnmv.ro/1colegiul-national-mihai-viteazul/ 2018-2019
	72	%	'Gheorghe Lazar' Național College	https://cnlazar.ro/index.php/personal/ 2018-2019
	78	%	'National College of Informatics 'Spiru Haret'	http://www.cni-sv.ro/pagini/asp/Profesori.aspx 2018-2019
	77	%	'Apulum' Technic College	School Secretariat 2018-2019
	66	%	Liceul Tehnologic 'Dorin Pavel'	School Secretariat 2018-2019

	71	%	Technological High School of Transport and Construction	http://lttciasi.ro/docs/catedre.pdf 2018-2019
3) Female personnel employed in teaching and research (University)	32	%	University Politehnica of Bucharest*	
	31	%	Politehnica University of Timişoara	
	18	%	University of Craiova	
	39	%	'Gheorghe Asachi' Technical University	
	48	%	'Dunărea de Jos' Unversity Galați	
	44	%	"Ştefan cel Mare" University	
	27	%	Faculty of Mathematics and Computer Science	
	22	%	Transilvania University Brașov	
	38	%	Pitesti University	
4) Female personnel employed in teaching and research in the field of transport /smart mobility	53	%	Transport, traffic and Logistics University Politehnica of Bucharest	Faculty Department 2018 -2019
	28	%	Remote controls and Electronics in Transport University Politehnica of Bucharest	Faculty Department 2018 -2019
	32	%	Department of Automotive Engineering and Transports Technical University of	https://art.utcluj.ro/

			Cluj-Napoca	
	38	%	Department of Motor Vehicles, Transportation and Industrial Engineering University of Craiova	http://mecanica.ucv.ro
	33	%	Faculty of Management in Production and Transportation Politehnica University of Timişoara	http://www.mpt.upt.ro/
	13	%	Department of Vehicles and Transports - Transilvania University of Brașov	https://mecanica.unitbv.ro/
	21	%	Department of Road Vehicles and Transports Pitesti University	https://www.upit.ro/
5) Female personnel - University governing bodies	46	%	Technical University of Cluj-Napoca	
	7	%	Politehnica University of Timişoara	
	50	%	University of Craiova	
	27	%	‘Gheorghe Asachi’ Technical University	
	40	%	‘Dunărea de Jos’ Unversity Galați	
	42	%	"Ştefan cel Mare" University	
	20	%	Faculty of Mathematics and Computer Science	
	44	%	Transilvania University Brașov	

	50	%	Pitesti University	
6) Number of university courses dealing with transport or smart mobility	70		Transport, traffic and Logistics University Politehnica of Bucharest	Faculty Department 2018-2019
	60		Remote controls and Electronics in Transport University Politehnica of Bucharest	Faculty Department 2018-2019
	18		Department of Automotive Engineering and Transports Technical University of Cluj-Napoca	http://admitere.armm.utcluj.ro/licenta/specializari/ingineria-transporturilor-si-a-traficului/
	7		Department of Vehicles and Transports Transilvania University of Brașov	http://old.unitbv.ro/datr/Activitatedidactica.aspx
	22		Department of Motor Vehicles, Transportation and Industrial Engineering University of Craiova	https://www.upit.ro/ro/academia-reorganizata/facultatea-de-mecanica-si-tehnologie-2
	20		Department Road Vehicles and Transports Pitesti University	https://www.upit.ro/ro/academia-reorganizata/facultatea-de-mecanica-si-tehnologie-2/departamentul-autovehicule-i-transporturi2/discipline-programe-de-studii/fise-discipline-tsr
7) Number of ongoing national and international research projects dealing with transport and smart mobility in which the university is involved	2		Faculty of Management in Production and Transportation Politehnica University of Timişoara	http://mpt.upt.ro/cercetare/proiecte.html
	1		Transport, traffic and Logistics	Faculty Department

			University Politehnica of Bucharest	
	1		Remote controls and Electronics in Transport University Politehnica of Bucharest	Faculty Department
	1		Department of Vehicles and Transports - Transilvania University of Brașov	http://old.unitbv.ro/datr/Cercetarestiintifica.aspx
8) Female personnel of the research teams involved in projects related to transport and smart mobility.	50	%	Transport, traffic and Logistics University Politehnica of Bucharest	Faculty Department
	30	%	Remote controls and Electronics in Transport University Politehnica of Bucharest	Faculty Department
	43	%	Department of Motor Vehicles, Transportation and Industrial Engineering University of Craiova	http://mecanica.ucv.ro/Organizare/Departamente/WebSiteATII/Cercetare/Colective.html
	16	%	Department of Vehicles and Transports - Transilvania University of Brașov	http://old.unitbv.ro/datr/Colectiv.aspx

VALUES OF INDICATOS RELATED TO STUDENTS				
Indicator number / name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)

1) Female - Secondary school students	69	%	'Sfantul Sava" National College	http://www.licsfsava.ro/category/elevi/ 2018-2019
	59	%	'Horia Closca si Crisan' Național College	School Secretariat 2018-2019
	52	%	'Mihai Viteazul' National College	School Secretariat 2018-2019
	51	%	'National College of Informatics 'Spiru Haret'	http://www.cni-sv.ro/pagini/asp/Profesori.aspx 2018-2019
	60	%	'Apulum' Technic College	School Secretariat 2018-2019
	56	%	'Dorin Pavel' Technological High School	School Secretariat 2018-2019
2) Female - Students taking part in university admission tests	26	%	University Politehnica of Bucharest	http://admitere.pub.ro/Admitere/site/rezultate?etapaRezultate=rezultate_finale Admission, 2019
	33	%	University of Craiova	http://www.ace.ucv.ro/admitere/licenta/rezultate.php#partiale3007 Admission, 2019
	28	%	Pitesti University	https://www.upit.ro/ro/academia-reorganizata Admission, 2019
3) Female - First year students (university)	35	%	Faculty of Mathematics and Computer Science	http://fmi.unibuc.ro/ro/admitere_licenta/examen_admitere_iulie_2017/
4) Female - First year students (university) in subject related to transport and smart mobility	53	%	Transport, traffic and Logistics University Politehnica of Bucharest	Faculty Department 2018-2019
	45	%	Remote controls and Electronics in Transport University Politehnica of Bucharest	Faculty Department 2018-2019
	30	%	Department Road Vehicles and Transports Pitesti University	https://www.upit.ro/ro/academia-reorganizata/facultatea-de-mecanica-si-tehnologie-2/admitere-fmt-2 Admission, 2019
	8	%	Transport Engineering University of Craiova	http://mecanica.ucv.ro/Admitere/Licenta/Rezultate.html Admission, 2019
	58	%	Faculty of Management in Production and Transportation Politehnica University of Timişoara	http://mpt.upt.ro/admitere/nou/licenta/Admisi%20optiuni_final_26%20iulie%202019.pdf Admission, 2019
5) Female – University students (all levels)		%		

6) Female - Bachelor's degrees		%		
7) Female -Bachelor's degrees in transport and smart mobility	56	%	Transport, traffic and Logistics University Politehnica of Bucharest	Faculty Department 2018-2019
	45	%	Remote controls and Electronics in Transport University Politehnica of Bucharest	Faculty Department 2018-2019
8) Female - Master level students	20	%	Faculty of Mathematics and Computer Science	http://fmi.unibuc.ro/ro/admitere_master/master_2017/
	51	%	Politehnica University of Timişoara	http://upt.ro/img/files/2018-2019/admitere/doctorat/Rezultate_admitere_doctorat_iulie_2019.pdf Admission, 2019
	28	%	University of Craiova	http://www.ace.ucv.ro/admitere/master/rezultate.php#rez2307 Admission, 2019
9) Female - Master level students in transport and smart mobility	7	%	Department of Automotive Engineering and Transports Technical University of Cluj-Napoca	https://armm.utcluj.ro/master-66.html Admission, 2019
	53	%	Transport, traffic and Logistics University Politehnica of Bucharest	Faculty Department 2018-2019
	53	%	Remote controls and Electronics in Transport University Politehnica of Bucharest	Faculty Department 2018-2019
	12	%	Transport Engineering University of Craiova	http://mecanica.ucv.ro/Admitere/Master/Rezultate.html Admission, 2019
10) Female - Master's degrees		%		
11) Female - Master's degrees in transport and smart mobility	45	%	Transport, traffic and Logistics University Politehnica of Bucharest	Faculty Department 2018-2019
	48	%	Remote controls and Electronics in Transport University Politehnica of Bucharest	Faculty Department 2018-2019
12) Female- Post-master students excluding PhD		%		
13) Female - Post-master students in transport and smart mobility excluding PhD		%		
14) Female - PhD students	35	%	University of Craiova	http://mecanica.ucv.ro/ScoalaDoctorala/Admitere/propuneri.php Admission, 2018
	54	%	Faculty of Mathematics and Computer Science	http://fmi.unibuc.ro/ro/scoala_doctorala_mate/despre_sdm/ http://fmi.unibuc.ro/ro/scoala_doctorala_info/doctoranzi_sdi

15) Female- PhD students in transport and smart mobility	44	%	Transport, traffic and Logistics University Politehnica of Bucharest	Faculty Department 2018-2019
	33	%	Remote controls and Electronics in Transport University Politehnica of Bucharest	Faculty Department 2018-2019
16) Female - Erasmus students	0	%	Faculty of Mathematics and Computer Science	http://fmi.unibuc.ro/ro/pdf/2017/erasmus/Rezultate_Erasmus_profesori_2017-2018.pdf
	56	%	Politehnica University of Timişoara	http://www.upt.ro/international/Mobilitati-Si-Cooperari-Internationale_Mobilitati-pentru-studenti-2016-2017_101_ro.html 2016
	30	%	University of Craiova	http://mecanica.ucv.ro/Mobilitati/RezErasmus.html
17) Female - Winners of grants/ scholarship	50	%	Transport, traffic and Logistics University Politehnica of Bucharest	Faculty Department 2018-2019
	0	%	Remote controls and Electronics in Transport University Politehnica of Bucharest	Faculty Department 2018-2019
18) Number of grants/ scholarships specifically designed for women				
19) Number of grants/ scholarships in transport and smart mobility	0	%	Transport, traffic and Logistics University Politehnica of Bucharest	Faculty Department 2018-2019
	0	%	Remote controls and Electronics in Transport University Politehnica of Bucharest	Faculty Department 2018-2019
20) Number of students involved in associations and teams dealing with transport and smart mobility	60	%	Transport, traffic and Logistics University Politehnica of Bucharest	Faculty Department 2018-2019
	50	%	Remote controls and Electronics in Transport University Politehnica of Bucharest	Faculty Department 2018-2019

ADDITIONAL INDICATORS AGGREGATED AT NATIONAL LEVEL

Enrolled population, by level of educations and gender - Year 2017

Levels of education	Gender	Number of persons	%
Upper secondary education	Total	637706	
	Female	330064	52%

Tertiary education (Bachelor and Master studies, post-graduate courses, PhD and post-doctoral programmes)	Total	538871	
	Female	291843	54%
Students enrolled in Bachelor studies	Total	408179	
	Female	218745	54%
Course atendees enrolled in Master studies and post-graduate courses	Total	110936	
	Female	63419	57%
Course atendees enrolled in PhD and post-doctoral programmes	Total	19756	
	Female	9679	49%

Source: National Institute of Statistics http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table

7.5. Germany

GENDER STAFF BREAKDOWN

Indicator number / name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
1) Gender staff composition - University	40	%	TU Munich	https://www.tum.de/fileadmin/w00bfo/www/TUM_in_Zahlen/TUM_in_Zahlen_2017_Lesezeichen.pdf
	48	%	TU Dresden	https://tu-dresden.de/tu-dresden/profil/ressourcen/dateien/statjb/StatJB2017.pdf?lang=de

	33,5	%	RWTH Aachen	https://www.rwth-aachen.de/global/show_document.asp?id=aaaaaaaaadlcvnu
	43	%	TU Dortmund	https://www.tu-dortmund.de/storages/tu_website/Referat_1/Pressestelle/Archiv_Jahrbuch/Zahlen-Daten-Fakten_Jahrbuch_2015.pdf
	39,6	%	TU Braunschweig	https://www.tu-braunschweig.de/wirueberuns/fakten/zahlen
	38,07	%	TU Kaiserslautern	https://www.uni-kl.de/gleichstellung-vielfalt-familie/universitaet/daten-und-fakten/
	44	%	TU Berlin (2014)	http://www.tu-berlin.de/fileadmin/a70100710_gleichstellung/Servicebox_Gleichstellungsdownload/Gleichstellungskonzept_TUBerlin.pdf
	43,8	%	national	https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Hochschulen/Publikationen/Downloads-Hochschulen/personal-vorbericht-5213402188004.pdf?__blob=publicationFile

2.) Gender staff composition – Secondary school	43,8	%	national	https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Schulen/Publikationen/Downloads-Schulen/allgemeinbildende-schulen-2110100187004.pdf?__blob=publicationFile
3.)Gender composition - Personnel employed in teaching and research (University)	30	%	TU Munich	https://www.tum.de/fileadmin/w00bfo/www/TUM_in_Zahlen/TUM_in_Zahlen_2017_Lesezeichen.pdf
	26	%	TU Dresden	https://tu-dresden.de/tu-dresden/profil/ressourcen/dateien/statjb/StatJB2017.pdf?lang=de
	31	%	RWTH Aachen	https://www.rwth-aachen.de/global/show_document.asp?id=aaaaaaaaadlcvnu
	33	%	TU Darmstadt	https://www.h-da.de/fileadmin/h_da/Hochschule/wofuer_wir_stehen/Gleichstellung/Downloads/Allgemein/Gleichstellungsmonitor_2018.pdf
	35	%	TU Dortmund	https://www.tu-dortmund.de/storages/tu_website/Referat_1/Presses

				eite/Archiv_Jahrbuch/Zahlen-Daten-Fakten_Jahrbuch_2015.pdf
	25,2	%	TU Kaiserslautern	https://www.dfg.de/download/pdf/foerderung/grundlagen_dfg_foerderung/chancengleichheit/zwischenberichte/gleichstellungsstandards_kaiserslautern_tu_2011.pdf
	31	%	TU Braunschweig	https://www.tu-braunschweig.de/Medien-DB/hscontrolling/181201_personalstatistik_2018.pdf
	39	%	national	2018 https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Hochschulen/Publikationen/Downloads-Hochschulen/personal-vorbericht-5213402188004.pdf?__blob=publicationFile
5) Gender composition - University governing bodies	21	%	TU Darmstadt	https://www.h-da.de/fileadmin/h_da/Hochschule/wofuer_wir_stehen/Gleichstellung/Downloads/Allgemein/Gleichstellungsmonitor_2018.pdf
	7,1	%	TU Kaiserslautern	2010 https://www.dfg.de/download/pdf/foerderung/grundlagen_dfg_foerderung/chancengleichheit/zwischenbe

				richte/gleichstellungsstandards_kaiserslautern_tu_2011.pdf
	27	%	TU Dortmund	http://www.genderreport-hochschulen.nrw.de/fileadmin/media/media-genderreport/download/Gender-Report_2016/TU_Dortmund.pdf
Full-time and part-time employees	40 % part time	%	TU Braunschweig	https://www.tu-braunschweig.de/Medien-DB/hscontrolling/171201_personalstatistik_2017.pdf
	56,7 full-time	%	national	https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Hochschulen/Publikationen/Downloads-Hochschulen/personal-vorbericht-5213402188004.pdf?__blob=publicationFile
	38,9 part-time	%	national	https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Hochschulen/Publikationen/Downloads-Hochschulen/personal-vorbericht-5213402188004.pdf?__blob=publicationFile
	4,4 Unclassi-fiable	%	national	https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Hochschulen/Publikationen/Downloads-

				Hochschulen/personal-vorbericht-5213402188004.pdf?__blob=publicationFile

VALUES OF INDICATOS RELATED TO STUDENTS				
Indicator number / name	Value	Unit	Level (write either “national” or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
1) Gender composition – Secondary school students	45,5	%	national	https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Schulen/Publikationen/Downloads-Schulen/allgemeinbildende-schulen-2110100187004.pdf?__blob=publicationFile
3) Gender composition - First year students (university)	35	% (females)	TU Munich	https://www.tum.de/fileadmin/w00bfo/www/TUM_in_Zahlen/TUM_in_Zahlen_2017_Lesezeichen.pdf
	46,6	%	TU Dortmund	https://www.tu-dortmund.de/storages/tu_website/Referat_1/Pressestelle/Archiv_Jahrbuch/ZahlenDatenFakten_2018.pdf
	35,5	%	RWTH Aachen	https://www.rwth-aachen.de/global/show_document.asp?id=aaaaaaaaapuamq&download=1
	45	%	TU Dresden	WS17/18

				https://tu-dresden.de/tu-dresden/profil/ressourcen/dateien/statjb/StatJB2017.pdf?lang=de
	27,3	%	TU Darmstadt	2015 https://www.intern.tu-darmstadt.de/media/dezernat_ii/studstatistik/studierendenstatistik_20151_sose_15.pdf
	40	%	TU Braunschweig	2016 https://www.tu-braunschweig.de/Medien-DB/hscontrolling/zahlenspiegel_2016_tubs.pdf
	49,8	%	national	https://www.destatis.de/DE/Themen/Querschnitt/Jahrbuch/jb-bildung.pdf?__blob=publicationFile
5) Gender composition – University students (all levels)	35	% (females)	TU Munich	https://www.tum.de/fileadmin/w00bfo/www/TUM_in_Zahlen/TUM_in_Zahlen_2017_Lesezeichen.pdf
	45,4	%	TU Dortmund	https://www.tu-dortmund.de/storages/tu_website/Referat_1/Pressestseite/Archiv_Jahrbuch/ZahlenDatenFakten_2018.pdf
	32,5	%	RWTH Aachen	https://www.rwth-aachen.de/global/show_document.asp?id=aaaaaaaaaapuamq&download=1

	43	% (females)	TU Dresden	https://tu-dresden.de/tu-dresden/profil/ressourcen/dateien/statjb/StatJB2017.pdf?lang=de
	28	% (females)	TU Darmstadt	2015 https://www.intern.tu-darmstadt.de/media/dezernat_ii/studstatistik/studierendenstatistik_20151_sose_15.pdf
	38	%	TU Braunschweig	2017/18 https://www.tu-braunschweig.de/Medien-DB/hscontrolling/171116_studierendenstatistik_ws2017_2018_homepage.pdf
	48,5	%	national	https://www.destatis.de/DE/Themen/Querschnitt/Jahrbuch/jb-bildung.pdf?__blob=publicationFile
6) Gender composition - Bachelor's degrees	36	% (females)	TU Munich	No total value, broken down individually for all study programmes, Example: civil engineering https://www.tum.de/fileadmin/w00bfo/www/TUM_in_Zahlen/TUM_in_Zahlen_2017_Lesezeichen.pdf
	50,4	%	national	https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Hochschulen/Publikationen/Downloads-

				Hochschulen/pruefungen-hochschulen-2110420177004.pdf?__blob=publicationFile
8) Gender composition - Master level students	32	% (females)	TU Munich	No total value, broken down individually for all study programmes, Example: civil engineering https://www.tum.de/fileadmin/w00bfo/www/TUM_in_Zahlen/TUM_in_Zahlen_2017_Lesezeichen.pdf
	30	% (females)	RWTH Aachen	https://www.rwth-aachen.de/global/show_document.asp?id=aaaaaaaaapuamq&download=1
	28	%	TU Darmstadt	2015 https://www.intern.tu-darmstadt.de/media/dezernat_ii/studstatistik/studierendenstatistik_20151_sose_15.pdf
9.) Gender composition - Master level students in transport and smart mobility				
Transportation Systems	30	% (females)	TU Munich	https://www.tum.de/fileadmin/w00bfo/www/TUM_in_Zahlen/TUM_in_Zahlen_2017_Lesezeichen.pdf

10) Gender composition - Master's degrees	35	% (females)		No total value, broken down individually for all study programmes, Example: civil engineering https://www.tum.de/fileadmin/w00bfo/www/TUM_in_Zahlen/TUM_in_Zahlen_2017_Lesezeichen.pdf
	44,9	%	national	https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Hochschulen/Publikationen/Downloads-Hochschulen/pruefungen-hochschulen-2110420177004.pdf?__blob=publicationFile
14) Gender composition - PhD students	33	% (females)	TU Munich	https://www.tum.de/fileadmin/w00bfo/www/TUM_in_Zahlen/TUM_in_Zahlen_2017_Lesezeichen.pdf
	30	%	TU Munich	https://www.tum.de/fileadmin/w00bfo/www/TUM_in_Zahlen/TUM_in_Zahlen_2017_Lesezeichen.pdf
	39	%	TU Dresden	2016/17 https://tu-dresden.de/tu-dresden/profil/ressourcen/dateien/statjb/StatJB2017.pdf?lang=de
	26,8	%	TU Darmstadt	2015 https://www.intern.tu-darmstadt.de/media/dezernat_ii/studstatistik/studierendenstatistik_20151_sose_15.pdf

	44,7	%	national	https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bildung-Forschung-Kultur/Hochschulen/Publikationen/Downloads-Hochschulen/pruefungen-hochschulen-2110420177004.pdf?__blob=publicationFile
Foreign students	27	%	TU Munich	https://www.tum.de/fileadmin/w00bfo/www/TUM_in_Zahlen/TUM_in_Zahlen_2017_Lesezeichen.pdf
	32	%	RWTH Aachen	Share of women among foreign students https://www.rwth-aachen.de/global/show_document.asp?id=aaaaaaaaapuamq&download=1
	5,8	%	TU Dresden	Share of women among foreign students https://tu-dresden.de/tu-dresden/profil/ressourcen/dateien/statjb/StatJB2017.pdf?lang=de
	33	%	TU Darmstadt	Share of women among foreign students https://www.intern.tu-darmstadt.de/media/dezernat_ii/studstatistik/studierendenstatistik_20151_sose_15.pdf
	15	%	TU Braunschweig	Total share of foreign students

				https://www.tu-braunschweig.de/Medien-DB/hscontrolling/171116_studierendenstatistik_ws2017_2018_homepage.pdf
	36,6	%	TU Braunschweig	Share of women among foreign students https://www.tu-braunschweig.de/Medien-DB/hscontrolling/171116_studierendenstatistik_ws2017_2018_homepage.pdf
	6,3	% (foreignfemales)	national	https://www.destatis.de/DE/Themen/Querschnitt/Jahrbuch/jb-bildung.pdf?__blob=publicationFile

7.6. Sweden/Denmark

GENDER STAFF BREAKDOWN

Indicator number / name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
Female staff population	%	23,6	DTU Diplom, Technical University of Denmark	Extracted from website 27th september 2019. https://www.diplom.dtu.dk/om-dtu-diplom/medarbejdere-paa-dtu-diplom?fr=1&mr=100&orgid=IHK&qt=DtuPersonQuery&types=employee,guest
Female staff population	%	23,9	Department of Engineering, University of Aarhus	Extracted from website 23rd september 2019.
Female staff population	%	23,5	Department of Mathematics, University of Aarhus	Extracted from website 23rd september 2019.
Female staff population	%	21,6	Department of Mathematical Sciences, University of Copenhagen	Extracted from website 23rd september 2019.
Female staff population	%	46	Department of Planning, University of Aalborg	Extracted from website 23rd september 2019.

Female staff population	%	25	Department of Technology and Innovation, University of Southern Denmark	Extracted from website 23rd september 2019.
Female staff population	%	20,6	Department of Mechanical Engineering, Technical University of Denmark	Extracted from website 23rd september 2019. https://www.mek.dtu.dk/english/About_us/Staff
Female staff population	%	34,9	Department of International Economics, Government and Business, Copenhagen Business School (CBS)	Extracted from website 23rd september 2019. https://www.cbs.dk/en/research/departments-and-centres/department-of-international-economics-government-and-business/staff?dvip=0
Female staff population	%	40,4	Department of Knowledge, Management, and Economics, Technical University of Denmark (DTU)	Extracted from website 23rd september 2019. https://www.man.dtu.dk/english/about-the-department/employees
Female staff population	%	23,4	Department of Computer Science, IT University of Copenhagen (ITU)	Extracted from website 27th september 2019. https://en.itu.dk/research/departments/computer-science-department/list-of-staff-dat
Female staff population	%	58,7	Hvidovre Gymnasium og HF (STX and HF)	Extracted from website 27th september 2019.

				https://www.hvidovregymnasium.dk/om-skolen/medarbejderne/laererne/
Female staff population	%	51,7	Vordingborg Gymnasium og HF (STX and HF)	Extracted from website 27th september 2019. https://www.vordingborg-gym.dk/om-skolen/skolens-ansatte/laerere
Female staff population	%	56,3	Himmelev Gymnasium (STX)	Extracted from website 27th september 2019. https://himmelev-gymnasium.dk/om-skolen/personale/laerere
Female staff population	%	64	Rødkilde Gymnasium (STX)	Extracted from website 27th september 2019. https://www.roedkilde-gym.dk/dk/om-roedkilde/personaleoversigt/
Female staff population	%	53,3	Gymnasiet HTX Skjern	Extracted from website 27th september 2019. http://www.htxskjern.dk/kontakt/undervisere
Female staff population	%	43,8	Viden Djurs (HTX and HHX)	Extracted from website 27th september 2019.

				https://www.videndjurs.dk/personale/
Female staff population	%	31,3	Teknisk Gymnasium Lolland-Falster (HTX)	Extracted from website 27th september 2019. https://www.htxlf.dk/mod-laererne/
Female staff population	%	39,7	Aalborg Tekniske Gymnasium (HTX)	Extracted from website 27th september 2019. https://aatg.dk/kontakt/laerere/
Female staff population	%	59,2	Vesthimmerlands Gymnasium og HF (STX and HF)	Extracted from website 27th september 2019. http://vhim-gym.dk/-undervisere-(1).aspx
Female staff population	%	55,3	N. Zahles Gymnasieskole (STX)	Extracted from website 27th september 2019. https://gymnasiet.zahlesgym.dk/kontakt/laerere-2/

VALUES OF INDICATOS RELATED TO STUDENTS

Indicator number / name	Value	Unit	Level (write either “national” or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
Student female population	%	23,7	DTU DIPLOM, Technical University of Denmark (DTU)	Admitted access 2017
Student female population	%	22,6	Department of Engineering, Aarhus University (AU)	Admitted access 2017
Student female population	%	35,3	Department of Mathematics, Aarhus University (AU)	Admitted access 2017
Student female population	%	37,4	Department of Mathematical Sciences, University of Copenhagen (KU)	Admitted access 2017
Student female population	%	41,8	Department of Planning, Aalborg University (AAU)	Admitted access 2017
Student female population	%	27,2	Department of Technology and Innovation, University of Southern Denmark (SDU)	Admitted access 2017
Student female population	%	22,1	Department of Mechanical Engineering, Technical University of Denmark (DTU)	Admitted access 2017

Student female population	%	42,6	Department of Knowledge, Management, and Economics, Technical University of Denmark (DTU)	Admitted access 2017
Student female population	%	44,9	Department of International Economics, Government and Business, Copenhagen Business School (CBS)	Admitted access 2017
Student female population	%	22,6	Department of Computer Science, IT University of Copenhagen (ITU)	Admitted access 2017
Student female population	%	49	Registration for secondary school (total)	National level year 2014
Additional student indicators				
Student female population	%	53,6	Registration for secondary school (all high school types)	National level year 2014

Student female population	%	24,5	Registration for secondary school (high school with a technical aim)	National level year 2014
Student female population	%	33,4	Registration for secondary school (vocational training)	National level year 2014

GENDER STUDENTS BREAKDOWN				
Indicator name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
Student female population	45,12	%	Tallinna Realkool	Data as of September 1, 2018 https://real.edu.ee/meie-kool/statistika/
Student male population	54,87	%	Tallinna Realkool	Data as of September 1, 2018 https://real.edu.ee/meie-kool/statistika/

7.7. Lithuania, Latvia, Estonia

Publicly available data:

The gender composition of all levels university students in Lithuania: in 2018, 57,02% of university students (ISCED 5,6 and 7 levels – higher education university studies) were women, and in higher level women made up 62,56% (ISCED 8 level – doctoral, postgraduate, residency studies) of all students (data from education management information system of Ministry of education, science and sport of Lithuania).

The gender composition of all levels university students in Latvia is not publicly available. There is data about gender composition in all higher education institutions – number of female students in higher education was 45 194 in 2018, and that made up 56,24% of all higher education students in 2018 (80 355) (data from Central Statistical Bureau of Latvia).

The gender composition of all levels university students in Estonia is not publicly available. There is data about percentage of females by level of study – there were 26913 females enrolled in higher education in 2018, and there were 18902 males in the same period, therefore females made up 58,74% of all enrolled students (data from Statistics Estonia).

7.8. UK

GENDER STAFF BREAKDOWN				
Indicator number / name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
1 Gender staff composition University	429,560 total employed	Female = 233,550 or 54%	National	Hesa.ac.uk year 17/18
2 Gender staff composition – secondary school	208.300 total employed	Female = 62.5%	National	https://www.besa.org.uk/key-uk-education-statistics/ Year 2016/17
3 Gender composition – Personnel employed in teaching and research(University)	211,980 total employed	Female = 45.8%	National	https://www.hesa.ac.uk/data-and-analysis/sb253/figure-2 Year 2017/18
4 Gender composition in Universities – Personnel	?	?	?	Not available in any university. However gender composition for engineering and technology can be

employed in teaching and research in mobility				fund for 2017/18 in https://www.hesa.ac.uk/data-and-analysis/staff/areas
5 Gender composition – University governing bodies	?	Female 36%		https://www.lfhe.ac.uk/en/governance-new/equality-and-diversity-toolkit/Value/Gender-diversity-data.cfm Year 2016 ALSO: https://women-count.org/portfolio/womencount-leaders-in-higher-education-2016/
6 Number of university courses in transport and smart mobility				

VALUES OF INDICATOS RELATED TO STUDENTS				
Indicator number / name	Value	Unit	Level (write either “national” or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
Gender composition - Secondary school students				https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/657907/SFR64_2017_Tables.xlsx (Updated statistics for 2019 are available only for England: https://www.gov.uk/government/statistics/schools-pupils-and-their-characteristics-january-2019

Gender composition – Students taking part in university admission tests	36,280	female candidates		https://www.ucas.com/data-and-analysis/undergraduate-statistics-and-reports/ucas-undergraduate-releases/ucas-undergraduate-applicant-releases-2019-cycle
Gender composition - First year students (university)	596,880	self-declared female in HE first year enrolments		Sources: https://www.hesa.ac.uk/news/14-02-2019/sb254-higher-education-student-statistics-APs/numbers https://www.hesa.ac.uk/news/17-01-2019/sb252-higher-education-student-statistics/numbers HESA defines first year as mainly the reported beginning of the course, but recognising that the students' first year might be the second or subsequent year of a programme (https://www.hesa.ac.uk/support/definitions/students).
	22,410	female students		

		enrolled in APs[14]		
Gender composition - First year students (university) in subject related to transport and smart mobility				The enrolment data is available per gender, but the subject are clustered into big categories such as Engineering and technology or Historical and philosophical studies or even only 'Combined', which problematizes. HESA has a list of subcategories for each of the bigger ones (https://www.hesa.ac.uk/support/documentation/jacs/jacs3-principal), which are also not specific.
Gender composition – University students (all levels)	1,333,650	self-declared female students registered		https://www.hesa.ac.uk/news/17-01-2019/sb252-higher-education-student-statistics/numbers
	38,560	self-declared female		

[14] "Alternative providers (APs) are higher education providers who do not receive recurrent funding from the Funding Councils or other public bodies and who are not further education (FE) colleges"

		students registered APs		
Gender composition - Bachelor's degrees				Data for: First degree / Foundation degree / HNC/HND / Professional Graduate Certificate in Education / Other undergraduate: https://www.hesa.ac.uk/data-and-analysis/students/outcomes/breakdown For APs: https://www.hesa.ac.uk/news/14-02-2019/sb254-higher-education-student-statistics-APs/qualifications
Gender composition - Master level students	334,310	number of all Masters taught students		https://www.hesa.ac.uk/data-and-analysis/students/whos-in-he https://www.hesa.ac.uk/data-and-analysis/students/outcomes
	54,125	Total female in Postgraduate (research)		

	275,795	Total female in Postgraduate (taught)		
	6,605	Total female in Masters (taught) in APs		
Gender composition - Master's degrees	105,225	Masters taught		https://www.hesa.ac.uk/data-and-analysis/students/outcomes/breakdown
	2,375	Masters taught – APs.		https://www.hesa.ac.uk/news/14-02-2019/sb254-higher-education-student-statistics-APs/qualifications
Gender composition - Post-master students excluding PhD	49%	Female postgrad research		https://www.hesa.ac.uk/data-and-analysis/sb252/figure-4 https://www.hesa.ac.uk/data-and-analysis/students/whos-in-he

				https://www.hesa.ac.uk/news/14-02-2019/sb254-higher-education-student-statistics-APs/numbers
	61%	postgrad research taught (ignoring the masters)		
	2,550	female students in postgrad, except PhD and Masters (APs)		
Gender composition - PhD students	49%	Doctorate and Other postgrad research		https://www.hesa.ac.uk/data-and-analysis/sb252/figure-4 https://www.hesa.ac.uk/data-and-analysis/students/whos-in-he

	25	AP female Doctorate students		https://www.hesa.ac.uk/news/14-02-2019/sb254-higher-education-student-statistics-APs/numbers
Gender composition - Erasmus students	60.5%	Erasmus students female		https://data.europa.eu/euodp/repository/ec/dg-eac/erasmus-data-2013-2014/erasmus-fft-brochure_online_en_FINAL.pdf https://www.erasmusplus.org.uk/statistics-and-results-for-erasmus
Gender composition - Winners of grants/scholarship				European Research Council for 2013 reported only 13% of women selected: http://erc.europa.eu/sites/default/files/press_release/files/press_release_adg2013_results.pdf A follow-up in 2015 showed an increase of 2% for approved female winners and 8% increase for female applicants: http://erc.europa.eu/sites/default/files/press_release/files/press_release_ cog2014_results.pdf Statistics per gender and area (2018): https://erc.europa.eu/sites/default/files/document/file/Ge nder_statistics_Apr2018.pdf

				Report Key factors shaping funding application behaviour among women and men in British higher education institutions - 1999/2000: https://wellcome.ac.uk/sites/default/files/wtd003209_0.pdf "[…] grants awarded from Oct 1, 2000, to Sept 30, 2008, by a major UK biomedical funding body, the Wellcome Trust" – gendered analysis: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(12)61292-6/fulltext Cancer funding per gender (2017): https://bmjopen.bmj.com/content/8/4/e018625 2014 University of Leicester document about gender and grants, with no references: http://www.snf.ch/SiteCollectionDocuments/Web-News/160705_news-gender-excellence_boyle_paul.pdf
Number of grants/scholarships specifically designed for women				Daphne Jackson fellowship: https://daphnejackson.org/about-fellowships/are-you-eligible-to-apply-for-a-fellowship/

				10+ (with some repeating from the list): https://uwaterloo.ca/women-in-engineering/resources/scholarships L'Oréal-UNESCO for Women in Science Programme (five annual scholarships, £15,000 - UK or Ireland): https://www.forwomeninscience.com/en/fellowships Ford Prize for Women in STEM Study 2018 (available last years as well, but nothing found for 2019): https://www.ford.co.uk/content/dam/guxeu/uk/experience-ford/careers/Ford%20prize%20for%20women/2018_Ford_Prize_for_Women_in_STEM_Study_Competition_Entry_Form.pdf Four or more available scholarships, some parts of the website are not opening: https://www.wes.org.uk/content/awards-bursaries-and-grants Annual bursaries: http://www.westskills.org.uk/bursaries-from-west Jocelyn Bell Burnell Medal and Prize: http://www.iop.org/about/awards/career/bell-burnell/page_67977.html

				20+ scholarships, grants, bursaries etc (some of which are listed above as well, but they are compiled here): https://www.wisecampaign.org.uk/wise-network/funding/ Anne-Marie Imafidon Scholarships for Women in Technology: https://www.dur.ac.uk/computer.science/about/diversity/scholarship/ Booking.com grant (2017 announced): https://globalnews.booking.com/bookingcom-announces-new-scholarship-programmes-with-the-university-of-oxford-and-delft-university-of-technology-to-support-advanced-education-for-women-in-technology/ Amazon Women in Innovation (2016/2017): https://amazonuk.gcs-web.com/news-releases/news-release-details/amazon-launches-amazon-women-innovation-bursary-leading-uk?ID=2200168&c=251199&p=irol-newsArticle Skills 4 Uk Scholar's Award: https://www.ukesf.org/universities/skills-4-uk-scholars-award/ WTM Scholarship for Computer Science & Gaming: https://www.womentechmakers.com/scholars

				Peace and Security Fellowship for African Women (2019/2010): https://africanleadershipcentre.org/attachments/article/151/ALC%20Fellowship%20Announcement_African%20Women%202019_FINAL.pdf Annemarie Schimmel scholarship: http://www.amsscholarship.com/index.htm The British Federation of Women Graduates - Some grants available, but I can't access without being a member: https://bfwg.org.uk/bfwg2/ Four or more identified from the website, but currently the calls are open and there might be more: https://www.acu.ac.uk/funding-opportunities/for-university-staff/gender-grants/
Number of grants/scholarships in transport and smart mobility				Thescholarshiphub.org.uk shows 11 results under 'Hospitality, leisure, sport, tourism and transportation, but none for transportation. Most of them are for tourism and hospitality: https://www.thescholarshiphub.org.uk/find-a-scholarship?_sft_tsh_tax_subject=hospitality-leisure-sport-tourism-transport&sf_paged=2 Ford Fund Smart Mobility Challenge Award: https://fordfund.org/current-events/128-smart-challenge

				Innovate UK Smart Grants (GOV), not specific for transport and SM, but projects in the area are eligible: https://apply-for-innovation-funding.service.gov.uk/competition/446/overview#summary More than 20+ grants and funding available, directly or indirectly connected to transport research: https://www.grantsonline.org.uk/news/energy-environment-and-transport/ Ecargo bike fund: https://www.energysavingtrust.org.uk/transport/freight-and-retrofit/ecargo-bike-grant-fund Grants which include, but are not limited to, transportation (for the elderly): http://trusthousecharitablefoundation.org.uk/grants/

7.9. Greece

GENDER STAFF BREAKDOWN				
Indicator number / name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
Teaching staff member per gender full-time	34	%	Tertiary education (Universities)	2016/2017

Teaching staff member per gender part-time	37	%	Tertiary education (Universities)	2016/2017
Teaching staff secondary education	55	%	Eastern Macedonia & Thrace	2016/17
	57	%	Central Macedonia	
	53	%	Western Macedonia	
	54	%	Thessaly	
	54	%	Ipeirus	
	54	%	Ionian Islands	
	53	%	Western Greece	
	55	%	Sterea Ellada	
	56	%	Peloponesus	
	57	%	Attica	
	56	%	North Aegean	
	54	%	South Aegean	
	58	%	Crete	
Non teaching staff members secondary education	82	%	Eastern Macedonia & Thrace	2016/17
	79	%	Central Macedonia	

	91	%	Western Macedonia	
	96	%	Thessaly	
	86	%	Ipeirus	
	91	%	Ionian Islands	
	88	%	Western Greece	
	90	%	Sterea Ellada	
	88	%	Peloponesus	
	47	%	Attica	
	85	%	North Aegean	
	85	%	South Aegean	
	89	%	Crete	

VALUES OF INDICATOS RELATED TO STUDENTS				
Indicator number / name	Value	Unit	Level (write either "national" or specify the school/university name)	Notes (e.g.: source, reference year if different than 2017/18)
Students in secondary education	54	%	Eastern Macedonia & Thrace	2016/17
	53	%	Central Macedonia	
	55	%	Western Macedonia	

	53	%	Thessaly	
	52	%	Ipeirus	
	55	%	Ionian Islands	
	53	%	Western Greece	
	53	%	Sterea Ellada	
	53	%	Peloponesus	
	51	%	Attica	
	55	%	North Aegean	
	54	%	South Aegean	
	54	%	Crete	
Number of graduates per gender and region	55	%	Eastern Macedonia & Thrace	2016/17
	54	%	Central Macedonia	
	55	%	Western Macedonia	
	54	%	Thessaly	
	52	%	Ipeirus	
	58	%	Ionian Islands	
	55	%	Western Greece	
	54	%	Sterea Ellada	

	54	%	Peloponesus	
	52	%	Attica	
	56	%	North Aegean	
	55	%	South Aegean	
	56	%	Crete	
Enrolled students undergraduate	47	%	Tertiary education (Universities)	2016/17
Enrolled students postgraduate	60	%	Tertiary education (Universities)	2016/17
Enrolled students PhD	47	%	Tertiary education (Universities)	2016/17

8. Appendix II – Data collection scheme for desktop review

The detail structure of data collection scheme about the practices for encouraging and supporting women in STEM.

PRACTICE Nr. 1 FOR ENCOURAGING AND SUPPORTING WOMEN IN STEM *(e.g. way subjects, student centred and problem-based approaches, the learning culture, promotion of gender balance, …)*	
1. Title of the initiative	
2. Kind	☐Association
	☐Mentorship
	☐Communication campaign
	☐Awards
	☐Other
3. Level (Specify the institution or the region if relevant)	☐School/University
	☐Regional
	☐National
	☐Other
4. Activity	☐In progress
	☐Concluded
5. Temporal extension	Starting year
	Ending year
6. Promoter (specify the name)	☐Regional/National policy
	☐School/University
	☐STEM Company
	☐Other
7. Funding (if relevant)	☐Project funding
	☐Financed by the company
	☐Public
	☐Other
8. Target groups	☐Primary school students
	☐Secondary school students
	☐University students
	☐PhD students
	☐Researchers

	☐Other
9. Info source (add the links if possible)	☐Website ☐Social network ☐Flyer ☐Other
10. Methods (focus on how they support and encourage women in STEM)	☐Workshops/conferences ☐Games ☐Mentoring ☐Other
11. Results (if already available)	
12. Other details	
13. TInnGO contact information (e-mail address).	
14. Comments or additional information	

9. Appendix III – Collected initiative to promote gender balance in STEM education

BS Lithuania and Baltic States, DE Denmark, GE Germany, GR Greece, IT Italy, PO Portugal, RO Romania, UK United Kingdom, SP Spain, FR France

Country	English name	Kind	Promoter type	Founding	Target groups	Method	WebSite
IT	Women: Engineer Profession	Scholarship Communication campaign	School/University	EU funding University funds	University students	Mentoring	https://didattica.polito.it/_progettodonna/index.html
IT	PoliWo – PoliTo for Women	Association Communication campaign	School/University	University funds	Secondary school students	social network campaign hackathon school/camp	https://www.weareherepolito.it/
IT	STEM by Women	Association/network Mentorship/courses	Regional/National/EU policy School/University STEM Company	Public/national funding/University funding	Secondary school students University students	Workshops/conferences Mentoring	https://www.linkedin.com/company/stem-by-women/ https://www.instagram.com/stembywomen/
IT	WIM – Women in Motion	Communication campaign Mentorship	FS (Italian Railway Company)	Financed by the company	Primary school students Secondary school students University students	Games Mentoring Internship	https://wim.win/
DE	More Women in IT	Communication campaign	School/University	Project funding	Secondary school students	Workshops/conferences Mentoring school/camp	https://en.itu.dk/about-itu/gender-diversity-among-students
DE	GenderLAB	Association	School/University KVINFO		Addresses cases	Workshops/conferences	https://kvinfo.dk/pilot-genderlab/

UK	Daphne Jackson Trust	Association Mentorship	charitable trust	charitable trust	Researchers	Workshops/conferences Mentoring awards	https://daphnejackson.org/
UK	Year 10 Girls into STEM	Course	School/University	Financed by the company	Secondary school students	Workshops/conferences	https://www.lboro.ac.uk/news-events/news/2019/july/girls-into-stem/ and ttps://www.lboro.ac.uk/study/school-college-liaison/events/girlsintostem/
UK	Stemettes	Association Communication campaign	Regional/National policy STEM Company	Industry partners	Secondary school students University students Organizations	Workshops/conferences Mentoring Awards	https://stemettes.org/about-us/
UK	Women's Engineering Society	Association/network	Association/NGO	Donations/fees Financed by the company	University students	Mentoring Workshops/conferences Awards/internship	https://www.wes.org.uk/content/about-wes-who-we-are
UK	WISE	Association/network	Regional/National/EU policy	Donations/fees Financed by the company	University students Secondary school students	Awards/internship Workshops/conferences	https://www.wisecampaign.org.uk/
GR	Kethi	Communication campaign	Research Center for Gender Equality	EU funding National funding	Secondary school students Secondary school teachers	Workshops/conferences Mentoring Training materials	https://kethi.gr/program/eyaisthitopoiisi-ekpaideytikon-kai-paremvatika-programmata-gia-tin-proothisi-tis-isotitas-ton-fylon/
GR	Info Day on ''Gender and Education''	Communication campaign	Regional/National policy	National funding	Primary school students Secondary school students Educational staff	Workshops/conferences	http://www.iep.edu.gr/images/IEP/EPISTIMONIKI_YPIRESIA/Epist_Monades/A_Kyklos/School_Democracy

GR	Patras Junior Codecamp	Communication campaign/events	Association/NGO	STEM Company	Secondary school students Primary school students	Games/hackathon/camp Workshops/conferences	https://www.juniorsclub.gr/upcoming-events/patras-junior-codecamp-ston-3o-orofo-tou-pos4work-patras/
GE	Come on, do MINT.	Association Communication campaign	Regional/National policy School/University STEM Company		Secondary school students University students Researchers	Workshops/conferences Mentoring	https://www.komm-mach-mint.de/Komm-mach-MINT
GE	MINT-EC	network	Regional/National policy School/University	Associations and foundations	Secondary school students	Workshops/conferences certificates	https://www.mint-ec.de/
GE	Femtec	Association	School/University STEM Company	Financed by the company	Secondary school students University students PhD students	Workshops/conferences Mentoring network	https://www.femtec.org/
PO	GE-HEI	Association	Regional/National policy	public	University students PhD students		https://www.portugal.gov.pt/download-ficheiros/ficheiro.aspx?v=c27995f5-90ef-42e0-bac0-e7ff5d0ed1f4
PO	Mecan IST JEEC IST	Association	School/University STEM Company	Financed by the company	University students PhD students	Workshops/conferences	https://www.thalesgroup.com/en/stem-portugal
PO	Science on Stage	Association	Regional/National policy	EU funding	Primary school students Secondary school students	Workshops/conferences	https://www.science-on-stage.eu/page/display/2/2/101/PT/Portugal
SP	INTEF	Association	Regional/National policy	public	Primary school students Secondary school students		http://stem-pd-net.eu/en/intef/
SP	ChicaSTEM	Programme	Regional/National policy	public	Primary school students	Workshops/conferences	http://code.intef.es/chicastem/iniciativas-chicastem/

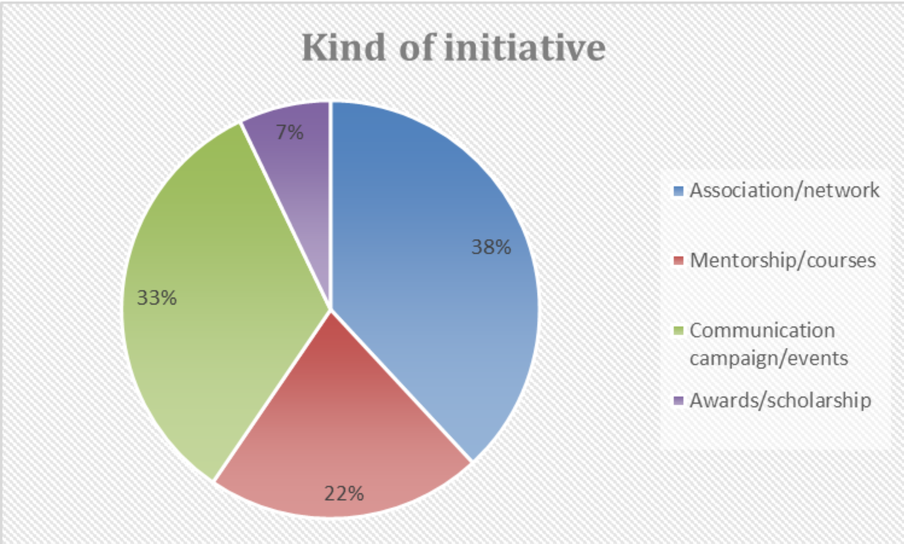
					Secondary school students		
SP	Scientix	Association	Regional/National policy	public	Primary school students Secondary school students	Workshops/conferences	https://intef.es/formacion-y-colaboracion/scientix/
SP	Inspiring Girls	Association/network	Association/NGO	Donations/fees	Secondary school students	Mentoring	https://www.inspiring-girls.es/
SP	Aquae STEM	Mentorship/courses	Association/NGO	Donations/fees	Primary school students	Mentoring	https://www.fundacionaquae.org/stem/
SP	STEM TALENT GIRL	Mentorship/courses	Association/NGO	Financed by the company	Secondary school students University students	Mentoring	https://talent-girl.com/
RO	For science women	Awards	Regional/National policy L'Oreal	Financed by the company	PhD students PhD	awards	https://www.loreal.ro/media/news/2019/mar/10-ani-pentru-femeile-din-stiinta
RO	GirlsTech	Awards/scholarship	Regional/National/EU policy STEM Company	Financed by the company	PhD students Researchers/ PhD	Awards/internship	https://romania.girlsintech.org/
RO	Technovation Challenge România 2019	mentorship	ngo company		Secondary school students	mentoring	https://adfaber.org/2019/05/27/technovation-2019/
BS	Women Go Tech	mentorship	association	Business enterprises	Women who are already in tech	mentoring	https://www.womengotech.lt/
BS	Robotics Academy Girl's Camp	Camp	STEM company	Parents pay for children activities	Primary school students	games school/camp	https://stovyklos.robotikosakademija.lt/mergaiciu-stovykla/
BS	Vilnius Girls Code	Association	private		women in IT	Workshops/conferences	https://www.facebook.com/vilniusgirlscode/about/
BS	Women and technology	Association	Regional/National policy	Project funding	Secondary school students	Workshops/conferences	http://www.mitt.lt/?q=lt

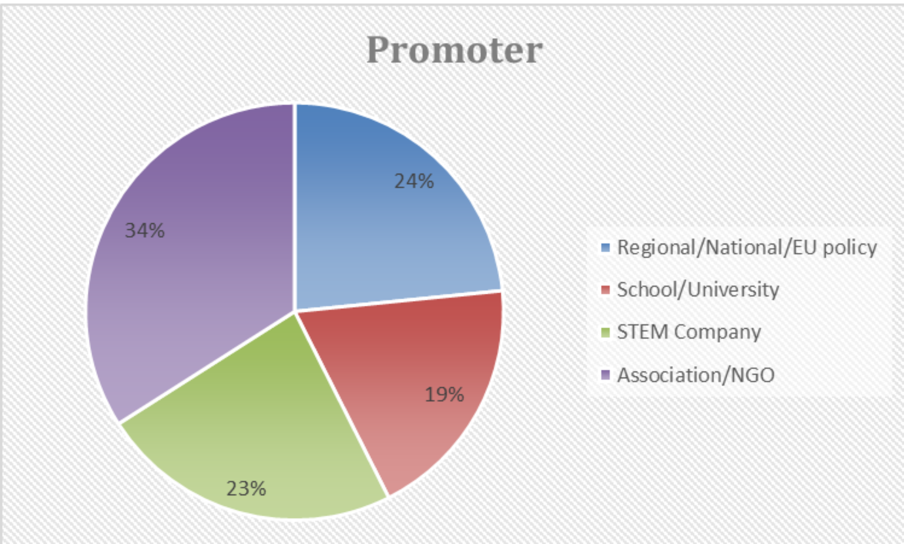
					University students	mentoring dissemination information	
BS	Girls in Smart Tech	initiative	STEM company	Financed by the company	Academy students	Workshops/conferences Excursions to IT enterprises	http://smarttech.lt/turinys/girls-smart-tech
BS	Digital Girls	event	School/University	KTU funding	Secondary school students recent graduates	event	http://digitalgirls.lt/
BS	Women4IT	Communication campaign	7 EU countries	Grant from Iceland, Liechtenstein and Norway through the EEA and Norway Grants Fund for Youth Employment	unemployed women	Workshops/conferences award	https://women4it.eu/about-us/
BS	Tech Sisters	Association	ngo	member fees donations	all women	Workshops/conferences network event	http://techsisters.org/about
BS	Digigirls	event	MTÜ, Kogukond, Tech Sisters	Financed by the company	Secondary school students	Workshops/conferences	http://www.digigirls.ee/et
BS	Superheroes	mentorship	private	Financed by the company	Secondary school students	Workshops/conferences Mentoring	https://futureheroes.ee/
FR	Women & Sciences	Association/network	Association/NGO	Public/national funding/University funding	Secondary school students Primary school students Women in general/selected women categories	Mentoring Workshops/conferences Awards/internship	http://www.femmesetsciences.fr/actions/actions-milieu-scolaire/
FR		Association/network	Association/NGO	Donations/fees		Workshops/conferences	

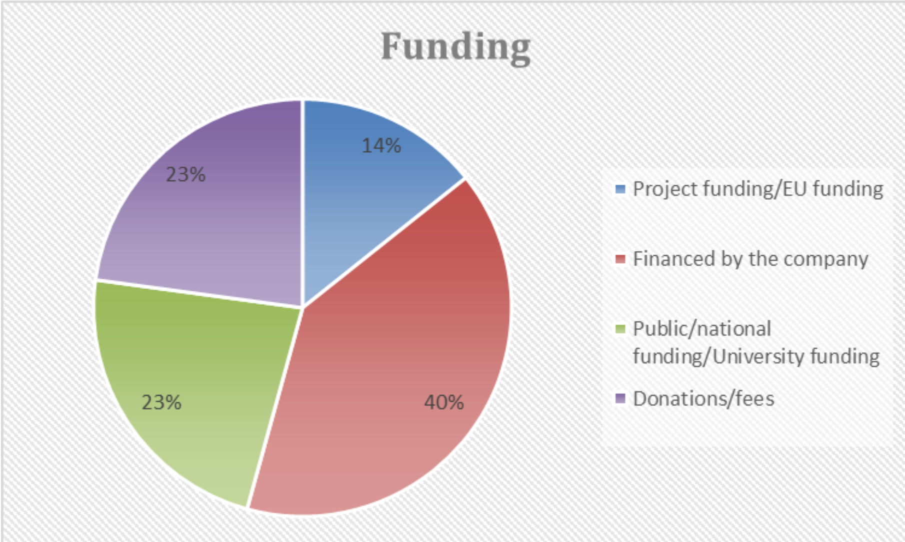
	Women and Mathematics				Secondary school students	Games/hackathon/camp	http://www.femmes-et-maths.fr/index.php?page=contenu&cat=33
FR	Female engineer	Association/network	Association/NGO	Donations/fees	Secondary school students	Workshops/conferences	https://www.femmes-ingenieurs.org/82_p_44299/nos-activites.html
					University students	Social network campaign/dissemination materials	
					Women in general/selected women categories	Mentoring	

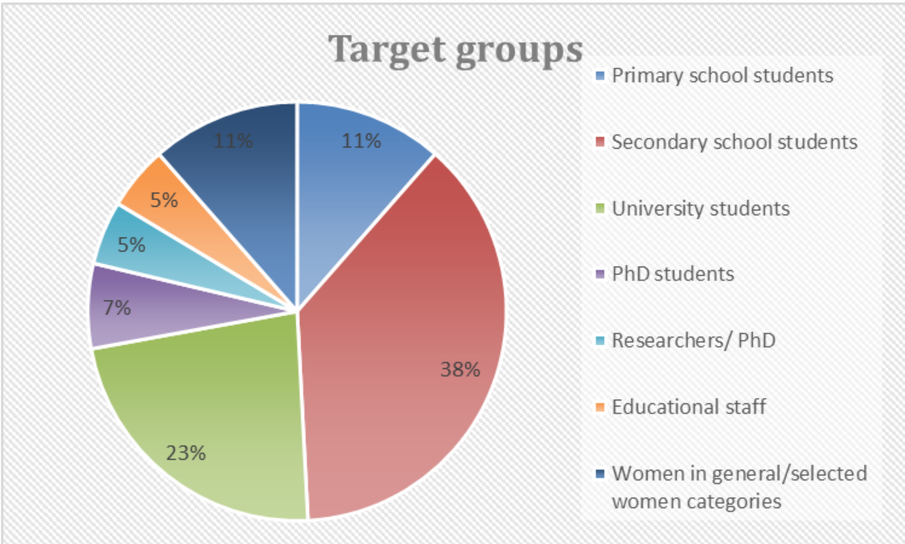
10. Appendix IV – Collected European practices for encouraging and supporting women in STEM

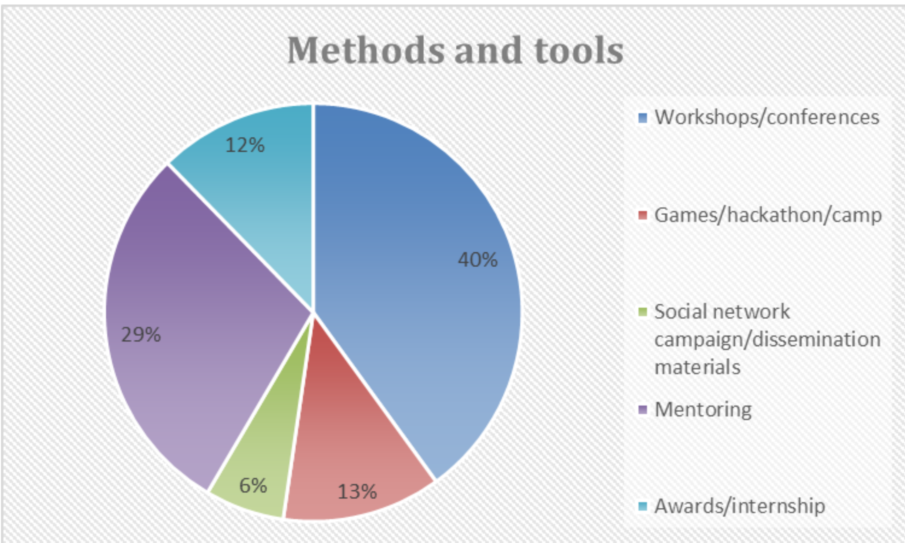
According to the data availability, 36 initiatives were considered from 9 hubs. It should be recalled that more than one option is acceptable per categories: the tools used can be both workshops and hackathon for instance.






Funding
14%
40%
23%
23%
Project funding/EU funding
Financed by the company
Public/national funding/University funding
Donations/fees


Target groups
11%
38%
23%
7%
5%
5%
11%
Primary school students
Secondary school students
University students
PhD students
Researchers/ PhD
Educational staff
Women in general/selected women categories


Methods and tools
40%
13%
6%
29%
12%
Workshops/conferences
Games/hackathon/camp
Social network campaign/dissemination materials
Mentoring
Awards/internship

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Principal investigator
Andree Woodcock
adx974@coventry.ac.uk

TInnGO
Tinngo
@TinnGoEU
www.tinngo.eu

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