SITUATING **OPEN DATA**

GLOBAL TRENDS IN LOCAL CONTEXTS

Edited by Danny Lämmerhirt, Ana Brandusescu, Natalia Domagala & Patrick Enaholo

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What technology and open data can do for women in Kosovo: A critical assessment of the potential of ICT skills programmes and open data to empower women in the ICT sector in Kosovo

Natalia Domagala

Information and communication technologies (ICTs) are a powerful force driving transformations of social, political, and economic processes globally. For many scholars (Hafkin & Taggart 2001; Hafkin et al. 2003; Huyer 2006; Jain 2015), the emergence and popularisation of these new tools present an opportunity to promote sustainable growth, especially in developing countries.

However, many recognise the risks that unequal implementation of new technologies presents, particularly for women – in this research, noted as cis-gender and self-identified women – and people with limited access to them. Despite significant progress in the gender equality agenda, if the benefits from ICTs are determined by existing power relations, these technologies and their implementation will not be gender-neutral (Nath 2001; Gurstein 2011; Hilbert 2011). Generally, women around the world have less access to and control over ICTs and thus remain marginalised within economic systems (Ng & Mitter 2005; Oliver 2017; Huyer 2016). The concern is that this digital divide will deepen if existing divisions are not addressed. Therefore, it is critical to ensure that women have equal access to ICTs and the right skills to fully harness the opportunities that the knowledge economy presents (Hafkin & Taggart 2001; Gurumurthy 2004). This raises significant concerns of how to increase the number of women interested in technology and their ability to shape its future, as well as how to leverage their position within the industry. Creating grassroots, women-only, ICT skills programmes has been identified as a force for empowerment that could lead to positive economic changes in the long run. A growing body of research analyses the potential benefits of such training and its ability to support various aspects of the empowerment of women (Jorge 2002; Gurumurthy 2004; Jain 2015; Lee 2004).

This chapter aims to address these issues by examining the potential of ICT skills trainings and open data, a tool commonly used during such trainings, to empower women within (but not exclusively to) the male-dominated ICT industry in Kosovo. Given extremely low female labour and political participation in the country, Vidovic et al. (2017) propose that a combination of policy and cultural changes could break the existing links between various factors driving inequality. These factors include less schooling, early marriage, and entrenched patriarchal family and community attitudes about the fulfilment of traditional roles. Digital skills could emerge as a progressive force by simultaneously empowering women and creating high-skilled human capital that would contribute to economic growth in the country.

While many separate aspects of empowerment are well-documented in the literature, a holistic approach exploring its various dimensions is less common. This chapter merges definitions of empowerment from feminist theory and economics (Kabeer 1999; Cornwall 2006; Balitwala 1993; Lennie 2002) with the findings of ICT skills literature to explore the effectiveness of ICT programmes in empowering women in four spheres: social, political, psychological, and technological. The organisations examined in this study are two grassroots civic technology initiatives: (a) Open Data Kosovo (ODK), focused on open data, governance, transparency, and accountability; and (b) Girls Coding Kosova (GCK), working towards a free-of-gender-bias ICT sector in Kosovo and the region. Data was collected through 20 semi-structured interviews with the organisers and participants of the programmes. The main question the research seeks to answer is as follows:

To what extent do grassroots ICT skills programmes contribute to the empowerment of women in the ICT sector in Kosovo?

To fully address this research question, three subordinate questions will be examined:

1. What are the sources of disempowerment of women in the ICT sector in Kosovo?
2. What are the strengths of ICT skills programmes and open data for the empowerment of women?
3. What are their limitations?

The chapter confirms existing literature findings, in that the main source of disempowerment derives from persistent social norms, followed by discrimination, discouragement of women from pursuing employment in the sector, and scepticism of their technical capabilities. ICT programmes help to alleviate these obstacles by equipping participants with relevant skills, building support networks, improving their confidence, and engaging them with open data – an

ICT tool commonly used to encourage active citizenship. Nevertheless, the study exposes some major limitations of the programmes such as their exclusivity, a lack of practical employment assistance, and, despite progress in civic empowerment, a shortfall in strengthening women's political engagement.

The study is relevant and timely considering the increase in popularity of ICT skills trainings and open data as developmental tools targeting women around the world. This chapter contributes to research on ICT-based empowerment by merging existing models to assess the effectiveness of initiatives aimed at improving the position of women within their societies. Not only does it address a gap in the literature on holistic approaches to empowerment in the ICT context by combining feminist theory with ICT studies, but it also provides a set of guidelines for ICT policymakers on what works in the implementation of skills programmes. Moreover, it situates open data within a broader context of ICT-enabled empowerment of women.

The chapter proceeds as follows: section 2 establishes the conceptual framework by reviewing the key literature on empowerment and ICT skills. Section 3 focuses on the geographical context of Kosovo. Section 4 describes the methodology. Section 5 presents and analyses the findings. The final section concludes and outlines broader policy implications of the research.

Literature review and conceptual framework

Empowerment

It is commonly recognised that empowering women through education and training will increase overall economic development (Wilson 2015; Prügl 2017). A large body of gender and development literature attempts to apply the notion of empowerment to developmental initiatives targeting women, such as microcredit or entrepreneurship programmes (Batliwala 1993; Lennie 2002; Sanyal 2009; Cornwall 2016; Kabeer 2011; Milazzo & Goldstein 2017). However, few studies establish comprehensive guidelines for a qualitative measurement of empowerment, specifically in relation to projects focused on ICT. This section aims to analyse and synthesise the existing conceptualisations of empowerment into a framework that can be applied to the assessment of ICT skills programmes.

The notion of empowerment has been equally praised and criticised for its fuzziness (Batliwala 1993; Kabeer 1999). The term can refer both to the power given to an individual by an external source, and to the process whereby an individual gains control of their life. This seemingly contradictory definition has sparked an academic debate on whether empowerment is a passive or an active process and how it can be achieved. Previous studies (Batliwala 1993; Kabeer 1999) indicate that changes in the perception of the world can trigger the will to collectively re-establish power structures. Therefore, conceptualising 'power'

is critical. In her understanding of power as executing control, Batliwala (1993) deconstructs the composition of power relations. For Batliwala, the central aspects are control over resources (physical, human, intellectual, financial, and the self), as well as control over ideology (beliefs, values and attitudes). Hence, if power equals control, empowerment becomes the process of gaining control of the aspects listed above. Kabeer's (2017: 651) interpretation extends this definition of empowerment as shifting control over resources and ideology to the capacity of individuals to make meaningful choices about their lives by those who have been denied this ability to make choices. This enhances Batliwala's understanding of the concept by placing more emphasis on the relational aspects of the process. Thus, for Kabeer (2017: 651), the key is for these choices to happen in a manner that actively challenges and changes the structures of inequality in a society.

What becomes apparent from these definitions is that empowerment is relational and context dependent. Cornwall (2016: 344) argues that it has no fixed start or end points as it constantly evolves – empowerment can be temporary, and what empowers one woman, might not empower another. With these factors in mind, a suitable definition of the term in the context of assessing the empowering capabilities of ICT skills programmes should convey the complex interactions between individuals, socio-cultural norms, and emerging technologies. However, a limitation of the definitions from the previous studies (Batliwala 1993; Kabeer 2017) is their lack of consideration of the process during which various resources appear in a society. Given that ICT is a rapid, disruptive force, it is crucial to perceive it as distinct from pre-existing endowments. ICTs differ from other resources in their ability to challenge existing power structures by providing connectivity and access to information (Pollock 2018). Therefore, a framework analysing the empowering effect of ICT skills programmes should recognise technology as a separate factor.

A model of empowerment designed by Friedmann (1992) and adapted by Lennie (2002) presents empowerment as a multidimensional process, engaging the individual, the community, and the relationships between them by distinguishing four categories: a) social (participation in organisations, social capital); b) political (access to the decision-making processes, power of voice, vote and collective action); c) technological (developing ICT skills and technological competencies, being able to find employment in the field); and d) psychological (confidence, individual sense of potency) (Friedmann 1992; Lennie 2002). Here, technology is placed within a broader socio-political context and the interdependency between different types of empowerment is captured; for instance, political empowerment usually requires prior social empowerment. What this model lacks is tracking the process of change. Thus, it could be improved by incorporating features of the framework (see Figure 1) collated by Cornwall (2016) and deployed in an ICT-related study by Bailur et al. (2018). By synthesising the main factors influencing the lives of women and highlighting

interactions between them, their framework clearly outlines the process and changes necessary for achieving greater empowerment. It thus illustrates that sustained empowerment requires a change in human consciousness as well as in formal laws and cultural norms.

Merging those two models (Figure 2) provides an understanding of both the components and the processes required to stimulate change and will be used in this study. This will enable a holistic understanding of how to achieve empowerment in these four distinct spheres.

Figure 1. Cornwall's conceptualisation of empowerment

Source: Cornwall (2016: 346)

Figure 2. Multiple components and processes of change

Technological empowerment

In recent years, there has been an increasing amount of literature describing ICT skills as a pathway to prosperity and emphasising the necessity to become fluent in digital technologies (European Commission 2016; Ananiadou & Claro 2009; Prensky 2001). The emergence of new technologies transforms the nature of work and enables citizens to participate in social and civic life in previously unknown ways. Thus, possessing at minimum a basic level of ICT literacy is the new norm. The younger generation of 'digital natives' are born into the world with a natural advantage over their older counterparts, as well as those who were unable to access ICT from a very young age (what Prensky (2001) calls 'digital immigrants'). This distinction is crucial when designing curricula for ICT skills trainings, as digital abilities of the 'natives' are more advanced, and their learning methods differ.

While there is no universal classification of what constitutes as ICT skills, throughout this chapter the term will be used to refer to advanced skills including (but not limited to) coding, front and back end software development, web design, and engineering. The digital skills supply-demand gap has been widely recognised: according to the European Commission (2016), 90% of future jobs will require digital skills, yet 44% of Europeans lack basic digital education. Considering that less than 20% of ICT professionals are female (European Commission 2016), the need for advanced ICT skills trainings is immense. Thus, designated female-only programmes are perceived as one of the pathways towards achieving technical empowerment and access to new opportunities. As discussed by Nath (2006), Gurumurthy (2004) and Jorge (2002), learning the skills essential to fully utilise the benefits that ICTs offer has the potential to empower women by enhancing their capabilities to overcome the barriers preventing them from fully participating in economic and social processes.

However, what these studies dismiss is that providing access and ICT skills trainings for women are insufficient to achieve full empowerment if the norms shaping the industry are aligned with unfavourable socio-cultural patterns. As demonstrated by Hafkin and Taggart (2001) and Ashcraft et al. (2016: 19), women tend to be concentrated in end-user, lower skilled jobs, such as data entry and word processing, regardless of their skills. Thus, feminisation of low-skilled jobs is prevalent, with low representation of women in the production and design of ICT. Similarly, Morgan (2012) and McKay (2006) indicate that the ICT sector is regulated by gendered assumptions despite its supposed gender-neutrality. McKay's (2006) study reveals that although women working in low-skilled ICT jobs improve their position within the household and gain relative financial autonomy, those changes occur only within the existing divisions of labour that placed them in secondary roles. These accounts contradict the popular assumption that merely providing access to ICT training and infrastructure is the answer to empowering women and facilitating their digital inclusion. Hafkin

and Taggart's (2001) argument that women still remain the passive consumers of ICT, which discredits them from undertaking leadership roles, demonstrates that the acquisition of specialist skills is inhibited by social norms, and that women's positions in the industry are diminished by default. Considering that the knowledge economy relies heavily on ICT and will do so even more in the future, if women are excluded from the design and implementation of new tools, programmes and systems, unequal power relations will prevail despite the potential to renegotiate them in light of systemic changes of the technology-based order. As a potential solution, Huyer (2006: 27) recommends that women create and develop technology and the content it carries. Therefore, the emphasis should be on improving women's position within the industry by teaching them more advanced expertise and creating routes into high-skilled employment.

Social and psychological empowerment

A key aspect of female-only ICT skills programmes is that they have the potential to support women in broadening the scope of their actions by providing them with social capital. Across the literature, the term refers to the extent, nature and quality of social ties that individuals or communities can mobilise (Zinnbauer 2007: 16) through the use of resources such as trust, information, social norms (Coleman 1990; Lin 2001; Putnam et al. 1993), that facilitate cooperation within or among groups (OECD 2007). So far, few studies have covered the role of social capital in ICT trainings, and this chapter aims to address this gap. However, gender and development scholars have thoroughly analysed the formation and influence of social capital within women-only development programmes (e.g. microfinance), concluding that in most cases such programmes foster social cooperation and enhance social networks (Sanyal 2009; Pitt et al. 2006; Maclean 1999; Karim 2008), with factors such as economic ties and regularity of meetings facilitating a shared sense of community and the capacity to undertake collective action. Therefore, it could be argued that such trainings create spaces of interaction and strong reciprocity due to their basis in the altruistic sharing of skills and experiences (Bowles 2002). However, as suggested by Coleman (1990), social capital emerges as a by-product, rather than as the main aim of these initiatives, indicating that a potential limitation of the trainings might be an insufficient emphasis on community-building activities.

One implication for ICT skills programmes is that through facilitating bonding (connections between similar people) and bridging (connections beyond a shared sense of identity) they can help assemble communities of women willing to support each other outside of the trainings themselves – for instance when looking for jobs. A large body of research indicates that social networks are vital in the process of finding employment, mainly through referrals and reducing deficits of information in the labour market (Dustmann et al. 2016; Zinnbauer 2007; Sabatini 2009; Stoloff et al. 1999). Therefore,

having an extensive network might be crucial for women when searching for employment in the male-dominated ICT sector (Franklin et al. 2005), where discrimination and scepticism may hinder their abilities to find jobs through the formal routes. Several feminist studies have identified the exclusionary and discriminatory aspect of male social capital working to maintain the status quo (ibid.) in the traditionally male-dominated sector (Henwood 2000; Cockburn 1983). While female-only networks facilitate women finding jobs, exclusive, better-established male networks could undermine this effort. This is supported by Fukuyama's (1999) assumption that social capital produces negative externalities when group solidarity is created at a price of hostility. However, as demonstrated by Storper (2005), bonding enhances the potential for autonomy and builds people's capacities, while bridging limits the potential opportunism of hostile actors. This proves that in order to contradict male domination in the ICT industry, maintaining strong social ties between women is essential.

Moreover, ICT trainings facilitate bridging by bringing women from the same location but different ethnic groups together to work towards shared goals. There is a consensus in the literature that local ICT initiatives can help to create trust and shape serendipitous social networks (Gaved & Anderson 2006; Williams 2005; Blanchard & Horan 2000), for instance through regular face-to-face meetings or messaging groups and forums.

Participation in a community, understood as a group of people with shared identities, expectations, and interests (Storper 2005: 34), stimulates psychological gains on an individual level (Zinnbauer 2007; Mishra 2016). For Lennie (2002) and Mishra (2016), psychological empowerment encompasses rises in self-confidence and self-esteem, increases in motivation, enthusiasm and self-value, well-being and feelings of belonging that promote freedom and a willingness to express oneself. This rise in psychological well-being is perceived as crucial to succeeding in the workplace (Mishra 2016; Zinnbauer 2007; Valarmathi & Hepsipa 2014), perhaps because it increases people's own beliefs in their abilities to achieve their goals and control their environment (Zimmerman 2000). This view is supported by Oladipo (2009), for whom psychologically empowered people – through a shift in their attitude, cognition and behaviour – have the capacity to stimulate positive changes on a social scale. Finally, some of the potential sources of psychological disempowerment defined in the literature include fear, insecurity, risk, lack of self-esteem and self-confidence, and a fear of failure (Mishra 2016; Valarmathi & Hepsipa 2014). Nevertheless, little has been said about the issue of psychological empowerment as it relates to ICT skills programmes specifically.

Political and civic empowerment

In their seminal study on social capital and democracy, Putnam et al. (1993) argue that social networks and norms are key to building and maintaining a

successful democracy. If ICT skills trainings and the knowledge networking they create are a source of strong female social capital, they could be deployed to increase women's political empowerment.

Scholars including Nath (2006) and Hafkin et al. (2003) emphasise that ICT trainings can influence political participation in two ways: first, by providing more information that was not previously available, and second, by bringing together larger groups of women mobilised around mutual concerns. They argue that coalitions formed during the shared experience of ICT skills learning have the potential to strengthen decision-making as well as local and national democratic processes. Despite this valuable insight, the studies offer no recommendation for how to interest ICT communities in political and civic engagement. Therefore, the challenge lies in designing and implementing ICT skills programmes that spark and encourage interest in these issues. The link between ICT skills and politics is not straightforward. However, the field of civic technology can serve as a method to enhance citizen participation in governance processes while simultaneously working to improve digital infrastructure and digital service delivery in the public sector (Peixoto et al. 2017). A crucial tool with the potential to connect the two fields, as proposed by internet and governance scholars (Ruijter et al. 2017; Pollock 2018), is open data. Understood as data that can be freely used, shared and built-on by anyone, anywhere, for any purpose (James 2013), it is one of the key concepts in civic technology. Open data is seen as an effective tool to counter corruption because it allows citizens to monitor government spending and view contract data. Hence, if shared and used comprehensively, it enables citizens to hold their governments accountable (Boland & Coleman 2008; Davies 2010).

However, Noveck (2009) is sceptical of tech-enabled civic communities. She challenges their transformative powers by pointing out the fact that despite bringing people together, civic programmes are disconnected from governmental practices themselves, and thus fail to change the ways in which institutions obtain and use information (Noveck 2009: 31). This valid criticism challenges us to rework previous models of citizen participation to incorporate the modernisation of governance systems where citizens can actively work with data and available information. For open data to be truly empowering, public participation and social engagement should be normalised and citizens should be involved in designing responses to public needs (Ubaldi 2013). This creates benefits for the governments – crowdsourcing of services and content can improve the governments' effectiveness and enhance policy-making through deploying the talent from outside of the public sector to use open government data. It is this ability of third parties to participate in and shape the use of open data that makes it a transformative and empowering tool. As concluded by Noveck (2012), open data enables those with technical know-how to create tools, models, and visualisations that provide innovative insights and bring fresh perspectives and resources. One example of this is the Code for America

programme, where software developers design digital solutions for the needs of their local governments.

The use of open government data is a socially situated process that operates within broader social arrangements, power dynamics and market conditions (Davies 2012; Felten 2009), hence the effectiveness of open data initiatives can be determined by these non-technical factors. Therefore, creating a culture of regular open data use and citizen engagement is essential for the efficient use of the data to support democratic processes and increase civic participation. Similarly, although such programmes increase civic awareness and participation, perhaps with an eye towards more participatory democratic models, their potential for politically empowering women might be limited if the social constraints preventing women from thriving in the ICT industry are not addressed first.

Moreover, for the political benefits of ICT skills and open data to be reaped, a high level of skills (Gurnstein 2011) and education on the requirements and responsibilities of citizenship is required (Weare 2002). Previous studies on the political empowerment of women through the use of open data and ICT skills have had mixed results. In their report on the impact of open data on women in Africa, Brandusescu and Nwakanma (2018) identify cultural and social realities as hindering women to engage with data and participate in the technology sector. Furthermore, the authors point out that the lack of a strong open data research base and women's digital groups prevents open data from being used in its full capacity for political and civic empowerment (Brandusescu & Nwakanma 2018).

Therefore, although digital skills, civic technology and open data could instil democratising aspirations in citizens, educators, and political authorities, their potential to empower women specifically is debatable.

Kosovo: The youngest and the poorest

Kosovo is by no means an ordinary place. Due to its turbulent history and uncertain political status over the years, the country is now facing a distinct set of developmental challenges that this section aims to explore.

Kosovo is Europe's youngest country, both in terms of history and demographics (Curto & Simler 2017). It declared independence from Serbia on 17 February 2008, yet its international recognition remains partial. After a four-and-a-half-year period of supervision by the UN, Kosovars built their institutions from scratch (Curto & Simler 2017: 20). However, the legacy of post-Yugoslavian political culture and widespread informality posed a challenge to forming transparent, credible and efficient institutions, with corruption emerging as a persistent problem. The lack of a coherent social infrastructure such as the rule of law, property rights and an ineffective judicial system, alongside the country's disputed status, further complicate the political

landscape. Therefore, the emergence of a strong civil society able to subject its governing bodies to greater pressure to increase transparency is crucial in shaping Kosovar democracy.

As aforementioned, demographically, Kosovo is the youngest country in Europe. Out of its total population of 1.8 million, around 38% of the population is younger than 19 (Curto & Simler 2017: 20). Although a young population is an asset and a potential resource for future prosperity, if not utilised properly it can lead to further destabilisation of the country. Currently, the potential of Kosovo's youth remains largely untapped: in 2015, nearly one-third of young Kosovars were neither in education or training and were unemployed. There is a substantial risk that the young population will become a 'demographic curse', leading to outward migration and brain drain, if the state fails to provide them with attractive future prospects. However, tough visa regulations and the fact that Kosovo remains the only territory in south-eastern Europe whose citizens require a visa to travel to the Schengen Area (Curto & Simler 2017: 108), constrain any current labour mobility.

Poverty is another major problem. Despite Kosovo's steady economic growth, the country is still the poorest in Europe (Diakonidze et al. 2016; Curto & Simler 2017). Kosovo also exhibits common characteristics of small states such as a narrow production base due to high input costs, a small internal market, tariff-dependent government revenues, and FDI and exports at a level insufficient to transform the economy.

The combination of all the factors listed above makes Kosovo a striking case where technology, digital skills, and open data could form a partial solution to issues of poverty, youth and female unemployment and weak governance. The ICT industry has been recognised as having the most potential for future development, and a number of government strategies made it a priority. However, inadequate human capital, poor quality of education and relatively low levels of digitalisation in the economy constrain this potential. (Ministry of Economic Development Kosovo 2013; Diakonidze et al. 2016; Shala & Grajevci 2018).

This chapter argues that women are particularly affected by these problems. They are disadvantaged in the political, economic and social spheres, as well as underrepresented in public administration, where only one position in five is occupied by women (Curto & Simler 2017: 146). Furthermore, surveys of the ICT sector in Kosovo indicate that there are four times more men employed in the ICT sector than women. Additionally, 24% of the surveyed women admitted that they decided against working in ICT fields due to their perception as 'male professions', while 44% claimed that they lacked adequate support networks (Diakonidze et al. 2016). Lack of assistance from employers and gender prejudices constitute other significant hindrances.

Thus, there is a need to upskill the female workforce in Kosovo and to create support and employment networks that can compensate for their unfavourable position. There has been a consensus in the literature (Diakonidze et al. 2016;

Kelly et al. 2017; World Bank 2016) that the key to the future successful economic development of Kosovo is to transform latent talent into productive human capital, with young women being the major target group. Therefore, ICT skills programmes targeting young women could improve the competitive position of Kosovo in the global economy. Girls Coding Kosova and Open Data Kosovo are the main grassroots organisations tackling the challenges outlined above, and their work will now be discussed.

Girls Coding Kosova and Open Data Kosovo

Blertha Thaçi started Girls Coding Kosova (GCK) when she noticed the contrast between the number of women studying computer programming and women working in the IT industry. GCK started as informal gatherings of women working in technology who would discuss their experiences. The organisation aims to create a free-of-gender-bias IT sector in Kosovo by increasing the number of women interested in programming, providing opportunities for them to gain skills and experience, and exposing women to coding and software programming from an early age.

Open Data Kosovo (ODK) is a civic technology organisation promoting open data and governance. ODK focuses on transparency, accountability, publishing business and procurement data, raising awareness and teaching ICT skills. Blertha Thaçi was also working for ODK and eventually became their executive director. Now, the organisations share the office and work on most of their projects together.

GCK projects target young women (18–25 years old), primarily, but not exclusively, from the ICT sector, and cover the whole range of skills currently in demand in the market while promoting technology-motivated civic engagement and open data driven solutions. The portfolio of both organisations includes Tech4Policy,¹ a programme where female residents design digital tools to address problems in their municipalities; Code4Mitrovica,² a project bringing together Serbian and Albanian Kosovars to work on tech-based solutions for Mitrovica, a disputed city in the north of Kosovo; Techsperience and Techstitution, a programme through which the youth from the ICT community develop digital tools that improve the quality of work in Kosovo's local and central level institutions; as well as a number of reports and platforms, including the Open Government Data Platform, Open Business, and Walk Freely, an app for women to report sexual abuse and receive data with patterns of street harassment.

1 <http://tech4policy.com/>

2 <https://www.facebook.com/GirlsCodingKosova/videos/850368838474744/>

Methodology

One motivation behind choosing ODK and GCK as subjects of this study derives from Kosovo's socio-economic characteristics, which provide unique conditions under which to observe the effect that ICT skills might have on the lives of women. The effects of grassroots initiatives aiming to empower women can be captured more explicitly in Kosovo than in countries with higher levels of educational attainment, less unemployment, and fewer cultural constraints for women. Moreover, the attempt to increase female civic engagement through the popularisation of open data-driven initiatives makes ODK and GSK pioneering examples of a holistic approach to development, particularly important in the case of young democracies.

There are no standard indicators to measure gender-specific empowerment (Kabeer 1999; Lee 2004; Bailur et al. 2018). Therefore, each study on the topic requires its own bespoke conceptual framework. Although the elusiveness of the concept can be a hindrance, as mentioned by Kabeer (1999: 436), for many researchers, its value lies in its 'fuzziness' and in the lack of a clear, universal definition. Therefore, one of the most successful methods of studying empowerment is through individual experiences and narratives gathered qualitatively. Thus, semi-structured interviews and conversations enable a better understanding of the factors that contribute to the failures or successes of ICT skills programmes for the empowerment of women. Due to the definition of empowerment adapted to the needs of this study and the local context of Kosovo, quantitative measures would fail to convey the complexity of the socio-economic implications of ICT skills trainings and the changes they initiated in the lives of individual women. Moreover, semi-structured interviews have been adopted by similar studies analysing the possibilities and hindrances that ICT skills trainings present for women (Lee 2004; Masika & Bailur 2015; Hussain & Amin 2018).

The data essential to establish whether digital skills programmes have an empowering impact on the lives of women in Kosovo were gathered through in-depth, semi-structured face-to-face interviews with a group of 20 stakeholders. This consisted of nine participants and eleven organisers of the courses (five of the interviewed organisers are past participants), including the founders of ODK and GCK, and the executive director of both organisations. The majority of interviewees were women under 30. Due to the specifications of the research question, the initial research plan did not include any male participants. However, this was revisited while conducting fieldwork and eventually, three men were interviewed in order to understand their perception of female empowerment as male members of the organisation – the founder of ODK, a member of the technical team, and one of the mentors. 65% of total interviewees and 78.57% of all the participants had previous information technology (IT) backgrounds. The interviewees were selected to represent

the variety of programmes organised or supported by GCK and ODK to help ensure that the findings were not limited to a one particular course and the process of acquiring IT skills was accurately captured.

Most of the interviews lasted between 20 and 90 minutes and were conducted either in the ODK office or in cafes nearby. Interviews were arranged a few days in advance, with a few exceptions when women were interviewed during or just after the workshops. All of the participants signed consent forms and gave permission for the interviews to be recorded. Most of the interviewees explicitly stated that they do not wish to be anonymised and that they would like their names to appear in the paper. Interviews were conducted in English and in order to facilitate freedom of interaction, no notes were taken during the interviews. Furthermore, throughout the duration of the fieldwork my daily presence in the office and at various events organised by GCK and ODK enabled me to establish warm, individual relationships with the staff. The interview recordings were transcribed and coded using a mix of descriptive and in vivo coding to organise the material conceptually. Subsequently, the codes were grouped into themes and categories on the basis of their frequency and structures of meaning and were then compared with existing theories.

The main limitations of the methods used in this research are inherent in many qualitative approaches: particularly the difficulty of applying the findings to wider populations due to context-specificity, and the implicit subjectivity in the interpretation of the findings (Yin 2008). Moreover, there are limitations in the robustness of the data collected: due to the majority of participants of the programmes pursuing their studies at the time of the courses, there was no employment impact data available. Furthermore, since the participants were interviewed within the context of the courses, their criticism of the programmes might have been tempered by their surroundings, thus leading to potential biases in the data. Another limitation is that the interviews were conducted in English, which is not the native language of the participants.

Findings and analysis

Disempowerment

The main sources of disempowerment as reported by the interviewees derive from the traditional divisions of gender roles, with women in many, particularly rural, families being discouraged from undertaking employment. 17 out of the 20 research participants perceived cultural constraints as the main reason for low female labour market activity, with ten participants explicitly having been told that ICT is not for women at some point in their lives. The perception that women should stay at home and raise children is still prevalent. Many women are actively encouraged to live off their husbands' earnings: 'they are glad they don't have to work. They believe it's a privilege' (Kosovare). 'Discrimination

starts not when they go to work, the first point is families’ – reported one of the interviewees, raising the issue of social norms being so deeply engrained that women believe that the optimal choice is not to work.

At university and in the workplace, direct discrimination occurs when women’s skills are openly undermined, and their achievements are discredited: ‘This is not a product you developed – you are just women, you can’t do that’, heard one of the interviewees from her professor. Dhurata, who owns a tech start-up at the age of 23, recalls being at an international conference and talking to people interested in her product, when she was asked: ‘Where are the guys who did this?’ The answer that she developed the app with her friend was followed by a series of technical questions aimed to verify whether she was telling the truth. Such scepticism and playing down of women’s abilities prevail in the workplace. Kosovare, one of the most experienced women interviewed, claims that it is hard for people to believe that a woman can develop a successful programme or an app. This attitude results in women eschewing ICT and developer roles and gravitating towards more administrative tasks: ‘They are faced with too many people who try to stop their way, they hear that they are not able to do that because they are female, and they get demotivated’. Other, more subtle forms of discrimination, entail giving women tasks perceived as easier, for instance front-end development, rather than more challenging back-end; or assuming that women are better with design because of their gender: ‘They try to give you easier jobs because you’re a girl. They always give us front-end or design, but not all girls are good at design.’ This leads to frustration and fear of not reaching one’s full potential: ‘I want to do the work you do, I didn’t come here to get a better treatment,’ stated one of the participants. Moreover, the interviews revealed that women are at a disadvantage in the industry from the very beginning because when they are younger they are not encouraged to engage with ICT-related activities. Men, on the other hand, start programming from a very young age and are more experienced by the time they attend university. Given that the majority of interviewees reported that skills taught at universities are obsolete, such differences can significantly influence the careers of women.

The obstacles created by unfavourable socio-cultural norms contribute to lowering women’s self-confidence and negative self-perception, which then negatively impacts their ability to persevere in ICT: ‘Not many girls go into programming because it was installed in our heads that it’s very hard and girls can’t do it’, says Kosovare. Although women’s participation in the ICT industry is low partially due to such discouragement, the ones who chose it as a career emphasise that they are prepared to be challenged and are actively working to contradict similar stereotypes.

Thus, the research confirms the literature in discovering that the main source of disempowerment in the IT sector in Kosovo is socio-cultural norms (Curto & Simler 2017; Kelly et al.) strengthening the perception of ICT as a male domain, followed by the lack of female-only support networks (Diakonidze et

al. 2016). However, this study provides additional insights on the subtle form of discrimination within high-skilled ICT jobs that have not been considered in the literature. Although McKay (2006), Hafkin and Taggart (2001) and Huyer (2006) are concerned about the feminisation of low-skilled jobs and advocate for women to become creators and developers of ICT products, they don't account for a form of discrimination explicit in this study, which is the allocation of easier tasks to women already working within high-skilled ICT professions.

Second, this research demonstrates that although insufficient university skills are a hindrance for all young Kosovars, women are particularly affected due to the fact that they are not encouraged to engage with ICT from a very young age in the manner that men are. Women often lack experience and the technological savvy that men gain early in their lives, which further magnifies disempowerment. Although the literature identifies low self-confidence and lack of self-esteem as significant sources of psychological disempowerment (Mishra 2016; Valarmathi & Hepsipa 2014), the interviewees are certain of their abilities. What constrains them is discrimination and exclusivity of male professional circles, which has been identified as a key obstacle by Franklin et al. (2005), Henwood (2000) and Cockburn (1983).

Technological empowerment

The ICT skills trainings organised by GCK and ODK leverage the obstacles described above as follows. First, they provide relevant skills demanded in the job market, thus creating a source of comparative advantage for women. This is of significance particularly due to dissatisfaction with the curriculum at universities in Kosovo. 15 interviewees reported that the skills taught at universities are obsolete, too theoretical, disconnected from their real-life projects and aspirations. 'Recent graduates don't have the skills that the market looks for – technology moves very fast, it's hard to get jobs straight away', says Dhurata, recalling the period of sadness and disappointment when having graduated with very good grades, she was struggling to find a job. She points to her GCK training as the factor that eventually enabled her employment in the sector. Moreover, by bridging this university-industry skill gap and training women in the latest technologies as well as soft skills such as teamwork, project management, communications, the courses provide them with the tools to become better programmers. Participating in the programmes prepares them to enter the job market with a potential advantage over their male counterparts who lack similar training. Furthermore, the mentors, women in their late 20s, 'digital natives' themselves (Prensky 2001), relate to the learning needs of the students and adjust their methods accordingly. These findings support the research by Nath (2006), Gurumurthy (2004) and Jorge (2002) that gaining new skills boosts participation in economic and social processes, as well as facilitates employment and increases women's capability to overcome potential obstacles.

In terms of the relevance of skills taught, the findings affirm the insufficiency of skills taught at universities (Diakonidze et al. 2016; Shala & Grajcevcı 2018), with a majority of interviewees stating that what they were taught during their degrees was obsolete and insufficient to succeed in the job market. Moreover, the findings show that GCK and ODK staff ensure that the skills they teach are up to date through a careful process of curriculum design and industry research. Open data use is a significant part of the training, resulting in participants being fluent in practical use of open data and its tools at the end of the programmes. GCK and ODK teach technologies that, at the time of writing, cannot be learned anywhere else in Kosovo for free, which opens the courses up to more disadvantaged women.

Due to the quality and specificity of the skills taught, ODK and GCK often employ past participants of the courses, thus contributing to the labour market empowerment of women on a small scale. Five out of eight interviewees who now work for the organisations (founders are excluded from the calculation) got the job through participation in the trainings.

Social and psychological empowerment

By bringing women in ICT together, the programmes create a strong sense of community and introduce younger women to mentors and role models. This is a crucial empowering factor that has the potential to counterbalance oppressive social norms. The majority of participants stress that having a community of women in technology had a positive effect on their career development and confidence. Being in touch with other participants and organisers creates new friendships and provides practical assistance with ICT-related problems encountered during professional life after the programmes. As one of the organisers explains, in addition to teaching ICT skills, the aim of the courses is to 'motivate women to do anything they want to do, to challenge this stigma that men should do certain things and women should do others'. Past participants often call the organisers for technical advice. Some friendships that started during the programmes resulted in joint projects, such as a start-up developed by Argeta and Dhurata. Although the literature indicates that participation in such networks aids job searches (Stoloff et al. 1999; Dustmann et al. 2016; Zinnbauer 2007), only a few interviewees found employment through referrals. However, with GCK and ODK being recognisable and valued by the local employers, involvement with the trainings resulted in favourable treatment in the industry for the majority of interviewees.

Communities of women willing to support each other outside of the trainings were formed through bonding, as described in the literature (Storper 2005; Sanyal 2009; Pitt et al. 2006; Maclean 1999; Karim 2008). However, the findings add another dimension to the argument that cross-community bridging creates mutual trust (Gaved & Anderson 2006; Williams 2005;

Blanchard & Horan 2000). Code4Mitrovica, the programme that aimed to bring Serbian and Albanian communities to code together, resulted in a fruitful collaboration. Most of the Albanian and Serbian participants intended to stay in touch afterwards. However, they revealed that this consensus was based on a mutual willingness to avoid political conversations due to the potential for disagreement, thus demonstrating the shallowness of those new social ties.

Providing successful role models is another way in which the programmes empower young women in the ICT sector in Kosovo. Participants in their early twenties look up to their older colleagues, particularly Blerta, the founder of GCK, as a source of inspiration: ‘You can put yourself in her shoes, you can imagine yourself doing this too’ (Albana). Similarly, Kosovare, one of the mentors, had an older friend who supported her emotionally when she was starting to code. Now she provides similar assistance to the participants: ‘It’s a very good feeling when you do something for someone that someone did for you, helping you create your path’.

Some of the interviewees praise the effects the programmes had on their mental health and overall well-being and feel extremely grateful for having been given a chance to participate: ‘[Before I applied] it was a very low point, I was confused, sad. I felt very fortunate to be chosen, I really needed that experience. I learned so much’ (Argeta). Similarly, Florina describes commencing the programme as a life-changing event: ‘Things weren’t going well. Getting into the training was the best thing that could happen to me – I hit rock bottom, I was kind of depressed; this was a new opportunity’. These findings show the significance of support networks for younger women on the verge of giving up due to the lack of promising job prospects. Here, guidance from older colleagues was particularly effective in shaping their future development.

Therefore, the research confirms Lennie (2002) and Mishra’s (2016) suggestion that psychological empowerment contributes to a rise in self-confidence and self-esteem, and increases in motivation, enthusiasm, self-value, and well-being. The findings add to the literature by identifying the presence of relatable, young female role models as a key feature to evoke all these positive externalities.

Political and civic empowerment

As a young, post-socialist democracy, Kosovo struggles with corruption and low female participation in political life. Through data-driven projects focused on civic and political engagement, ODK and GCK create a platform for young women to engage with issues in their municipalities. ICT skills, open data, and civic engagement are intertwined in Kosovo. The majority of the projects created during the programmes use open data in the applications or websites they develop, and the topic of the trainings is always related either to

improving the lives of residents or influencing the political climate. Therefore, such use of open data and ICT skills empowers women as citizens, raising awareness of their democratic privileges and encouraging their interest in male-dominated politics. Moreover, it teaches them to utilise new skills for greater social benefit. Increasing civic engagement is a significant aspect of the programme for the organisers: 'I want to ensure that women understand their role as active participants and know how to use technology to actually raise their voice', says Blerta. ODK and GCK promote the model of tech-enabled, active citizenship, where data are used as evidence to pressure governments and demand policy changes.

Working on open data-driven solutions results in a rise in female civic engagement. The interviewees reported an increase in their interest in local current affairs after the programmes: 'Before, I didn't care that much. I've started seeing things differently after the project because I worked with that. I think that reporting something that is not right in the city is important and the opportunity to have a meeting with municipality officials gives people the feeling they are being heard' (Artira). Women who were previously unaware of the civic aspects of technology are now taking the initiative to change things in their municipalities: 'I wasn't interested in open data that much; civic tech wasn't important to me at all. After I got to know it, I've started to learn new things about the process and it helps me develop my knowledge of different things, not only programming. Now, I look at how my municipality organises data on their website and I don't like it. It's not user-friendly, so people don't look at it. I want to voluntarily help them with their website' (Florina). Similarly, Arbenita reveals how working with open data changed her perception of its use: 'Before, if the municipality posted a document, I wouldn't even know about it. Now, I would go on their website to check it.'

What these findings show is that merely bringing women together is insufficient to stimulate civic or political engagement – in the case of GCK and ODK, involving them with open data and civic technology projects is what enables them to develop their interest in these spheres. As identified by Brandusescu and Nwakanma (2018), having such communities is essential: a lack of strong groups working on issues related to open data is one of the main obstacles in fully harnessing the potential of open data for the empowerment of women. This research shows that thus far, the programmes have made a significant contribution to creating a data-driven, civic community. Furthermore, through the projects' focus on a direct collaboration with local governments and on the design of e-governance platforms for their use, GCK and ODK help overcome the criticism of Noveck (2009) that such communities lack transformative powers by being disconnected from governmental practice. Here, women set the direction for the digital development of their governments through designing and building the tools they need. Hafkin et al. (2003) and Nath (2006) assume that providing previously unavailable information – open

government data in this case – in addition to mobilising women around mutual concerns, can spark their interest in current affairs. However, this research demonstrates that for the majority of interviewees working in ICT, politics is not a primary interest and despite open data contributing to the shift in their perception of these issues, the increase occurs primarily in the civic, not in the political sphere.

One example of civic empowerment is as follows: for women participating in the programmes, gaining expertise in the use of open data and the opportunity to work on digital tools for their local governments gives them the confidence to speak up and liaise with their municipalities. Past participants of the Tech4Policy project describe the chance to express their opinions about issues regarding the municipality and having their advice taken seriously by the officials as the most fulfilling aspect of the programmes. Similarly, one of the project assistants observes: ‘At the beginning, they lacked self-confidence to be engaged in this type of conversation with the municipality. It’s because of the stereotype that municipality is hard to reach, and young citizens don’t really deal with it. By the end of the project they were so interested, and knew much more about their municipalities, they grew as citizens’.

Women who previously did not work with municipal officials directly now perceive open data as facilitating their interactions with the public administration, for instance when obtaining documents or certificates from their municipalities. ‘Open data is making our lives easier. Instead of going to the government’s building and asking for the documents or data you need, you can just find it online’ says Argeta. For her, the relationship between opening up the data and increasing transparency in governance is apparent: ‘The government should be more open about their actions and open data is making it happen’. ‘We should really be using it more often. Open data is free, you can make great things with it,’ confirms another participant. Thus, the majority of interviewees recognise the advantages that the use of open data presents and its empowering potential. However, they are still uncertain how to use it in order to generate long-term social benefits.

General limitations

Despite their numerous advantages, ICT skills trainings in Kosovo have a number of general limitations that hinder their potential to fully promote the empowerment of women.

First, although the programmes provide the skills necessary to succeed in the workplace, they offer little practical employment assistance. As explained by one of the organisers: ‘We don’t help them find jobs, we teach them skills to be ready to apply’. Sometimes representatives of local tech companies are invited for the final presentations as an opportunity to hire some of the participants. Nevertheless, despite sharing occasional job opportunities, GCK

and ODK fail to provide any further employment help. Considering cultural constraints and the relatively hostile climate within the industry, there is a risk that women trained by the programmes might fall into administrative or low-skilled ICT jobs instead of utilising the advanced skills they acquire through these programmes.

Although in theory the programmes are free and open to everyone, they tend to attract a certain profile of university-educated (usually in an ICT-related subject) urban women who are already empowered enough to be able to find such programmes and express their interest in participating. Due to the courses being advertised primarily on social media, women with no presence on those channels and no internet access are unable to find out about the opportunities. Therefore, ICT-enabled empowerment is only applicable to a certain group and does not challenge existing social divides. Through targeting women primarily from the ICT sector, the programmes are complementary to already existing skills, refining and preparing young female talent to enter the job market equipped as well as possible, rather than training women with no ICT background with an interest in entering the industry. It can be argued that this approach facilitates finding better jobs for people who would have jobs regardless, and a more sustainable solution in terms of overall female empowerment would be to target the most impoverished and vulnerable groups, such as women from rural communities or ethnic minorities.

Similarly, civic technology and open data are only familiar to a limited group of people, usually from the ICT industry. When asked about the awareness amongst the general public, the interviewees confirmed that the majority do not know what it is or how to use it – older generations in particular: ‘People don’t know they are capable of influencing those issues. They should ask more about what is happening to our money, why is the political situation in Kosovo like this’ (Rita). This confirms Gurnstein’s (2011) scepticism that tools like open data and civic technology can operate successfully only when there is awareness and skills sufficient to utilise them. Therefore, the key to the successful use of open data and civic technology for the increase in civic and political engagement lies in expanding their accessibility and educating citizens. Furthermore, as outlined in the previous section, even though the trainings increase civic engagement, their contribution to political empowerment is insufficient. Although the use of open data creates a desire to be more politically active, the participants report a lack of tools and guidance on how to achieve it. Perhaps introducing workshops focused specifically on enhancing female political participation through the use of open data and civic technology would be beneficial for further developments in this sphere.

Open data is a relatively new concept in Kosovo, thus in order for its meaningful and effective adoption, organisations like ODK and GCK need to overcome a number of obstacles identified by the interviewees, such as the lack of skills to effectively utilise the opportunities that open data presents. When

Georges started ODK, the skills he needed in order to support the open data movement were scarce. He explains that providing comprehensive training is lengthy and costly, and retaining employers is challenging, considering the higher salaries offered in the private sector that attract workers initially trained by ODK. Thus, there is a need to further popularise the broader use of open data for it to emerge as a norm, rather than a rare activity available primarily to the people from the ICT industry.

Low digital advancement of local governments is another obstacle hindering the potential of open data to stimulate participatory policy-making and crowdsourcing of policies. Thus, ODK and GCK are working to improve digital infrastructure in the public sector. Dafina, the deputy director of ODK, describes the process as follows: ‘We combined technology, people and open data. We realised that the government doesn’t have the infrastructure to do anything, so we trained the community, raised their awareness, demonstrated that they can build digital solutions using open data – this way people can have more access, more data’. Currently, the organisations train the community in the active use of open data and motivate them to utilise the existing data creatively. One of the projects that emerged through the open data-centred training was *Ec Shlirë* (Walk Freely),³ a mobile app created during a series of workshops with 30 young Kosovar women. In Kosovo, 47% of people are subject to harassment but from 2013-14, only seven cases were reported.⁴ The app allows users to anonymously report sexual harassment that they have been subjected to and provides them with data analysis tools in order to highlight trends and patterns of street harassment in Kosovo. Data produced by the app is openly available and disaggregated by the type of harassment, location, perpetrators, age group of the survivor. Available for Android since February 2016, the app has been downloaded more than 1,000 times and has collected nearly 400 reports (Open Data Kosovo 2018). For some of the women participating in that project in 2016, it was the beginning of their data and ICT careers: for instance, Kosovare received a job offer at ODK following her participation in the workshop. Similarly, a few other participants describe working on Walk Freely as their first comprehensive encounter with open data.

Furthermore, despite local governments being eager to begin the process of opening up their data, there are still substantial gaps in the data currently available. This presents the potential bias in data sharing – the government might allow harmless, yet less important data to be shared, while simultaneously preventing the access to other datasets that might be of higher significance for organisations like ODK. For instance, as reported by the organisation leads, obtaining water and air quality data proved extremely challenging. Similarly,

3 <http://iwalkfreely.com/>

4 https://www.canadainternational.gc.ca/croatia-croatie/eyes_abroad-coupdoeil/EA-Croatia-RSH.aspx?lang=eng

the Business Registration Agency was reluctant to open its data. As a response, ODK scraped the data themselves and built their own business registration search engine, Open Businesses, with data from over 170 000 businesses in Kosovo, making it possible to find businesses by the name or the owners, as opposed to by number only in the official registrar by the Kosovo Business Registration Agency. Although this shows the resilience and resourcefulness of the open data community in Kosovo, the reluctance in sharing key data is a serious obstacle that could further hinder the potential of open data to tackle corruption and inform activism, and in the long run, empower women in the socio-political sphere.

Discussion and conclusion

The research questions explored in this chapter were:

1. What factors disempower women in the ICT sector in Kosovo?
2. What are the strengths and limitations of ICT skills programmes and open data for the empowerment of women?

The investigation aimed to analyse the use of ICT to improve the situation of women while simultaneously creating high-skilled, more politically active human capital.

Broader context

This section situates ICT skills trainings in a broader context and confirms Wilson's (2015) and Prügl's (2017) claim that, in addition to the empowerment of women on the individual level, female-focused developmental initiatives create a number of wider socio-economic benefits.

As demonstrated in Figure 3 below, broader social benefits deriving from empowering individual women in the four spheres introduce a number of positive changes, such as promoting active citizenship and the use of open data, initiating community reconciliation, and creating high-tech female human capital that could influence social norms in the long run. Therefore, despite their limitations, ICT skills trainings serve as a holistic developmental strategy with an end-goal of creating a highly specialised and democratically engaged female population. In the case of Kosovo, where public sector ICT systems are obsolete, university skills insufficient, levels of corruption and female unemployment high, such programmes mobilise the untapped potential of the female workforce and narrow the university-industry gap. The rise in civic empowerment is enabled by the use of open data during the programmes. Thus, ICT skills and open data have the highest empowering potential when used in conjunction.

Figure 3. Benefits from empowering women

	How GCK and ODK enhance it	Benefits for individual women	Benefits for the society
Technological Empowerment	Teaching women advanced ICT skills; Retention of past participants – employment on the small scale.	Increased technological capacities; Specialist skills facilitate finding employment.	Bridging the university–industry skill gap in the workforce; Increased number of highly skilled women in IT has a potential to challenge preexisting social norms and stereotypes.
Social Empowerment	Creating a community of women in tech.	Participation in a strong support network; Female-only network could assist with finding employment.	Strong social capital provides basis for civic engagement in the long run; Technology can bridge communities.
Psychological Empowerment	Strengthening the ties between women in the community; Providing more experienced role models.	Guidance, help, inspiration.	Increased self-worth and overall well-being of women makes them more likely to participate in the labour force and could contribute to the rise in national productivity.
Political/Civic Empowerment	Using open data to design apps and platforms; Matching problems in the local governments that could be solved using digital solutions with skilled female programmers from the area.	Entering the civic and political spheres that were previously out of their scope.	Citizens are more active in shaping democratic processes; Improved digital infrastructure in the public sector; Increased awareness of open data could help fight corruption.

Moreover, enhanced female civic technology involvement has been utilised to modernise digital infrastructure in the public sector (Figure 4), particularly through projects like Tech4Policy or Techstitution.

The findings correspond with Cornwall's (2016) framework on the process of change (Figure 1). ICT skills programmes in Kosovo provide initial access to resources and opportunities, and an increase in the number of women in the ICT industry has a potential to transform informal cultural norms and exclusionary practices in the long run. The fact that GCK and ODK programmes require women to design ICT tools for their municipalities, advocate for open data and transparency as well as closely collaborate with officials triggers systemic changes in the formal spheres of governance and public policy, allowing women to take a more active role in these previously male-dominated areas.

Figure 4. Enhancing female civic technology involvement

Thus, this chapter argues that for ICT skills programmes to achieve sustained and multidimensional empowerment of women while simultaneously generating broad socio-economic benefits, such trainings should be implemented in the context of civic technology, the use of open data, and collaboration with local policymakers.

Summary

The popularisation of ICT in the development agenda has inspired the emergence of female-only ICT skills trainings aimed at empowering women and enabling their active participation in the knowledge economy. Through combining the existing definitions of empowerment, this research established a framework to assess to what extent ICT skills programmes contribute to the empowerment of women in four spheres: technological, social, psychological, political. The results indicated that although the programmes positively impact these aspects of women's lives, their potential to eliminate long-term sources of disempowerment is debatable due to the fact that they operate within patriarchal social norms.

These findings affirm the literature describing such norms as the main obstacle to empowering women, with discrimination, discouragement, and scepticism emerging as other hindrances. Overall, the research discovered that ICT programmes equip women with highly demanded skills, involve them within the support networks, positively influence their confidence and civic participation, using open data as a key tool to achieve the latter. Some limitations of the programmes were also identified: exclusivity, insufficient employment assistance, failure in strengthening women's political engagement.

Policy implications

Although the findings indicate that ICT skills trainings have the potential to partially empower women in the four domains (technological, social, psychological, political), it is crucial to acknowledge the limitations of the trainings as

outlined throughout this chapter, and design policy solutions to overcome them. Thus, this section discusses the wider implications that should be of interest to policymakers in countries and regions with low rates of female and youth employment and civic and political participation.

First: Open data and ICT skills trainings should be deployed as complementary tools for upskilling the workforce and instilling the notion of active citizenship. Without relevant ICT skills, the presence of open data does not contribute to the empowerment of women. On the other hand, in order for the employment-focused ICT skills trainings to contribute to a greater social benefit, it is recommended for open data and civic technology projects to be their key focus. As proven by the case of Kosovo, inviting ICT practitioners to engage with open data increases their interest in municipal affairs and encourages their active participation in local decision-making.

Second: ICT skills training could provide a neutral environment for people from different – even historically antagonistic – communities to meet and collaborate. Such tech-enabled bridging could be reproduced in other locations in order to initiate the process of reconciliation and/or integration of ethnic minorities. Working towards a common goal – in this case designing a digital solution to improve the lives of inhabitants of Mitrovica – might not stimulate political discussions, yet it has the potential to unite younger generations on a professional level and establish projects they could work on collectively. This could lead to bridging and reconciliation between communities in the long run.

Third: In order for ICT skills programmes to produce long-term benefits for women, overcoming subtle discrimination in the workplace is essential. This could be achieved through establishing training-to-industry links for highly skilled graduates of the programmes to ensure that their career trajectories are not interrupted by placement in low-skilled, administrative occupations.

Limitations and future research

This study recognises that due to the methodological limitations, the findings shall not be treated as prescriptive. Qualitative studies are perceived as more subjective and interpretative (Yin 2008), and their implications are often context dependent. The data collected captured the ICT-enabled process of empowerment on the individual level. Thus, in order to overcome these limitations, further research is needed. Quantitative data on how many women found and retained employment in the ICT sector upon the completion of the programmes would create a comprehensive picture of technological and social empowerment. Further examination of the political empowerment achieved through the use of open data could provide additional insights on how to build capacity and stimulate political and civic engagement in the ICT sector.

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