



Women in Serbia's ICT Sector



Women's underrepresentation in the information and communication technologies sector has detrimental effects on individuals and society. Their low representation directly leads to technological bias (technologies that are less suited to women's needs), missed opportunities for innovation, as well as missed talent and potential of a considerable part of the population.

In a broader social context, it fuels economic disparity and perpetuates inequalities, widens the digital divide and reduces the number of role models for future generations. Therefore, addressing this issue is crucial for building a more inclusive and prosperous society. It is necessary to promote gender equality, offer equal opportunities and dispel gender stereotypes in order to unlock the full potential of women in ICT.

Although the need for women's equal participation in Serbia's ICT sector is recognized at the government policy level, a sufficiently strong institutional course of action that would drive societal change is missing. In response to this, UNDP and Accelerator Lab have undertaken research aimed at dissecting this problem, from the barriers women face in education to considerations of the cultural origins of their lower participation in careers in the ICT sector.

The training of female ICT professionals is demonstrating progress...

While the share of women who study information and communication technologies (ICT) in Serbia is higher than the average share in the European Union and the United States of America, they still account for only a third of the overall number of students of technical disciplines. In this regard, it should be noted that women are a majority of enrolled university students and graduates in almost all other fields of study.

Despite the fact that the number of ICT students is growing, the share of women has remained at the same level in the past five years. There are no significant disparities between women and men with regard to academic performance, specifically in the length of studies and average grade during studies.

The ratio of women to men enrolled in master studies is somewhat more favourable for women compared to that for undergraduate studies (43% women and 57% men), whereas this is not the case at the level of doctoral studies, where the share of women is the same as in undergraduate studies.

...but the labour market in the ICT sector shows pronounced inequalities

Although the ICT sector in Serbia is growing and shows relatively greater equality than in the EU, gender imbalance is still pronounced.

Women's employment in Serbia's ICT sector is on the increase: in 2021, it employed 50 thousand people, of whom 16 thousand were women. As a result, the share of women in Serbia's ICT sector reached 32% (compared to about 25% in the EU). The reasons for the more favourable situation in Serbia's ICT sector should be sought both in the more advantageous starting point, dating from communist-socialist times, and in the favourable trend of the growing share of women in ICT in recent years.

The rise in women's participation in ICT in recent years is encouraging news, but also presents an opportunity to invest in additional women's resources, since the ICT sector is facing a labour force shortage, while education is unable to keep up with the sector's rapid growth and labour demand.

Moreover, it should be noted that women account for only 44% of Serbia's employed population and under 10% of top earners, although 59% of graduates are women. Another problem is the lack of career advancement for women.

According to labour market data, women account for one third of candidates applying for jobs in the ICT sector, but their share in high-ranking positions is very low. Most women apply for traineeships, while out of those already employed, as many as 55% are juniors, 43% are mediors and only 2% are seniors. Despite women's growing interest in the ICT sector, the fact that they stay in junior positions longer should not be disregarded. More specifically, 30% of women aged over 35 are still in junior positions, while as many as 85% of men aged 25-34 are in senior positions.¹ The share of women decreases as they move up the corporate ladder. Women account for only 17% of managers in the ICT sector, while the share of women in managerial positions in the overall Serbian economy stands at 32%. In directors' positions in the ICT sector, the share of women is even lower – only 10%. Finally, among ICT business owners, men dominate heavily. Over 75% of business owners, as well as business representatives in ICT activities are men.

The motivation to work in the ICT sector is the same for both men and women, while the pay gap persists

The top three factors in choosing a job in the ICT sector are the same for men and women – flexible hours, work from home, and education and training. As regards factors affecting job change decisions, the salary level is the top-ranked factor for both men and women.

Women account for somewhat over one third of the workers (38%) in the digital gig economy. While men in the gig economy mainly work on software and technology development, women usually perform administrative and translation work. The most common motive cited by women for working on online platforms is flexible hours, followed by professional development.

The part of the pay gap attributed to skills disparities between men and women has largely been eliminated. However, the pay gap is more pronounced in the ICT sector than in most other sectors. In Serbia's ICT sector, it stands at 9.1%, while in the EU it was 14.8% in 2018. The difference in the pay gap between the ICT sector and employed ICT specialists may be attributed to the fact that in the ICT sector more women than men work in non-technical jobs (human resources, finance, administration etc.), which pay less on average. As regards freelancers, the pay gap is more pronounced and has even increased in the past two years.

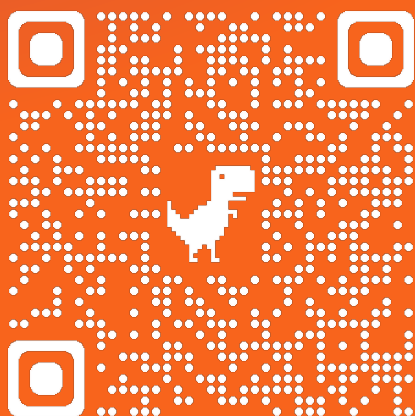
1- Article written as part of the “Media and Youth for Democratic Development” project: <https://rb.gy/onb04n>

What are the roots of the gender gap?

- ➔ **Stereotypes:** Children are exposed to gender-stereotypical concepts about occupations from their early childhood. There are stereotypes that boys are better than girls at maths and that the ICT sector is more a boys' club. The stereotypes on ICT occupations as being narrowly focused, difficult and made for men may be discouraging for women. Counterstereotypes can help to attract girls to the ICT sector. Expectations regarding care for children, home and family also have an impact on women's decisions to pursue careers in the technology sector. Community and family pressure may influence women to choose sectors that offer better possibilities for reconciling professional and family life.
- ➔ **Lack of female role models:** Girls need role models from STEM professions in order to develop an interest in these fields. Many girls do not know any women in STEM professions. The presence of female role models may diminish the effects of stereotypes, increase the interest in STEM and motivate girls to choose professions in this field.
- ➔ **Lack of practical work:** Girls who have more practice in education and outside the classroom are more likely to choose STEM subjects. Creativity and exposure to technologies from an early age are also important factors. Limited access to practice can influence girls' choices.
- ➔ **Lack of support from teachers, peers and parents:** Girls often do not feel they receive any support from teachers and peers in STEM classes. Lack of support from their parents can also influence girls' choices. Teacher and parent support increases their likelihood of choosing STEM subjects and professions.
- ➔ **Lack of (perceived) equality and the "male culture":** Girls often have a perception of inequality in STEM fields and feel excluded. There is a perception that STEM fields are dominated by the "male culture", which can discourage girls from choosing these occupations. A male-dominated environment and "male culture" in companies often make it difficult for women to feel welcome. Companies in which women occupy leadership positions usually have a more developed culture of diversity and inclusion.
- ➔ **Lack of motivation and inspiration:** Awareness of the creativity and opportunities offered by STEM jobs increases girls' interest. They become motivated to contribute to addressing societal problems and want a job that will enable them to help the world. In order to attract girls, a broader picture about computer sciences must be provided to them.

UNDP Serbia and its [Accelerator Lab](#) are conducting a number of research initiatives about women in STEM fields. We use official and alternative data sources, as well as women's personal stories, in order to shed light on aspects that remain elusive when observing statistics alone. Together with various stakeholders from all sectors and industries – from school teachers and state institutions to corporate IT managers – we seek to help women to become winners of the Fourth Industrial Revolution and break through the invisible barriers that hinder their access to equal distribution of power in society.

The complete archival research on the position of women in ICT is available [here](#). Related studies are also available on the [Accelerator Lab website](#).



<https://www.undp.org/serbia>



<https://lab.undp.org.rs/women-in-stem-in-serbia/>