

# PUBLIC CONSULTATION - CITIZENS' ASSEMBLY ON GENDER EQUALITY 2020

## QUESTIONNAIRE

CA30208	Women in Technology and Science
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### Theme 1: Gender norms and stereotypes

#### Gender norms and stereotypes as barriers to gender equality

Fixed ideas about what women and men should do in the home or at work are learned by girls and boys in early childhood and throughout their lives. These ideas or gender stereotypes affect their choices in school and as they enter careers and contribute to a lack of progress toward equality between women and men. This limits not only the jobs that women and men consider or are available to them, but also can exclude women and men from social roles and tasks.

- Please outline what you see as the key barriers/ obstacles and challenges to gender equality under this theme in law, policy and practice.

Gender stereotypes are a particular problem for women in science, technology, engineering and maths (STEM) where before they even enter primary school, girls absorb the false message that “boys are just better at maths and science while girls naturally prefer housework”. The representation of girls in STEM subjects is reasonably balanced up to Junior Certificate level, but is completely skewed to life sciences by Leaving Certificate.

According to Eurostat, [Ireland's public spending on education as a % of GDP](#) was the third lowest of the EU28 countries reporting data (3.77% vs 5.02% in 2015), and according to the World Bank this percentage has been falling since 2008. [Budget 2020](#) allocates €11.1 billion to the DES and rightly points out that this is €2 billion higher than in 2015, but page 66 (it's a long report) of the [Trends in Public Expenditure Report, Spending Review 2019](#) from the Department of Public Expenditure & Reform points out that enrolments at all levels of education have increased far beyond expenditure from 2008 to 2018.

So we would call for a reversal of this trend, with funding directed at:

- **improving access to and uptake of gender-segregated subjects for girls at second level**, where according to the CSO:

- 48% of 2018 Junior Certificate Science candidates were girls but at Leaving Certificate level, girls are over-represented in Biology and under-represented in Physics
- 20% of schools don't even offer Physics at Leaving Certificate level
- 9 girls sat Leaving Cert Biology for every 1 who sat Physics in 2018
- 5 boys study Leaving Certificate Physics for every 2 girls
- In Biology, the ratio is 3 girls for every 2 boys.

The [National STEM Education Policy Statement 2017-2026](#) has a target of a 40% increase in the uptake of STEM subjects by females, but in the most gender-skewed

subjects like Technology, that's just 108 more girls taking the subject over a 9 year period. In Physics it's 88 more girls every year across the country.

Supporting teachers can also improve access to gender-segregated subjects.

[Improving Gender Balance in Ireland](#) is a three-year national collaborative project led by CASTeL at Dublin City University, in partnership with the [Institute of Physics](#) and Science Foundation Ireland to support physics teachers in 7 second-level schools.

**- highlighting STEM role models particularly for girls**

- "You can't be what you can't see". According to [Microsoft research](#), on average, across Europe, 41 percent of girls with role models report an interest in STEM subjects, compared to 26 percent of girls without a role model.
- To tackle the stereotypes of 'female' and 'male' roles in the sciences, WITS is planning a campaign for 2020 which specifically targets the "pSTEM" areas, otherwise known as the mathematics-based subjects such as Physics, Engineering, Mathematics and Computer Science. In this campaign we intend to highlight positive female role models across each of these four fields, both in academia and industry, through a series of short video interviews.
- Many organisations like Engineers Ireland with STEPS, and SFI with Smart Futures work in providing STEM role models to visit schools but rely on volunteers to give up their time and so cover the country in a haphazard manner. A more integrated national approach would help target resources at schools which need them most, and incentives for private organisations to release their employees would make it easier to find school visitors.

**- campaigns to recruit more physics and other pSTEM teachers**

- 1/6 of Ireland's science teachers registered with the Teacher's Council of Ireland are physics specialists where it should be closer to 1/3 of the three science disciplines of physics, chemistry and biology.
- Only 30-40 physics teachers join the profession every year
- Physics teachers are often required to teach other subjects like Junior Cert Science and Maths. The Teaching Council of Ireland requires Junior Cert Science teachers to have at least 10 European Credit Transfer System credits each in Biology and Science which may not be possible for Physics graduates.

- Please identify the steps to be taken to address the issues raised and who should address them (e.g. the state, private sector, education system etc.)

- **WITS calls on the DES to set more ambitious targets for uptake by girls of the most gender-skewed subjects including Technology, Engineering, Physics and Applied Mathematics.**
- **An integrated national role models network organised by DES would ensure all schools have the access they need to STEM role model visitors.**
- **Conversion courses providing pathways to teaching for physics and engineering graduates, and incentives targeting specific subject shortfalls could increase the numbers in these areas.**
- **WITS has published the books "Stars, Shells and Bluebells" and "[Lab Coats and Lace](#)" highlighting the stories of women in science in Ireland. It pioneered role**

**model days in schools, and continues to work on role model campaigns to break down gender stereotypes.**

## **Theme 2: Work: Occupational segregation by gender, gender discrimination and the gender pay gap**

Women and men are often concentrated into different kinds of jobs and within the same occupations, women are often in work that is less well paid and has less opportunities for career advancement. Women often work in areas where they can work part-time so as to fit in with their caring responsibilities. While many men work in low paid jobs, many professions dominated by women are also low paid, and professions that have become female-dominated have become lower paid. This worsens the gender pay gap (the average difference between the wages of women and men who are working).

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Equality matters, not just at the ethical level. [PWC](#) have estimated that Ireland's GDP could be \$60 billion higher if we had the same percentage of women in work as Sweden. That's a lot of schools and hospitals.

STEM jobs tend to be better paid than more female-dominated sectors, and without closing the gender gap in STEM it's unlikely that the gender pay gap will be closed. In Ireland, the [average gross hourly earnings for a woman are 13.9% lower than a man's](#). And that's before taking into account that women are more likely to work part-time than men. So why aren't women taking up these interesting, skilled and well-paid jobs? Only a quarter of Ireland's STEM workers are women. Before we congratulate ourselves too much on our modern, gender-equal society, it's worth remembering that [Ireland has the lowest percentage of female graduates in engineering, manufacturing and construction in the EU](#).

The government's National Strategy for Women and Girls 2017-2020 includes actions to reduce the gender pay gap but no targets to help focus efforts.

According to the [Global Gender Gap Report 2020 \(World Economic Forum\)](#), the situation globally is deteriorating:

"Women's participation in the wider labour market has stalled and financial disparities are increasing. Globally, the trend is towards a deteriorating picture in emerging and developing economies, which is offsetting the gains made in OECD countries.

Although education attainment as well as health and survival enjoy much closer to parity (96.1% and 95.7% respectively), one important area of concern is that of economic participation and opportunity. This is the only dimension where progress has regressed. Here, the figures are sobering, with a deteriorating situation forcing gender parity to a

lowly 57.8%, which in time represents a massive **257 years before gender parity can be achieved.**

The report highlights three primary reasons for this: women have greater representation in roles that are being automated; not enough women are entering professions where wage growth is the most pronounced (most obviously, but not exclusively, technology), and women face the perennial problem of insufficient care infrastructure and access to capital.”

“Looking to the future, the report reveals that the greatest challenge preventing the economic gender gap from closing is women’s under-representation in emerging roles. In cloud computing, just 12% of professionals are women. Similarly, in engineering and Data and AI, the numbers are 15% and 26% respectively.”

While Ireland has improved in most of the underlying scores in economic participation and opportunity, the score for wage equality for similar work has dropped from a gender gap of 71% to a gender gap of 68.6% since [2006](#). Women’s under-representation in emerging roles in Ireland is pretty similar to the global average: 14% in cloud computing, 20% in engineering and 26% in data and AI.

Apart from the challenges facing all workers with caring responsibilities, women in STEM still don’t have the same opportunities in education or the workplace as men. In the workplace, the leaky pipeline in STEM affects digital skills (amongst other things) of workforce. In research conducted in 2012 in Scotland, women working in STEM jobs were found to be 50% more likely to drop out of STEM jobs than men. The Department of Education and Skills and SOLAS are working on attracting women into STEM careers but it is just as important to keep them there.

- Please identify the steps to be taken to address the issues raised and who should address them (e.g. the state, private sector, education system etc.)

**To address the deficiencies in emerging roles, the WEF recommends that “workforce strategies must ensure that women are better equipped (in terms of improved skills or reskilling) to deal with the challenges and take advantage of the opportunities of the Fourth Industrial Revolution. Diverse hiring is another area for improvement (reflecting the current situation that sees gender parity in an in-demand skillset but not equal representation), along with creating inclusive work cultures.”**

**Access to flexible & remote working for women and men can make all the difference in balancing the conflicting demands of work and life. Apart from employees returning from parental leave, Irish employees have no statutory rights with respect to flexible working. All employees should have the right to request flexible or remote working, and employers should be obliged to deal with such requests in a reasonable manner.**

WITS connects women working in STEM in Ireland through members' events and through its social media channels in national and local networks to keep women in the STEM workforce. It informs and educates its members on reports and strategies relating to occupational segregation, and advocates for change at national level.

WITS would like to see an action group set up and funded by the Department of Justice and Equality to target the leaky pipeline in STEM.

The long overdue Gender Pay Gap Information Bill 2019 has lapsed with the previous Dáil but needs to be brought into law as soon as possible to show the scale of the gender pay gap in full time and part time work so that corrective actions can be targeted appropriately.

### **Theme 3. Care, paid and unpaid, as a social and family responsibility**

Care -- the social responsibility of care and women and men's co responsibility for care, especially within the family

Women remain disproportionately responsible for unpaid care and often work in poorly paid care work. For working parents or lone parents, balancing paid work with parenting and or caring for older and dependent adults presents significant challenges. Women are most disadvantaged by these challenges, yet men also suffer from lack of opportunities to share parenting and caring roles. Despite recent legislation and policy initiatives to support early years parental care, inequalities in the distribution of unpaid care continue between women and men. The cost of childcare has been identified as a particular barrier to work for women alongside responsibilities of caring for older relatives and dependent adults.

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Caring responsibilities and the cost and availability of child care also adversely affect women in STEM as outlined in the theme above. The [ESRI](#) found that Ireland had the 3<sup>rd</sup> highest amount of unpaid caring and housework hours in the EU, the gap between women's and men's hours is 7<sup>th</sup> highest in Ireland, and that women in Ireland spend twice as much time on unpaid caring work and housework as men.

Flexible working practices for child care and other caring responsibilities allow women and men to continue working rather than drop out of the workforce when they can no longer balance conflicting demands. For those who drop out of the fast-moving world of STEM, it can be very hard to get back in when their caring duties are no longer so arduous. If women continue to work part-time, it keeps them in touch with advances in technology. If they have left the workforce, returning requires a more dedicated program like the SFI Advanced Award Programme.

In academia, post-doctoral researchers have little job security as they are often on rolling short-term contracts. For women, this can mean limited opportunities for maternity leave cover just at the life-stage where having children is a consideration. While the Irish Research Council post-doctoral fellowships and European Research Council starting grants allow for maternity and paternity leave, this is not true of all post-doctoral contracts. Even when leave is available, there is often a stigma associated with taking it. Doctoral students are also susceptible to this pressure as they too are not guaranteed leave or deferral of grants for family leave.

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**As a member of the NWCI, WITS supports [its prebudget submission](#) welcoming the introduction and extension of parental, paternity and carers' leave, and calling for their extension to 4 months' paid parental leave, 1 month of paid paternity leave and 6 paid days' of paid carers' leave.**

**Accessibility and affordability of childcare is a key influencer on women's participation in the workplace. As a member of the NWCI, WITS supports [its call](#) for the Department of Employment Affairs and Social Protection & Department of Children and Youth Affairs to work together to ensure the National Childcare Scheme supports women to return to learning, training and work.**

**Policies on family friendly workplaces and flexible working for men and women should be mandatory in all workplaces so that the opportunities are known to all staff and caring responsibilities can be shared. Legislation from the DJEI is needed here.**

**WITS calls on the Department of Education and Skills to ensure publicly funded 3<sup>rd</sup> level institutions include maternity, paternity, adoption and other family leave as eligible leave for post-doctoral contracts, and to ensure that doctoral students also have access to leave during their research.**

#### **Theme 4: Women's access to, and representation in, public life and decision making**

##### Ensure women's participation and representation in decision-making and leadership in the workplace, political and public life

Women are systematically underrepresented in leadership in economic and political decision-making. Despite the introduction of a candidate gender quota (through the system of party funding) for national political office, and initiatives to support women's access to corporate decision-making roles, men continue to dominate leadership positions. There are also issues to be considered around how media represents women and men.

- Please outline what you see as the key barriers/ obstacles and challenges to gender equality under this theme in law, policy and practice.

The tipping point for women choosing whether to stay in STEM research often occurs at post-doctoral level where the proportions of women in academic positions starts to roll off, reducing the number of female role models. Women who have taken maternity leave tend to have fewer publications than their male peers. Both issues contribute to make post-doctoral level a time when women are particularly likely to exit their academic careers.

According to [Women in the Workplace 2019](#) (McKinsey & LeanIn.Org), “In the last five years, we’ve seen more women rise to the top levels of companies. [...] Still, women continue to be underrepresented at every level. To change the numbers, companies need to focus on where the real problem is. We often talk about the “glass ceiling” that prevents women from reaching senior leadership positions. In reality, the biggest obstacle that women face is much earlier in the pipeline, at the first step up to manager. Fixing this “broken rung” is key to achieving parity.”

Women in public roles face far more comment, criticism and harassment than their male counterparts.

According to the [Central Office of Statistics Gender Balance in Business Survey 2019](#), “Only one in nine CEOs in large enterprises in Ireland in 2019 were women. Women occupied 28% of Senior Executive roles compared with 72% for men. The vast majority of Chairpersons were male at 93% with 7% being female. The overall composition of Boards of Directors was 80% male and 20% female.” In the Information and communication sector only 24% of senior executives were women.

It took until 1981 - six decades into the lifetime of the State - for women to break the double digit level in the Dáil. Before the 2020 General Election, Ireland ranked 99<sup>th</sup> in the world for female representation in the lower house of parliament according to the [International Inter-Parliamentary Union’s gender ranking](#) with only 22% of TDs being women. But before gender quotas for candidates were brought in, the 2011 percentage was only 15%, so quotas have made a difference, and are still needed.

- Please identify the steps to be taken to address the issues raised and who should address them (e.g. the state, private sector, education system etc.)

**WITS welcomes funding for the 45 [Senior Academic Leadership Initiative](#) professorships to address the fact that only 19% of full professorships are held by women. It also welcomes the funding for third-level initiatives on [Ending Sexual violence and Harassment in third level Education \(ESHTE\)](#).**

**The long overdue Gender Pay Gap Information Bill 2019 included provisions mandating that companies report their gender pay gap in lower, lower middle, upper middle and upper quartile pay bands. Similar legislation in the UK and Australia has exposed**



women's under-representation in upper pay bands (and by inference, in senior leadership positions), forcing companies to address it.

Organisations like 30% Club are key in driving senior female leadership change. [Balance for Better Business](#) is driving change by setting annual targets and reporting on progress. The overall percentage of women on Irish publicly listed boards has increased in the last year from 14% in early 2018 to 19% by 1 September 2019 and two of the ISEQ 20 companies appointed women to their boards for the first time, but there is still a long way to go.

## 5. Where does gender inequality impact most?

To conclude we would be interested in your response to the following question: In which area do you think gender inequality matters most?

Please rank the following in order of importance, 1 being the most important:

- Paid work -----
- Home & family life -----
- Education -----
- Politics and public life -----
- Media -----
- Caring for others -----
- Other – please elaborate -----

➤ Please outline the reasons for your answer below:

➤ Please include any further comments or observations you may have here.

It's difficult to rank these issues as they are so interconnected. Inequality in politics and public life perpetuates gender stereotyping, which affect children's experiences and choices in education, which (along with challenges at home and with caring responsibilities) lead to inequality in the workplace, so women are less visible in public life, and so on.



If there is any supplementary information or documents that you would like to submit as part of your consultation, please send this to [info@citizensassembly.ie](mailto:info@citizensassembly.ie), with 'Public Consultation Supplementary Information' in the subject line, along with your name to allow us to correctly match any documents with your submission.