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Women in the Information and Communication Sector in Armenia: A Policy Note

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A. Executive Summary

According to the International Telecommunication Union (ITU), while a leadership gender gap exists in all industries, it is most pronounced in STEM fields. Women in ICT are often relegated to junior or support roles with limited opportunities for advancement. They are less likely to hold executive positions, become ICT entrepreneurs, or be represented among science and technology policymakers.¹ The European Institute for Gender Equality further states that women face numerous hurdles in the ICT sector. Despite being more highly qualified than their male counterparts, women tend to occupy fewer senior positions. They are also constrained by housework and family care duties, which limit the time available for upgrading technical skills. Gender stereotypes further marginalize women and girls in this crucial and expanding field.² Notably, despite the global trend of significant gender gaps in STEM fields, Armenia stands out with a relatively low gender gap in ICT.

Over the last thirty years, information, and communication technology (ICT) has proven to be a powerful catalyst for economic advancement. It has become deeply integrated into nearly every facet of societal and national economies worldwide, spanning entertainment, commerce, education, weather forecasting, healthcare, government services, and various other spheres of activity.

Productivity growth, fundamental to enhancing living standards, is greatly propelled by investments in Information and Communication Technology (ICT), a phenomenon widely acknowledged in developed economies. However, the impact of ICT on growth in developing and emerging economies differs notably from that observed in developed nations. While constraints such as absorptive capacities and complementarity factors may limit the benefits of ICT investments in developing contexts, there exists a significant potential for these economies to overcome traditional productivity constraints through ICT adoption, as highlighted by Steinmueller (2001).³ Empirical evidence underscores the pivotal role of ICT in economic performance, demonstrating a causal relationship between ICT adoption and GDP growth rates across diverse country groups. Particularly in emerging and developing countries, the deployment of ICT yields unique benefits, including streamlined administrative processes, expanded access to information, and the facilitation of mobile money services, which are especially beneficial for micro and small enterprises. Despite these advantages, the prevailing consensus emphasizes the heightened impact of ICT on economic development in these regions, reaffirming its crucial role in fostering inclusive growth and prosperity.⁴

Armenia's Information and Communications Technology (ICT) sector stands at the forefront of the nation's drive towards digitalization, propelled by robust infrastructure and a thriving ecosystem for software services. Achievements in broadband and mobile penetration position Armenia as a regional digital leader. The sector benefits from tax incentives, streamlined procedures, and a skilled workforce, attracting foreign investment despite challenges like market size and geopolitical issues. Armenia's high score on the ITU's ICT Regulatory Tracker highlights its commitment to using technology for progress.

¹ <https://www.itu.int/women-and-girls/girls-in-ict/#:~:text=Women%20in%20ICT%20often%20find,among%20science%20and%20technology%20policymakers>

² https://eige.europa.eu/newsroom/news/getting-more-women-ict-major-opportunity-european-union?language_content_entity=en

³ <https://library.fes.de/libalt/journals/swetsfulltext/17160724.pdf>

⁴ <https://madoc.bib.uni-mannheim.de/37488/1/dp14117.pdf>

Strategic partnerships, the Digitalization Strategy, and international collaborations showcase Armenia's proactive approach to becoming a digital society. **In addition, programs aimed at addressing gender disparities, such as the Women Innovators (WIN) initiative and projects like "Generation AB" and the TUMO Center for Creative Technologies, reflect Armenia's commitment to fostering inclusivity and empowerment within its ICT sector.** Through these endeavors, Armenia is devoted to harnessing the transformative potential of ICT to drive economic growth and advance societal well-being.

The advancements in Armenia's ICT sector have not only strengthened the country's position as a hub for ICT expertise but have also generated notable improvement, particularly concerning the relatively low gender gap within the industry. Given the economic importance of the ICT sector, it is worth investigating the factors behind Armenia's advancements in this field. Key government policies and initiatives that have increased female participation in ICT deserve closer examination. Understanding these policies will provide insights into how Armenia has achieved a greater gender balance in ICT. Additionally, exploring the broader context and gender-specific dynamics will paint a comprehensive picture of the factors contributing to the low gender gap in Armenia's ICT sector. This analysis could offer valuable lessons for neighboring countries and contribute to a deeper understanding of gender dynamics within the industry.

B. The ICT Sector

B.1 Overview Of The ICT Sector In Armenia

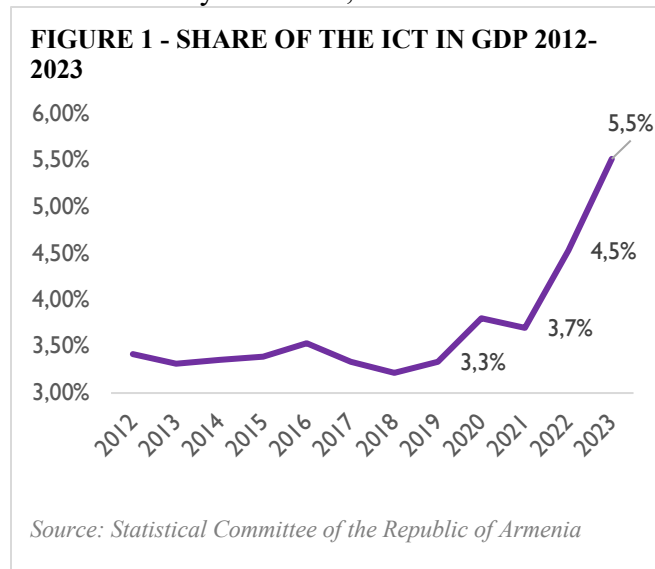
Armenia's Information and Communications Technology (ICT) sector has experienced significant growth, fueled by robust infrastructure development and a focus on software services. With notable achievements in broadband and mobile penetration, Armenia emerges as a leader in digital infrastructure in its region. The IT sector presents a promising landscape for businesses, offering attractive tax incentives, streamlined registration procedures, and access to a skilled workforce. Despite facing challenges such as limited market size and geopolitical constraints, Armenia's ICT industry continues to attract foreign investment and drive innovation, positioning the country as a competitive destination for tech ventures and entrepreneurial endeavors.

In 2020, Armenia's fixed broadband penetration stood at 14.5%, while mobile broadband penetration reached 83.5%. During the same year, there were approximately 4 million mobile connections, contrasting with around 588,000 fixed phone users recorded in 2018, a number that was on the decline⁵. Armenia demonstrates significant progress in broadband infrastructure, with 88% of Armenians residing within a 10 km radius of a fiber node, surpassing their counterparts in Georgia (53.1%), Kyrgyzstan (42.2%), and Kazakhstan (31%). However, it's essential to consider that 62.8% of Armenians reside in urban areas, potentially skewing the accessibility metrics. On the mobile front, coverage is exemplary, boasting 100% 4G and 3G availability, exceeding regional benchmarks. Furthermore, despite being a small population, Armenia's single Internet Exchange Point (IXP) suffices, consolidating its position as a frontrunner in

⁵ [Interalise. \(2021\). The Armenian ICT Ecosystem: Progress, Challenges And Opportunities In The Digital Landscape Of Armenia.](#)

digital infrastructure among its peers⁶. The increased availability of the above-mentioned infrastructure points to a growing ICT sector.

The primary focus of Armenia's ICT industry revolves around software development, web design, mobile application development, system design, and IT consulting services. In addition, the country has carved out a distinct specialization due to the presence of prominent electronic design automation firms in the region⁷. Despite facing market challenges, Armenia's ICT sector experienced remarkable year-over-year growth exceeding 30% in 2022 and the turnover in the IT sector grew by over 50% in 2022. The number of firms actively operating in the ICT space exceeds 3,000, employing more than 33,000 workers, and yielding more than one billion dollars annually⁸. In 2018, software services and internet service providers accounted for 7.4% of



Armenia's gross domestic product (GDP) of USD 12.4 billion, up from 3.6% of the country's GDP in 2013⁹. The GDP share of the ICT sector was about 3.3% in 2019 and increased to 5.5% in 2023 (FIGURE 1)¹⁰. According to data from the Enterprise Incubator Foundation, the ICT sector boasted over 900 companies in 2019, indicating an annual growth rate of approximately 10% compared to previous years. **However, the labor force within Armenia's IT sector remains constrained, prompting a significant influx of IT professionals from Russia following the onset of the war in Ukraine.** This influx presents an opportunity for Armenia,

particularly as the local education system struggles to produce an adequate number of IT specialists to meet industry demand.¹¹

Efforts to enhance skills within the ICT sector are evident through initiatives undertaken at all educational levels, starting from schools, as will be discussed later, but also through the efforts of universities and research institutions. Various local academic and research bodies have expanded their program offerings tailored to the ICT sector, aiming to ensure Armenia maintains a robust supply of highly qualified professionals. These institutions have forged partnerships with international collaborators, local industry associations, and major U.S. multinational corporations such as Microsoft, IBM, and National Instruments. Consequently, research laboratories and maker spaces have been established, primarily in Yerevan but also extending to secondary cities like Gyumri and Vanadzor.¹² These developments highlight

⁶ [Armenia: Digital Data, Resilience, and Policy Assessment](#)

⁷ [Armenia - Country Commercial Guide](#)

⁸ [INFORMATION AND COMMUNICATION TECHNOLOGIES - Enterprise In Armenia](#)

⁹ [How to ensure rapid development in the Armenian IT sector? EU4Digital highlights women as the key to growth](#)

¹⁰ [Statistical Committee of the Republic of Armenia](#)

¹¹ [Economic Report 2022 - Embassy of Switzerland in Armenia](#)

¹² [INFORMATION AND COMMUNICATION TECHNOLOGIES - Enterprise In Armenia](#)

the growing connections between local entities and U.S. universities and research institutions, illustrating an evolving network dedicated to fostering innovation and excellence within Armenia's ICT landscape.

Armenia emerges as a promising destination for companies seeking to establish or expand their presence in the IT sector, offering a conducive environment for entrepreneurship. Starting an IT business in Armenia is facilitated by streamlined business registration procedures, which can be completed swiftly, aided further by the option of online registration. The country extends attractive tax incentives, including a 0% corporate income tax rate for software development entities and a flat 10% tax rate for other IT firms. In addition, the government's provision of financial support through initiatives like the Innovation and Technology Fund and the Enterprise Incubator Foundation fosters the growth of IT startups and SMEs. Armenia boasts a skilled workforce, particularly in the IT domain, with universities emphasizing STEM education and offering relevant programs. Situated strategically between Europe and Asia, Armenia provides convenient access to both markets. **Furthermore, its competitive labor costs, averaging \$19-39 per hour, coupled with an average monthly salary of \$3300 for tech professionals, position it favorably for companies seeking cost-effective solutions¹³.**

Recent industry reports suggest that roughly a third of ICT firms in Armenia have some form of foreign ownership, with more than half of these foreign-owned entities originating from the United States. Interestingly, international companies contribute to approximately half of the sector's workforce, with foreign branches often serving as development centers for their parent companies¹⁴.

Despite the growing importance of the ICT sector in Armenia, the investment landscape faces obstacles. Challenges include Armenia's limited market size and its geographic isolation due to closed borders with Turkey and Azerbaijan. Efforts to combat corruption through ongoing updates to laws are underway. Furthermore, the financial sector is perceived as underdeveloped by investors. Concerns have been raised, notably by US representatives, regarding the quality of dialogue and consultation between the private sector and the government, highlighting potential areas for improvement. **The ICT sector is also impacted by systemic challenges within the business environment, including insufficient competition and transparency, restricted access to financing, and burdensome tax and customs procedures.** These factors collectively hinder the sector's growth potential¹⁵. Moreover, despite the notable growth of the ICT sector, it has yet to lead in driving innovation due to a lack of necessary skills and resources for specialized technology activities¹⁶. **The gender divide is another pressing issue in Armenia's ICT sector, yet the country performs notably better compared to the world average and neighboring countries in maintaining a low gender gap within the field.**

Reflecting on the achievements highlighted in this section, such as Armenia's improving ICT infrastructure and its status as a competitive destination for tech ventures, it's plausible to consider how these factors may have influenced women's representation within the industry. **In addition, the presence of a significant number of foreign-owned companies in Armenia's ICT sector could have played a role in fostering a more inclusive environment for women.** These companies often bring diverse perspectives and best practices regarding gender equality from their home countries, which could positively impact workplace

¹³ [The Armenian IT Industry: General Country Overview](#)

¹⁴ [INFORMATION AND COMMUNICATION TECHNOLOGIES - Enterprise In Armenia](#)

¹⁵ [INFORMATION AND COMMUNICATION TECHNOLOGIES - Enterprise In Armenia](#)

¹⁶ [The Impact of COVID-19 on trade and structural transformation in Armenia](#)

culture and opportunities for women in the ICT field. In addition, the government's efforts to foster entrepreneurship and innovation through initiatives like the Innovation and Technology Fund and the Enterprise Incubator Foundation may create more opportunities for women to enter and thrive in the ICT sector. The subsequent section "Women in Armenian ICT sector" will explore these dynamics to gain a comprehensive understanding of the challenges and opportunities faced by women in this field.

B.2 Women In Armenian ICT Sector

As the ICT sector has emerged as a key driver of economic growth within Armenia, it offers a promising avenue for women to emerge as leaders in innovation and contribute significantly to the nation's overall economic development. **Gender dynamics within Armenia's ICT sector reveal both progress and persistent challenges.** Despite significant strides, women remain underrepresented in technical roles, comprising only a fraction of the workforce in areas such as engineering and industry. **However, recent studies highlight a growing trend towards increased female participation, supported by initiatives aimed at bridging the gender gap in STEM education and entrepreneurship.** Notably, Armenia surpasses global averages in women's enrollment in STEM programs and boasts a higher proportion of women in its tech workforce compared to the worldwide figure. Yet, issues such as the gender pay gap and cultural barriers continue to hinder achieving full gender parity.

Anna Pobol, an EU4Digital ICT innovation expert, highlights the importance of increasing women's involvement in the ICT sector, explaining that it can stimulate the economy by introducing complementary skills and enhancing productivity. Citing an IMF study, Pobol notes that women's participation can yield greater economic benefits than an equivalent increase in male employees. However, women in the Eastern Partnership region face challenges such as unequal distribution of household responsibilities. Pobol emphasizes the need for special programs to support women in ICT through awareness, digital skills promotion, and business guidance.¹⁷ While Armenia's ICT sector is growing, it remains predominantly male. According to the latest Enterprise Incubator Foundation's IT Industry Report (2018), the sector registered 19,522 employees, marking a 27% increase from the previous year. However, a striking 68% of professionals in the industry are male, a figure that has changed little since 2013 when it was 69%. This persistent gender imbalance underscores the unexploited opportunities and potential for growth in the sector.¹⁸ A recent study by UN Women (2021) underscores the emerging and progressively increasing presence of women in Armenia's Information and Communication Technologies (ICT) sector.¹⁹ A 2021 study conducted by Interlialise, commissioned by the Embassy of the Netherlands and the Dutch Enterprise Agency, further highlights the gender dynamics within Armenia's ICT sector. **Approximately 41% of the workforce in this sector comprises women, with a total of 15,000 individuals directly employed and an additional 25,000 indirectly employed.**²⁰ This is significantly higher than the global average representation of women in this sector (20%).

While data from the Labor Market Survey reveals some year-to-year fluctuations, the overall trend suggests a positive trajectory. **Notably, the share of women in the ICT workforce peaked at 44.0% in 2020, subsequently experiencing a decline to 36.6% in 2021, before rebounding to 40.3% in 2022** (FIGURE

¹⁷ [How to ensure rapid development in the Armenian IT sector? EU4Digital highlights women as the key to growth](#)

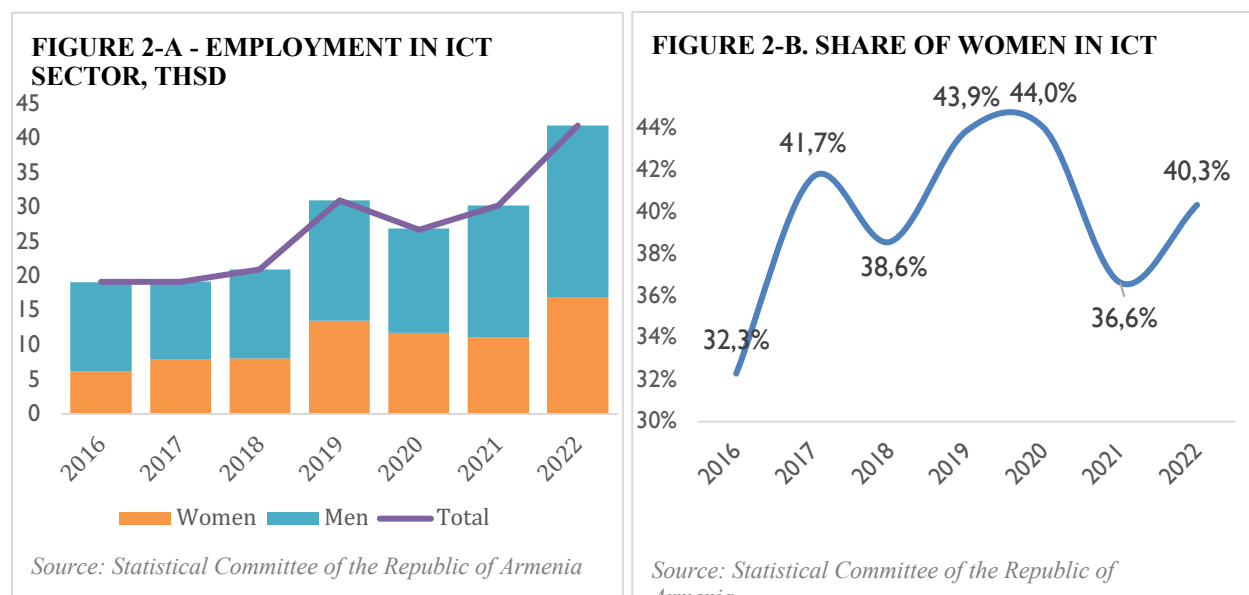
¹⁸ [Report on the State of the Industry](#)

¹⁹ [Women's Economic Empowerment in Armenia - UN Women 2021](#)

²⁰ [Interlialise \(2021\). The Armenian ICT Ecosystem: Progress, Challenges And Opportunities In The Digital Landscape Of Armenia.](#)

2). Data also reveals that the growth rate of employment in this sector is higher for women than for men. It should also be noted that the number of women employed in ICT decreased in 2020 and 2021 years, but it increased by 52% in 2022.²¹

Armenia also stands out for its remarkable representation of women in the biotech and IT sectors. According to the Armenian Bioinformatics Institute, an impressive 60% to 70% of professionals in Armenia's biotech industry are women. This figure is notably higher than the estimated 47% global average for women in biotech companies. Moreover, Armenia boasts a relatively high percentage of women



in the IT sector, surpassing the global average.²² **Women represent 38% of technical specialists in IT companies, underscoring their increasing participation in this domain.**²³ They actively participate in the field of IT, engaging in business and marketing functions and as game developers, programmers, and quality assurance engineers. Within university settings, women are on par with men in terms of both enrollment numbers and proficiency levels.²⁴ **At the universities IT departments 50-60% of applicants are women.**²⁵

With about 40% female representation in the ICT workforce compared to the global average of 20%, Armenia's commitment to gender diversity in these fields is evident. However, despite this progress, a gender pay gap persists in this sector, with women earning 37.4% less than their male counterparts according to Armstat (2022).²⁶ There is a significant gender gap among entrepreneurs also, only 11% of leaders in the ICT sector are women.²⁷ **Unequal opportunities for women in employment and entrepreneurship continue to hamper Armenia's economic potential, resulting in a loss of up to 14% of its GDP as estimated by the World Bank.** Recognizing this challenge, USAID has played a role in

²¹ [Government of Armenia, Statistical Committee. Labor Market Surveys 2018-2023](#)

²² [In Armenia's biotech boom, remarkable women are leading the way - 2022](#)

²³ [Women's Economic Empowerment in Armenia - UN Women 2021](#)

²⁴ <https://itis.am/womenintech/eng>

²⁵ [In Armenia's biotech boom, remarkable women are leading the way - 2022](#)

²⁶ [Women's Economic Empowerment in Armenia - UN Women 2021](#)

²⁷ [Key policy developments in education, training and employment - Armenia 2023](#)

supporting female Armenian IT entrepreneurs through various initiatives, including the establishment of innovative technology centers aimed at fostering female leadership and empowerment.²⁸

The 2018 survey by the Enterprise Incubator Foundation further showed that even though women’s engagement in the ICT sector is high compared to the world’s average, they are underrepresented compared to men in technical and leading roles, with 68% of these positions occupied by men. They are largely absent from internet governance processes, resulting in their needs being overlooked. The internet governance field is predominantly male-dominated, leading to a lack of attention to online harassment and gender-based violence issues. According to the report by the EU for Armenia, annual Internet Governance Forums fail to address and completely overlook these issues; there is also a gap in legislation.²⁹

Cultural factors contribute to this imbalance, as many women opt out of technical roles. Significant gender disparities persist in tertiary education enrollment, shaped by entrenched stereotypes guiding career choices. **Women dominate arts, history, and social sciences, but in the ICT sector, they comprise only 35% of students in first-degree educational programs and about 28% in middle vocational educational institutions.** Engineering sees a mere 10% female enrollment, while industry and technology have 22% female students. The education system's failure to adapt to evolving skill demands exacerbates this gap, especially in limited vocational training opportunities. The number of vocational programs in this area remains small, with female participation lagging behind males.³⁰ However, the lure of competitive salaries in the IT sector appears to be incentivizing greater female participation, signaling a positive trend toward gender parity in Armenia's burgeoning IT landscape.³¹

Despite the challenges previously discussed, it's worth noting the significant presence of women in some of the leading Armenian ICT-related companies. Armenia is becoming known for its emerging technology startups, many of which are led by women entrepreneurs, some of whom are under 30 years old. Notably, Digital Pomegranate is recognized as a leading Flutter development agency globally, with a notable gender balance: 50% of its employees and 70% of top management are women. **Synopsys-Armenia, the largest office outside the U.S., stands out as a notable IT employer with over 650 staff, among whom 33% are women.** **DASARAN, a cloud-based Educational Development System, recognized among the world's top 5 social enterprises by UNDP, boasts an impressive 72% female workforce.** **WeDoApps, a premier web and mobile application development company, showcases gender inclusivity with 50% of its top managers and employees being women.** **Similarly, PicsArt, a renowned photo and video editing app, prides itself on having a workforce where women make up 51%.**³² This incomplete selection of ICT-related companies reflects Armenia's journey toward fostering diversity and innovation in its tech ecosystem, with the hope of encouraging more women to pursue leadership roles in the industry.

Women's participation in the ICT sector can be increased by supporting their involvement in the STEM fields, by creating incentives for women’s entrepreneurship in the digital economy, and by

²⁸ [Interalise. \(2021\). The Armenian ICT Ecosystem: Progress, Challenges And Opportunities In The Digital Landscape Of Armenia.](#)

²⁹ [Country Gender Profile: Armenia - 2021](#)

³⁰ [Women's Economic Empowerment in Armenia - UN Women 2021](#)

³¹ [Interalise. \(2021\). The Armenian ICT Ecosystem: Progress, Challenges And Opportunities In The Digital Landscape Of Armenia.](#)

³² [Armenia’s Women Tech Trailblazers Are Forging New Horizons 2020](#)

engaging ICT companies to support women’s employment. Armenia stands out globally for its notable representation of women in the technology sector and its significant presence of female researchers in STEM fields. According to UNESCO data, while the average worldwide enrollment of women in STEM-related programs at the tertiary level is 28%, Armenia surpasses this with an impressive enrollment rate of 44%. **In the tech sector, Armenia boasts a higher proportion of women employees compared to the global average, with Forbes reporting that 30% of the country's tech workforce is female, exceeding the worldwide figure of 20%.** Moreover, there has been significant progress in academia, as evidenced by the shift in enrollment rates for doctoral degrees. From 2007, where male enrollment predominated at 81.3% compared to 18.8% for females, there has been a substantial change. **By 2022, women now constitute 52% of enrolled students, indicating a positive trend toward gender parity in higher education and research in Armenia.**³³

C. Policies And Initiatives

The comprehensive efforts in Armenia, encompassing government initiatives, educational empowerment programs, workforce development activities, strategic partnerships with foreign governments and multinational corporations, and women's empowerment initiatives, create a strong foundation supporting the relatively high participation of women in the ICT sector. Some efforts are directed specifically towards women's inclusion, while others focus on enhancing the ICT sector itself, potentially creating positive spillover effects by encouraging greater female engagement. The multifaceted strategy not only aims to enhance the ICT industry itself but also promotes greater inclusivity by empowering women. Government initiatives and international collaboration improve regulatory frameworks and digital infrastructure, creating more opportunities for women. Simultaneously, investments in ICT education address skill gaps, fostering a diverse talent pool. Workforce development programs like the Armenia Workforce Development Activity prioritize gender equality, providing tailored support. Additionally, initiatives like Girls In Tech Armenia actively promote diversity and leadership, driving Armenia towards a more gender-inclusive tech ecosystem. The subsequent subsections in this section will be organized as follows: first focusing on government efforts and international cooperation, followed by improvements in ICT education, advancements in the ICT workforce, and finally, specific initiatives for women's empowerment in the tech field.

C.1 Government Efforts And International Cooperation

Strengthening regulatory frameworks and increasing digitization rates can potentially improve opportunities for women's employment in the ICT sector, contributing to gender diversity and inclusivity in Armenia's growing digital landscape. The ITU’s ICT Regulatory Tracker is an essential tool for policymakers and regulators, aiding in understanding the rapid changes in ICT regulation. In 2020, Armenia scored 88.5 on this tracker, placing it in the fourth generation (G4) of regulation, focused on integrated regulation for economic and social goals. There's a positive correlation between the tracker score increase and digitization rates. In the 2021 ITU G5 Benchmark Report, Armenia's strengths in **national collaborative governance** are highlighted, which marks a fundamental shift in the way regulation is

³³ <https://fast.foundation/en/program/7264/2024/general-information>

executed, its holistic policy ground and the stakeholders that it brings together, demonstrating its commitment to inclusive digital development³⁴.

Armenia's ICT-focused institutions hold significant roles in shaping policies and regulations for the nation's digital landscape. The Ministry of High-Tech Industry (MHTI) serves as the primary governmental entity responsible for crafting and implementing policies concerning communication, information technology, and security. Similarly, the Public Services Regulatory Commission (PSRC) functions as an independent regulatory body overseeing electronic communications and broadband sectors. The PSRC collaborates with both the MHTI and other state bodies on matters such as consumer protection, cybersecurity, and privacy.

By establishing crucial strategies, councils, and foundations dedicated to ICT development, Armenia is laying the groundwork for a more inclusive industry. The focus on improving IT education, supporting startup ventures, and empowering youth and women through workforce development activities demonstrates a commitment to diversity and inclusion. Since 2001, Armenia has made significant strides in becoming a key hub for Information and Communication Technology (ICT) in the region. This progress has been driven by collaborative efforts involving the Armenian Government, the World Bank, and USAID. Key initiatives such as the ICT Master Strategy and ICT Development Implementation Plan have been instrumental in advancing the IT sector. The establishment of the Information Technologies Development Support Council of Armenia (ITDSC) has served as a crucial link between the government, private sector, and Armenian diaspora. The Enterprise Incubator Foundation, created in collaboration with the World Bank, has supported the growth of the IT industry. A comprehensive 10-year industry development strategy was adopted in 2008, emphasizing Armenia's commitment to building robust infrastructure, improving IT education, and fostering a conducive environment for startups. Joint initiatives between USAID, EIF, and ANAU have resulted in the Armenia Workforce Development Activity, focusing on empowering youth and women in various sectors, including ICT/high-tech, agriculture, and hospitality. The establishment of the National Supercomputing Center in 2022 underscores Armenia's commitment to enhancing its competitiveness in the high-tech sector through innovative solutions in High-performance Computing (HPC), Cloud computing, Big data, large-scale data analytics, and Artificial Intelligence.³⁵

The Armenian government has long recognized the importance of advancing its ICT sector, as evidenced by its strategic partnerships with foreign governments and multinational corporations, indicating a steadfast commitment to transitioning towards a digital society. This commitment was underscored by the ratification of the country's Digitalization Strategy. The strategy aims to revolutionize governmental operations, economic activities, and societal norms through innovative technologies, robust cybersecurity measures, and efficient e-government systems. Simultaneously, the government is actively implementing its Digitalization Strategy for 2021-2025 in collaboration with international donors, with a significant focus on potentially adopting a National Strategy for Broadband Communication. This strategy is envisioned to serve as a comprehensive blueprint for enhancing digital equality by setting multi-year objectives for fixed and mobile broadband access, adoption, and utilization, thereby ensuring accountability for both the government and stakeholders in achieving these goals.³⁶ The Government Program for 2021-2026 outlines ambitious goals to elevate the ICT sector's share to a range of 5-6% in the coming years. To

³⁴ [Armenia: Digital Data, Resilience, and Policy Assessment](#)

³⁵ https://pdf.usaid.gov/pdf_docs/pnaca739.pdf

³⁶ [Armenia: Digital Data, Resilience, and Policy Assessment](#)

bolster the high-tech industry, the government has established technology centers, innovation districts, and free economic zones. In addition, **tax privileges serve as incentives for startups. Furthermore, the government has implemented various supportive measures such as grants, study tours, educational programs, and the creation of an investment fund to nurture high-tech ventures.** In 2022, over 1,000 startups have already benefited from significant tax incentives, underscoring the government's dedication to fostering innovation and entrepreneurship within the IT sector³⁷.

C.2 Empowering ICT Education In Armenia

In Armenian legislation, there is a specific focus on ICT implementation at schools. Under the 2009 Law on General Education, the Ministry of Education, Science, Culture, and Sports (MoESCS) oversees educational technology integration. Established in 2004, the National Centre for Educational Technologies (NCET) leads efforts to modernize facilities, enhance teacher training, and promote digital literacy. NCET focuses on equipping schools with computers, establishing networks, and providing internet connectivity, along with managing distance education and a unified educational data database. The Information Systems Management Board, chaired by the Deputy Prime Minister, coordinates national digital transformation, reviewing and approving digital projects. ICT implementation mostly aligns with strategic priorities in documents like the Government Programme for 2021-2026 and the State Program for Education Development till 2030, and is integrated into annual State Budget Programs. NCET, in collaboration with MoESCS, plans, monitors, and reports on these initiatives.³⁸

Despite legislative efforts, the number of ICT graduates remains low in Armenia. The number of ICT graduates per 1,000 people in Armenia is 0.38, which is low, despite exceeding the world average of 0.32 and the world average in the field of STEM is 0.36 against Armenia's 0.6.³⁹ **According to the Ministry of Education and Culture, only 5 universities offer AI-related degrees, constituting a mere 0.8% of the total number of programs, with AI-related programs, including mathematics and computer science, accounting for about 9%.** According to the 2018 state industry report about the Armenian ICT sector, about 10.8% of the total student number of students at Armenian universities were enrolled in programs related to informational and high-tech specializations.⁴⁰

Advancing ICT education and increasing the number of related programs can help bridge this gap, offering more women the chance to participate and excel in the sector. To address this, local universities and research institutions have partnered with international collaborators, industry associations, and major U.S. corporations. Various programs have been launched to enhance technological knowledge in Armenia, which can also promote greater gender diversity in ICT. **Initiatives like the TUMO Center for Creative Technologies stand as pillars of innovation in ICT education, offering a beacon of hope in addressing the challenges faced by the sector.** TUMO's tuition-free program empowers teenagers to take charge of their learning journey through a blend of self-directed activities, workshops, and project labs, fostering a dynamic learning environment. This approach not only equips students with essential ICT skills but also

³⁷ [Economic Report 2022 - Embassy of Switzerland in Armenia](#)

³⁸ <https://education-profiles.org/northern-africa-and-western-asia/armenia/~technology#2.1>

³⁹ <https://fast.foundation/en/program/4379/2023/general-information>

⁴⁰ <https://www.eif.am/files/2595/Armenian-IT-Industry-Report-/EIF-ICT-ENG-2019.pdf>

cultivates a mindset of innovation and global citizenship. TUMO's recent recognition by organizations like HundrED underscores its pivotal role in shaping the future of education in Armenia.⁴¹ It particularly plays a role in closing the gender gap in ICT by providing early exposure to technology to all, including women.

Meanwhile, the "Generation AI" project, launched in 2023, heralds a new era in Armenia's educational landscape. With a focus on reshaping the educational trajectory in artificial intelligence (AI) from secondary to doctoral levels, Generation AI aims to meet the demands of the evolving IT sector while promoting inclusivity and challenging stereotypes. By intervening in high schools and fostering innovation across educational levels, this initiative represents a significant step towards unlocking Armenia's potential as a tech leader, with a focus on building a diverse and skilled workforce.⁴²

In parallel, DASARAN, established in collaboration with the Ministry of Education and Science and the Yerevan Municipality, is revolutionizing public education in Armenia. Through its cloud-based educational system and e-learning portal, DASARAN provides equal access to quality resources and fosters ICT skills from an early age. By supporting over one-third of Armenia's population in K-12 education, DASARAN reshapes the public education landscape, promoting evidence-based decision-making and enhancing student performance.⁴³

Efforts in Armenia to enhance ICT education, particularly in schools, aim to provide equal opportunities for all and close the gender gap in the sector. Initiatives such as the TUMO Center for Creative Technologies and the "Generation AI" project prioritize expanding access to technology education for everyone, including women, to promote a diverse and inclusive tech workforce. Collaborations with international partners and programs like DASARAN further this goal by offering equal opportunities for individuals of all genders to excel and contribute to technological progress in the country.

C.3 Armenia's ICT Workforce Development Initiatives

Armenia's infrastructure plays a pivotal role in fostering gender equality within the ICT sector, leveraging initiatives such as the Armenia Workforce Development Activity and the Engineering City. The Armenia Workforce Development Activity, a collaborative effort funded by USAID and led by the EIF, ANAU Foundation, FAR, and Civitta Armenia, targets the enhancement of vocational skills among Armenian youth, with a keen focus on empowering women. Launched in October 2021, this five-year initiative aims to equip 10,000 individuals aged 15 to 29 with essential skills demanded by the contemporary labor market, particularly in key sectors like ICT/high-tech. The Activity not only enhances employment prospects for participants but also actively promotes gender inclusivity within the workforce. Through partnerships with TVET institutions, higher education establishments, and private sector entities, the Activity assesses existing educational curricula to pinpoint disparities between skill offerings and labor market requisites, subsequently refining educational programs and implementing Training of Trainers (ToT) initiatives.⁴⁴ These efforts ensure that educators are equipped to bridge skill gaps adeptly, thereby fostering a more gender-inclusive ICT workforce in Armenia.

⁴¹ <https://tumo.org/one-of-100-innovators/>

⁴² <https://fast.foundation/en/program/4379/2023/general-information>

⁴³ <https://www.dasaran.net/landing/projects>

⁴⁴ <https://www. EIF.am/eng/projects/awda/>

Furthermore, the Engineering City emerges as a cornerstone in Armenia's infrastructure landscape, focused on serving as a hub for local firms, startup incubation, and cutting-edge technology access. Operating as a Public-Private Partnership between the Government of Armenia and a Consortium of Private Companies, the Engineering City Project exemplifies effective collaboration aimed at fostering innovation and entrepreneurship. While not explicitly gender-oriented, initiatives like hackathons hosted at the Engineering City provide platforms for addressing gender-based issues, showcasing the potential for gender-sensitive solutions within the tech landscape.

The Virtual Training of Trainers on Women ICT Frontier Initiative, a collaborative effort between the Asian and Pacific Training Centre for ICT for Development (APCICT/ESCAP) and the Public Administration Academy of the Republic of Armenia (PAARA), was designed to bolster the instructional capacities of trainers within Armenia regarding the Women ICT Frontier Initiative (WIFI). WIFI represents a regional endeavor aimed at advancing women's entrepreneurship in the Asia-Pacific area by cultivating competencies in information and communication technology (ICT). Through a series of virtual training sessions, participants were equipped with the requisite knowledge and tools essential for effectively educating women entrepreneurs on harnessing ICT for enhanced economic productivity and business prosperity. The WIFI program endeavors to introduce and underscore the pivotal importance of ICT capacity development for women entrepreneurs across diverse stakeholder groups, including governmental entities, educational institutions, civil society organizations, and women entrepreneur associations.⁴⁵

Through these concerted efforts in infrastructure development and program implementation, Armenia is poised to narrow the gender gap in the ICT sector, as the ICT sector is characterized by accessible opportunities to broaden their skill set, which will pave the way for a more inclusive and diverse workforce in the digital age.

C.4 Women's Empowerment In Tech In Armenia

Armenia is experiencing a notable rise in initiatives aimed at empowering women in the technology sector. These efforts, driven by a commitment to inclusivity and progress, are fostering a supportive environment for women in tech and addressing critical needs within the community. Through various programs and initiatives aimed at specifically empowering women, Armenia's tech ecosystem is evolving towards greater diversity and opportunity for all.

Girls In Tech, Armenia, is a dynamic chapter of the global non-profit organization committed to dismantling gender barriers within high-tech industries and startups. With a membership base of 200 and a broader network of over 1,000 girls and women, they aim to cultivate a supportive community for women navigating the tech industry in Armenia. They envision an environment where women can thrive, addressing the isolation often experienced in male-dominated fields. By connecting locally and tapping into a global network of more than 70,000 individuals, our chapter provides a unique platform for collaboration, skill-building, and mentorship. Through initiatives such as AMPLIFY, and the GITA startup pitch competition, they have successfully funded, mentored, and supported over 4,000 entrepreneurs. In addition, they have hosted a Hackathon series, with participation from 49,000 individuals, addressing both local and global problems. Furthermore, their coding, design, and startup Bootcamps have engaged over 75,000

⁴⁵ https://www.unescap.org/sites/default/d8files/event-documents/Concept%20Note%20and%20Programme_43.pdf

participants, significantly contributing to the advancement of Armenia's tech ecosystem, and fostering a more inclusive environment for women in technology.⁴⁶

FemInno, an organization with over six years of experience in empowering women in the technology field, builds on the legacy of Girls In Tech Armenia to establish Armenia as a new innovative hub for female talent and leadership. With a proven track record of over 50 successful projects and campaigns, FemInno is committed to promoting female talent and empowerment across various activities, targeting education as a key pathway, and advocating for diversity and inclusion from an early age⁴⁷. Despite the challenges posed by ongoing conflicts and disasters, such as the recent events in the conflict region, FemInno remains steadfast in its commitment to empowering women and girls. Initiatives like the DIGITAL PROGRAM FOR ARTSAKH WOMEN provide comprehensive support to vulnerable groups, including direct financial assistance, digital upskilling/reskilling, and job support and integration for those affected by the crisis.⁴⁸ **Furthermore, projects like TechBoost4Women extend this support to vulnerable groups, including those displaced by war and the families of fallen soldiers, equipping them with essential digital skills and pathways to economic empowerment.**⁴⁹ Furthermore, programs like STEMpower Girls Armenia⁵⁰ aim to cultivate interest in science and technology among young girls through traveling science camps and community-based projects, while "Her STEM story"⁵¹ highlights the success stories of women and girls in STEM fields, contributing to the growth of confidence among young girls and emphasizing the role of women in science and technology. Through these multifaceted initiatives, FemInno continues to make significant strides in empowering women and fostering innovation in Armenia's tech ecosystem.

The surge of initiatives aimed at empowering women in Armenia's ICT sector signifies a transformative shift towards inclusivity and progress. These efforts are not only fostering a supportive environment for women in tech but also addressing critical needs within the community. Through diverse programs and initiatives, Armenia's ICT ecosystem is evolving towards greater diversity and opportunity for all. **Whether through Girls In Tech Armenia's mentorship and skill-building initiatives or FemInno's commitment to promoting female talent and empowerment in technology, the path toward a more inclusive and innovative future in Armenia's ICT sector is becoming increasingly promising.** As these organizations continue to empower women and foster innovation, the ICT landscape in Armenia is poised for continued growth and advancement.

D. Conclusion And Recommendations For Neighbouring Countries

Armenia's journey in empowering women within the ICT sector serves as an inspiration for neighboring nations, notably Georgia and Azerbaijan. Despite facing various obstacles, Armenia has forged ahead with determination, leveraging innovative initiatives and strategic partnerships to elevate women's roles in technology. The concerted efforts of organizations like Girls In Tech Armenia and FemInno have created

⁴⁶ <https://armenia.girlsintech.org/about/>

⁴⁷ <https://www.feminno.com/our-story>

⁴⁸ <https://www.feminno.com/digital-program-for-artsakh-women>

⁴⁹ <https://www.feminno.com/techboost4women>

⁵⁰ <https://www.feminno.com/stempowergirlsarmenia>

⁵¹ <https://www.feminno.com/her-stem-story>

nurturing environments where women can flourish, offering not only skill-building opportunities but also platforms for networking and mentorship.

Expanding on this foundation, Georgia and Azerbaijan can embark on similar paths of progress by establishing robust support networks tailored to the needs of women in technology. These networks can serve as catalysts for change, fostering a sense of belonging and empowerment among female professionals in the ICT sector. By providing access to resources, mentorship programs, and advocacy platforms, these networks can help bridge the gender gap and cultivate a more inclusive tech ecosystem.

Investment in STEM education lies at the core of building a sustainable pipeline of female talent in technology. Both Georgia and Azerbaijan can take cues from Armenia's approach and prioritize initiatives aimed at encouraging girls to pursue careers in STEM fields from a young age. By offering equal access to quality education and fostering a culture of innovation and curiosity, these nations can inspire the next generation of female tech leaders.

Moreover, promoting female entrepreneurship is key to driving innovation and economic growth in the ICT sector. **Georgia and Azerbaijan can emulate Armenia's WIN initiative by creating supportive environments for women-owned tech startups.** By providing funding, mentorship, and networking opportunities, governments can empower women entrepreneurs to turn their ideas into successful ventures, thereby contributing to job creation and economic development.

Policy support and regulatory frameworks are crucial enablers of gender equality in the ICT sector. Georgia and Azerbaijan can learn from Armenia's experience in implementing policies that address the gender pay gap, support women-owned businesses, and promote women's representation in leadership roles within tech companies. By enacting legislation that fosters diversity and inclusion, governments can create an environment where women feel valued and empowered to thrive in the technology industry.

Lastly, fostering collaboration between government, private sector, and civil society organizations is essential for driving meaningful change. **Georgia and Azerbaijan can follow Armenia's lead in establishing public-private partnerships that support initiatives like workforce development programs and capacity-building initiatives for women in technology.** By working together towards common goals, stakeholders can leverage their collective expertise and resources to create lasting impact and drive sustainable growth in the ICT sector.

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