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Bits of Life:

Leveraging Emerging Technologies to Improve the Livelihoods of Refugees

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Abstract

This thesis examines the role of Information and Communication Technologies (ICTs) in improving the livelihoods and employment opportunities of refugees. The ongoing Syrian refugee crisis is considered not only as a humanitarian crisis, but through the lens of human rights. “Bits of Life” argues that improving the livelihoods of refugees is in accordance with refugees’ rights to work, based on the International Covenant on Economic, Social, and Cultural Rights and the 1951 Refugee Convention. Furthermore, this thesis explores how access to reliable and affordable Internet serves as a crucial tool to help fulfill refugees’ efforts to obtain independent employment and economic security. Although access to the Internet has not yet been recognized as a basic human right, it plays a significant role in fulfilling refugees’ rights to freedom of expression and their rights to development. Issues surrounding the availability and utility of Internet access among refugees also raise important concerns regarding the right to privacy. By surveying existing technology-based humanitarian livelihood programs, notably Iraq Re:Coded, “Bits of Life” analyzes the successes and failures of existing initiatives and offers recommendations to improve the adaptability and effectiveness of future applications of ICTs in the field of refugees’ rights and livelihoods.

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Preface

*No one leaves home
until home is a damp voice in your ear saying
leave,
run now,
I don't know what I've become.*

— “Home,” by Warsan Shire

I left home with a heart full of memories, an eyeful of tears and, perhaps, a handful of goals. I was lucky, though. My home is still home; untouched and solid, still my most familiar one. For those of us, both refugee and immigrant, who have left our homes and ended up on far sides of the world, home becomes something both more and less than just a place. It is a symbol of what we have lost, and what we hope to find. Like a snail, we carry our homes with us. We learn, teach, adapt, and move forward into an uncertain future, as we all must.

As technologies continue to transform societies around the globe, the question of how refugees create new homes, new livelihoods—and, in the process, preserve their fundamental rights as human beings—is more pressing than ever. This thesis explores the role of Information and Communication Technologies in improving the livelihoods of refugees. By examining the existing technology-based humanitarian livelihood programs, notably Iraq Re:Coded, “Bits of Life” documents the successes and failures of such programs and provides recommendations to combat the challenges that remain. It aims to show an *unshown* picture of refugees as the capable individuals that they really are, and as a “developing factor” in making countries thrive.

The beginnings of this thesis began when I was still working as an engineer, wondering how the binary world of silicon and bits could ever be connected to the life-and-death concerns

of refugees and others who suffer at the hands of an unjust world. It is my great pleasure to now have some small chance to bring these two worlds together.

I am grateful to my advisor, Professor Ted Perlmutter, for his extensive professional guidance and for helping an engineer to spice up her hyper-practical mind with some valuable theoretical scholarship. I would like to take this opportunity to thank Professor Sheila Dauer, Kristina Renee Eberbach, and Gergana Halpern at the Institute for the Studies of Human Rights at Columbia University for helping to make this possible. I would like to extend my gratitude to Eileen Gillooly and Mia Ruyter for their companionship and mentoring. Many thanks to Dina Ariss from the EmpowerHack team, Fran Penfold, Meghann Rhynard-Geil, Jovan Jelcic, and Omar Meksassi from the Refugee.info, Sven Seeberg from the Integreat team, Ruth Coustick-Deal and Cynthia Khoo from the OpenMedia team for our conversations at RightsCon, Brussels. I am thankful to Fredrik Winsnes and Kristin Kalning from the NetHope team for giving me the opportunity to present my work about refugee apps at the Nethope Global Summit. I especially thank Ali Clair and Marcello Bonatto, from the Iraq Re:Coded team, for their time and energy in helping me learn about their amazing project. I wish to thank as well Jawad and Shikhali, my hopeful, soulful, mindful beautiful friends who themselves have experienced crossing a deadly Mediterranean in pursuit of a safe, simple life. Many thanks to my beautiful sister, Roja, my brother-in-law Ehsan, and my mother for their support and encouragement from eleven thousand miles away, and to my dad. The memory of his kind eyes still teaches me lessons of compassion and humanity. I hope he is proud of his little daughter.

And I wish I could thank Benjamin Patrick Breen enough, my kindest life partner, for having my back, for supporting me and believing in me. For helping me grow professionally and personally. For finally making this country a home.

List of Acronyms

3RP	Regional Refugee Resilience Plan
CEO	Chief Executive Officer
CSS	Cascading Style Sheet
CTA	Community Technology Access
DH	Digital Humanitarian
DRC	Danish
EFF	Electronic Frontier Foundation
Fintech	Financial Technology
HTML	HyperText Markup Language
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICT	Information and Communications Technologies
IDP	Internally Displaced Person
ILO	International Labor Organization
IRC	International Rescue Committee
ISP	Internet Service Provider
KRI	The Kurdistan Region of Iraq
NGOs	Non-Governmental Organizations
OCHA	Office for the Coordination of Humanitarian Affairs
SQL	Search and Query Language
UDHR	Universal Declaration of Human Rights
UN	United Nations
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees

Chapter 1: Introduction

I. Background

There are currently approximately 65 million displaced people around the world.¹ This is a higher number than at any previous period since the aftermath of World War II.² The Syrian Civil War, alone, is projected to result in the displacement of more than 10 million people. Since the outbreak of conflict in March of 2011, over 5 million Syrian nationals have sought refuge across international borders. Jordan, Lebanon, Turkey, Iraq, and Egypt have been hosts to 95% of these refugees.³ For the vast majority of these Syrians, returning back home is not an option that is currently in sight. Indeed, in many cases, their homes no longer exist.

According to the United Nations High Commissioner for Refugees (UNHCR), 54 percent of the world's refugee population have lived in exile for more than 5 years; on average, the duration of refugee status is 17 years. Because of the variance between work regulations in different countries and the difficulties involved with obtaining work permits, a large majority of this population are unemployed, or work illegally and for very low pay.⁴ Governments, UN

¹ This thesis defines "refugee," following the 1951 Convention and Protocol Relating to the Status of Refugees, as "an individual who is unable to return to his or her country of prior residence due to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion." In this thesis, I focus on Syrian nationals who sought refuge in the aftermath of the Syrian Civil war in 2011. Most of the refugee camps that this thesis discusses were established by UNHCR and managed by government or other humanitarian agencies such as Danish Refugee Council. The discussion of "livelihood" throughout centers on programs with the purpose of empowering refugees in host countries to pursue permanent employment opportunities.

² "Connecting Refugees: How Internet and Mobile Connectivity Can Improve Refugee Well-Being and Transform Humanitarian Action" (UNHCR, September 2016), <http://www.unhcr.org/5770d43c4.pdf>.

³ United Nations High Commissioner for Refugees (UNHCR), "UNHCR Syria Regional Refugee Response," *UNHCR Syria Regional Refugee Response*, accessed April 17, 2017, <http://data.unhcr.org/syrianrefugees/country.php?id=103>.

⁴ Akram, S.M. et al., 2015. Protecting Syrian Refugees: Laws, Policies, and Global Responsibility Sharing. *Middle East Law and Governance*, 7(3), pp.287–318.

agencies, the private sector, academics, and NGOs work in tandem with one another to attempt to address the basic material needs and human rights of refugees. In respect to the Syrian and Afghan refugee crisis of the past five years, there is one unique feature of these efforts: the massive mobilization of Information and Communication Technologies (ICTs) to tackle a humanitarian crisis.⁵ As this thesis will argue, this new availability of Internet connectivity and digital platforms has the potential not only to transform the lives of refugees, but also to serve as a vital tool for facilitating the work of the human rights and humanitarian organizations that work with them.⁶

Mobile devices stand at the center of this story. Once the prized possession of the global elite, the smartphone is no longer a luxury item. By 2020, it is estimated that 70% of all human beings on the planet will possess a device capable of broadband internet access and global communication.⁷ Cellphones and other information and communication technologies (ICTs) have emerged as vital tools for survivors of humanitarian disasters, as we can see from the importance of location-based apps and communication tools among Syrian refugees.⁸ These individuals use internet-connected devices to find the safest routes on their migration journey, keep connected with their family and friends, learn new languages, find NGO services, and improve their livelihoods.

⁵ On refugees' use of 21st century skills and tool such as mobile phones in and out of refugee camps see Betts, A. et al., 2014. *Refugee economies: Rethinking popular assumptions*, University of Oxford, Refugee Studies Centre. Retrieved at: <https://www.rsc.ox.ac.uk/files/publications/other/refugee-economies-2014.pdf>

⁶ UNHCR, "Connecting Refugees: How Internet and Mobile Connectivity Can Improve Refugee Well-Being and Transform Humanitarian Action," Accessed January 2, 2017, <http://www.unhcr.org/5770d43c4.pdf>

⁷ "Ericsson Mobility Report: 70 Percent of World's Population Using Smartphones by 2020," *Ericsson.com*, June 3, 2015, <https://www.ericsson.com/news/1925907>.

⁸ Carleen Maitland and Ying Xu. "A social informatics analysis of refugee mobile phone use: a case study of Za'atari Syrian Refugee Camp," *TPRC 43: The 43rd Research Conference on Communication, Information and Internet Policy Paper* (2015).

On the service side, programs such as Kiron have allowed refugees to enroll in online higher education programs, while numerous non-profits distribute iPads and other mobile devices in order to help refugees learn new languages and better adapt to their host countries.⁹ Hundreds of mobile and web-based applications currently exist which seek to aid refugees in learning about new asylum opportunities, housing, and available jobs.¹⁰

This thesis takes the role of technology in the current Middle East refugee crisis as a jumping off point for a larger examination of the ways that ICTs can improve the livelihood of refugees, both today and in the future. Its primary case study will be an in-depth examination of the NGO Iraq Re:Coded, which seeks to teach coding skills to Syrian refugees in Iraq and other Internally Displaced Persons. The primary question posed here is the following: building on projects such as Iraq Re:Coded, how can we develop a set of best practices and guidelines that will harness the promise of emerging technologies to help refugees develop sustainable livelihoods, both today and in the future?

Along the way, this thesis will also question how new, technology-based non-profit services can mitigate the tension between inhabitants of host countries and refugees in regards to an increasingly competitive global labor market. Are digital methods capable of creating more inclusive employment opportunities for refugees in terms of gender, age, and other socio-economic factors? Given current events, particularly a wave of anti-refugee and anti-immigrant sentiment in the West, it is increasingly important that we try to develop ways to neutralize social and economic tensions arising from the entry of refugees in host countries' labor market. After all, attempting to improve refugees' livelihoods usually means introducing the possibility of refugees obtaining work permit and access to labor markets in host countries. In addition,

⁹ “Kiron | Open Higher Education for Refugees!,” *Kiron*, accessed March 10, 2017, <https://kiron.ngo/>.

¹⁰ Some examples are Refugee.info, 8rbtana, Integreat, Ankommen, Tarjemly, etc.

regardless of whether they are working formal or informally, refugees are often competing with host country citizens for the same jobs in the same spaces.¹¹ This tension is only increased as refugees transition from in-camp to out-of-camp living.

Projects such as Iraq Re:Coded seek to relieve some of this tension by giving refugees opportunities to seek employment overseas or as freelance web developers working remotely. By opening up a *global* labor market, these digitally-focused initiatives not only lessen competition within host country labor markets – they also help protect and develop the fundamental human rights of refugees, such as the right to privacy and the right to work. This thesis will examine the influence of such so-called “borderless” jobs on both the citizens of host countries and refugees inhabiting them.

Traditionally, refugees seek employment in low-skill jobs that require physical labor upon arrival in host countries, such as working at construction sites. These are typically highly gender-biased positions which privilege men. More generally, because of economic and cultural differences, women are more likely to be discriminated against by gender norms in labor markets, such as requirements involving intensive working hours away from home which make employment difficult for mothers. The thesis which follows seeks to better understand whether remote-work and digital positions such as freelance web development have the potential to improve the livelihoods of women and mitigate the gender-based issues that all too often prevent them from competing in the global labor market.

¹¹ Access to formal labor market by itself is a challenge which differs depending on the host countries legal national and international obligations. To learn more about access to labor market see: Jordan, Lebanon and Turkey. Akram, S.M. et al., 2015. Protecting Syrian Refugees: Laws, Policies, and Global Responsibility Sharing. *Middle East Law and Governance*, 7(3), pp. 287–318.

II. Thesis Outline

The first section of the thesis will survey existing research on the opportunities that technology offers for creating new forms of livelihood for refugees. According to Karen Jacobsen, “during the 1990s, ‘sustainable livelihoods’ became an important theme in development policy” and specifically in the context of forced migration. By conducting a review of the available work on this subject, the remainder of this chapter will assess the importance of access to the Internet and other digital tools to allow refugees to obtain sustainable employment opportunities.¹²

The second chapter of this thesis will take Iraq Re:Coded as an organizational case study. This group, which helps refugees and Internally Displaced Persons (IDPs) in Erbil, the Kurdistan Region of Iraq (KRI) to learn coding skills for website development, is in many ways a successful model of how to leverage technology in the service of human rights. This chapter conducts a stakeholder analysis and maps the work of individual employees of the organization in order to understand the roles that different actors can play to make projects such as Iraq Re:Coded effective. The chapter further examines the challenges related to the sustainability of humanitarian projects and social tension among refugees, IDPs, and Kurdish Iraqis.

The third and final chapter of this thesis analyzes these findings, exploring ways that the model of Iraq Re:Coded might be improved or iterated upon in future responses to refugee crises. Key challenges in this regard—such as lack of access to reliable internet connectivity, gender and socio-economic biases, lack of access to formal financial services, privacy, and digital security concerns—will be raised and recommendations to circumvent these challenges will be offered.

¹² Karne Jacobson, “Livelihoods and Forced Migration,” in Elena Fiddian-Qasmiyeh et al, eds. *The Oxford Handbook of Refugee and Forced Migration Studies*, (Oxford, UK, 2014).

III. Methodology

Human rights and technology have long enjoyed a close but uneasy relationship. From the Luddites of the early 19th century onward, there has been an inherent tension between efforts to develop new ways of manipulating the natural world and the desire to preserve basic human freedoms. For instance, while the industrialization of the 19th century and accompanying changes in the application of technology to labor markets opened up new opportunities for social mobility, these same changes also led to human rights abuses such as child labor and inhumane working conditions.¹³ In the 20th century, human rights was in many ways a field of study that developed in relationship with the rise of the modern techno-state: as lawmakers, activists and social reformers have responded to the changes created by new technologies, they have pushed the boundary of the definition of human rights outward, to include child labor laws, womens' rights in the workplace, and the right to privacy.

Refugees, as a category, are particularly vulnerable to threats created by technological change, but they also stand to benefit more than most members of society from the opportunities offered by new communications methods and new forms of livelihood. Therefore, this thesis employs a methodology that seeks to draw useful links between digital technology and the study of human rights, with an eye toward practical impacts and best practices for future work. This thesis foregrounds human rights, and not simply humanitarian aid, as an important aspect of how technology and the experiences of refugee intersect. As Parveen Ali has noted in a London School of Economics dissertation, "Refugee rights were often subsumed within a broader humanitarian agenda, evident in a discourse of charitable compassion superseding one of

¹³ Micheline R. Ishay, *The History of Human Rights: From Ancient Times to the Globalization Era* (University of California Press, 2008), 165-7.

responsibility and obligation.”¹⁴ The application of Information and Communication Technologies (ICTs) in helping refugees develop self-sustaining forms of livelihood and self-expression is, in other words, not just a question of providing aid. It is one of permitting them to exercise fundamental rights, namely the right to freedom of expression, the right to privacy, right to work under the 1966 International Covenant of Economic, Social and Cultural Rights, and the 1951 Convention and 1967 Protocol Relating to the Status of Refugees.¹⁵ Also falling under the larger framework of a “right to development,” as enshrined in the Vienna Declaration of 1993, are such emerging rights as a right to Right to Internet Access.¹⁶

Although technology, human rights and refugees have each enjoyed a huge amount of recent media attention, the intersection of these three topics is still a relatively new field of academic study. Many of the relevant secondary sources are not in peer-reviewed academic journals, but are scattered across blogs, journalistic articles, and the websites of NGOs and development agencies. This thesis thus draws on a broad range of secondary sources to try to get a sense of this larger field of debate, both inside and outside academia.¹⁷

My primary research centers on interviews with actors in the field as well as first-hand work as a volunteer organizer and activist in the field of technology and refugees’ rights. Volunteering thus figures as part of the methodology of this thesis. During 2016-17, I served as a volunteer coordinator for the 2017 RightsCon conference organized by Access Now, as well as

¹⁴ Perveen Ali, “States in Crisis: Sovereignty, Humanitarianism, and Refugee Protection in the Aftermath of the 2003 Iraq War,” (PhD Thesis, The London School of Economics and Political Science, 2012), <http://etheses.lse.ac.uk/631/>.

¹⁵ Sarah Bidinger, “Syrian Refugees and the Right to Work: Developing Temporary Protection in Turkey,” *Boston University International Law Journal* 33 (2015): 223.

¹⁶ Adam Wagner, “Is Internet Access a Human Right?,” *The Guardian*, January 11, 2012, sec. Law, <https://www.theguardian.com/law/2012/jan/11/is-internet-access-a-human-right>.

¹⁷ Eva Brems, “Methods in legal human rights research,” in Fons Coomans, Fred Grünfeld and Menno T. Kamminga (eds.), *Methods of Human Rights Research*, (Intersentia, 2009), pp 77-89.

serving as an instructor teaching the children of Afghan refugees and immigrants at an organization known as Women for Afghan Women in Queens, NYC. Through both of these activities, I formed relationships with people directly involved in protecting the rights of refugees, gathered background data, and assessed what was working and what wasn't in a number of relevant organizations. Much of the communication connected to this aspect of my research depended on the same ICTs that are currently being used by refugees, such as Google Hangouts and Telegram.

IV. Literature Review

This thesis builds on existing work in the field of human rights and humanitarian studies relating to the challenges faced by refugees and NGOs who seek to utilize ICTs. In particular, this project draws on an emerging body of scholarship relating to information precarity, informal education, and the development of new forms of livelihood during humanitarian crises. Before moving on to the dedicated case study of Iraq Re:Coded's work on these topics, which comprises this thesis's second chapter, This part will survey existing scholarship on adjacent topics and explain how this thesis adds to this work.

In employing the term "livelihood", this thesis indebted to Chambers and Conway's 1992 article which defines the term as "the means of gaining a living, including livelihood capabilities, tangible assets, such as stores and resources, and intangible assets, such as claims and access."¹⁸ The assets include human, financial, natural, physical, and social resources and activities enabling access to these resources In the context of forced migration, refugees not only lose these assets, but they find *regaining* them to be particularly difficult due to the socio-political, legal

¹⁸ "Women and the Web," *Intel*, accessed April 26, 2017, <http://www.intel.com/content/www/us/en/technology-in-education/women-in-the-web.html>. Chambers and Conway's 1992 article

and policy factors which restrict the freedoms and scope of action available to individuals in humanitarian crises.¹⁹

In her article, “Livelihood and Forced Migration,” Jacobsen sheds lights on the complexity of humanitarian assistance in supporting refugees’ livelihoods by noting several key factors. First, one challenge is navigating the differences between national policies and regulations regarding the legal status of refugees. Second, providing reliable access to financial, health, and educational institutions is a constant challenge. And third, negative social interactions between members of the host countries and refugees can play a significant role in shaping the self-image of refugees and their efforts to develop autonomous and sustainable lives in host countries. According to Jacobsen, the term “sustainable livelihood” emerged out of sustainable development discussions circa 1990 regarding “long-term flexibility and... ecological soundness.”²⁰ Although it came out of ecological and environmental discussions, today the focus of sustainable livelihood for refugees is centered more on human capital, such as health, education, skill training, and social networking. These immaterial forms of aid are increasingly a focus rather than providing tangible assets such as money, land, and property. It is in this regard that communication technologies including cell phones and software can produce concrete results.

However, coordinating between the different actors involved in such work is exceedingly difficult. To effectively provide self-reliance and long-term livelihoods for refugees, the different stakeholders—including governments, UN agencies, NGOs, members of the host countries, refugees themselves, funders, and the private sector—must develop efficient and flexible

¹⁹ 5/4/17 11:56:00 PM

²⁰ Karen Jacobsen, “Livelihoods and Forced Migration,” June 1, 2014, <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199652433.001.0001/oxfordhb-9780199652433-e-018>.

partnerships. This is easier said than done. In Chapter Two, one of these types of partnerships, Iraq Re:Coded will be examined. Jacobsen's sees the lack of empirical work on refugees' livelihoods and the best practices relating to their development as a notable gap in refugee studies. She notes that transnational and analytical studies with attention to refugees' livelihood in host countries are absent from refugee-related research and need to be addressed.²¹ In the two chapters which follow, the thesis addresses one aspect of this topic, exploring how Information and Communication Technologies—and Internet companies such as Microsoft—can play an important role in providing concrete pathways for sustainable livelihoods.

In their report “Building Livelihood Opportunities for Refugee Populations: Lessons from Past Practice,” Fratzke and Jacobsen divide livelihood strategies into two categories: supply-side and demand-side.²² In supply-side strategies, the program seeks to maximize the human or financial capital of the refugees. Such strategies include “skill-based intervention that seek to improve refugees' access to wage employment or self-employment, programs to increase refugees' access to information and communication technologies, cash or voucher assistance, and microfinance to facilitate access to needed capital.” Demand-side strategies encourage refugees' self-reliance by mitigating obstacles via advocating for pro-refugee government regulations, changing social stigmas, and attracting employers to hire refugees. These strategies, covering “programs that directly employ refugee workers (mostly short-term jobs) and initiatives that connect refugees with remote or internet-based opportunities,” might result in more long-term benefits not only for the self-development of refugees in the host countries but also upon

²¹ Karen Jacobsen, “Livelihoods and Forced Migration,” June 1, 2014, <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199652433.001.0001/oxfordhb-9780199652433-e-018>.

²² Karen Jacobsen and Susan Fratzke, *Building Livelihood Opportunities for Refugee Populations: Lessons from Past Practice* (Washington DC: Migration Policy Institute, <http://www.migrationpolicy.org/research/building-livelihood-opportunities-refugee-populationslessons-past-practice>, 2016).

their return to their home country or other resettlement situations.²³

In both types of strategies, the role of information and communication technologies is paramount. For example, a UNHCR initiatives called Community Technology Access (CTA) involves setting up computer labs and technology labs where refugees can access to internet and participate in online classes to pursue secondary or higher-level education or develop job-related skills.²⁴ Such physical spaces designed to impart technical knowledge are playing an increasingly important role in refugee aid.

However, this is not just a question of providing education or material assistance. Digital training can directly influence the protection of refugees' human rights. For instance, digital platforms can address the task of providing refugees with reliable access to financial and banking services, the absence of which directly impacts their right to work. Access to officially-sanctioned financial services is one of the primary barriers in creating sustainable livelihood for refugees, because without access to things such as bank accounts and lines of credit, it can be very difficult to function autonomously in a host country. Access to financial service requires legal documentation which is often challenging and time-consuming for refugees to obtain; moreover, if they lose this documentation, it is exceptionally difficult to reissue (UN-OCHA, DH-Network, 2016).²⁵

Here, emerging ICTs can be leveraged to address the specific problems in play. Blockchain technology, for instance, is a method of distributed and secure information storage

²³ Karen Jacobsen, "Livelihoods and Forced Migration," June 1, 2014, <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199652433.001.0001/oxfordhb-9780199652433-e-018>.

²⁴ Other examples of UNHCR effort in bringing sustainable livelihood to refugee population is the Dadaab refugee camp in Kenya. Ronald O. Omuthe, *Factors influencing implementation of livelihood projects in refugee camps: A case of Dadaab refugee camp, Kenya* (PhD Dissertation, University of Nairobi, 2015).

²⁵ "Blockchain for the Humanitarian Sector: Future Opportunities | DHN," accessed March 7, 2017, <http://digitalhumanitarians.com/resource/blockchain-humanitarian-sector-future-opportunities>.

that is hosted across decentralized networks of participants. It has a great potential to provide reliable pathways for refugees, aid workers, and government officials to have safe access to accurate identities of individuals and associated financial metadata. Specifically, the blockchain technology of Bitcoin is useful for refugees with no access to official financial services or those who seek to develop livelihoods overseas and work remotely.

Beyond the complexities of the blockchain, however, are more basic fixes. For instance, remote work itself can be enhanced by having access to reliable internet. Such initiatives are particularly helpful in circumstances in which refugees do not possess work permits in the host country, or—due to various reasons such as insecurity and cultural obstacles, social tension among refugees and members of the host countries—they can’t exercise their freedom of movement. Women in particular can benefit from these verities of remote work because often their right to freedom of movement is less fulfilled comparing to men. Besides UNHCR, Information and Communication Technologies have been the focus of a number of NGOs and private sector organizations who are aiming to address refugees’ educational, skills-training, and livelihood needs.

This objective of providing not only livelihood but also vocational training has been hampered by a lack of formal education among refugees. To this end, UN agencies, NGOs, and private sector organizations (including Microsoft and Google) have begun informal education initiatives inside and outside refugee camps.²⁶ However, there is still a long way in order to maximize the positive outcomes of these projects. Informal learning programs should be structured so that participants are able to use their certification to gain legitimate jobs or credit

²⁶ “Exploring the Potential of Technology to Deliver Education & Skills to Syrian Refugee Youth,” *All Children Reading: A Grand Challenge for Development*, accessed March 7, 2017, <https://allchildrenreading.org/resources/exploring-the-potential-of-technology-to-deliver-education-skills-to-syrian-refugee-youth/>.

for higher education institutions. In order to do that, service providers should ensure that the content match with regional educational institution.

The moment that a person sets out to seek refuge status in another city or country, he or she is faced with insecurity and uncertainty regarding access to accurate information. This state is described in the scholarly literature as “information precarity.” Janbek, Campbell, and Wall nicely define the term as “a condition of information instability and insecurity that may result in heightened exposure to violence.”²⁷ In their research in Jordanian refugee camps, the authors determined that refugees are faced with five specific manifestations of information precarity, namely:

- (1) technological and social access to information;
- (2) the prevalence of irrelevant, sometimes dangerous information;
- (3) lack of their own image control;
- (4) surveillance by the state; and
- (5) disrupted social support.

²⁷ Melissa Wall, Madeline Otis Campbell, and Dana Janbek, “Syrian Refugees and Information Precarity,” *New Media & Society* 19, no. 2 (February 1, 2017): 240–54, doi:10.1177/1461444815591967.

With access to mobile devices and quality internet, refugees are (at least in theory) able to easily communicate with family and friends and lessen their uncertainty about their situation. Ready internet access and widespread availability of personal smartphones allows refugees to double check and verify asylum seeker news, regulations and procedures, updates about NGOs' services, and information about jobs and housing. However, there are many obstacles in using cellphones and internet services as tools to combat information precarity. One is access, both technological and social. Infrastructure to bring mobile broadband (4G) is not available in all regions and locales. And, in camps, fixed broadband (based on Wi-Fi hotspots) is frequently unreliable. Due to the overpopulation of camps, sometimes it takes an agonizingly long amount of time to simply to load a basic web page.²⁸

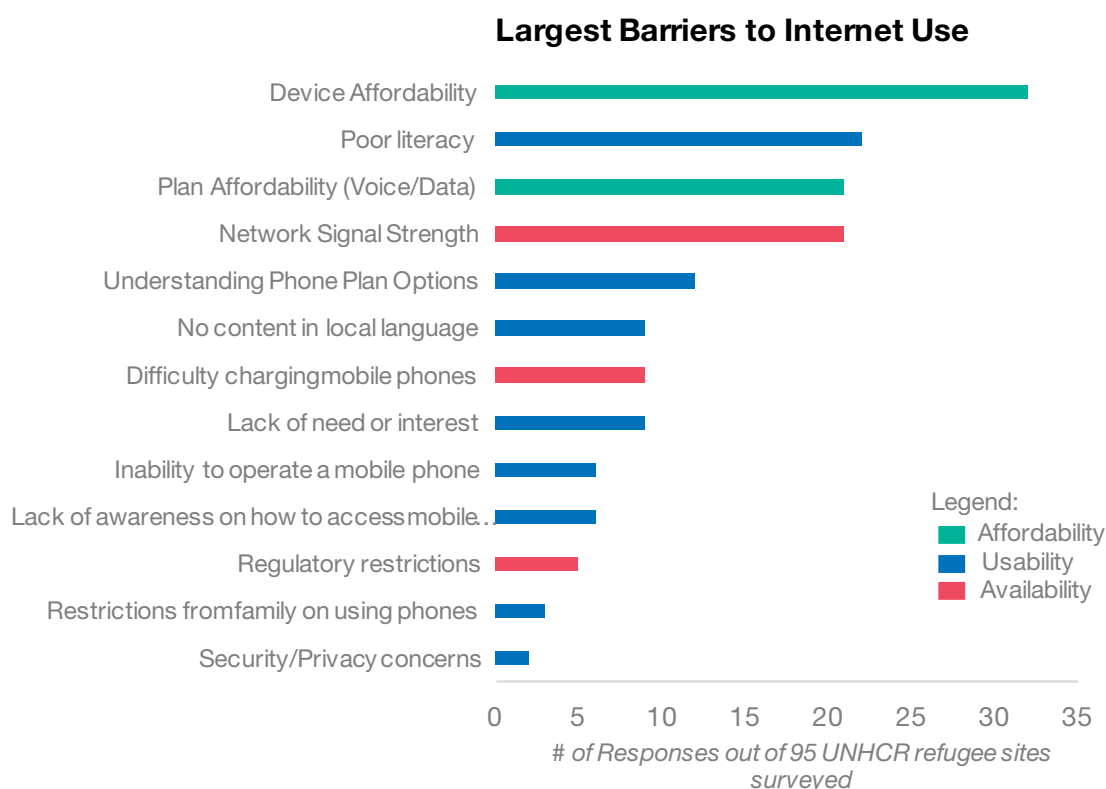


Figure 1. Source: UNHCR, *Connecting Refugees*, 2016.

²⁸ Melissa Wall, Madeline Otis Campbell, and Dana Janbek, "Syrian Refugees and Information Precarity," *New Media & Society* 19, no. 2 (February 1, 2017): 240–54, doi:10.1177/1461444815591967.

In addition, there are other social disparities in terms of gender, age, and class when it comes to cellphone ownership and access to internet, as well as familiarity with reliable digital sources and ability to accurately differentiate between unreliable and dependable news.²⁹ (Wall, Campbell, 2015). Indeed, sometimes it is precisely this ready availability of access to cellphones and the internet that acts as a breeding ground for information insecurity and instability.

According to a UNHCR report, refugees are very vulnerable to fake news, rumors and misinformation circulating through social media and messaging apps, particularly refugees who do not have extensive experience with ICTs.³⁰ As Figure 1 indicates, there are significant issues of privacy and digital security when it comes to using phones. The most fundamental issue is a lack of access to smart phones and internet. However, even when ICTs are available, there are significant dangers present if they are adopted and disseminated without careful attention to issues of security, data privacy, and access to reliable information.

According to Freedom House, for instance, the Syrian government tracks international calls to identify those opposed to the regime.³¹ The Assad government uses special software and programs to surveil on text messages, phone calls, emails and social media content.³²

Considering this fact, we can see that refugees are uniquely vulnerable because of online surveillance, identity theft and their vulnerability to being harmed by falling for fake news and rumors. Moreover, different level of digital literacy play a significant role in this regard, and

²⁹ Wall et al, "Syrian Refugees and Information Precarity."

³⁰ "CONNECTING REFUGEES How Internet and Mobile Connectivity Can Improve Refugee Well-Being and Transform Humanitarian Action."

³¹ Freedom House, "Freedom on the Net 2012: Syria," accessed March 12, 2017, retrieved at: <https://freedomhouse.org/report/freedom-net/2012/Syria>.

³² "Freedom on the Net 2012: Syria."

women, older generations, and less literate individuals are more in risk, as are participants in informal sectors of the labor market.³³

This should be an eye-opening factor for technologist and humanitarian organizations who focus more on providing digital services and less on securing their tools and digital programs.

V. Human Rights Framework

This thesis draws upon the 1951 Convention Relating to the Status of Refugees and the 1967 Protocol which morally and obligatory justify rights to economic development and non-discriminatory employment opportunities. For instance, Article 17 of the 1951 Convention requires states to “accord to refugees . . . the most favorable treatment accorded to nationals of a foreign country in the same circumstances, as regards the right to engage in wage-earning employment.” As of April 2015, 145 states are the parties of 1951 Convention and 146 have either signed or ratified Protocol 1967.³⁴

Under International Covenant on Economic, Social and Cultural Rights (ICESCR) countries are bound to “recognize the right to work, which includes the right of everyone to the opportunity to gain his living by work which he freely chooses or accepts, and will take appropriate steps to safeguard this right.”³⁵ Even if countries have not ratified either of the

³³ Nicholas Harney, “Precarity, affect and problem solving with mobile phones by asylum seekers, refugees and migrants in Naples, Italy,” *Journal of Refugee Studies* (2013).

³⁴ Lebanon, Jordan, and Iraq are not member states of the 1951 convention. Turkey, it although has ratified the convention, nevertheless does not recognize Syrians under the category of refugees under Turkish national law. See United Nations High Commissioner for Refugees, “States Parties to the 1951 Convention and Its 1967 Protocol,” *UNHCR*, accessed May 1, 2017, <http://www.unhcr.org/protection/basic/3b73b0d63/states-parties-1951-convention-its-1967-protocol.html>.

³⁵ ICESCR, *supra* note 88, art. 6. Article 7 further elaborates upon this right: “The States Parties to the present Covenant recognize the right of everyone to the enjoyment of just and favourable conditions of work which ensure,

conventions, under Universal Declaration of Human Rights (UDHR) they are still expected to take steps toward providing “a standard of living adequate of the health and well-being of [one]self and of [one’s] family, including food, clothing, housing and medical care.”³⁶

The thesis considers access to the internet as a critical tool to fulfill basic human rights that are mentioned in the above-mentioned conventions.

In December 2003, at the World Summit on the Information Society, representatives of governments, private sector organizations and representatives of civil society gathered to recognize the importance of access to the Internet as a means for fully enjoying fundamental human rights, including the right to freedom of expression, the right to freedom of assembly, and the right to development.³⁷ More than a decade later, in June of 2016, the United Nation’s Human Rights Council passed a non-binding resolution regarding the promotion, protection and enjoyment of human rights on the Internet, emphasizing the right to development by “recognizing the global and open nature of the Internet as a driving force in accelerating progress towards development in its various forms, including in achieving the Sustainable Development Goals.”³⁸

According to UN General Assembly Resolution 1161 (XII), the Right to Development is “an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy *economic*, social, cultural and political development, in

in particular: (a) remuneration which provides all workers, as a minimum, with: (i) Fair wages and equal remuneration for work of equal value without distinction of any kind . . . (b) Safe and healthy working conditions; (c) Equal opportunity for everyone to be promoted in his employment.”

³⁶ UDHR, *supra* note 87; art. 25. See also Franklin Delano Roosevelt, “Annual Message to Congress (State of the Union Address)” (Jan. 6, 1941), available at <http://www.gutenberg.org/cache/epub/5038/pg5038.html> (“In the future days which we seek to make secure, we look forward to a world founded upon four essential human freedoms.”).

³⁷ World Summit of the Information Society, “Declaration of Principles Building the Information Society: a global challenge in the new Millennium,” December 12, 2003.

³⁸ United Nations Human Rights Council, “The promotion, protection and enjoyment of human rights on the Internet,” June 27, 2016.

which all human rights and fundamental freedoms can be fully realized” (my emphasis added). Furthermore, the Right to Development in general—and economic rights in particular—is mentioned both in Universal Declaration of Human Rights (Article 22) and International Covenant on Economic, Social and Cultural Rights (Article 1.1, Article 6.2).

In the two chapters that follow, this thesis will build on the scholarship outlined above to produce an analysis that explores ICT-based approaches aimed at improving the livelihood of refugees. By taking the Iraq Re:Coded project as a case study, we will systematically explore the practicality, success and challenges of one representative project in this vein. In the third and final chapter, building on these scholarly theories and practices, this thesis proposes alternative methods that might make these types of projects more inclusive, transformative and sustainable.

Chapter 2: Iraq Re:Coded

Chapter 2 explores how Iraq Re:Coded's successes and failures can guide future policy proposals and NGOs which aim to improve the livelihoods of refugees. Although Iraq Re:Coded focuses on Syrian refugees and IDPs in Kurdistan Iraq, I have chosen this organization because many of its challenges can serve as exemplars for individuals and groups working in other contexts.

The core objective of Iraq Re:Coded, which was founded by Ali Clare in 2015, is to teach refugees new skills that will allow them to obtain coding and web design jobs in an increasingly globalized labor market. By tapping into the numerous tech jobs involving remote work, refugees can overcome the precarious conditions of local labor markets by developing new forms of income and professional expertise that might help lift them out of poverty.³⁹ Specifically, the program teaches participants how to code through an intense training and try to prepare them to find jobs in Iraq's private sector or even transnational companies. According to the mission statement on the Iraq Re:Coded website, "A new approach for a fast-changing and unpredictable world."⁴⁰

This chapter, which builds upon an interview with Iraq Re:Coded founder Ali Clare and other research into Iraq Re:Coded's objectives, accomplishments and challenges, consists of five sections. The first section considers the original aims behind the program, as well as assessing the application process for refugees, and the training procedures for both staff and clients. In the second part, the thesis looks into the local and international partnership and try to map out stakeholders' roles in this program. Furthermore, I explain how the partnerships formed as a

³⁹ Feyzi Baban, Suzan Ilcan, and Kim Rygiel. "Syrian refugees in Turkey: Pathways to precarity, differential inclusion, and negotiated citizenship rights," *Journal of Ethnic and Migration Studies* 43.1 (2017): 41-57.

⁴⁰ "Iraq Re:Coded," *About*, accessed April 18, 2017. Retrieved at: <http://www.re-coded.com/iraq-recoded/>.

result of Iraq Re:Coded mentorships have changed over time based on the lessons learned during the pilot program. In the third part, I study the societal impact of Iraq Re:Coded program within Kurdistan Iraq, as well as in Iraq in general. In this discussion, I seek to explain the tension and competition over the labor market among members of host countries, IDPs, and Syrian refugees. I compare Iraq Re:Coded and other programs focusing on higher-level skills training versus traditional approaches toward preparing refugees for lower-skill jobs, and conclude that the former might change stereotypical views of the refugee's role in host countries. Potentially, higher-level skills training could emerge as a major component of refugee development plans in the future. The fifth and final section of the present chapter explores the methods for Monitoring and Evaluation (M&E) of the Iraq Re:Coded program, and assesses the sustainability of the project.⁴¹ Here, I elucidate Iraq Re:Coded's future plans for sustaining and expanding the project, not only in Iraq but in neighboring countries, and show how this expansion plan can serve as a model for other NGOs working in a similar vein.

I. Iraq Re:Coded: From an Idea to Implementation

Iraq Re:Coded began as an idea hatched by Alexandra (Ali) Clare, an Australian living and working in New York City as a graduate student at New York University's Center for Global Affairs. Ali originally developed the general outlines of the organization as part of her thesis, "Iraq Re:Coded, Durable Skills, Education and Livelihoods through Innovation and Technology

⁴¹ According to a World Bank report, Monitoring and Evaluation (M&E) comprises the tools and strategies "for reviewing and assessing progress towards objectives, identifying problems and strategies, and making adjustments to plans." Yumi Sera and Susan Beaudry, "Monitoring and Evaluation," Social Development Department, the World Bank (2007). Retrieved at: <http://siteresources.worldbank.org/INTBELARUS/Resources/M&E.pdf>

for Refugee Youth.”⁴² Her proposed organization sought to challenge the stereotypical picture of refugees as uneducated individuals who have no other employment options except for low-skill and low-paying jobs. Clare pointed out that, typically, most humanitarian initiatives (such as those spearheaded by UN development agencies and international NGOs like International Rescue Committee) tended to focus on preparing refugees for low-skill, local jobs such as construction and restaurant work, hair dressing, sewing, and similar occupations which do not require higher education.⁴³ An additional problem is posed by the issue of degrees which do not easily transfer across national boundaries, requiring time-intensive processes of labor recertification.

Undoubtedly, many refugees fall into this category. But Clare argued that it is important to acknowledge that not all refugees share the same background: particularly in the context of Syria, which had a relatively high level of economic and professional development in urban areas, the refugee crisis includes individuals with advanced degrees such as physicians, nurses, engineers and teachers.⁴⁴ Furthermore, even those without extensive formal education deserve to be treated with respect for their intellectual and professional potential. Particularly in the context of a looming threat to manual labor jobs due to automation, it is important to prepare refugees and other disadvantaged groups for a labor market (both in their current countries of residence and their ultimate countries of permanent resettlement) in which many low-skill trades are in decline, while technology-based jobs steadily increase.

⁴² Alexandra Clare, “Iraq Re:Coded, Durable Skills, Education and Livelihoods through Innovation and Technology for Refugee Youth,” (Thesis, New York University, Center for Global Affairs, 2015).

⁴³ My interview with Ali Clare was conducted on April 17, 2017 and is quoted from throughout this chapter.

⁴⁴ Keith David Watenpaugh and Adrienne L. Fricke, “Uncounted and Unacknowledged: Syria’s Refugee University Students and Academics in Jordan,” *Joint UC Davis Human Rights Initiative and Institute for International Education*. (2013).

Since Clare's thesis, which was submitted in 2015, the need for organizations that work to enable refugees to gain new forms of livelihood has steadily increased. According to a UNHCR report, as of 2017 there are almost 240,000 Syrian refugees living in Kurdistan Iraq, with majority of the population in Duhok and Erbil.⁴⁵ The refugees and IDP youth in this region face profound challenges in pursuing their secondary and higher education. According to Ali, the language barrier is one critical challenge: Syrian and non-Kurdish Iraqi IDPs speak Arabic and need their classroom material to be taught in the Arabic language, which is sometimes challenging when it comes to imparting specialized skills related to the tech industry. Because of this linguistic challenge and an overall lack of resources and funding, major humanitarian organizations inside the camps tend to focus on primary education for children.

Unfortunately, overcrowding in classrooms and social discrimination toward Syrian refugees and Non-Kurdish Iraqis in Erbil often means that youth educated in this manner find it virtually impossible to pursue formal education above the elementary level. In turn, the absence of a clear pathway toward advanced education and jobs means that both refugee and IDP youth populations are vulnerable to issues such as workplace exploitation or recruitment by radical or terrorist organizations.

With the hope of improving the livelihood of refugee and IDP youths in Erbil, after completing her thesis in the spring of 2015, Ali partnered with UNDP to propose a new non-profit organization called Iraq Re:Coded.⁴⁶ Initial funding for the project came by way of a grant from the United Nations Development Program. Splitting her time between New York City and Erbil in Iraq, Ali and her local partners sought to develop a counterweight to the lack of training

⁴⁵ "Iraq - Telecoms, Mobile, Broadband and Digital Media - Statistics and Analyses - BuddeComm," accessed April 18, 2017, retrieved at: <https://www.budde.com.au/Research/Iraq-Telecoms-Mobile-Broadband-and-Digital-Media-Statistics-and-Analyses>.

⁴⁶ "Iraq Re:Coded," *Partners*, accessed April 17, 2017, retrieved at: <http://www.re-coded.com/partners-1/>.

and employment opportunities for refugee youth. In the program that emerged from her initial year of development, refugee youth in Kurdistan Iraq between the ages of 17 and 30 years old were selected to undergo through extensive training in sought-after programming languages such as Python and JavaScript, allowing them to independently develop websites and database back-ends. The training period also includes other “soft skills” such as entrepreneurial mentorship and problem solving, communication and leadership.

II. Application Process and Training

In the first six months of 2016, the nascent organization of Iraq Re:Coded developed relationships with on the ground with camp managers assigned by the Iraqi government, along with representatives of the Danish Refugee Council, the UNDP and UNHCR; academic institution such as the University of Dohuk and the American University in Sulaymaniyah; and local NGOs and social workers. The application process to recruit students for the program began in June 2016.⁴⁷ The initial outreach in Erbil covered both populations in camps and off-camp in urban area with high refugee and IDP populations. The organization used both online and offline application forms.

In the camps, Ali and her partners sought help directly from youth committees set up by refugees themselves, briefing their young audiences about the program and explaining the benefits and necessities of the training it provides. Meanwhile, in neighboring urban areas, Iraq Re:Coded staff went to points where refugees and IDPs gathered for registration and submitting their paperwork regarding their legal status. During peak hours at these locations, these sites

⁴⁷ Ibid.

became promising venues for attracting an audience and seeking applicants for the program. The team also briefed local social workers who were directly in contact with refugee families and asked them to encourage the youth they worked with to apply for the coding training. Finally, the Iraq Re:Coded team used social media (including popular Facebook pages used by refugees in Erbil and local job-posting websites) to attract more applicants. Due to these efforts, the team received over 500 applications during the first few months of launching the program.⁴⁸

After receiving the applications, the Iraq Re:Coded team assessed the applicants based on the following eligibility criteria:

- The applicant is Arabic speaker.
- The applicant has some level of English proficiency.
- The applicant does not have access to formal education and is not currently employed.

Additionally, the team made sure that there was a degree of balance regarding the gender composition of the final candidate pool, their location based on inside or outside the camps, and also their residency status as Syrian refugee, IDPs, or member of the host country known as Kurdish Iraqi.

After selecting eligible applicants, the team conducted the following three tests of basic competency:

- A basic digital literacy test to find out if the applicant is capable of navigating the internet, and has basic Microsoft Windows skills.
- A computational logic test to assess the level of problem solving, analysis, thinking out of the box capabilities. The test was designed in the form of a computer game.⁴⁹
- An English exam to rank applicants.

⁴⁸ Interview with Ali Clare conducted on April 17, 2017.

⁴⁹ According to the interview with Ali Clare on April 17, 2017, this game was designed in-house.

After giving a specific weighting to each test, the team assigned each applicant an overall score. Based on the score, the applicants were invited for one-on-one interviews with Iraq Re:Coded team. Ultimately, 50 out of the 500 applicants were able to successfully enter the training program and become Iraq Re:Coded fellows.

In interviews with Ali, the selection process emerged as one of the most important steps in predicting candidates' success after the graduation. For instance, she mentioned that for the next round of training in 2017, the organization plans to make changes in the candidate selection process. Based on her team experience, applicants who are more passionate about the field of computer programming and entrepreneurship at the outset of their training are more likely succeed in mastering key skills and ultimately finding a job. The newest round of candidates, therefore, is asked to demonstrate their enthusiasm by highlighting their experience in using different social media platforms and providing samples of their work using programs such as Microsoft Word or PowerPoint, etc.

Currently, 40% of the fellows are women. However, for the new round of the program, Iraq Re:Coded hopes to attract and recruit an even higher proportion of female fellows and to ensure that all camps and urban communities have representatives in the classroom. Diverse classroom can play significant role in sustaining the program in the future, a point that I will explore further in the sections to come.

The basic educational content covered in Iraq Re:Coded's "coding bootcamp" is provided by the Flatiron School, a coding academy based in New York City which partnered with Iraq Re:Coded to offer free online access to the material.⁵⁰ In the classroom, a physical space located in the Kaz Nazan Job Seeker Center in Erbil, candidates undergo eight weeks of extensive

⁵⁰ Flatiron School, "Free Coding Course | Flatiron School," accessed April 17, 2017, retrieved at: <http://go.flatironschool.com/free-coding-course>.

English-language training with a focus on ICT terminology. After the language training, there follows a 24-week coding bootcamp to learn about programming fundamentals and to “expand their digital portfolio, become proficient in database modeling and Object Relational Mapping (ORM), understand the concept of the MVC Framework and build fully functioning web apps.”⁵¹ The languages include HTML/CSS, Ruby, SQL, Sinatra, JavaScript, Rails, and Git. Each candidate is assigned to work with two mentors: an English mentor and a coding mentor who can either be present in-person in the classroom, or teach the candidates remotely via online video chat software such as Skype or Google Hangouts. Figure 2 illustrates the program structure.

After completion, the bootcamp fellows are ready to seek employment in local start-ups, telecommunication companies, or to find independent work as freelance coders. Employment placement is the aspect of the initiative that requires the greatest amount of partnership from other NGOs and government and private sector entities, an issue that will be discussed in the section to come.

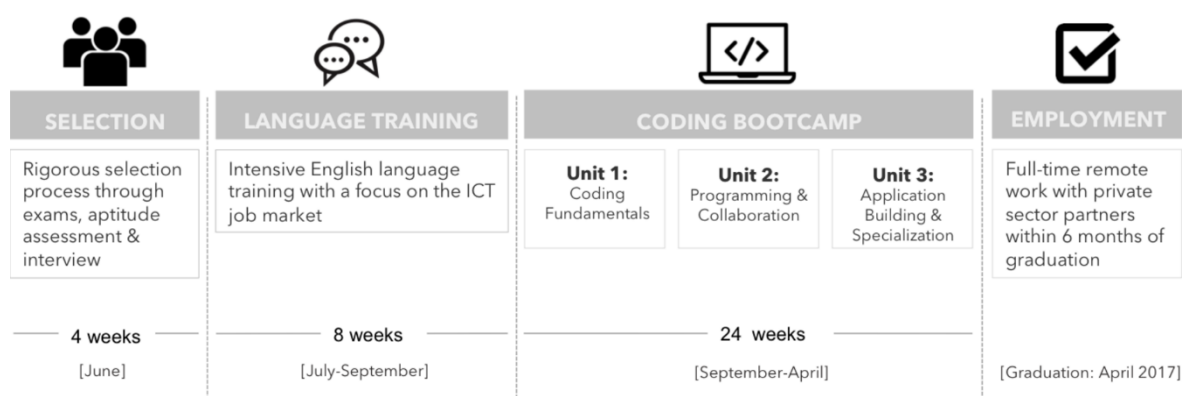


Figure 2. Iraq Re:Coded Training Program, via <http://www.re-coded.com/iraq-recoded/>

⁵¹ Iraq Re:Coded, “Re:Coded Bootcamp,” accessed on May 1, 2017, retrieved at: <http://www.re-coded.com/iraq-recoded/>

III. Mapping Stakeholders and Partnerships

The stakeholders and partners of Iraq Re:Coded vary widely, from Iraqi government organizations and UN agencies to local start-ups and academics. In this section, I seek to map different stakeholders in the project, and explore their role in allowing Iraq Re:Coded to thrive, with an eye towards the ways that new initiatives with similar aims might best be able to develop enduring and useful partnerships in the future.

Human Rights and Humanitarian Actors

The main funder for the project is the United Nations Development Programme (UNDP). In addition to providing initial seed funding, UNHCR has stepped in at different stages of the project to lend aid and assistance, particularly in the early stages of reaching out to the refugee community in the Iraqi camps. As was mentioned in the previous section, for some time the Danish Refugee Council has been managing different refugee camps in Kurdish Iraq including the Domiz, Sharia, and Khake camps. As such, their role in finding potential applicants and aiding in outreach to youth was no less essential. In addition, numerous interviews were conducted with local NGOs and social workers in order to assess the needs of both refugee and host communities.

Academia

The project started as a thesis proposal at New York University's Center for Global Affairs. The thesis was advised by Professor Thomas Hill, who later took a primary investigatory role in the project. During the outreach phase, and also during later phases of the project such as scouting to obtain employment placement among local universities such as University of Duhok

and American University in Sulymaniyah, the aid of Professor Hill and other academics in the field was critical. The Iraq Re:Coded team has stated that they look forward to developing more partnerships with local universities due to the fact that many fellows are interested in pursuing a higher degree in computer science after graduation. The goal is to create sustained connections with academia that will not only help the fellows obtain successful admission to universities in Iraq and beyond, but give them mentorship and information that will allow them to obtain scholarship and funding support.

In future projects of this nature, it seems to me that close and sustained partnerships between academics and NGOs are critical in terms of developing networks of potential employers and educators that will allow refugees to continue their professional journey after training ends.

Private Sector

The Flatiron School provided the primary resources and materials for the coding bootcamp. Furthermore, the Flatiron School permitted one of its developers to temporarily move to Iraq and become one of the two Iraq Re:Coded main trainers. The Iraq Re:Coded team sought additional help from other local and international companies including Spark, Microsoft, the German company Code Door, the Turkish company Kodluyoruz, and major international freelancer employers Guru and Upwork. Iraq Re:Coded also won a Google RISE award, a grant offered by Google to benefit the work of educators.⁵²

⁵² “Google for Education: Google RISE Awards,” accessed April 17, 2017, <https://edu.google.com/resources/programs/google-rise-awards/>.

The Iraqi Government and the Telecommunications Sector

Upon registration and after going through the related paperwork, Syrian refugees gain work permits allowing them to work and seek livelihood opportunities legally. The telecommunication sector in Iraq is dominated by three companies known as Zain, Korek, and Asiacell.⁵³ Because of the lack of skilled workers, these companies already outsource many of their software engineering jobs to Turkey and Lebanon. Therefore, the need for trained coders is felt considerably in Iraq, and hiring local coders is a win-win situation for both Iraqi telecommunication companies and refugees and IDPs themselves.

However, based on the lessons learned during the pilot program, Iraq Re:Coded realized that they might have to work with other local partners, especially for the job placement phase of the project. Contrary to their original assumptions, the Iraq Re:Coded team concluded that fellows were not sufficiently prepared after graduation to compete with other freelancers on a global level. According to Ali:

In the beginning of the program we thought all fellow will be ready for the employment rights after the graduation. With this in mind, we partnered with big global freelance companies, Guru and Upwork. In the pilot program, we realized our fellows are not ready enough comparing to developers in India, Philippine and Ukraine, because of the experience and also English. So, we had to shift our partnership to work with more local Iraqi companies. this is what they learned from the pilot program.⁵⁴

This led the team to decide to limit their partnership with international freelance companies such as Guru and Upwork, and, instead, seek to forge collaborations with local, smaller freelance and start-up companies in the local region near Erbil.

⁵³ “Iraq - Telecoms, Mobile, Broadband and Digital Media - Statistics and Analyses - BuddeComm.”

⁵⁴ Interview with Ali Clare conducted on April 17, 2017.

Despite their local focus, it is worth noting that there were also several notable examples of students who did manage to obtain international employment. Among 30 candidates who successfully finished the program so far, one fellow has been hired as a junior developer working remotely for a start-up company in Turkey. Another candidate currently works with a Danish start-up. Others are interviewing for different companies in the US.

According to Ali, partnerships for employment placement are very specific and are forged on a personal level. “It’s a lot of work,” she told me. “We have to go door to door and talk to CEOs of Telecommunication and startup companies and try to get our candidates hired. This is the reason that we focus more on local start-ups because it is easier to reach out and work directly with them. There is also other fellow who is still in high school and wants to pursue computer science degree.” To help make this a reality, Clare added, the Iraq Re:Coded team was “reaching out to UN partners to find scholarship and are in conversation with local universities to see if they admit him to the program. We are also looking for part-time or internship positions for other fellows. So, it varies a lot and for each individual there’s a lot of work on our side for job placement.”⁵⁵

These experiences suggest that job placement is the component that requires the most time, resources and partnerships. Therefore, the team is looking to change their current model. Iraq Re:Coded team is now trying to find partners to accelerate and help manage their job placement procedure, in such a fashion that, going forward, the Iraq Re:Coded team will only need to manage the bootcamps, soft trainings, and resume writing components of the project. Meanwhile, this hypothetical future partner will work full-time on employment placement. Currently, even though there are only 30 students who have finished their training, this phase

⁵⁵ Interview with Ali Clare conducted on April 17, 2017.

takes a lot of time. In the future as they seek to expand the project and accept more fellows, it is a certainty that they will need more help in the job hunting and hiring process.

There is also a need to partner with online financial service providers such as Stripe in order to manage transactions specifically for the fellows who work remotely — a key finding that future organizations working in this field should address proactively and at an early stage of planning.

“Access to formal financial service is a challenge,” Ali noted in her conversation with me, because “Iraq has a very cash-based culture and it is not very common to have a personal bank account.” She continued:

We set up partnership with a local bank to let our fellows open a bank account and be able to receive wired money without paying any transaction fee. Western Union is also another official banking system that some of our fellows and trainers use to wire money to and from the other countries. But sometimes we have no options except playing a middleman role in receiving and transferring the payments to the fellows. We are constantly working to find a sustainable solution for access to formal financial services to cut our role as middleman and make a direct employer/employee financial relationship.⁵⁶

III. Societal Impacts

Iraq Kurdistan is no exception when it comes to the competition between refugees and host country members over jobs. There is an existing and long-standing tension between Kurds and non-Kurds Iraqi, and now Syrians are also added as outsiders in the Kurdish-majority communities of Iraq. Many local companies still tend to discriminate against Arabs and prefer to

⁵⁶ Interview with Ali Clare conducted on April 17, 2017.

hire Kurds. However, this scenario changes when it comes to coding and entrepreneurial skills because Iraqi Kurdistan on its own does not have enough experts in this field.

The local telecommunication companies already mentioned tend to outsource their coding jobs to countries such as Turkey, Lebanon, India and the Philippines. Therefore, it is clear that they are open to hiring Syrian refugees or Iraqi IDPs for jobs such as these, where there is little competition among local Kurds and the corporations are forced to look elsewhere for skilled workers. Even if there was local expertise, the nature of freelance coding helps developers to find jobs remotely and opens up an enormous opportunity in terms of creating a level playing field and counteracting local biases and prejudices.

Working transnationally helps fellows in other ways, too: one important consideration is that being paid internationally and spending locally has the potential to improve their socio-economic situation and to add an infusion of capital into local economies. The Iraq Re:Coded team believes that finding and convincing local employers in Erbil to hire the graduates is also very important because it clears the path toward integration between refugees, IDPs, and host members. It also helps break down stereotypical attitudes against refugees as people who are sometimes assumed to be incapable of anything but the most low-skilled jobs. When I asked Ali if she considers programs such as Iraq Re:Coded, which focus on training the most underserved members of society in 21st century skills, as a vehicle for the long-term development of host countries, she responded by noting the “huge over-saturation of lower skill trainings such as hairdressing, sewing, hand-crafting but not on teaching higher skill.” However, she added:

Most of the INGOs still focus on these fast-learning, low budget, low skills trainings. there is not much analysis on the long-term result in terms of development but there is definitely a huge skill gaps in entrepreneurial and 21st

century skills such as business and marketing skills, coding that Iraq needs and can benefit from in a short and long-term.⁵⁷

IV. Monitoring and Evaluation (M&E)

Iraq Re:Coded is committed to conducting monthly M&E and to submitting the results to their primary donor, UNDP. The team also conducts different internal measurements, evaluations, interviews, and surveys. Every quarter, they check in with the fellows and oversee their progress in both coding and language skills, and receive feedback from the trainers. Each fellow has a language and coding mentor who constantly monitors their progress, and challenges and troubleshoot any issues whenever they occur. The team also communicates directly with the trainers, and the trainers report the fellows' progress on a frequent basis.

This allows for rapid iteration and adaptation to changing conditions. For instance, at the beginning of the program there were only two non-native English speaker language trainers. Upon receiving the feedback, they realized that fellows need more native English speakers. Therefore, they recruited an American language trainer to come to Iraq and work with the fellows specifically on developing fluency. In addition, each fellow was interviewed at the end of the program in order to measure their advancement in language and coding skills, and to obtain a trainer and mentor evaluation, and gain some basic qualitative insights into their behavior and attitude.

Trainers and mentors are also interviewed by the co-founders, and are encouraged to express their feedback about the overall program, their suggestions, and constructive criticism. Based on this feedback, the team modifies the program each year, allowing for the new fellows

⁵⁷ Interview with Ali Clare conducted on April 17, 2017.

to gain new skills on a year-by-year basis and allowing for the instructors and team members to come up with new metrics and indicators. “If I start it tomorrow, I’ll start it very differently. This is how much you learn from constant evolution and feedback,” said Ali.

V. Sustainability, Future Plans and Challenges

The ultimate goal of the project is to empower every single fellow to find a full time job or to obtain a university degree. However, this is easier said than done. A new crop of Iraq Re:Coded fellows will graduate at the end of April, but each of them will have complete access to the online material for the course of six months. In this period, the team constantly seeks to secure new partnerships with local and international start-ups and freelance companies. Trainers and the entire Iraq Re:Coded team support the fellows online and offline, assist them in job hunting, and prepare them for potential interviews. However, donors set deadlines, and funding comes in fits and starts. The grant writing process, furthermore, is very time consuming and not always successful.

Iraq Re:Coded’s future goal is to engage alumni in the process either as future trainers or future contacts in forging partnership with their employers. According to Ali, the entrepreneurial ecosystem in Iraq is very small. Indeed, Iraq Re:Coded is the first coding program in the region. Therefore, they hope to expand this ecosystem by creating a tech-hub in Kurdistan Iraq. “For the future, we are changing a lot,” she told me. “The ecosystem is very small... and we currently are looking for more and more partnerships. Our goal is to have a tech hub that has four functions: 1) a co-working space, 2) a coding bootcamp like the one we are currently doing, 3) an incubator to provide mentoring soft skills and entrepreneur training, and 4) Research and development on start-ups’ progress in the region.” In the future, she added, “we want to have

Hackathons, Meetups for start-ups in the tech-hub. For the next year, we will be extending the program to Turkey.”⁵⁸ Additionally, more partnerships with corporations seem to be in the works. “We also reached out to more international partner like Google, Microsoft, Cisco and ask them to send representatives to run specific trainings,” Clare told me. “It’s a challenge to bring them to Iraq though. We are not planning to move fast because we have to assess the sustainability of our work from different perspectives and it is very challenging to do that in the best possible way.”⁵⁹ In other words, although the organizations goals are urgent and their expansion plans are ambitious, the team behind Iraq Re:Coded is also aware of the risks of growing too fast (and too far) in too short of a time. By cautiously iterating on successes and adopting new strategies to respond to failures, they hope to enact a sustainable plan for the future that doesn’t over-extend their resources or leave them flat-footed when situations change on the ground.

To conclude, as is clear from the discussion provided here, Iraq Re:Coded is a well-executed and promising project which can serve as a model for future initiatives. But it is also a project whose ultimate success is very much still in question, and whose final impacts are still making themselves apparent. The overarching goal of providing a sustainable livelihood for refugees who pass through the program is in sight for some students, but others continue to struggle to find employment. It remains to be seen whether the program will be able to successfully expand and meet the main challenges mentioned above: continued funding, provision of formal financial

⁵⁸ There is an interest in ICT-related entrepreneurial and start-up initiatives in Turkey. Infrastructure and internet connectivity is more stable and reliable. Currently, there are more than one million Syrian refugees live in Turkey and programs such as Iraq Re:Coded is in demand for that population. For more about Syrian refugees rights to work see: Akram, S.M. et al., “Protecting Syrian Refugees: Laws, Policies, and Global Responsibility Sharing,” *Middle East Law and Governance*, (2015) 7(3), pp. 287–318.

⁵⁹ Interview with Ali Clare conducted on April 17, 2017.

services, sustainability, and the ability of students to successfully compete with applicants for international jobs.

In her interview, Ali described the challenges that the Iraq Re:Coded team faces going forward:

Despite the modification that we made to the training to change it from full-time... to part-time, still twenty of the original students have withdrawn. Some of them thought the course was too difficult for them. One student returned to Fallujah to figure out whether situation his house had been destroyed or not. So, it's always challenging to work with people whose lives are not stable. We had to adopt a super flexible approach to running the program. We thought we are going to have full time training, but it's impossible to do that.

In this discussion, Ali conjectured that these programs work best in a camp setup. In a non-camp environment, the risks of dropouts and refugees not being able to participate due to labor precarity greatly increase, meaning that future implementations of similar initiatives will need to adapt to changing local contexts and labor environments.⁶⁰ Likewise, more work needs to be done on how such programs can reach and aid refugees who are in transit between camps and urban areas, whose rights are perhaps the most in danger of being violated among all refugee groups, but who often slip through the cracks of international aid.⁶¹

⁶⁰ E.H. Campbell, "Urban refugees in Nairobi: Problems of protection, mechanisms of survival, and possibilities for integration, *Journal of Refugee Studies* (2006) 19(3), pp. 396–413. See also "Iraq - Telecoms, Mobile, Broadband and Digital Media - Statistics and Analyses - BuddeComm," accessed April 18, 2017, <https://www.budde.com.au/Research/Iraq-Telecoms-Mobile-Broadband-and-Digital-Media-Statistics-and-Analyses>.

⁶¹ C. W. Kihato, & Landau, L.B., "Stealth Humanitarianism: Negotiating Politics, Precarity and Performance Management in Protecting the Urban Displaced," *Journal of Refugee Studies* (2016).

Chapter 3: Challenges and Recommendations

The previous two chapters investigated the Syrian refugee crisis as a 21st century phenomenon, deeply connected to emerging trends in the digital world and in human rights studies. This is a catastrophe with elements which are at present unique, but which may also reflect potential characteristics of future crises. The goal of this chapter is to identify challenges faced by NGOs and other organizations responding to the current refugee crisis, and to offer recommendations for best practices which, it is hoped, will prove useful in helping meet the social, organizational and technological challenges imposed by refugee crises in the years to come. Among other things, this chapter identifies emerging technological risks to refugees' human rights, notably the Right to Privacy, and identifies best practices for organizations seeking to preserve these rights.⁶²

The primary purpose of the previous chapters was to sketch the different ways that technology played a role in improving livelihoods of refugees both in camp and outside of the camp. Examining Iraq Re:Coded helped us to understand the logistics behind these types of projects, which use technology as a tool to improve the livelihoods of refugees and IDPs. As was described in the previous chapter, social and political factors, collaboration among actors, and sustainability of the projects are challenges that these types of projects struggle with to make their projects successful.

In this chapter, I will further explore the challenges that humanitarian actors, especially NGOs, are faced with in using technology to improve livelihoods of refugees. Furthermore, I will recommend various ways to tackle those challenges. In particular, this chapter documents

⁶² On biometrics and privacy among refugees see Katja Lindskov Jacobsen, "UNHCR, accountability and refugee biometrics," in Kristin Bergtora Sandvik, ed. *UNHCR and the Struggle for Accountability* (Routledge, 2016).

five sets of challenges involving the use of Information and Communication Technologies in providing refugee aid. Almost every actor in the humanitarian sector is already using a range of ICTs to address the needs of refugees, from accelerating NGOs' work via online video chats to providing Wi-Fi hotspots in refugee camps, and from keeping refugees virtually close to their family member to training refugees with coding and online business skills. In all these regards, ICTs have been playing a role that is more positive than negative. But the use of these technologies and practices is not without significant problems, not all of which have been solved.

I. Access to the Internet

Any online livelihood or educational training relies in a fundamental way on reliable Internet connectivity. Yet providing connectivity to those who need it most is a highly complex challenge. According to UNHCR, at present almost 65 million refugees and IDPs are living without reliable internet and network connectivity.⁶³ Access to the Internet is, perhaps, the single most pressing challenge for the humanitarian technology projects surveyed here. Lack of availability and affordability of Internet access is a problem that requires attention and funding, but in particular it requires a close attention to the mechanics of forging close partnerships between different actors including governments, UN agencies, NGOs, and the private sector. Although mobile broadband⁶⁴ is available for most of the refugees in urban areas, 20% of those in rural areas have no access to the Internet.⁶⁵ However, the 2G or 3G connectivity characteristic

⁶³ "Connecting Refugees: How Internet and Mobile Connectivity Can Improve Refugee Well-Being and Transform Humanitarian Action" (UNHCR, September 2016). Retrieved at: <http://www.unhcr.org/5770d43c4.pdf>.

⁶⁴ Mobile broadband means internet access over the existing mobile networks which requires cell tower to transmit to and from mobile phone. Mobile broadband could be any types of connectivity including 2G, 3G, 4G, and LTE.

⁶⁵ United Nations High Commissioner for Refugees, "Connectivity for Refugees," *UNHCR*, accessed April 27, 2017, <http://www.unhcr.org/connectivity-for-refugees.html>.

of many mobile broadband networks might not be sufficient to run an online business, use online educational material, or stream training videos. In addition, access to reliable sources of power for charging devices is a significant obstacle on the path to permitting refugees to enjoy the fully benefits of online services.

Fixed broadband, via Wi-Fi hotspots, could provide an alternative solution. Private companies, such as Google and Cisco have been partnering with different humanitarian organizations such as Mercy Corps to bring Wi-Fi connections to the camps.⁶⁶ But because of over-population in refugee camps, the users are only allowed to use limited amount of data and they not able to stream videos online. In these situations, refugees in camp might end up buying expensive data packages for which they are forced to spend up to a third of their disposable income.⁶⁷ There are ambitious plans currently underway to connect the world to the Internet such as Facebook's much-criticized Free Basics, Alphabet Inc.'s Project Loon, or SpaceX's proposed "satellite constellation" system.

It is my intention here neither to critique or praise these existing initiatives. I would like to propose, however, that in addition to simply counting on the success of future plans, technologists and NGOs should actively seek to enhance their implementation, impact and societal benefit via a range of other activities. Not all of these will ultimately prove helpful, but it is important that so vast a problem as universal internet access for all refugees and IDPs be tackled from multiple angles and with multiple methods.

- Technologists should create applications and online platforms which requires less data usage and which even have the potential work offline. Training websites should be as minimalist as

⁶⁶ "NetHope," *Google.org*, accessed April 27, 2017, <https://www.google.org/our-work/crisis-response/nethope/>.

⁶⁷ Disposable income for refugees in camps means the amount of money that each refugee receives from UNHCR or other governmental humanitarian aid agencies. See UNHCR, "Connecting Refugees: How Internet and Mobile Connectivity Can Improve Refugee Well-Being and Transform Humanitarian Action,"

possible so that they require the minimum amount of data to load for users. Training websites should feature responsive design because most the refugees rely exclusively on mobile devices to access to the Internet.

- When establishing Internet centers in the refugee camps, attention should be placed on creating spaces where refugees can not only obtain access to reliable Internet connections, but also where they can obtain free training and guidance. Although the initial phases of this might involve direction from NGO employees, ideally, it would become a peer-to-peer guided practice based on digitally-literate refugees teaching their fellow refugees about basic computer and digital literacy as well as online dangers to avoid and refugee-specific websites and social networks of value.
- Instead of concentrating their focus on the software side of the equation, NGOs might try following the lead of the large-scale connectivity projects mentioned above (such as Project Loon) and focus on creating innovative hardware solutions with practical benefits, such as bringing reliable power and energy to the camps. Many of these solutions may not be particularly high tech or hugely ambitious, and can include localized work by technically-skillful refugees themselves. The radio program *This American Life* documented one striking example of this during an episode in which the producers of the show visited several refugee camps throughout Greece in 2016. In a translated exchange with a teenager named Farhad, radio host Ira Glass learns the origin story behind “an extension cord that’s coming out of the base of a tree.” Farhad informs him that “there’s this one guy who’s just really good with technology and electricity. And somehow he just hooked it up.”⁶⁸

Situations such as these can be harnessed and organized to allow refugees to use their

⁶⁸ *This American Life*, “Don’t Have to Live Like a Refugee,” original air date August 5, 2016, <https://www.thisamericanlife.org/radio-archives/episode/593/dont-have-to-live-like-a-refugee>

technical know-how to improve life for themselves and their peers. Additionally, there is scope for more affordable consumer products with direct utility in refugee camps, such as Google Chromebook, although the difficulty to collaborating and partnering with a consumer electronics company on such a specific application (a computational device specifically for refugees) might be unworkable.

II. The Digital Divide and Tech Literacy

Providing reliable and affordable Internet does not necessarily solve the issues that refugees are faced with. The digital divide among different groups based on gender, age, social and economic factors may prevent certain groups from access to the mobile devices, Internet and online services. In addition, digital literacy varies among different refugee groups. Level of digital literacy not only depends on access to the internet but also varies based on people's gender, age, culture and other socio-economic factors. According to Intel's report "Women and the Web": "On average across the developing world, nearly 25 percent fewer women than men have access to the Internet."⁶⁹ This gap increases as age increases. Therefore, among refugees, women and the elderly are less likely to have access to mobile phones and the internet.

Online livelihood programs rely significantly on not only access to devices and the internet but also on digital literacy. Although there is a high rate of smart phone usage among refugees, digital literacy should not only be defined in terms of basic skills such as navigating the Internet or using email. Becoming technologically skilled can play a major role in finding jobs,

⁶⁹ "Women and the Web: Bridging the Internet Gender Gap," Intel Corporation (2013).

forging important new professional and personal connections, and updating skills.⁷⁰ For instance, in order to start an e-commerce business to sell handcrafts or become a freelance coder, it is necessary for a person to not only to be capable of handling an email account, but to have knowledge of both front-end and back-end web design, database management, digital security, and online business logistics such as establishing a web address and purchasing cloud-based server space. Not to mention having the ability to trouble-shoot and respond quickly to emerging issues and threats.

Establishing such a skillset is far from easy, and it depends in large upon factors that aren't connected directly to technology, yet which make advanced digital literacy among refugees possible. These include:

- Nurturing a better understanding of gender, age, cultural and other socio-economic gaps among refugees, and founding programs and developing training that seeks to close this gap first. For example, Syrian refugees in general are more digitally-literate compared to those from less affluent nations where personal computing devices remain relatively scarce such as Afghanistan, which has a per capita gross national income of only \$610.⁷¹ Regardless of the wide divergence in familiarity and access to digital technologies created by such income divides, however, it is important for any groups who want to initiate an online program to assure that the programs involved are inclusive and are not constructed in such a way as to encourage or develop biases.
- Although it is vitally important to offer 21st century skills such as digital literacy to refugees, alongside these activities it is also worth exploring opportunities to transform occupations

⁷⁰ Alexander Betts, Louise Bloom, Josiah Kaplan, and Naohiko Omata, "Refugee Economics: Rethinking Popular Assumptions," Humanitarian Innovation Project, University of Oxford (2016).

⁷¹ World Bank. (2016) "Data: Afghanistan." Retrieved from: <http://data.worldbank.org/country/afghanistan>

that are often labeled as “low-skill jobs,” such as sewing, making rugs, and crocheted items of clothing, into independent sources of income made possible by international customers. Even if an individual rug-maker, for instance, is not able to manage her own online business, teaching digital literacy, e-commerce and online marketing skills en masse will help refugees to work with one another to help skilled artisans find customers overseas or even teach their skills to a broader audience. Lack of access to formal financial systems might be an obstacle, but NGOs could play a mediatory role in these cases. Further in the future, blockchain-based currencies *might* provide a potential alternative to traditional banking, but, as discussed in section 5 below, this should not be a priority at the moment due to the dangers posed by price fluctuations due to currency speculation.

- Close the gender divide by proposing gender-based incentive programs. Funders and donors should take into consideration that there is already a literacy gap based on gender, and allowing this gap to continue to persist in the online world is not acceptable. Funders and donors should thus allocate specific funding for programs that focus on digital literacy for women and the elderly. Regarding access to the Internet, depending on the program, there should be advocates and experts from NGOs, government agencies, and private sector to make sure the program is inclusive and that representatives for all groups and genders are involved. The program should challenge biased norms and discriminatory practices.

III. Lack of collaboration and partnership

Good intentions and a desire to help are at the core of what motivates donors, aid workers, and governmental and private sector partners working in the field of technology and refugees’ human

rights. But at the same time, it is an unfortunate fact that good intentions alone are not enough. This is especially true when it comes to ICTs. There is no doubt that all humanitarian actors including NGOs and non-profit organizations, UN and government agencies, private sector, funders, and technologists have employed digital methods and tools to allow humanitarian interventions to be more productive, efficient and innovative. At the same, however, digital technologies have all too often been framed as “magic bullets” for solving issues that are deeply complex and indeed, in some cases fundamentally unsolvable. Likewise, the outpouring of support and international media attention directed toward Syrian and Afghan refugees has led to problems of organization and collaboration, in some cases resulting in a poor use of funds, needless duplication of work, and the creation of well-meaning apps and programs that fail to find an actual audience among refugees.

It is important, then, that we don’t allow the good intentions of the international community to blind us to the missteps and missed opportunities that can result from a situation such as this. This section explores the organizational and collaborative challenges posed by the high number of competing services, organizations and platforms seeking to teach technical skills to refugees, and offers several recommendations about how these might be better able to collaborate effectively in the future.

The news in the past several years has frequently featured stories along the lines of the headline that appeared in *USA Today* in September of 2016: “Google to help George and Amal Clooney educate Syrian refugee children in Lebanon.”⁷² This initiative led by the Clooney Foundation for Justice, which proposes the creation of ten “pop up” schools near refugee

⁷² Jessica Guynn, “Google to help George and Amal Clooney educate Syrian refugee children in Lebanon,” *USA Today*, September 20, 2016, retrieved at: <https://www.usatoday.com/story/tech/news/2016/09/20/george-and-amal-clooney-team-with-google-to-educate-syrian-refugee-children-lebanon-united-nations-obama-refugee-crisis/90716882/>

settlement areas in Lebanon and prominently features a promise of teaching computer literacy, is indicative of two trends. First, the creation of new non-profit organizations founded in direct response to the ongoing Syrian refugee crisis, with a specific set of objectives that differentiates them from existing refugee aid organizations like IRC. And second, close partnerships with technology companies that are seeking to find outlets for the social justice objectives of many of their employees, in addition to leveraging their consumer-facing products (such as Chromebooks) for charitable uses.

Any new initiative and new source of funding in this field should be welcomed with open arms. However, the enormous amount of attention focused on the specific issues surrounding education, human rights, refugees and technology has created a highly competitive environment among non-profit organizations. Unlike in the private sector, in the realm of NGOs, such competition does not always lead to successful and sustainable solutions.

As an example, let us examine the presence of refugee-related mobile applications in the Google Play online store. There are about 200 refugee-related mobile apps on Google Play as of October, 2016. Of these applications, some 57% had less than 500 downloads, and a significant proportion of them had not been updated for more than a year, leaving them vulnerable to security threats and potentially unusable on some Android builds.⁷³

Although an imprecise survey, this examination of Google Play apps nevertheless indicates how unsustainable some of the online services might be. The need for further collaboration between the makers and funders of these types of apps was driven home at the 2017 RightsCon conference in Brussels, Belgium, in a panel which featured representatives from

⁷³ This estimate is based on my research on Google Play in October of 2016. I searched for the words “Refugee,” “Asylum,” and “immigrants.” I observed that there are almost 200 applications on Google Play alone which appear to be designed specifically for refugee needs.

Dina Ariss, Refugee Design Council; Jovan Jelcic, Mercy Corps; Sven Seeberg, Integreat; Fran Penfold, Refugee.Info; Omar Meksassi, IRC.⁷⁴ Here, Dina Ariss of Refugee Design Council noted the urgent necessity of overcoming competition between different aid agencies and coordinating work to avoid an overabundance of apps and initiatives. Below are some additional proposals for ways that organizations in both the public and private sector might be able to forge more effective and sustainable collaborations aimed at reducing unnecessary competition and amplifying existing work.

- The most difficult but also perhaps the most beneficial objective in this regard is a campaign to encourage funders and funding agencies to *mandate partnerships*. In other words, funders should care not only about relatively abstract concepts like sustainability, but should actively encourage this by requiring organizations that they fund to demonstrate their willingness and ability to share data with peer organizations, and to create lines of communication that allow organization to coordinate their resources so as to make them more effective. Although it will undoubtedly be difficult to convince the numerous different types of organizations which provide funding for refugee aid of the value of this, one potentially effective argument could center on stretching the value of a dollar: by encouraging protocols that prevent the creation of apps or programs which cover the same ground or which go unused by those they intend to serve, such an initiative would increase the effective value of donated funds.
- One potential platform for this type of cross-organization coordinating could be an open source online platform for data-sharing. This could take many shapes, but at its core, such a platform would function as a clearinghouse for exchanging useful information relating to

⁷⁴ “Apps for Refugees: Successes and Challenges,” RightsCon, Brussels, Belgium, March 31. Organized and chaired by Roya Pakzad and featuring panelists Dina Ariss, Refugee Design Council; Jovan Jelcic, Mercy Corps; Sven Seeberg, Integreat; Fran Penfold, Refugee.Info; Omar Meksassi, International Rescue Committee. <https://events.bizzabo.com/RightsCon/agenda/session/177264>

tech and refugees. For instance, why shouldn't all refugee aid apps be open source, their code available to all who wish to fork it and develop it into something new? Why shouldn't all educational materials relating to teaching digital literacy be similarly freely available? One example of these types of platforms is Digital Humanitarian Network founded by Andrej Verity and Patrick Meier in their own words, has been developed "to leverage digital volunteers in support of 21st century humanitarian response. More specifically, the aim of this network-of-networks is to form a consortium of Volunteer & Technical Communities (V&TCs) and to provide an interface between formal, professional humanitarian organizations and informal yet skilled-and-agile volunteer & technical networks."⁷⁵ These types of platforms could be expanded to be used by NGOs, private sectors, funding foundations, and academics to find collaborators, share their experiences and the lessons learned.

- Finally, it is imperative that organizations working in the field of refugees and technology design their projects *with* refugees and not only *for* refugees. Also at RightsCon 2017, Jovan Jelacic of Mercy Corps and Refugee.Info described his experiences travelling throughout Greece and the Balkans installing wireless internet in refugee camps. Jelacic found that the most cost-effective and durable method of installing wifi was one that depended directly on the willingness of refugees to take part in maintenance: while some organizations chose to install wireless internet hardware in locations that were inaccessible to refugees, he noted, his own organization (Refugee.Info) brought refugees into the process of installation and

⁷⁵ Digital Humanitarian Network founded by Andrej Verity who is currently the information management officer at the United Nations (UN) Office for the Coordination of Humanitarian Affairs (OCHA) and Patrick Meier, Co-Founder and Executive Director of WeRobotics and the author of the book *Digital Humanitarians*. For more information about DHN look at: "DHN | Leveraging Digital Networks for Humanitarian Response," accessed April 22, 2017, <http://digitalhumanitarians.com/about>.

depended on them for maintenance. Jelacic noted that his installations had, to date, a 100% success rate in terms of remaining online and functional due in part to this collaboration with refugees.

IV. Online Dangers

Although emerging technology and access to Internet have brought numerous innovative ways to assist refugees and humanitarian organizations, but it has also brought new dangers. As mentioned above, refugees are highly dependent on their mobile devices. Thus, lack of attention to the issue of digital security and online privacy might make them vulnerable to online threats. For instance, job-posting mobile and web-based applications have been helping refugees to find employment and housing, but they also opened a new channel for abusers and human traffickers to attract individuals to fraudulent and abusive jobs.

Likewise, lack of attention to sharing personal data on an online platform might create new methods of surveillance by national governments. The world has witnessed this firsthand from the many examples of Syrian government interference in ISP services, monitoring website content and admins, and surveilling of users' personal SMS and email addresses.⁷⁶ To mitigate these circumstances, we might explore the following options.

- Programs such as Iraq Re:Coded aiming to teach digital literacy via online and in-person training should integrate minimum digital security training into their program. The training could be very basic and embedded with simple video-clips and audio. Most of the available handbooks and digital security training are designed for people who already have above-

⁷⁶ “Syria | Country Report | Freedom on the Net | 2012.”

average digital and internet knowledge. Therefore, it is very important to develop training that are easy to learn and memorable. A brief look at available digital security training materials such as the Electronic Frontier Foundation's "Security Toolkit" and Access Now's "A First Look at Digital Security" proves that the toolkit and handbook are designed for journalists, activists, and in general for people who have general knowledge of online security.⁷⁷ Digital Humanitarians who have concerns about data privacy and online dangers should duplicate some of these resources, customize, and simplify it for the refugee population and assure the digital literacy training have some of these security components.

- Although keeping users' data on servers and databases can be helpful in learning from users' experiences and updating and improving services, developers should keep in mind that saving the personal data of refugees makes the platform a potential target for government surveillance, hackers, and third-party advertisement companies. So, it is recommended for developers to create a platform which preserves the smallest possible amount of data of the users.
- Job posting, housing, and platform which enable users to post ads and news should be verifiable by NGOs and valid humanitarian agencies. Technologists could come up with user-friendly methods that accelerate the fact checking and verification process for humanitarian agencies' staff.

V. Lack of Access to Financial Services

At the time that refugees decide to leave their hometown to escape from war and persecution, they most likely have to leave all their identification documents and assets behind or they might

⁷⁷ EFF Security Toolkit: <https://www.eff.org/deeplinks/2016/09/five-eff-tools-help-you-protect-yourself-online>, Access Now's A First Look at Digital Security <https://www.accessnow.org/a-first-look-at-digital-security/>

lose them on their journey to other countries. There are numerous examples of Syrian and Afghan refugees lose all their belongings while crossing the Mediterranean Sea. In this situation, when the refugees reach to their destination, access to formal financial services is almost impossible for them to achieve. In the current financial system, possession of valid identification documents is mandatory for opening bank accounts, conducting money transfers, and depositing funds.

There is no doubt that, when starting a business, one of the main problems facing refugees is a lack of access to permanent bank accounts. Imagine an Iraq Re:Coded fellow who successfully finished her coding program and now is looking for employment opportunities as a freelance coder – must she always be dependent on the organization to receive her payments from her employee? Likewise, if a group of rug makers want to expand their business by starting an online shop, it is almost impossible for them to do that individually and without a presence of any NGO or a middleman who can transfer money. Fintech or Financial Technology might be an answer to this problem:⁷⁸

- As a potential solution for a lack of valid identification documents, a technology has recently emerged called blockchain. Although primarily associated in the media and in academic literature with cryptocurrencies such as Bitcoin, blockchain technology also has significant potential as a tool for securing personal information online, and even for allowing for contract-based mutual agreements and identity records which are cryptographically protected and individuated.⁷⁹ For example, in the Dadaab refugee camp in Kenya, the blockchain

⁷⁸ FinTech is an abbreviation for Financial Technology referring to using technology to make financial services more efficient and inclusive. Online Banking, Paypal, and BitCoin are examples of FinTech solutions.

⁷⁹ Kosba, Ahmed, Andrew Miller, Elaine Shi, Zikai Wen, and Charalampos Papamanthou. "Hawk: The blockchain model of cryptography and privacy-preserving smart contracts." In *Security and Privacy (SP)*, 2016 IEEE

platform called BanQu helps Somalian refugees to create an identity which later help them to be economically independent. In order to create such an economic identity, BanQu uses refugees' selfies, physical characteristics, biometrics, family members and uploads them to a secure ledger. Having this identity helps refugees to create credit for themselves and be able to transfer money remotely.⁸⁰ The same technology can be applied to Syrian and Afghan refugees living inside and outside the camps.

- There might be a perception that refugees' stay in the camps and host countries are temporary – that, sooner or later, they will leave the camp and return to their hometown. Although the number of years that refugees stay in exile varies but according to UNHCR, the average stay of refugees in inside or outside a camp in host countries is estimated to be approximately 17 years.⁸¹ In this situation, there is a good opportunity for microfinance organizations such as Accion and Kiva to expand their FinTech services and design innovative methods for refugees' microfinance and microcredit programs. If refugees can prove who they are, they can store and exchange assets via the blockchain. Unfortunately, the distribution of free services and goods by UN agencies and charities might discourage many refugees who have entrepreneurial skills and interested in starting microfinance business. Therefore, it is important for NGOs and UNHCR to invest on self-reliance initiatives and by partnering with Fintech microfinance companies help refugees learn financial skills and explore online and secure methods to start their entrepreneurial business.

Symposium on, pp. 839-858. IEEE, 2016. See also the documentation on the Ethereum website: <https://www.ethereum.org>

⁸⁰ Ephrat Livni and Ephrat Livni, "Blockchain Technology Can Help Save the Lives of Millions of Refugees," *Quartz*, accessed April 25, 2017, <https://qz.com/809143/blockchain-tech-refugee-identity/>.

⁸¹ United Nations High Commissioner for Refugees, "Global Trends 2015," *UNHCR*, accessed April 29, 2017, <http://www.unhcr.org/global-trends-2015.html>.

Conclusion

According to Syrian Regional Refugee Response, more than 5 million Syrian refugees have been registered by UNHCR since the Syrian civil war begun in 2011. Despite the Western media's excessive attention to a refugee influx in European countries, 95% of this population continue to be hosted by neighboring countries: 2 million in Egypt, Iraq, Jordan, Lebanon, and 2.97 million Syrians in Turkey.⁸² After 5 long years, the end to the Syrian civil war is still not in sight, and the crisis is far too profound to continue to rely on temporary camp-based and charitable services to protect the human rights and basic needs of this population. The cornerstone of any system of human rights is human dignity, and it is not hard to see that for refugees to possess this, they also need self-reliance livelihood programs. According to the 1951 Refugee Convention, member states are morally and legally obliged to pave the ways for refugees' employment. Even the non-member states of the 1951 Convention are bounded by ICESCR to protect refugees' rights to adequate standard of living. Governments must begin working now with a coalition of private and public partners to help refugees improve their livelihood by implementing domestic regulations, new policies and new collaborations with the private sector and NGOs.

This research has aimed to illuminate the special role of Information and Communication Technologies in developing sustainable livelihood programs for refugee population inside and outside the camps. For this purpose, Iraq Re:Coded was studied as an example of a training and livelihood program implemented in Erbil, Iraq. Projects such as Iraq Re:Coded aim to challenge the traditional humanitarian livelihood programs (mostly performed by UN agencies, which

⁸² UNHCR, "UNHCR Syria Regional Refugee Response."

focus on trainings that prepare refugees for low-pay and low-skilled jobs such as masonry, black smith, hair dressing, sewing, etc). New technology-based programs have the potential not only to improve employment but to preserve human rights and to fundamentally alter the global image of refugees, who are too often unfairly portrayed as poor, desperate and unskilled individuals.

However, these projects are still in their early stages, and they struggle with issues such as effective partnership with different stakeholders, funding, integration, and sustainability. Government attitudes and policies play a significant role in the success rate of these programs, which, in the end, not only benefit refugees but their own citizens. Host countries, especially in the developing world, should take into consideration that the ICT sector is the most rapidly-growing employment sector; by 2030, it may shelter up to 600 million jobs.⁸³ Countries such as Lebanon, Turkey, Jordan, and Iraq should consider refugees not as a vector of poverty and misery, but as an opportunity. By allowing refugees to work legally, and implementing long-term, multi-year employment policies, nation states will be able to enhance collaboration with UN agencies, NGOs, academics and the private sector, and to leverage the neglected human capital in their midst. Ultimately, although changing technologies often threaten social change and upheaval, they also hold out the promise of delivering models that ensure progress toward rights-based and sustainable development strategies which benefit both refugees and the countries that have given them a new home, and a new life.

⁸³ Siddhartha Raja et al., “Connecting to Work: How Information and Communication Technologies Could Help Expand Employment Opportunities” (The World Bank, September 1, 2013), <http://documents.worldbank.org/curated/en/290301468340843514/Connecting-to-work-how-information-and-communication-technologies-could-help-expand-employment-opportunities>.

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