

# Harnessing ICTs for gender equality in Europe and Central Asia

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## Introduction

The digital transformation accelerated by the COVID-19 crisis has made access to technology and the ability to use, create, and shape it fundamental to economic power and potential. Pandemic conditions have given impetus to a rapidly transforming labour market, in which 90 percent of future jobs will require digital skills.<sup>2</sup> While the COVID-19 crisis has had devastating impacts on jobs across sectors, employment in Information and Communications Technology (ICT) continued to rise in 2020, a trend that is expected to grow.<sup>3</sup> For the majority of women, the promise of the digitalizing economy is tinged with peril. An estimated 70 percent of women's jobs worldwide are at risk of automation.<sup>4</sup> While the digital economy has opened new avenues of employment, women face significant limitations to accessing digital tools and platforms. When they do work in the digital economy, they are less likely to hold high-level positions, tending instead to work in lower-skilled and administrative roles. They are also more likely to be underpaid for their work.<sup>5</sup> Furthermore, the COVID-19 pandemic has resulted in more job losses for women than men in relative terms, because of their overrepresentation in four sectors worst hit by the crisis,<sup>6</sup> and the exponential rise in their care burden within the household.<sup>7</sup> Women are at risk of being left behind in the industries of the future and the economic and innovation potential of these sectors is likely to suffer from these gender inequalities.

This paper analyses the gender gaps in access to and use of ICT, as well as ICT-related training, education, and employment opportunities, with a focus on the Europe and Central Asia (ECA) region. It argues that gender equality in access to digital technologies and basic and advanced digital skills, as well as to decision-making, will transform women's ability to participate at every level in the future economy and influence the digital economy as ICT professionals themselves. Achieving gender equality in digital access and ICT professions requires efforts at institutional and policy levels to harness ICTs to serve the goals of equality and justice, so that the gender-based discrimination and segregation in the labour market are not reproduced in the digital economy, and so that the benefits of data and digitally-driven change accrue equally to all.

### Context

The digitalization of economies offers immense opportunities for workers and businesses to innovate and scale up their operations, to expand professional networks and alliances at all levels, from global to local, and to tap into markets and incomes that have previously been out of reach. A survey of 111 countries found that half of exclusively e-commerce firms are women-led (compared to only a quarter of firms doing traditional offline trade), indicating that many women find online

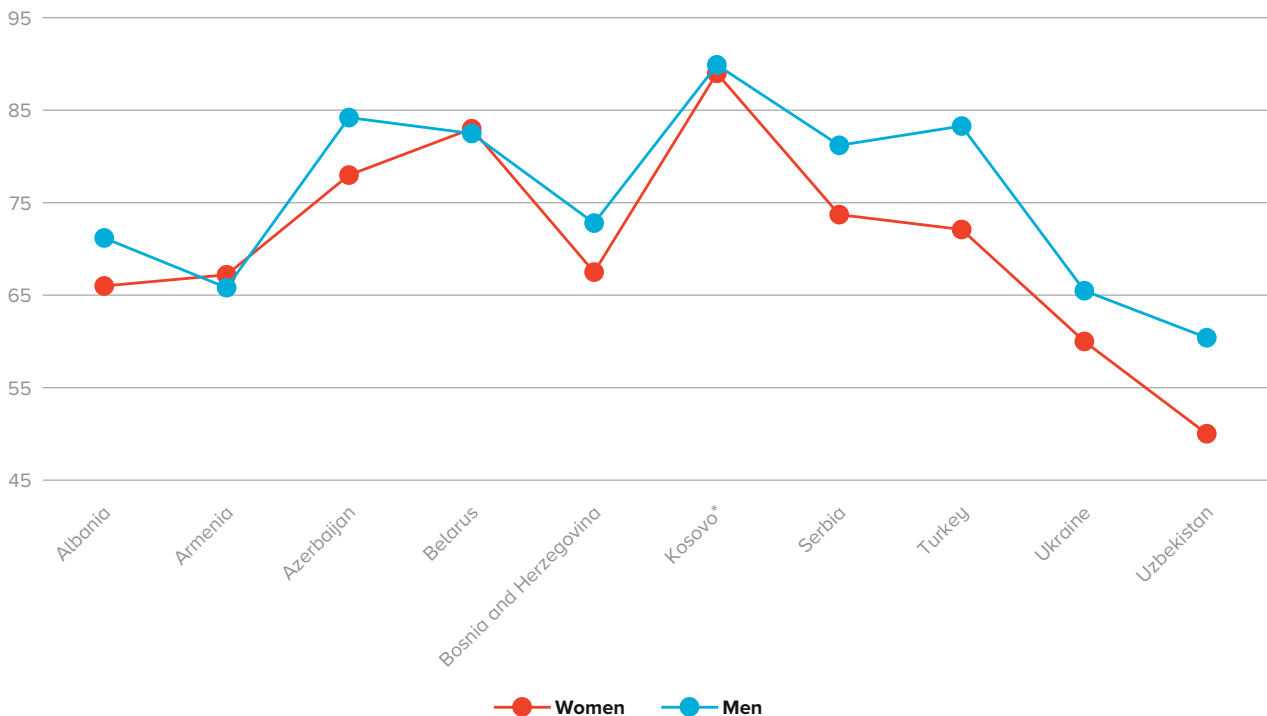
business to be a more viable option to participate in the labour market than traditional ones.<sup>8</sup> Women techpreneurs are also more likely to apply innovation skills in addressing challenges faced by other women, such as in the case of the Femtech healthcare movement.<sup>9</sup>

However, harnessing the benefits of ICTs for gender equality remains a challenge. Across low- and middle-income countries, 300 million more men than women have access to the mobile web, while women are eight percent less likely than men to own a mobile phone and 20 percent less likely to own a smartphone<sup>10</sup> — a crucial resource in

developing countries where phones provide access to safety, organizing networks, early warning systems, mobile healthcare, and money transfers.

In the ECA region, multiple factors underlie the gender digital divide which is emerging as an obstacle to women’s ability to adapt to the new world of work. With the exception of Armenia and Belarus,<sup>11</sup> the gender gap in the use of the internet is noticeable across the region, reaching a peak of 11 percent in Turkey (Figure 1),<sup>12</sup> and is often accompanied by lower frequency of computer usage and digital skills.<sup>13</sup>

**Figure 1: Women’s and men’s use of the internet (by percentage) in select ECA countries and territories**



Source: ITU (2021). *Individuals using the internet (from any location), by gender* (latest year available, no older than 2018; age scope of population varies across countries and territories).

It is important to interpret gender gaps in ICT use and access as symptoms of a spectrum of structural and social inequalities that cannot be addressed only by granting more access to internet or mobile technology to women and girls. While cultural norms and digital access vary across the ECA region, pervasive gender biases and stereotypes impede women and girls from benefiting fully from ICT opportunities. For example, even where ICT curriculum, resources, and mobile technology are available, girls and women may be less likely to access them due to gender norms, restrictions imposed by family members, and/or lack of support from family, teachers, and role models.<sup>14</sup> These barriers drive inequalities in access to technologies

and education supporting digital skill-building,<sup>15</sup> which are critical elements of job searches, self-training, and access to vital e-government services, to markets (to buy and sell goods and services), and to wider networks, including in sectors such as accommodation, retail, and food services, where women predominate.<sup>16</sup>

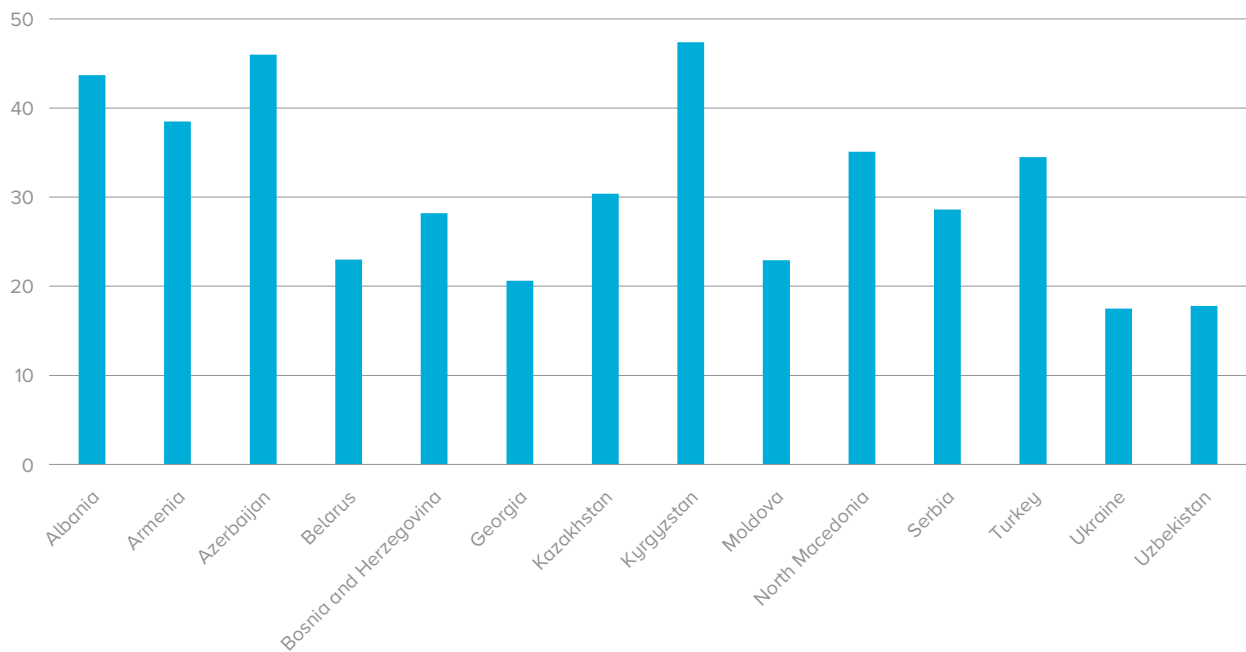
**Social and gender norms and barriers in education**

From early childhood, girls’ attitudes and aspirations are shaped by their contexts:<sup>17</sup> girls are more likely than boys to receive toys that indirectly encourage them to be passive and gentle rather

than active,<sup>18</sup> while teachers' biases may negatively impact children's education, for instance, through differentiated attitudes towards boys and girls (e.g., praising boys for their inquisitive minds and girls for being quiet).<sup>19</sup> These biases — together with a lack of family support and role models, exclusionary environments, and gender-blind (or gender-biased) curricula — can play a key role in defining gender roles and shaping girls' attitudes towards ICT, a field which has been dominated by men.<sup>20</sup> These factors likely contribute to women's

underrepresentation as students in and graduates of ICT programmes across the region (Figure 2). In Bosnia and Herzegovina, one in three girls report being discouraged by their families from choosing STEM subjects more broadly at university,<sup>21</sup> while in Ukraine 23 percent of women aged 15-24 report a lack of self-confidence as the main reason for not pursuing a career in technology, and 35 percent of women believe that dismantling harmful norms would encourage more women and girls to choose a career in this field.<sup>22</sup>

**Figure 2. Women graduates in ICT programmes (tertiary, as a percentage of total graduates)**



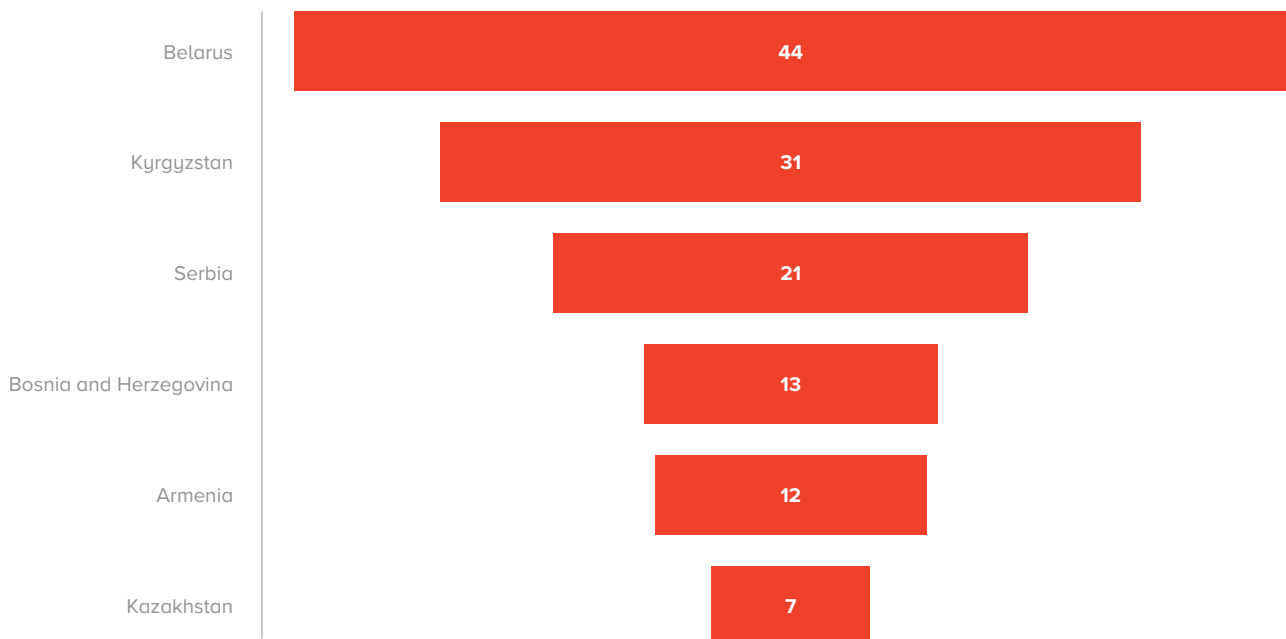
Source: World Bank, *Female share of graduates in Information and Communication Technologies programmes (tertiary, as a percentage of total graduates)*, most recent data available no older than 2014; data accessed in May 2021.

Initiatives to foster girls' involvement in tech can help to create a more inclusive and diverse ICT sector. In Bosnia and Herzegovina, the UN initiative [IT Girls](#) aims to get girls excited about technology by connecting them to women role models in the field, offering them a network of support, and providing fun and engaging coding programmes and competitions. [Technovation](#), a global nonprofit organization, channels the creativity and social responsibility of girls into innovative solutions for real-world problems.

### Barriers in the workplace

Data indicates that women's representation in ICT fields shrinks further throughout the career pipeline after graduation.<sup>23</sup> Along with gendered expectations of women's roles in the family and in caregiving, women are faced with men-dominated workplaces, the lack of flexible working environments, gender discrimination in pay and promotion to managerial levels (Figure 3).<sup>24</sup>

Figure 3. Gender pay gap (by percentage) in select ECA countries in the ICT sector



Source: ILO (2019). *Tech's persistent gender gap*.

Even in countries where the total number of ICT employees has increased over the past few years, women are poorly represented in the sector as, for example, in Armenia, where women account for only 32 percent of professionals.<sup>25</sup> In Turkey, women account for only 23 percent of ICT employees.<sup>26</sup> Kyrgyzstan fares better, where the share of women in the ICT sector has gone up from 28.2 percent to 36.3 percent over the past few years.<sup>27</sup>

Some countries in the region are working to build more robust and inclusive ICT ecosystems.<sup>28</sup> In

Moldova, the Government has supported ICT tools, access to investments and training programmes together with international stakeholders.<sup>29</sup> As a result, more women have been attracted to this sector and are benefitting from the opportunities offered by the ICT ecosystem.<sup>30</sup> In Azerbaijan, representatives from the Ministry of Transport, Communication and High Technologies have recognised that coordination between governmental institutions, academia, women's resource centers, the private sector, and non-governmental organizations is key to developing this ecosystem.<sup>31</sup>

## Recommendations

### A framework for change

Governments in the ECA region are adopting and implementing digital transformation strategies aimed at upgrading digital infrastructure, enhancing the design and delivery of e-services, and improving digital literacy to promote employment opportunities and economic growth.<sup>32</sup> To ensure that policies address the gender-differentiated impacts of digital transformation, it is of paramount importance that governance at local and national levels mainstream gender and include women on an equal footing with men in decision-making processes.<sup>33</sup>

Governments, academia, the private sector, and non-governmental organizations should partner to deliver comprehensive and multidimensional digitalization strategies that ensure women's inclusion at all levels. Coordinated actions among these different stakeholders in the ICT ecosystem are vital for inclusive and equitable policies that can help dismantle harmful gender norms and reduce gender inequalities in education and employment in ICT sectors.

### Analysis of sex-disaggregated data

Quality data disaggregated by sex and age that allows an informed gender analysis is a prerequisite to the design and implementation of gender-sensitive and inclusive digital strategies. National statistical systems and academia must receive the necessary support to generate, use, and make available disaggregated data. Advisory committees to relevant national or local authorities that include gender equality experts and women in the technology sector ecosystem can help governments integrate a gender-sensitive perspective during the inception of new programmes. Gender-equality advocates must also forge alliances with parliamentarians and local elected representatives — key actors in governance of ICTs — to ensure that gender-sensitive laws and policy are implemented and women are adequately represented at the table in ICT sectors.

### STEM education and digital literacy

In preparing girls and women for the workforce of tomorrow, educational systems are key to equipping students with a comprehensive STEM foundation and digital skills training that gives them the critical thinking and technical knowledge

needed for digital innovation and problem-solving. Some examples are targeted digital literacy initiatives to improve women's internet usage, training for teachers to deliver digital skills-related curricula that also include mentorship programmes and social networks of ICT professionals.<sup>34</sup>

In the Western Balkans, for instance, the RCC-UNDP Regional Network of Women in STEM aims at expanding education and working opportunities for women in STEM,<sup>35 36</sup> while the UNDP [STEM4All](#) online platform advocates for closing gender gaps in STEM through exchange of knowledge, information on education and training opportunities, and profiles of inspirational women in STEM fields in the ECA region.

Primary and secondary schools can help spark girls' interest in careers not traditionally considered for women in a particular country or regional context. Mandatory classes in ICT subjects can build confidence in girls who otherwise might not consider it a viable career option due to family or cultural biases. Requiring all secondary students to take ICT and programming classes can contribute to improving girls' digital skills, to encouraging them to choose ICT programmes at the tertiary level, and toward making them pursue careers in this field.<sup>37</sup>

Gender-mainstreaming ICT education — for example, by ensuring that curricula, textbooks, classrooms, and the presentation of role models and teachers adequately represent all genders, and do not reflect gendered cultural biases — is critical to making these subjects more welcoming to girls and boosting their self-confidence.<sup>38</sup> Additionally, there is evidence that incorporating both hard skills (e.g., programming) and big-picture content demonstrating technology's impact on society can make these classes more appealing to girls.<sup>39</sup>

Investments in education and training can also benefit adults. Upskilling and reskilling programmes are necessary for many women to transition to new forms of employment, as automation could displace 40 to 160 million women worldwide from their jobs by 2030.<sup>40</sup>

### Sustainable career pipelines

As the digital skills gap widens, it is harder to find qualified people for jobs. Once women have chosen to enter an ICT profession, retention and

advancement to leadership roles is a challenge, with consequences for inclusive growth and diversity in decision-making. Policymakers and business can work to incentivise gender-diverse leadership in the public and private sectors to prevent women from exiting the ICT sector altogether. Mentoring and leadership programmes, together with tax incentives and sanctions for companies failing to ensure gender balance in the workforce, can advance this agenda.<sup>41</sup>

Moreover, pay equity can be used to recruit and retain talent. Women face a median pay-gap of 21 percent in ICT fields, compared to 16 percent of the median pay-gap for the overall economy.<sup>42</sup> Pay transparency mandates can contribute toward improving workers' access to information — raising awareness of the disparities and discrimination in this growing and men-dominated sector and making it easier to enforce equal pay for the same work.

On the one hand, ICT offers women the flexible working arrangements that allow many of them to balance work and care responsibilities. On the other, in the absence of public policy and investment in social care infrastructure, women may be consigned to micro-businesses and low-skill and dead-end jobs in the technology sector. Workplace measures that reduce and redistribute women's unpaid care work (e.g., flexible working hours, switch-shifts, telework)<sup>43</sup> and employer- and state-funded provision of childcare services are crucial for women to have a chance to move up the digital skills ladder, avail themselves of job-specific ICT training and networking, and seize more remunerative employment opportunities.<sup>44</sup> In Turkey, for instance, the Borusan Group, the Ministry of Family and Social Policies, and the Ministry of Science, Industry and Technology have collaborated to open childcare facilities in industrial areas to facilitate women's greater participation in the labour market.<sup>45</sup>

### Supporting women's entrepreneurship

Women entrepreneurs face specific gendered challenges to growth and success, including bias, discrimination, and a lack of access to resources. Creating women-focused business mentorship networks, digital skills training, and financing opportunities for gender-sensitive ICT-related startups can greatly ease their paths. In many countries, NGOs and artisan cooperatives have launched e-commerce initiatives that link women directly to global markets through the Internet, as well as support their activities with market and production information, while e-commerce marketplaces are launching programmes to empower women entrepreneurs.<sup>46</sup> In Turkey, for instance, the e-commerce platform Hepsiburada launched the Technology Power for Entrepreneur Women Programme, and has initiated cooperation with the Union of Chambers and Commodity Exchanges of Turkey (TOBB) in order to offer e-commerce opportunities for nearly 8,000 women entrepreneurs and women's cooperatives by providing advertising and marketing support and free online e-commerce training.<sup>47</sup>

As part of the [Women Entrepreneurs Finance Initiative](#), the European Bank for Reconstruction and Development's "Stepping Up for Women" programme aims to help women entrepreneurs in Kyrgyzstan, Tajikistan, Uzbekistan, and other countries to weather the challenges deepened by the pandemic, by providing them with enhanced digital skills. In Armenia, [Accelerator #5 for women-led businesses](#)<sup>48</sup> was a 20-week programme with both programming and entrepreneurship components, and culminated in a five-day Hackathon and the opportunity to win funding to start their ventures.

## Conclusions

The digitalization of governance and economies, particularly as accelerated by the COVID-19 pandemic, has brought gender inequalities into sharper focus. At the same time, ICT can be an enabler for gender equality and women's economic empowerment. Policymakers, the private sector, civil society, and multilateral organizations must join forces to build an inclusive, robust ICT sector in the ECA region. This entails governments developing ICT policies with strong gender perspectives and in consultation with civil society and gender as well as ICT experts; ICT projects and programmes designed and delivered with gender equality strategies; and collecting and disseminating information with sex-disaggregated statistics and gender indicators on access to and use of ICTs in employment

and education. ICT/telecommunications policy must consider gender dimensions, including social gender norms, and ensure voice and representation of gender equality experts in decision-making to address the differential impact of telecommunications/ICTs on men and women.<sup>49</sup> All actors in the ICT ecosystem should arrive at a shared understanding of the implications of the gender digital divide and together foster enabling environments for women's ICT education, careers, leadership, and employment.

In conclusion, gender equality in ICTs is not merely about greater use of ICTs by women. It is at the core of transforming the ICT system to move toward a more equal post-pandemic future.

## Endnotes

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