

Women's power in Cybersecurity

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Introduction

In the contemporary world, Cybersecurity is and has been an increasingly important topic, especially in conditions when the threats of terrorism are rising. Cybersecurity has raised concerns of national security; therefore, it became a part of the state's defense policies. Today gender equality and emancipation is undoubtedly the main goal of our society. Women and men are allies in each and every field, so cybersecurity is not an exception. Nowadays, women are making great technological advances, and men extending full support wherever it is needed. The involvement of females in security issues is becoming more and more crucial and consequently, their role is growing. This is caused by many factors, including the stereotypes and myths that prevail in modern society. Additionally, at present security and defense tendencies are changing, so there is quite increased demand from the government and private sector on cybersecurity workers to create and protect their critical infrastructure and information. Cyberspace is an area where lots of prominent barriers, such as misconceptions and stereotypes are faced to females and their abilities. All of this is even more motivating for women to present themselves in the open arena and break every misconception. As a rule, women are not considered competitive in many fields and, moreover, sometimes men try their best to overshadow them. However, hackers, programmers, or cybersecurity experts agree that there is no gender in the cyber industry. They suggest that the key in this field is quick wit and creativity. This perception differs in society because through the rapid dissemination of information and continuous delivery, people are easily influenced, which leads to the formation of a common public opinion. Nevertheless, today, based on international practice and following world statistics, we can confidently say that the involvement of women in the field of cybersecurity is high and is developing with positive dynamics. Women have repeatedly shown their strength in this regard and in the article, their achievements and successes will be discussed.

The aim of this essay is to define the role of women in the field of cybersecurity, the importance of their involvement in security issues, and also, to demonstrate what challenges and perspectives are the main- women face in the field of cybersecurity. In order to provide a holistic view of the challenges in increasing female representation in cybersecurity, the study presents findings from selected literature to reflect women's progression in the industry from each level of education to workplace.

Cybersecurity Education and Women's Empowerment

"Education is the most powerful weapon you can use to change the world."- said Nelson Mandela and seemed to be completely right. We all agree that education is the key to resolving all issues. In today's world, Modern globalization's fast advancement has accelerated the development of every field. Cyberspace has emerged amongst the most serious threats to the modern world order. Cybersecurity is a contemporary phenomenon. Today, countries are actively pursuing strong cybersecurity policies in order to combat a global threat - cyberterrorism. In some countries, policymaking begins with raising awareness, which is the most effective and efficient way of disseminating education and knowledge. Although, many factors can affect how the educational process is carried out. People decide to pursue a career in computer science, a feeder field for cybersecurity, because of family factors such as

encouragement and exposure. (Wang et al., 2015)¹ Outside the home, there are numerous barriers to girls' interest in STEM, including a "lack of female STEM plotlines in pop culture, negative stereotypes about girls' abilities, and negative perceptions of computing as a course of study or career option." (Wang et al., 2015). We can see from the examples of successful countries that perhaps the number of girls involved in cybersecurity is increasing.² This is driven by the demand for education in this field on the one hand, and existing stereotypes that force girls to act and break them on the other. Notably, the lack of women in cybersecurity leads to a great risk for security issues. So the international community is assisting in increasing women's participation. To attract more women to cybersecurity, governments, non-profit organizations, business associations, and the private sector must all collaborate, because it requires a variety of efforts. Projects involving public-private partnerships may help to solve the problem in the long run.

Different countries have a different and individual experiences. Israel is a good example of how to bridge an educational gap in the field of cybersecurity. Here we have jointly financed the program "CyberGirlz" by the country's Defense Ministry, the Rashi Foundation, and Start-Up Nation Central.³ This program identifies high school girls who have a strong interest and desire, to learn information technology and assists them in developing those skills. In the framework of this practice, female mentors provide advice, guidance, and support to the girls as they participate in hackathons and training programs. Participants gain knowledge of hacking, network analysis, and learning different types of programming languages. They also simulate cyber-attacks to identify potential vulnerabilities. It must be mentioned that by 2018, approximately 2,000 girls had joined the CyberGirlz Club and the CyberGirlz Community. The US and continental Europe have a positive dynamic in this concern too. The main goal that countries share is to increase cybersecurity knowledge in women and their interest in the profession. Furthermore, there are numerous highly developed organizations and associations working to empower women and provide them with equal and appropriate access to cybersecurity issues. One of them is "Women in Cybersecurity of Spain", for example, which has launched a mentoring program to assist female cybersecurity professionals in their early careers. Also, there is a wide range of collaboration between big companies and corporations in order to encourage female cybersecurity professionals in the field. Consequently, we get increased enrollment of women in the cyber sector and all the empowerment tools bring us the fast-growing amount of female professionals. In my point of view, corporations must ensure that female employees see cybersecurity as a viable option for internal career advancement. Furthermore, governments should coordinate with the private sector and academic institutions to catch the eye of young girls in cybersecurity.

¹ Wang et al. (2015, July 8). Google. Retrieved from Gender Differences in Factors Influencing Pursuit of Computer Science and Related Fields:

<http://static.googleusercontent.com/media/research.google.com/en//pubs/archive/43820.pdf>

² Calif, S. (Mar.28.2019) "Women Represent 20 Percent Of The Global Cybersecurity Workforce In 2019" - <https://cybersecurityventures.com/women-in-cybersecurity/>

³ 3. Kshetri, N. (May. 15, 2020) "The lack of women in cybersecurity leaves the online world at greater risk" - <https://theconversation.com/the-lack-of-women-in-cybersecurity-leaves-the-online-world-at-greater-risk-136654>

Role of women in today's cyber world

Gender issues are more complex and complicated, especially in countries where traditions and customs are the strongest influencers. So women's underrepresentation in the cybersecurity field is limited and as a result nascent. The role of women in today's cyber world is crucial. Their achievements and created security guarantees made the cyber sector much safer. Women should tackle today's most pressing security challenges as leaders. Increasing women's participation in cybersecurity is both a business and a gender issue. According to Ernst & Young, by 2028, women will control 75% of global discretionary consumer spending.⁴ Encryption, fraud detection, and biometrics are becoming increasingly important in consumer purchasing decisions. Product design entails a trade-off between security and usability. Female cybersecurity professionals can make better-informed decisions about such trade-offs for women products. "I am seeing more women attending conferences now than ever before," says Theresa Payton, CEO at Fortalice Solutions, and the former White House CIO. "And I don't mean all women conferences where the events were based around discussing ways to fight the unfair balance of men and women in the cybersecurity space. I see a lot more women at the big cyber conferences. There are a lot more women involved than ever before."⁵ There are plenty of reasons why women's involvement in the field of cybersecurity is important and many researchers consider that promoting diversity in the cyber world leads us stronger and more secure environment. In Switzerland, the government and private sector stands for each other and work together on the issue. Their partnership used to narrow the gender gap by creating opportunities and spreading awareness in the society about the field. Besides that, there are still fewer public service announcements and campaigns related to cyberinfrastructure and risks about it. "Building a secure digital world is a legacy we owe future generations"- Prof. Dr. Solange Ghernaouti, Director of the Swiss Cybersecurity Advisory & Research Group.

Fortunately, the world has already successful women in the field of cybersecurity. I would mention Evgeniya Naumova, Kaspersky (Vice President of the Global Sales Network at Kaspersky, Evgeniya Naumova is responsible for sales operations across business segments, including both consumer and B2B.) Also, Deidre Diamond, who is the founder and CEO of the national cybersecurity company Cyber Security Network (CyberSN). Influential and the most successful women in cybersecurity are often represented in the private sector, then in public. Getting into high-tech positions is still hard and women have to "move the gender needle closer towards a more equal representation".⁶ In the Software Report, you can see "The Top 25 Women Leaders in Cybersecurity of 2020".⁷ I hope and strongly believe, that these numbers will naturally rise.

⁴ World economic forum- (2019) Eswaran. V. "The business case for diversity in the workplace is now overwhelming" <https://www.weforum.org/agenda/2019/04/business-case-for-diversity-in-the-workplace/>

⁵ Calif., (Mar. 29, 2019 /PRNewswire/ -- Cybersecurity Ventures predicts that women will represent more than 20 percent of the global cybersecurity workforce by the end of 2019. <https://www.prnewswire.com/news-releases/representation-of-women-in-the-cybersecurity-workforce-is-recalculated-to-20-percent-300821151.html>

⁶ Bawa. J. (Mar, 9, 2021) "Celebrating Influential Women in Cybersecurity"- <https://www.zeguro.com/blog/celebrating-influential-women-in-cybersecurity>

⁷ Software Report (May, 12, 2020) "The top 25 women leaders in cybersecurity" <https://www.thesoftwarereport.com/the-top-25-women-leaders-in-cybersecurity-of-2020/>

Perspectives and Challenges

Understanding the need for surveillance and intelligence, as well as the fight against cybercrime, as challenges that require a diverse set of skills. We should see the importance of cyber issues from different perspectives. Every cybersecurity worker faces challenges daily. While some businesses make it easier for them by establishing a strong cybersecurity culture through a serious commitment from top management, many still see it as more impossible. “Women polled in the Cybersecurity Workforce Study cited their top challenges as low-security awareness among end-users (19%), insufficient availability of cybersecurity professionals (17%), inadequate funding (16%), and lack of management support or awareness (14%). If not addressed, any one of these challenges can weaken an organization’s defenses, making it more difficult to protect data and users.”⁸ Unfortunately, we must remember that stereotypes are formed in our society, and all women have to deal with them. From an early age, there is a message sent to women that, men are good at STEM and women are not. Notably, “It is estimated that gender gap in the workforce costs a nation around 15% of the total GDP (Cuberes & Teignier, 2016). On the other hand, women hardly sit in the top leadership positions of global organizations. In 2019, only 33 women, 6.6% of the total, were CEOs of the Fortune 500 companies (Christine, 2019).”⁹ While the number of women in cybersecurity positions is increasing, the road to closing the gender gap remains long and treacherous. A good place to start would be to dispel the myth that cybersecurity isn't a viable career path for women and instead highlight the numerous reasons why they should consider a career in the field. It is estimated that if the number of female cybersecurity professionals equals that of males, the economic footprint of the cybersecurity industry will increase by USD 30.4 billion in the United States and £12.6 billion in the United Kingdom. (Opportunity in Cybersecurity Report 2020)¹⁰. All in all, if we look at perspectives from the view of experts, creating an inclusive culture, building a strong network by coaching, mentorship, and other empowerment programs, it would be possible and simple to attract more women and force them “naturally” to join the cyber industries. Nowadays, security issues in the contemporary world are more challenging than ever before, so we must use women’s power and their contribution in the field of cybersecurity.

Case of Georgia- Women in Cyber Front line

There is no single body in Georgia that will coordinate ministries and agencies' efforts to protect the country's cyberspace and ensure cybersecurity. In the country the opinion about cybersecurity as a masculine field, is still exist. Although, there are many initiatives and

⁸ An (ISC)² Cybersecurity Workforce Report “Women in Cybersecurity”- <https://www.isc2.org/-/media/ISC2/Research/ISC2-Women-in-Cybersecurity-Report.ashx>

⁹ Cuberes D., Teignier, M. 2016. Aggregate Effects of Gender Gaps in the Labor Market: A Quantitative Estimate. Journal of Human Capital, 10(1), 1–32. <https://doi.org/10.1086/683847>

¹⁰ Opportunity in Cybersecurity Report. 2020. Tessian, UK - <https://www.tessian.com/research/the-future-is-cyber-report-2020/>

programs financed by EU and other foreign organizations to promote and empower women in cybersecurity. We cannot meet a large number of women in the security sector, and Georgia also has a lack of female representation in the private sector. Georgia needs more active involvement in the international arena to increase working process. The role of Country and its government is massive and rising potential for women will help them to create more secure and safety place to live. Georgia is under the serious threat. The cyber threats from the north are forcing the country to develop an effective and resilient cyber defense system, in which the role of women is particularly important.

Summery

Across the globe, cybersecurity has become one of the fastest growing fields. Women's representation as in many fields here is very low. Women's equality and empowerment are one of the United Nations' 17 Sustainable Development Goals¹¹, which give them a fundamental right to have control over their lives to have an impact and influence on society. Diverse and inclusive human capital is regarded as a critical pillar in any society's prosperity and competitiveness. Without mobilizing and including women in their workforce, business organizations and nations cannot achieve competitiveness and sustainable growth.

Increasing women's power in cybersecurity is a positive trend for both the professionals and the profession as a whole. Supporting them and giving open access to the high positions are fundamentally important. Women have still dozens of barriers to achieving success in the field of cybersecurity. However, in order to change the industry and remove barriers for women, more females must enter the field and work to dispel stereotypes, demand equal pay, and serve as role models for other women hoping to enter the field. In my opinion, gender in cybersecurity does not exist and all depends on an individual's possibilities. The world requires peace and security, and women must stand alongside men to achieve it

¹¹ 17. Women's Global Development and Prosperity (W-GDP) Initiative. 2019., <https://www.whitehouse.gov/wgdp> USA

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