

## Not a Toy for Boys Only

# Qualitative Insights into Promoting Women's Participation in ICT in Croatia

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**Abstract:** Digital transformation contains the promise of social inclusion and progress, but current data reveal lingering social inequalities. This paper looks descriptively into relevant reports and data with the aim to identify the size of the digital gender gap, the main barriers to bridging it, the factors causing it, and reasons why we should strive to achieve gender balance in ICT. The paper also provides a short overview of some initiatives encouraging inclusion of women in ICT. The main objective of the paper is to provide qualitative insights into gender-related challenges in ICT companies in Croatia based on semi-structured snowball sampled key informant interviews with six women who are top professionals working in ICT companies in Croatia and who were initiators of various events to promote inclusion of women in ICT. The approach taken here assumes that qualitative research can address social problems in powerful and meaningful ways when focusing on practitioners rather than only policymakers. The results reveal positive trends with existing role models and more aware younger generations, but also many socio-cultural factors hindering full capacity development not only of women but even more so of men and the entire society.

**Keywords:** women, digital gender gap, ICT, qualitative research.

## Introduction

The digital transformation we are witnessing today is frequently seen in literature as providing new possibilities to empower the previously disempowered (OECD, 2018; WDR, 2016; Davaki, 2018). It is hard, however, to imagine that unjust structures of very long duration can cease to exist overnight or that political elites, structures and institutions that participated in the creation of the unjust social situation can be the sole agents of exiting this situation.

Although removing gender equality is widely recognized as a very demanding task, it is crucial for a prosperous society and a sustainable inclusively growing economy. The gender gap is, however, still widely visible, especially so in some areas, including, for example, engineering and ICT. It was in 2012 that G20 Leaders decided to commit to women's full economic and social participation, and in 2014 to implementing policies to improve the quality of women's employment and the provision of support services (OECD, 2018). Since then, most G20 countries have made progress, but it is not very quick and there is still much to be done.

The focus in this paper is on the digital gender gap, without assuming that gender is the most relevant or the only dimension of our social identities according to which social access, power or privilege is distributed. The digital gender gap can be defined as the unequal distribution of access, use, and skills related to digital technologies between men and women. It is a manifestation of gender inequality in the digital realm, where women may face various barriers that prevent them from fully benefiting from digital technologies. This gap can take different forms, such as disparities in Internet access, digital literacy, and the use of digital tools and platforms, which can lead to diverse specific definitions of the digital gender gap. It can also have far-reaching implications, such as limiting women's economic opportunities, social participation, and empowerment. The focus in this paper is on the socio-economic aspect of experiences of women working in ICT companies. Addressing the digital gender gap is crucial for achieving gender equality and ensuring that everyone can benefit from the potential of digital technologies.

Sociologist Manuel Castells (2000) states that we live in the Information Age or the Digital Age, which denotes the current era of technological development and widespread access to information through digital technologies. Castells argues that the Information Age represents a fundamental shift in the structure of society, driven by the development of new information and communication technologies that have transformed the way we produce, distribute, and access information. He describes the Information Age as a network society, in which power and social relations are organized around flows of information, rather than by territorial boundaries. Castells argues that the Information Age has led to significant changes in social and cultural practices, including the way we communicate, work, and engage with each other. Regarding gender gap, Castells argues that, while the information age has created new opportunities for women, it has also perpetuated existing inequalities and created new ones. For example, while women have gained access to new forms of education and employment through the Internet, they still face significant barriers to equal participation in the digital economy, such as the gender pay gap and the underrepresentation of women in ICT and some STEM (Science, Technology, Engineering and Mathematics) fields. Therefore, Castells argues that it is important to consider the ways in which the information age both brings new

possibilities for women and reinforces existing power structures and inequalities, in order to ensure that the benefits of the digital revolution are shared equitably by all.

It needs to be stated here, however, that there are differences across sectors and that ICT and STEM cannot be treated as the same without remainder. For example, women are currently overrepresented in many STEM fields, such as medicine and biology, and the level of gender inequalities significantly varies on a country level.

Firstly, in STEM fields, the gender gap is often more pronounced in certain areas, such as physics and engineering, while women are better represented in others, such as biology and medicine. In ICT, women are often underrepresented in technical roles, such as programming, software development, and network engineering. This is partly due to cultural and social norms that associate these roles with masculinity, the lack of access to education and training in these areas, and to differences in the perception of these fields and the types of skills and qualities that are associated with them. For example, biology and medicine are often seen as more nurturing and caring fields, which may be more attractive to women. The feminization of some areas like medicine does not have a direct impact on the digital gender gap in ICT. Women are still underrepresented in leadership and high-level positions in these areas, which can impact their ability to drive change and make decisions that impact the digital gender gap. Overall, the digital gender gap is a complex issue that requires addressing multiple factors, including access to education and training, cultural and social norms, and systemic barriers that limit women's opportunities. While the feminization of certain fields like medicine may impact the gender gap in specific contexts, it is important to address the root causes of gender inequality across all industries and fields to achieve greater gender parity in the digital economy.

Secondly, there is a debate on different country contexts regarding gender inequality in the digital sector. Hilbert ([2011](#)) discusses two narratives – the glass-half-full one in which ICT helps empower women (gain employment, obtain cost-effective health services and education, increase income etc.) and the persistent counter-narrative that women are at a natural disadvantage to benefit from the digital revolution because they are less tech. savvy, and more technophobic. If the second scenario is the case, ICT would only add a new dimension to the existing vicious circle between discrimination and women's backwardness, which can be expected to be particularly severe in developing countries (where 80% of women worldwide live).

In addition to the factor of the development status of a country, there are factors like age and varied use of Internet and digital tools that moderate this discussion. Fallows ([2005](#), p. 1) points out that men like the Internet for the experiences it offers, while women like it for the

human connections it promotes, and World Internet Project ([2009](#)) confirms these findings that gender differences in usage of digital technology in developed countries have become smaller but remain, especially in usage. When it comes to developing countries, there is a lack of data, as technology-related research and policy advice are often focusing only on the roughly 20% of the world population living in the most industrialized countries. However, if ICT can empower women, there are greater potential gains in developing countries due to their weaker starting point. In providing explanations for the detected digital gender gap, the same women-are-technophobic arguments are frequently raised in developed and developing world alike – that women have a negative attitude to ICT ([Varank, 2007](#)) and that ICT reflects the needs of men rather than women, that it is a “toy for the boys” ([Faulkner, 2001](#)).

Contrary to these findings, some studies show that ICT can empower women in developing countries ([Heeks \*et.al.\*, 2004](#); [Brodman & Berazneva, 2007](#)). ICT can enable meaningful participation and make female voices heard, as proven by the role of digital networks in feminist movements ([Harcourt, 1999](#)). Others have argued that ICT has the potential to completely redefine traditional gender roles, especially for women who have limited skills or who lack the resources to invest in higher education ([Kelkar & Nathan, 2002](#)). However, this potential to empower women in the developing world depends on access to and actual usage of these technologies, which is a necessary first step (see, e.g., [Scott, 2001](#)). Arguing that enduring gender-based inequalities are the reason for the digital gender gap is very different from arguing that women are naturally technophobic. To sum up according to Hilbert ([2011](#)), traditionally, longstanding inequalities prevent women from accessing ICT, leading to a vicious circle between digital exclusion, unemployment, low income and lack of education. However, once having access to ICT, this vicious circle can be ended and positive attitudes of women toward ICT can enable them to circumvent and fight existing inequalities.

Additionally, it should be explained how digital gender gap relates to the unequal participation in the digital economy. Studies ([OECD, 2018](#); [UNICEF, 2021](#)) have shown that women are underrepresented in the digital economy. This can be seen in the low number of women in tech-related fields, such as computer science and engineering, as well as in the lower number of women who own or run digital businesses. The gender gap in the digital economy is a result of a combination of factors, including cultural and social norms, discrimination, and lack of access to education and resources. These factors can make it harder for women to enter and succeed in the digital economy. Another factor is the lack of representation and role models for women in the digital economy. The tech industry has traditionally been male-dominated, which can make it harder for women to envision themselves succeeding in this field. This lack of representation can also contribute to a culture that is less welcoming to women and can make it harder for them to advance in their careers.

The main research questions in this paper are: Is there a digital gender gap globally and in Croatia; and what is its size? What strategies are employed to decrease the gender gap? What common factors influence the existing digital gender gap? What qualitative insights can we gain from analysing experiences and opinions of top professional women working in ICT companies in Croatia about the current situation regarding the digital gender gap in ICT in Croatia?

The paper investigates official public data to illustrate the size of the gender gap in ICT and engineering education, employment, and salaries. Common factors behind the digital gender gap are discussed, together with common suggestions for shrinking it. Also, there is an overview of some initiatives designed by global institutions and implemented also in Croatia to promote the participation of women in STEM and ICT. The main original contribution is the analysis and discussion of six semi-structured interviews with women working in ICT companies in Croatia who were the force behind various initiatives to include women in the field. The sample was collected based on chain referral; it is non-probabilistic and key informants were selected to provide thick descriptions of the situation from the practitioners' point of view. Thematic analysis of transcripts has revealed that providing powerful role models is very influential in this regard and that there are positive and welcome developments with many success stories for women. However, there are still social and cultural factors that pose obstacles for gender balance in ICT. These obstacles are seen as doing damage to women and men alike. Constant auto-reflection regarding the politics of the applied method will be practiced throughout the paper. The conclusion summarises the main results and gives relevant recommendations.

## The Size and Factors of the Digital Gender Gap and Why it is Smart to Reduce it

Despite significant advancements in gender equality, the ICT industry remains one of the most male-dominated fields, with women often underrepresented in leadership positions and facing discrimination and bias in the workplace.

An OECD report ([2018, p. 5](#)) states that 327 million fewer women than men have a smartphone and can access the mobile Internet. Women are under-represented in ICT jobs, top management and academic careers and men are four times more likely than women to be ICT specialists. At 15 years of age, on average, only 0.5% of girls wish to become ICT professionals, compared to 5% of boys. Women-owned start-ups receive 23% less funding and are 30% less likely to have a positive exit compared to male-owned businesses. UN ([2023](#)) data on the global situation regarding women and girls in science also stress there is a significant gender gap persisting throughout the years at all levels all over the world. Even though women have

made tremendous progress towards increasing their participation in higher education, they are still under-represented in engineering and ICT. In cutting-edge fields such as artificial intelligence, only 22% of professionals are women. Despite a shortage of skills in most of the technological fields driving the Fourth Industrial Revolution, women still account for less than a third of engineering graduates.

According to the Croatian Bureau of Statistics (2022), the total population of Croatia is 4 047 680, with women comprising 51.4 %. In higher education in the Republic of Croatia, women continue to make up the majority of graduates. In 2020/21, the percentage of women among students enrolled in institutions of higher education was 57.3% and 60% among higher education graduates. Of the total number of Master of Science degrees, 66.2% were awarded to women, and among doctors of science 54.1% were women. According to the number of enrolled and graduated students, women are in the majority in all fields of science, except engineering (28%). Among persons employed in legal entities in 2020 there is, on average, 36.7% women in the field of ICT. Women's salaries are only 82% of men's in average monthly net paid earnings in legal entities in ICT in 2020. According to EIGE (2019), among those graduating in ICT there are 21% women, and in engineering, machinery, and construction 18%. This indicates a relatively low level of gender balance in the education sector, which may contribute to the low representation of women in the ICT industry. In comparison, the share of women in the ICT sector in some EU countries, such as Sweden, Finland, and Lithuania, is higher, with the highest percentage being in Sweden at 38.7%. This suggests that there is still a long way to go in terms of achieving gender balance in the ICT industry, not only in Croatia but also in other countries. According to the European Commission (2022), Croatia ranks 21st of 27 EU Member States in the 2022 edition of the Digital Economy and Society Index (DESI). Despite performing well in digital skills, there is still a persistent gap as regards ICT specialists, which in Croatia accounts for a lower percentage of the workforce than the EU average.

Let us inspect the factors behind the illustrated digital gender gap (Blau & Kahn, 2017; Goldin, 2014). The participation of women in digital society can be hindered by social, economic, and cultural barriers. In Croatia, for example, the following barriers may affect women's participation in the digital world: lack of digital skills and knowledge, economic and social barriers, lack of role models, discrimination and violence, and work-life balance challenges. To increase women's participation in digital society, it is important to address these challenges through education, access to technology and the Internet, and promoting gender equality in digital fields.

Finally, let us explore the reasons why the digital gender gap needs to be reduced, according to the European Parliament (2016) and EIGE (2016). Firstly, there is considerable potential that digitalisation can have regarding an inclusive, equal and participatory society. ICT enables

the acquisition of new skills and acts as a catalyst in the delivery of public services, such as education, employment, healthcare and financial services. Ensuring equal access to ICT and the Internet is not seen only as a matter of human rights (e.g., freedom of expression), it would also improve women's health and the health of their families and communities, support women's access to education and other social services, and contribute to women's employment, economic independence and the sustainable development of their livelihoods. ICT inclusion would also enable women (and other under-represented groups) to participate more actively in political processes and engage in participatory democracy. Building on these premises, the Broadband Commission report (2013) examines how access to the Internet and ICTs can help redress some of the inequalities women and girls face in their everyday lives. Conversely, however, it expresses concerns that unequal Internet access will reflect and reinforce offline gender inequalities; additionally, the type of content available online might also strengthen gender inequalities and certain attitudes (e.g., sexist) towards women. There is a discussion on information literacy (Hafkin & Huyer, 2007; Dighe & Reddi, 2015), which is defined as the ability to access, know where to find, evaluate and use information from a variety of sources. It involves communication, critical thinking, and problem-solving skills. Education is seen as a crucial factor in ICT adoption, as more educated individuals are more competent to understand the (increasing) complexities of technological artefacts, while they are also more exposed to the use of ICT in both personal and professional life (Cruz-Jesus *et al.*, 2016).

There are, as we have already discussed, several reasons why women can be underrepresented in the IT sector, even in countries with high levels of development and access to digital tools. Some of these reasons include gender bias and stereotypes that IT is a "male" field, lack of female role models, and unequal access to education despite the availability of digital tools and resources, and workplace culture: even in companies that actively seek to hire and promote women in IT, the workplace culture may still be male-dominated and unwelcoming to women. This can lead to a lack of opportunities for women to advance, or to women leaving the industry altogether, due to a hostile work environment.

## Initiatives to Raise Awareness and Promote Women's Participation in ICT

There are initiatives globally and in Croatia to include women in STEM and ICT. Gender equality has always been a core issue for the United Nations, who promote gender equality and the empowerment of women and girls as a crucial contribution not only to economic development of the world, but to progress across all the goals and targets of the 2030 Agenda for Sustainable Development. According to the European Commission (2022), Croatia

promotes digital literacy during EU Code Week and was, in 2021, among the top 10 countries in the number of activities organised (1,111). Croatia also awards talented students with scholarships in STEM studies (3,400 scholarships per school year). There is also an initiative, “Women in IT”, aiming at empowering women and promoting gender diversity in the ICT launched by the Croatian Association of IT Companies and the Croatian Chamber of Economy. The initiative works closely with schools and universities, providing resources and support to help girls develop an interest in STEM and ICT.

Among initiatives by Croatian ICT companies there are Girls Who Code, STEM Academy, Women in Tech and Tech Girls. These are platforms for women to learn about technology and network with other women in the industry. The initiatives offer workshops, events, and mentorship programs to support women in their careers. These initiatives are important in addressing the current gender imbalance in the ICT sector and creating a more diverse and inclusive industry.

The international “Girls in ICT Day” is also worth mentioning, organised in Croatia under the name “ICT Supergirls”, traditionally celebrated in April. Since 2011, over 377,000 girls and young women have taken part in more than 11,400 International Girls in ICT Day celebrations in 171 countries. The purpose of the event is to raise awareness of girls and young women about the opportunities in ICT, and to encourage them to consider their future career in the growing field of ICT. The event offers lectures and workshops presented by leading women of the Croatian ICT scene. They share personal stories about their own career growth and the challenges they had successfully overcome, to encourage girls to pursue a career in ICT and to recognize the opportunities and challenges that lie within. Such co-ordinated action driven by not only policymakers but also, very relevantly, by practitioners can help narrow the digital gender gap.

## Key Informant Interviews

There are several reports on the digital gender gap recommending qualitative research (to get thick descriptions and as a check against the potential bias of narrowly specified quantitative targets) as well as making the changes in ICT people-driven ([Davaki, 2018](#); [WDR, 2016](#)). This motivated the choice of key informant interviews as a study method for this research.

## Method

Key informants are selected based on their expertise, experience, or position within the studied community and interviewed to gain a deeper understanding of a particular phenomenon ([Silverman, 2022](#)). Six women were selected for this study based on their professional careers in ICT companies in Croatia. They are all aged 36 to 43 with higher



educational background in economics or engineering. They were reached based on the chain referral of acquaintances working in the ICT industry in Croatia. They were selected on purpose, not randomly, based on their unique perspective, because they all are the initiators of various events promoting inclusion of women in ICT within their respective companies. The sample description is given in Table 1. The interviews were semi-structured, with a protocol of questions to guide the interview, but allowing the interviewees to expand on specific topics. The guiding questions asked about the motivation to work in ICT, what gender equality means and whether (and, if yes, why) it is necessary, their experience with career development and obstacles and/or possible resistance in their environment regarding the issue of digital gender gap, and about quotas and other specific measures for including women. The purpose of the study and the reasons for conducting it were explained to the interviewees and informed consent was granted. The interviews lasted between 40 and 90 minutes. Three of them were conducted face to face, two via a video meeting, and one via telephone. Transcripts were then coded and merged into topics that relevantly and frequently appeared in interviews. Empirical findings are presented in the form of quotes under constructed topics, derived based on iterative thematic analysis (Lichtmann, 2013).

**Table 1. Sample description**

Key informant interviewees	Gender	Education	Job	Age	Interview duration in minutes
Interviewee 1	Female	Master of geodesy engineering	Software implementation team lead	41	45
Interviewee 2	Female	Master of computing science	Group project manager	42	90
Interviewee 3	Female	Master of electrical engineering	Product manager	36	70
Interviewee 4	Female	Master of economics	Customer support manager	39	40
Interviewee 5	Female	Master of electrical engineering	Group project manager	37	80
Interviewee 6	Female	Master of information sciences	Training consultant	43	50

## Analysis

The topics presented here emerged from the analysis of the collected data, all shown in Table 2.

**Table 2. Six constructed topics resulting from key informant interviews**

1. Socialization aspects, social norms that favour men in ICT and unconscious bias
2. New generations more aware and active
3. The lack of the know-how to join the ICT industry
4. Relevance of role models and mentorship

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|---|
| 5. Encouragement to start a career in ICT   |
| 6. Fewer women than men in engineering and technology-related education and careers |

All participants were included in an initiative to promote inclusion of women in ICT and they, without exception, say that they experienced no direct abuse or violence, but that there are socio-cultural factors discouraging women from starting education or a career in ICT. However, they all stated there are recent positive trends. Interviewee 1 commented on the situation with gender equality in ICT as follows:

“There were twenty high school kids participating in ICT Supergirls in 2015 and we talked about their wish to choose a career in ICT. Only one girl said she was thinking about choosing this education and career, and all the rest commented that their parents discouraged them from STEM, frequently saying that STEM is for boys. Only seven or eight years later, today, we do not get such disproportion anymore. The girls know they can opt for STEM and that careers in ICT pay well, but they say they do not know how to start or how to achieve this.”

A typical answer representing the opinion of interviewees when asked about the reasons for including girls and women in the industry, reasons justifying all investment in shrinking the digital gender gap revolve around socialization residues or unconscious bias (interviewee 3):

“I feel bad, I am sorry to see that girls hesitate to choose this profession because they feel they are not good enough or smart enough. This attitude was perpetuated through their upbringing, not on purpose of course, the parents advised them the way they thought was best for their daughters, but we all I guess do much wrong we are not aware of.”

Some of the challenges our interviewees mentioned included the lack of know-how to join the ICT industry in case one’s educational background is not in STEM and being motivated only or dominantly by money. Interviewee 6 says:

“It is not necessary to have an education in STEM, you can have a career in ICT after studying economics, or anything else for that matter. But the girls who studied something else do not know how to switch to a career in ICT. Often the motivation is money: people earn good money in ICT. But I think that money is not the best motivator. We need to provide them with tools, education, and training primarily and give them a cookbook containing detailed steps to lead them. Educational background is less important – you must understand the software, but you do not learn how to implement software at the university, you do it at work.”

Important keywords appearing in interviews are inspiration, effort, and meaningful contributions. Our interviewees pointed out they do not organize initiatives to promote the inclusion of women in ICT for profit or to attract sponsors, but to contribute to the development of society as a whole and to give back to the community, wishing to have socially

responsible business models in their companies. Another important reason for promoting women in ICT is found in role models, and additional unexpected benefits were mentioned, including networking and personal branding. The following two quotes are by Interviewee 1:

“If you work hard and put effort, with an open heart, you will climb up and be promoted. One girl who came to ICT Supergirls, a graduated economics major, found so much inspiration there. Now she leads our support in the company and the following year she was the speaker at the conference motivating new women and girls.”

“People get really inspired at our events. First there are younger girls, in their mid-20s addressing the audience. And then we have senior speakers, aged 35 to 45, women who already have successful careers and who serve as powerful role models. When they see a corporate highly successful woman share her experience, see her as an ordinary woman, many things start to demystify, and this is very powerful and inspirational. There were so many excellent outcomes and effects that we had not even expected, like broadening networking of younger women with role models and working on personal branding or developing socially responsible projects in different companies.”

Interviewee 2 stressed the importance of mentoring programs:

“Mentoring is extremely important; we have developed a programme to popularize mentoring in IT. Because you do not learn this during your studies and the industry is quick-paced and demanding, with not much space or time for extensive mentoring. We now have over 130 mentors and over 200 mentees. It is all online, we started in the context of the pandemic. In addition to role models, I feel that mentoring programmes, with many profiles of mentors, from programmers to directors, business analysts and project managers, are strong drivers of development in ICT and in the entire country too.”

“I never take sponsored lectures for the conference, but exclusively what I think is interesting and relevant. Many people say they find our conference special in some way. People in Croatia often complain about corruption and nepotism, but it is not like that in our company, maybe young people hear that from their parents who think nothing is possible without some kind of connection.” (Interviewee 4)

“We want IT to become a development driver for this country. We want more people to earn well and not worry about existential aspect of life because then they can think about excellence and how to make this country a better place for all. We need to teach people in ICT how to think in broad terms and how to give back to the community. Financial empowerment of women is very important for the entire society.” (Interviewee 5)

When asked about the measure of introducing quotas, all our interviewees had ambivalent views. On the one hand, they felt that the ideal is to be gender blind and let excellence speak for itself. But they also recognized the unfairness of previously accumulated inequality and the difference of starting positions. Here is a quote from Interviewee 3 to illustrate:

“I really am not sure about the quotas. People generally do not like this measure. I get both sides. I would like to see some research done about this. It seems stupid to push something, but then again so many people react negatively to gender equality in general. Then I think to myself, wait a minute, you are a white man, you do not get all nuances of challenges that women face. I feel so sad when I see girls not believing they are good enough for ICT or business world in general. Many men do not get that, it seems to me.”

When asked about the phenomenon of a glass ceiling in ICT, Interviewee 1 says she feels she did not experience it, but also auto-reflects on some heavily masculine manners of conduct and speaking:

“I cannot say I personally had the experience of hitting the glass ceiling, it seems to me that anyone who works very hard and invests in lifelong education can move upwards. But then again, I think to myself that maybe everything would look completely different if women had created the business world, maybe with more sustainability and less competition. I do not know. But we all say a cleaning lady, not a cleaning man, and, when we imagine a director, the image is typically of a senior white male. Or if we imagine a doctor. These images are automatic, and we do not do it on purpose, but they reflect the way this world had been formed. Women can succeed, and they do, but often they must assume a masculine position in talk or behaviour. The changes cannot happen overnight, another generation needs to mature, it seems to me.”

Interviewee 1 commented on the changing roles for men in society and the success of women in new generations.

“I have read a book based on research on cardboard men and plastic women. It is about brutally successful, capable, flexible and adaptable – brilliant women. They keep finding new ways to succeed and do not want or accept to be second-order citizens anymore. It seems that there are still quite a few men who have a hard time – their role is changing as they are not sole breadwinners anymore. Many of them want to traditionalize the position of women. Women see such men as a burden and have economic independence that allows them to exit such relationships. Maybe we should focus on men to help them find new identities. In our generation there is still inequality because we cannot stretch the boundaries very much very quickly and change the situation overnight.”

## Discussion

Key informant interviews have been conducted in line with a frequently appearing call for more qualitative research on the digital gender gap (OECD, 2018). Qualitative research can help to uncover the experiences, perspectives, and contextual factors that shape women’s access to and use of digital technologies and shed light on the underlying social and cultural dynamics that perpetuate gender inequalities in this domain.

There are several important findings in line with other research. Firstly, the results show there are old structures of long duration transmitted via socialization and buried in values, norms and ways of thinking and conduct, which are traditionally masculine in the business world. The research here is not about tracking down the presence of women in ICTs, but it is the investigation into why this domain was and still is too often considered masculine. According to Wajcman (1991, p. 166), technologies reveal the societies that invent and use them, their notions of social status and distributive justice. In so far as technology currently reflects a man's world, the struggle to transform it demands a transformation of gender relations.

Addressing the underlying causes of digital gender disparities is vital, as dealing with the symptoms without fighting the causes would lead to superficial and ineffective measures. Many things can come between women and the new technology that are mentioned in this research and are confirmed in other studies too: social and cultural norms about appropriate behaviour of women hindering women to pursue education and a career in ICT (Antonio & Tuffley, 2014), including traditional family arrangements (Dehghan & Rahiminezhad, 2010), cultural attitudes, gendered division of labour and gender stereotypes. The results suggest there is more freedom of choice and action in the new generations, which compares to OECD data (2018). Women may also have more to gain from ICT than men, in time, freedom and opportunities (ITU, 2012, p. 8), and key informant interviewees often stress how successful, capable, and independent they are becoming.

Our results demonstrate that, to overcome the digital gender divide, we require an entire social response and socio-cultural changes, not only top-down measures. The point of view of practitioners is here made focal rather than that of androcentric institutions that helped create the digital gender gap and are now the ones trying to solve it. Wider socio-cultural reasons for the digital gender gap seem to lie behind the reproduction of inequality that exists in the offline world despite great opportunities offered by ICT for women (Castells, 2000).

## Conclusion and Recommendations

This paper brought some descriptive illustration of the existing gender gap in education and employment in the field of ICT globally and in Croatia, answering affirmatively to the first research question. The size of the digital gender gap is considerable, but the trend is upward regarding the inclusion of women in ICT and the attitudes of new generations. Still, there are persistent inequalities that remain, linking virtual and material world and calling for further research that takes intersection of gender with class and other social factors into account.

Regarding the second research question about the strategies employed to decrease the gender gap, there are many UN, OECD, EU, and EC global initiatives that promote the inclusion of women in ICT, from conferences, training, awareness raising, mentorships, grants etc. There

are also Croatian agencies and initiatives. The ones led by practitioners in the ICT industry are seen as particularly important, as they are more active and agile than the state and policy makers.

The third question refers to common factors influencing the existing digital gender gap, which include economic, digital, social, cultural, work-flexibility related and other factors. However, according to our results, socio-cultural factors, educational background, traditional gender roles and stereotypes, as well as androcentric modes in the business world and conduct, seem to play a highly relevant role in creating the existing digital gender divide.

The recommendation is to conduct diversified quantitative and qualitative research to contribute to decreasing the digital gender gap, because greater inclusion of women in the digital economy and increased diversity bring value, both social and economic. Also, awareness raising, education and training, increasing technological literacy and trying to fight unconscious bias are recommended, as they are likely to minimise the reproduction of existing social inequalities. There is no reason for women to be behind in the digital transformation. The cost of passivity is high and, in the face of slow growth, ageing societies and increasingly feminized higher education excellence, the case for digital gender equality is clear.

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