



Exploring the Usage Trends and Impacts of Different Digital Platforms among FDMNs



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Produced by

Advocacy for Social Change, BRAC

Research Advisor

KAM Morshed

Senior Director

Advocacy, Innovation and Migration
BRAC

Azad Rahman

Programme Head

Advocacy for Social Change, BRAC

Lead Researcher

Dr. Faheem Hussain

School for the Future of Innovation in Society
Arizona State University
USA

Other Researchers

Dr. Zulkarina Jahangir

Research Coordinator

Advocacy for Social Change, BRAC

Tariqul Islam

Policy Analyst, BRAC

Advocacy for Social Change, BRAC

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Executive Summary

Background

This research focuses on the exploring the usage trends and impacts of different digital platforms among the displaced Rohingyas from Myanmar in Bangladesh. Our goal is to identify the key information access and communication stakeholders, gatekeepers among the Rohingya communities, using both qualitative and quantitative research. We also plan to evaluate the roles and impacts of digital platforms (mobile phones, internet, and social networks, such Facebook YouTube, WhatsApp, Imo, WeChat, etc.), especially in service provisioning; and to identify and analyze the inception, diffusion, and impacts of service and usage innovation of digital platforms.

We believe, this research will assist in understanding the actual level of diffusion, user groups, usage, and impacts of mobile phones, internet, and social media. Our work can further contribute to the existing but frugal narrative of information access and communication, assist in identifying major stakeholders, and highlight possible synergistic opportunities that can essentially enable better service provisioning, security, and communication. In the long term, we hope that our work will raise awareness and initiate efforts to co-design, co-create, and collaboratively deploy inclusive and sustainable information and communication ecosystems in places without such mechanisms. We furthermore envision our research outputs to address similar challenges faced by displaced populations in the global context.

Research Methods

This is a mixed method research where we applied both qualitative and quantitative methods, which further complement each other. Mixed method was necessary to pave the way for proper knowledge inquiries in this domain, which we believe can prove to be critical in designing better service provisioning for humanitarian initiatives. During the qualitative field data-collection phase, we primarily focused on conducting ethnographic research, using Focus Group Discussions (FGDs), Key Informant Interviews (KIIs), and in-depth observations. We conducted conversations with working and homemaker women, Majhis or local leaders, religious leaders, high and low literacy males, and local NGO workers. We also interviewed practitioners, leaderships, and policymakers from local governments, international development agencies, and NGOs. For the quantitative part of this research, we surveyed 630 Rohingyas, who arrived in Bangladesh after July 2017. According to UN, the estimated population of this group is 650,000. In addition, we made sure that our respondents are split in around 50:50 ratio between women and men. We furthermore tried to increase the diversity of opinion by connecting with respondents from different types of camps (near the main highway, near the coastal area, near the border area, remote location, etc.). In terms of age distribution among the respondents, we also tried to have equal representation from different age groups.

Key Findings

Marginalization of ICT Usage in Rohingya Camps

In Bangladesh, it is legally required to provide official identification documents as well as biometric information to buy any mobile SIM card. However, Rohingyas do not have any officially recognized and biometric information enabled documents, which eventually resulted in their

exclusion from the legal SIM market in Bangladesh. Both mobile and internet service quality in and around the majority of the Rohingya camps have been very poor, adversely affecting the ICT access for Rohingyas as well as the humanitarian service providers.

Usage Trends and Popularity of Digital Platforms

Voice call using any type of mobile phone is the most used and trusted option among both Rohingya men and women for accessing information. Across the different age groups and gender identities, we found that any kind of voice service over the traditional mobile network is significantly more popular as well as more trustworthy than any other digital communication or access to information services. We further saw:

- Voice Calls, followed by Imo and WhatsApp are the most popular and trusted ways of communication between Rohingyas within and outside the camp areas
- The top reason for using any mobile application is to communicate with others (across gender and different age groups)
- Imo is the most popular mobile application
- Rohingyas do not prefer or use any digital media to communicate with local Government Officials
- Male FDMNs are more willing to pay for the digital services than the female FDMNs

Women, Patriarchy, and ICTs: Inequality in Digital Space

Gender disparity among the Rohingyas is significant. It affects key development initiatives related to healthcare, information services, education, human resource development, clean energy usage, etc. In terms of access and applications of different digital platforms:

- Rohingya men and women's use significantly different digital platforms for accessing emergency information on disaster, law & order, and seeking new job opportunities
 - Voice Calls, Facebook, YouTube preferred by men
 - Mostly Voice Calls preferred by women
- Men and Women have equal access to basic mobile phones
- Male Rohingyas' willingness to pay is higher than females for mobile services/SIM card purchase

Stakeholders Relationship and Power Matrix in Digital Communication

We inquired about the level of trusts FDMNs have over different digital platforms for connecting with major stakeholders within and outside the camp areas. We furthermore analyzed the level of engagement of FDMNs with different socio-religious leaderships using an array of digital platforms. We found:

- Voice calls, Imo, WhatsApp, and Facebook are the most trusted digital platforms for male FDMNs
- Voice calls and Imo are the most trusted digital platforms for female FDMNs
- Since their arrival in Bangladesh, male FDMNs are using the online social media around three times more than the female FDMNs to find information
- Religious Sermons or Waaj is the most popular audio-visual content among Rohingyas
- Religion and English Learning are the popular topics for future audio-visual instructions

Digital Platforms, Social Cohesion, and Political Leadership in Rohingya Camps

Slowly but surely, a group of leaders is emerging out of the FDMN population, who are outside both: the administrative functionalities of Majhi based network and the theological structures of Imams. These leaders are quite popular among the general Rohingyas in the camp areas. Our research team met with one of the leading groups and closely observed their applied strategies with different digital platforms. Furthermore, we inquired to know whether Rohingyas have been using any digital platforms or organizing online for mobilizing offline. We found:

- Rohingyas have not created any significant number of social groups using any digital platforms, based on their communities of origin in Myanmar, or on their communities of refuge in Bangladesh
- In the absence of the Internet, Rohingyas are accessing previously downloaded audio-visual content from WhatsApp, repair-recharge shops, and YouTube
- Rohingya males prefer tea stall and bazaars to communicate with each other. Among females NGO managed safe spaces (Shantikhana) are more popular

Rise of the Demand of Audio-Visual Contents inside Rohingya Camps

During our field visits, we observed the emergence of mobile repair and recharge shops as the local and popular content distributor among the Rohingyas, primarily the young males. We observed a hugely significant difference between the access pattern of audio-visual content by male and female FDMNs. Overall, community sharing of audio-visual content turned out to be the norm inside any Rohingya camp. We further observed:

- High demand of localized content has been found around the Rohingya camp areas
- Men are collecting and accessing audio-visual content significantly more frequently than women
- Majority of audio-visual materials are originally circulated around the camp from the mobile repair/recharge shops
- Rohingyas are willing to pay for Memory Card transfers of audio-visual content from friends and shops
- Religious Sermons or Waaj is the most popular audio-visual content among Rohingyas
- Religion and English Learning are the popular topics for future audio-visual instructions

Challenges in Access to Digital Platforms

- Both male and female FDMNs recognized Poor Network to be the top most challenge faced by them in accessing any digital platforms
- High Cost is identified to be the second major challenge
- No group identified the unavailability of legal SIM cards as a major challenge

Policy Recommendations

- **Legalization of the Mobile and the Internet Networks**
 - The Government of Bangladesh needs to lift the official ban on mobile network and internet services in the camp areas and introduce an inclusive information and communication network for the FDMN communities. Through our research, we found that even amid all such challenges, FDMNs will find ways to communicate and connect with each other using different digital platforms (using online, offline, and hybrid mechanisms). In many cases, such innovations require a lot of resources which could have been spent in some other productive and humanitarian issues.
 - Scarcity of good connectivity also ushered in the proliferation of misinformation, exploitation, and poor communication with the FDMN communities.
 - The Government can coordinate with the law enforcement agencies, related service providers, humanitarian agencies, and FDMN communities to design and implement a sustainable, legal, and transparent ICT infrastructure for the greater camp areas, in accordance with the existing regulations of Bangladesh.
- **Development of an Inclusive Ecosystem for Digital Platforms**
 - Our research findings demonstrated the huge popularity of alternative networks of information dissemination and communication, via the mobile repair/recharge shops and memory cards. FDMNs have higher level of trust for such service points and are also willing to pay to get ICT services from such offline/online digital platforms. The popularity and acceptability of these outlets are also very high among the FDMNs.
 - An inclusive digital platform also means that FDMNs from different demographics will have equal access to it, and will be able to actively use it. Our research found a significant bias among the Rohingya patriarchy against the FDMN women with relation to their ICT usage, which needs to be addressed with inclusive programs capable of facilitating direct connectivity (and not via the male relatives/family members) for FDMN women.
 - We need to ensure availability of legal and uninterrupted connectivity, alongside relevant human resource development program, aided by localized digital platforms can result in a better future for the young displaced group.
 - Religious leaders of the FDMN community needs to be included in the ideation and development phases of localized digital content for the Rohingyas.
- **Development of Local Content**
 - In order to design designing any Communication with Communities (CWC) initiative, voice based materials and applications need to be prioritized, due to the higher level of acceptance and usage among the FDMNs.
 - Rapid initiation of a pilot project at first) of the co-design, co-development, and co-dissemination of digital contents in Rohingya dialect.
 - Action plans need to be in motion to formalize a recognized Rohingya script/alphabets with digital compatibility.

1. Background

Different digital platforms, offering a wide range of services, are integral parts of the daily lives of 1.3 million Rohingyas (Forcibly Displaced Myanmar Nationals or FDMNs) in Bangladesh¹. In present times, the importance and relevance of digital technologies for the betterment of the displaced population are widely acknowledged. However, for the Rohingyas, things related to accessing and using digital services have always remained challenging. Even after their escape from the tortures, killings, and rapes of Myanmar Government, its army, and the anti-Rohingya militia, their struggle with equitable access and usage of the digital space.

Both mobile and internet service quality in and around the Rohingya camps are very poor. Even with better connectivity, accessing the internet legally is a significant challenge for the Rohingyas. In Bangladesh, one needs to provide official identification documents as well as biometric information to purchase any SIM card and to go online via any mobile network. Rohingyas officially do not possess such documents, hence are unable to use or buy Bangladeshi SIM card legally. The government has offered them free telephone booths, but hardly anyone uses them. Instead, the illegal mobile phone service is the most popular mode of communication. Lack of internet access and the challenges in using local mobile phones legally threaten to keep an already isolated community of Rohingyas cut off from information and communication technologies (ICTs) that would help them obtain services in Bangladesh and stay in touch with their families². On top, there are no FDMN-produced programs catering to the Rohingya population. However, Rohingyas themselves are innovating ways to access different digital platforms. Some of these solutions are cheap and inclusive, some are discriminatory, and some are being developed organically, based on the ongoing demands for access and communications by the Rohingyas.

Amid such a backdrop, we have conducted this research to further explore the usage trends and related impacts of digital platforms. Our goal is to identify the key information access and communication stakeholders, gatekeepers among the Rohingya communities, using both qualitative and quantitative research. We also plan to evaluate the roles and impacts of digital platforms (mobile phones, internet, and social networks), especially in service provisioning; and to identify and analyze the inception, diffusion, and impacts of service and usage innovation of digital platforms.

We believe, this research will assist in understanding the actual level of diffusion, user groups, usage, and impacts of mobile phones, internet, and social media. Our work can further contribute to the existing but frugal narrative of information access and communication, assist in identifying major stakeholders, and highlight possible synergistic opportunities that can essentially enable better service provisioning, security, and communication. In the long term, we hope that our work will raise awareness and initiate efforts to co-design, co-create, and collaboratively deploy inclusive and sustainable information and communication ecosystems in places without such mechanisms. We furthermore envision our research outputs to address similar challenges faced by displaced populations in the global context.

¹ UN Refugee Agency- UNHCR (2019). "Figures at a Glance". Web link: <https://www.unhcr.org/ph/figures-at-a-glance>

² Hussain, F. (2018a). "Digital Access Isn't a Luxury for Refugees". Slate. Web link: <https://slate.com/technology/2018/06/digital-access-isnt-a-luxury-for-refugees-its-a-necessity.html>

2. Methods

This is a mixed method research where we applied both qualitative and quantitative methods, which further complement each other. Mixed method was necessary to pave the way for proper knowledge inquiries in this domain, which we believe can prove to be critical in designing better service provisioning for humanitarian initiatives.

2.1 Qualitative Data Collection

In August 2019, during the qualitative field data-collection phase, we primarily focused on conducting ethnographic research, using Focus Group Discussions (FGDs), Key Informant Interviews (KIIs), and in-depth observations. During these periods, our research team connected with the on-the-ground key humanitarian service providers and Bangladesh Government's relevant office as well. These connections have explicitly helped us to gain access to the latest information related to our research and to better design our data collection and analyses works. We intentionally diversified the geolocations of our FGDs and during the six FGDs, conducted conversations with working and homemaker women, Majhis or local leaders, religious leaders, high and low literacy males, and local NGO workers.

We also interviewed practitioners, leaderships, and policymakers from local governments, international development agencies, and NGOs. Alongside sharing their own resources, many of these stakeholders helped us in data collection by connecting us with other potentially important entities. These introductions significantly assisted us in gaining more knowledge about our issues in focus. In addition to our conversations with the people, our research team collected first-hand observational data from numerous NGO-supported safe-spaces for FDMNs (e.g., women-friendly space, children-friendly space, senior-friendly space, etc.), learning centers, and healthcare facilities. Beyond the humanitarian service providing centers, we also collected data from the local marketplaces within different FDMN camps. In the last three visits, we conducted extensive research on how the mobile repair and recharging shops are rapidly flourishing all over the Rohingya camp areas. Our team administered semi-structured interviews with 12 representative stores from all over the camp surroundings. We collected data from Rohingya-managed and owned grocery shops, pharmacy, jewelry shops, garments shops, and tea stalls. Based on our key findings in the qualitative phases of the study, we designed the next phase of the data collection, which was quantitative in nature.

2.2 Quantitative Data Collection

For the quantitative part of this research, we surveyed 630 Rohingyas, who arrived in Bangladesh after July 2017. According to UN, the estimated population of this group is 650,000. In addition, we made sure that our respondents are split in around 50:50 ratio between women and men. We furthermore tried to increase the diversity of opinion by connecting with respondents from different types of camps (near the main highway, near the coastal area, near the border area, remote location, etc.). In terms of age distribution among the respondents, we also tried to have equal representation from different age groups. However, there had been a slight bias towards having more respondents in the young and middle age groups.

2.2.1 Sampling technique for quantitative research

We followed a multi-stage cluster sampling technique for this survey. Minimum sample size has been calculated using the formula $n = z^2 pq / d^2$, where, n = desired sample size, z = standard normal deviate, usually set at 1.96, which correspond to 95% confidence interval level, p = proportion in the target population estimated to have a particular characteristic (here $p=50\%$ as there is no reasonable estimate), $q = 1-p$ (proportion in the target population not having the particular characteristics) and d = degree of accuracy required, usually set at 0.05 level. Considering design effect=1.5 and all these, the minimum sample required is 576 ($=384 \times 1.5$) which can be rounded up to 600. That implies that for 95% confidence level for this population, our sample size is required to be 600 but we took 30 more than that.

We followed a two-stage cluster sampling technique for this survey. 10 camps from both Ukhiya (1W, 4, 7, 8, 9, and 15) and Teknaf (22, 23, 24, and 26) from 34 were selected based on diverse and representative camp criteria (near the main highway, near the coastal area, near the border area, remote location, etc.). We interviewed around 60 households in each camp (from different blocks). We used a systematic random sampling method for the household selection process. Our interviewers started selecting households from one end of the block and we chose every fifth household to interview. Our team interviewed one respondent from each household. The ratio of male and female respondents was equal for every camp.

2.2.2 Field operation for quantitative research

In total, we trained 15 enumerators from Cox's Bazar for two days on questionnaire, interview technique, basic research methods, and ethics. All these enumerators are fluent in Chittagonian dialect of Bangla, which is similar to Rohingya language. We pre-tested questionnaire before final data collection for fine-tuning. We divided enumerators into two teams and collected data from November 12, 2019 to November 19, 2019 with the supervision of a field supervisor and a researcher. We collected data through face-to-face interviews using tablets/mobile with the Kobo interface.

We asked several thematic sets of questions to our respondents. These questions covered issues related to FDMNs' usage trends and self-reported perceptions on different digital platforms. We wanted to know which types of digital devices and social media platforms they are using amid all the banning and blocking of services. We furthermore inquired about the level of trust and popularity different digital and non-digital communication and access to information platforms have among FDMNs, when it comes to interacting with a range of other stakeholders. We inquired about the demand and supply of localized content as well as about the perceptions on Rohingya women using ICTs. In order to check the robustness and identify some of the key nuances of such responses, we analyzed response data across this study based on gender and age diversity.

2.3 Overall Data Collection Challenge

We faced numerous challenges while collecting the data from the Rohingya camps. During our stays in Cox's Bazar, the total time per day we could spend inside the camp areas was closely monitored and enforced. We, along with all the external stakeholders had to leave the camp areas by 4 PM daily. Except for law-enforcement agency people, no non-Rohingya individuals were allowed to stay or work in the camp areas beyond that time. Moreover, to make things even more challenging, the majority of the areas where we conducted our research were not under any mobile phone service coverage. Hence, communication within ourselves and with our research

partners in case of any dynamic changes, challenges, or opportunities was nearly impossible, and we had to wait until we return to the Cox's Bazar town for better telecommunication and internet services.

During the quantitative research phase, it was further difficult. Right before our team conducted the survey, there had been a wide scale government crackdown on the use of mobile phones and internet by the FDMNs. As a result, we suspect, the responses provided by our survey respondents had the probability of being too conservative and “safe”, in order to avoid raising any flags by the local law enforcement agencies when it comes to their personal as well as communal usage of different digital platforms.

2.4 Data Analysis

In order to have a better in-depth understanding of the responses, we wanted to see whether Rohingya men and women have similar preferences and usage trends related to ICTs. Similarly, our other goal was to explore whether Rohingyas' perspectives and aspirations related to ICTs changed across different age groups. We conducted Chi-Square tests for many responses to check potential statistically significant relationships or differences between different groups of FDMNs. A chi-square test requires categorical variables, and the variables can have multiple levels. Researchers use this kind of test for testing relationships between different categorical variables. The null hypothesis of the Chi-Square test can be that no relationship exists on the categorical variables in the sample population; they are independent. For example, we could test the hypothesis that FDMN men and women are likely to have similar preferences over ICT options for communication and access to information. Based on the analyses, we can either accept or reject the null hypothesis of no relationship at the 0.05 level or less.

3. Key Findings

3.1 Marginalization of ICT Usage in Rohingya Camps

In Myanmar, the ICT usage has always been restricted for Rohingyas. Before the exodus of 2017, the majority of the Rohingyas in the Rakhaine province of Myanmar were under the strict rules of the Myanmar government. It forced the Rohingyas not to carry or use smart phones or mobile internet. According to one of the middle-aged Rohingya male during one of our in-depth interview sessions:

“In Burma (Myanmar), we were not allowed to carry or use smartphones. The police used to beat us up mercilessly and fine us heavily for the possession of any smart phone”

According to our interview respondents, the primary mode of communication for the majority of the Rohingyas in Rakhine was the non-smart phones or feature phones. Moreover, in most of the time, male members of the Rohingya families owned such devices, as women in the Rohingya society of Myanmar were not expected to have primary ownership of any communication devices.

In Bangladesh, Rohingyas took refuge to flee the Burmese persecution. However, the situation related to seamless access to mobile phones and the internet is complicated in this side of the border as well. Illegal mobile phone service is the most popular mode of communication. Majority of the Rohingyas have procured Bangladeshi SIM cards through the black market. In most cases,

according to our research, they pay more than legal users and cannot shop around for affordable packages³. In the border areas, Burmese telecom companies' mobile service signals are relatively stronger. It prompted many FDMNs either to use dual-SIM-enabled phone sets or to keep both Bangladeshi and Burmese SIMs. Lack of internet access and the challenges in using local mobile phones legally threaten to keep an already isolated community of Rohingyas cut off from ICTs.

"I know I am using illegal SIM cards. And I know I paid a lot more to a local vendor to get it. But what to do? I need to be in touch with my other family members, who are located in other refugee camps and outside Bangladesh." (Rohingya male, 19 years old, unemployed)

Such was the desperation we observed in the response of one of the young Rohingya male we interviewed. We found that the majority of the Rohingyas, who are in a legal-social limbo in accessing mobile network and the internet in their host country, think along a similar line.

We found that some people from the host community and naturalized Rohingyas in Bangladesh invested consistently since the last quarter of 2017 to establish mobile repair and battery charging shops all over the camp areas. These installations are primarily very popular destinations for Rohingya men, especially the younger generations. The only group that does not frequent the repair shops consists of women (we further elaborate in Section 3.3) Constant demands of connectivity and localized content, alongside the persistent marginalization, have created underground markets of digital communication solutions⁴.

The government restrictions of banning mobile phones and internet access have received renewed vigor in recent times. On August 25, 2019, in order to commemorate the two years of the ethnic cleansing operation in Rakhaine and the Rohingyas' subsequent exodus, the Rohingyas organized a massive rally, which involved both face-to-face and digital communications⁵. This event surprised the Bangladesh Government. The mass gathering organized by the Rohingyas, using both offline and online digital media have shed some lights on the resilience of the Rohingyas in Bangladesh. Ignoring all the odds and challenges, we found them to be very proactive to come up with homegrown solutions to address their needs while using digital platforms.

3.2 Usage Trends and Popularity of Digital Platforms

Voice call using any type of mobile phone is the most used and trusted option among both Rohingya men and women for accessing information. Across the different age groups and gender identities, we found from our quantitative survey that any kind of voice service over the traditional mobile network is significantly more popular as well as more trustworthy than any other digital communication or access to information services. In order to better understand Rohingyas'

³ Hussain, F. (2018b). "Bangladesh Should Legalize SIM Cards for Rohingya Refugees". Freedom House. Web link: <https://freedomhouse.org/blog/bangladesh-should-legalize-sim-cards-rohingya-refugees>

⁴ Hussain, F. (2019). "Network shutdowns in Rohingya camps: how they're dam-aging the fragile information ecosystem of refugees from Myanmar". AccessNow. Web link: <https://www.accessnow.org/network-shutdowns-in-rohingya-camps-how-theyre-damaging-the-fragile-information-ecosystem-of-refugees-from-myanmar/>

⁵ France 24 (2019). "In Bangladesh camps, 200,000 Rohingya rally to mark Myanmar 'Genocide Day'". Web link: <https://www.france24.com/en/20190825-bangladesh-rohingya-protest-myanmar-genocide-refugees>

preferences and usage trends regarding different digital platforms, we asked our respondents a series of questions.

3.2.1 Digital platforms for access to information

In response, an overwhelming 75% respondents cumulatively preferred voice call options (using non-smart and smart phones) to be their top most choice for finding information since they arrived here. Between male and female respondents, the preference ratio is similar (preferring voice call using basic phone or smart phone to other means). However, we found that FDMN men and women's choices are significantly different (with a p-Value of 0.0003 in the chi-square test) when it comes to the use of digital platforms for finding information. Among the people who responded by saying that they have not used any digital platforms, the ratio between men and women are almost 1:2. This difference between men and women's digital platform use also has a similar trend across diverse age groups of FDMNs (with a p-Value of 0.08 in the chi-square test).

3.2.2 Digital platforms for Communication

Beyond the traditional mobile phones' voice call, we further asked about the social media platforms Rohingyas used after moving to Bangladesh. The responses we got were quite interesting. The percentage of FDMN women stating that they have no idea about this question was overwhelmingly higher than their men counterparts' (57% to 31%, using chi-square test with p-value of 0.00000004). However, among the ones who responded, majority (35% of women and 51% of men) identified Imo to be the most frequently used social media platform. That implies, Imo is the most popular mobile application among Rohingyas.

For communicating with other Rohingyas in a camp, voice calls (using either non-smart or smart phones) again remained the top choice among both FDMN males (78%) and females (73%). However, if we consider the other digital platforms as top choices, we found a significant difference in usage between males and females. Within the multiple age groups, there is a significant difference between the younger FDMNs with the seniors in communicating with the other FDMNs in Bangladesh (using chi-square test with p-value of 0.0024). We have observed that younger FDMNs are using digital platforms significantly more than the senior ones. FDMN Males identified digital options like WhatsApp, Imo, and Facebook to reach out to the other Rohingyas, which is not something females are doing.

From our findings, it is also evident that the top reason for using any mobile application also is to communicate with others. The majority of both men (56%) and women (48%) responded mentioning this. However, among the other choices, men and women have differed significantly (using chi-square test with p-value of 0.0009). Men heavily favored using mobile applications for listening to music, downloading videos, and watching news. For women, downloading videos or listening to music did not turn out to be that popular. This trend did not differ that significantly across different age groups (using chi-square test with p-value of 0.02), in comparison with other responses. However, we did notice the trend of younger FDMNs downloading videos or listening to music more than the senior ones.

3.2.3 Ownership of digital devices

In the Rohingya camps, mobile phone sets of different types are mainly available as digital access and communication devices. During our qualitative research, a significant portion of the male respondents shared with us that their female family members do not usually use phones of their

own. Moreover, as we have seen in the narratives of our earlier sections, the host community's management hierarchy has explicitly discouraged the use of mobile phones. However, we found that majority of our respondents (male and female both) mentioned that they use phones, either non-smart/feature or smart phones or both.

In order to further investigate the level of mobile penetration among Rohingyas, we asked them about what kind of phones and how many SIMs they are using. We found that overall, 45% of the Rohingya respondents mainly use non-smart phones. Males use more smart phones (22%) than females (13%). Around 19% FDMN males use both smart and non-smart phones, and this number is very low (only 4%) among the female respondents.

In terms of the total number of SIM cards any Rohingya is using, we found that there is a very significant difference between male and female Rohingyas (using chi-square test with p-value of 0.000000001). Around 40% of the female respondents reported that they do not use any SIM card. For male respondents, this number is around 21% only. The single SIM ownership percentage gap is relatively smaller between male (61%) and females (58%). Nevertheless, the SIM ownership gap is significantly different between male (18%) and female (3.5%) Rohingyas for dual SIM ownership inside the camp area.

3.2.4 Willingness to pay for digital services

We wanted to know the amount of money spent by the FDMNs monthly for using different digital platforms via mobile devices. Among all the respondents, 41% indicated that they spend around BDT 200 or less monthly on mobile phones, followed by 26% people indicated they monthly pay between BDT 500 and BDT 200. However, there are significant differences between male and female FDMNs in the monthly payment pattern (using chi-square test with p-value of 0.00000003). We found that among the male respondents, users are paying significantly more than their female counterparts (30% males are paying between BDT 201-500 in comparison to 22% females; and 10% males are paying between BDT 501-750 in comparison to only 3% females).

Some Key Observations

- *Voice Calls, followed by Imo and WhatsApp are the most popular and trusted ways of communication between Rohingyas within and outside the camp areas*
- *The top reason for using any mobile application is to communicate with others (across gender and different age groups)*
- *Imo is the most popular mobile application*
- *Rohingyas do not prefer or use any digital media to communicate with local Government Officials*
- *Male FDMNs are more willing to pay for the digital services than the female FDMNs*

3.3 Women, Patriarchy, and ICTs: Inequality in Digital Space

Gender disparity among the Rohingyas is significant. It affects key development initiatives related to healthcare, information services, education, human resource development, clean energy usage, etc. Rohingya women's access to outside resources is significantly dependent on their close male family members. When it comes to their adaptation of basic health practices, vaccination, and family planning, Rohingya women are not in their full liberty, and are required to make choices based on the opinions of their male partners, male head of their joint families, or those of their religious leaders. When it comes to education, Rohingya girl children are worse off. According to our findings, young women are only allowed to go to the makeshift learning centers of the camps until their menstrual cycle start. Women are primarily responsible for all the household chores in a typical Rohingya family, restricting their external mobility further.

Our in-depth interviews and focus group discussions with relevant stakeholders helped us in getting a more comprehensive look at the mobile phone/ICT access and usage by Rohingya women and on the possible impacts. We found that, inside the camp areas, majority of the women have access to mobile phones. This access comes through individual or collective family ownership, neighbors' or via sharing of service from community access points.

We observed that majority of the working Rohingya women, who are primarily employed by different NGOs as field-level community workers, have their own phones. Non-smart phones or feature phones are the most phone sets used by working Rohingya women. These phones enable them to be in touch with their work place, help them to coordinate among the peers, and for the ones who have smart phones can also use their phone-sets to share work related images and videos with relevant NGOs and colleagues. For the homemaker Rohingya women, mobile phone works as one of the very few connectors with the outside world. None of such women we interviewed owns any smartphone personally. Most of the women respondents we talked with in the category own non-smartphones.

When it comes to personal usage, almost all the Rohingya women mentioned mobile phone sets (both smart and non-smart) as their main source of entertainment and communication. One common thing we observed among Rohingya women, irrespective of their educational, working, and family background is their significant dependency on male family members to access the audio-visual content via smart phones. One of the woman respondent mentioned:

“We watch the videos of songs, dramas, and movies our sons share with us. We don’t download those or buy such things from others”

Most of the women participated in this research pointed out that listening to music, watching movies, drama serials, and talking with relatives outside Bangladesh using Skype, Viber, WhatsApp, or Imo are their most common past time activities using mobile phones.

One of the other issues that came out of the conversation with Rohingya women on ICT usage is their agency over the use of mobile phones or any other ICT applications. Even for the most outgoing, educated, and employed Rohingya women, we identified a shared sense of helplessness when it comes to ultimate control of their personal devices or the corresponding digital content. One working Rohingya woman said:

“It was initially hard for me to work without a mobile phone. But could not have one as I did not get the permission. I have been working for an NGO for the last three months.

My husband finally gave me the consent to use mobile phone only a couple of weeks ago”.

“You are lucky”- another Rohingya woman interjected during the same conversation. She continued-

“My husband permitted me to use mobile phones after the sixth month of my job.”

We found the control of the patriarchy over phone or any ICT devices went beyond the permission to access. Another woman participant shared:

“Our husbands can’t suspect us of any wrongdoing using mobile as in our call list and phone address books, there is nothing but theirs and our Program Officers’ phone numbers.”

A major challenge, as identified by all the senior and married women respondents in our study is the “problem” of young, unmarried women getting access to mobile phones and the internet. One of them shared:

“It’s not acceptable for the young women to talk on the mobile phone. There are many crank calls coming for our girls. That is unacceptable.”

When we asked different male respondents about their perceptions of women using ICTs, the reactions were almost unanimous. Rohingya males, let them be Majhis, Imams, young, senior, literate, or illiterate, everyone agreed on the fact that women should not have a lot of access phones or the internet. Our researchers kept hearing the stories of young Rohingya women eloping with strangers after interacting over mobile phones or the WhatsApp chats. A prominent imam explained the boundaries or limits of Rohingya women’s ICT usage by saying:

“Women can talk over phone, but they should not be allowed to use the phones.”

That respondent, along with others during the same conversation further explained to us that it is okay for the married women to have access to phones in order to ensure food and other relief for their families. However, women should not use it for some other reasons, and most importantly,

“...young and unmarried women should never use mobile phones or the internet.”

When it comes to other types of challenges, higher cost of mobile phones, SIM cards, and monthly access charges are some of the most common challenges identified by the Rohingya women who took part in our research. For many of them, recharging phones can be a big struggle, especially in the monsoon season. A woman participant mentioned:

“When it rains, solar lamps don’t work properly. Those lamps then cannot be used to charge our phones. We have to send our phone to the mobile charging shops in the bazaar to get charged. My son does that for me.”

3.3.1 Gender disparity in access to digital platforms

Rohingya men and women’s choices and usage trends differ significantly; depending on the types of information, people are seeking/accessing. For example, the men and women use similar digital platforms for accessing information on Food and Healthcare (Voice Calls preferred by all)

but they use significantly different digital platforms for accessing Emergency Information on disaster, law & order, and seeking new job opportunities (Voice Calls, Facebook, YouTube preferred by men, mostly Voice Calls preferred by women).

In order to gather information on food and healthcare, majority of the FDMNs actually do not use any kind of digital platforms and rely on non-digital methods of information dissemination. Among the ones who use digital platforms, we have seen significant similarity among both men and women across all ages, of using voice calls via any type of mobile phones (using chi-square tests, with p-values of 0.3 and 0.35 for Food and p-values of 0.5 and 0.9 for Healthcare information respectively).

For collecting information on emergency related to any disaster or law & order situation, there is a huge difference between men and women usage pattern of digital platforms. In addition to the Voice Calls, Rohingya men are using Imo, Facebook, and YouTube for accessing information. For women, it is primarily Voice Calls (using chi-square test, with p-value of 0.000003). Moreover, this trend does not change across different age groups (using chi-square tests, with p-value of 0.18).

For accessing employment information, we observed that overwhelming majority of Rohingya women respondents said that they are not accessing any digital platform for this purpose, which is significantly different from the men's responses (using chi-square test, with p-value of 0.00002).

Some Key Observations

- *Rohingya men and women's use significantly different digital platforms for accessing emergency information on disaster, law & order, and seeking new job opportunities*
 - *Voice Calls, Facebook, YouTube preferred by men*
 - *Mostly Voice Calls preferred by women*
- *Men and Women have equal access to basic mobile phones*
- *Male Rohingyas' willingness to pay is higher than females for mobile services/SIM card purchase*

3.4 Stakeholders Relationship and Power Matrix in Digital Communication

We inquired about the Rohingyas' top choices among different digital platforms for communicating with local Government Officials. In answering these questions, majority of both female and male respondents reported that they either did not communicate with any Government officials or did not use any digital platforms for communication (89% and 75% respectively). Among the ones who communicated, female and male respondents replied differently (using chi-square test with p-value of 0.002). Irrespective of age groups, male respondents used a wide range of digital platforms, while females (9%) only used Voice Calls for this purpose. For communicating with local NGOs, 34% Rohingya males and 42% females mentioned that they did not use any digital platforms to communicate with local NGOs. However, we found significant difference between the responses of males and females (using chi-square test with p-value of 0.00001). In the case of

using any kind of digital platforms, any male respondent turned out to be three times more likely to use Voice Calls to communicate with Local NGOs than an average female respondent.

3.4.1 Trust in digital communication

We found men and women have a significant difference in trusting different digital platforms (using chi-square test, with p-value of 0.00008). On one hand, male respondents have identified Voice Calls, along with Imo, WhatsApp, and Facebook to be their most trusted digital platform. On the other hand, female respondents mainly preferred Voice Calls, followed by Imo, but in much smaller percentage.

If we evaluate the responses for different age groups, we can find that there is a significant difference in the level of trust on different digital platforms (using chi-square test, with p-value of 0.005). Alongside Voice Calls, younger Rohingyas (age groups 18-24 and 25-34 are trusting Imo and WhatsApp significantly more than the older generations (age groups 35-44, 45-54, 55+).

We were interested to know whether Rohingyas have been using different digital platforms among themselves to communicate, access information, and mobilize for offline, face-to-face meetings or programs. Voice call was again the leading option as a digital platform trusted most by the Rohingyas to communicate with other Rohingyas in Bangladesh. Among other top choices, male respondents used Imo and WhatsApp and this was significantly different (using chi-square test with p-value of 0.00002) than the females', who chose Imo as the only other viable top option for communicating with the other Rohingyas.

3.4.2 Majhis: Using digital platforms to communicate and to lead

Rohingyas are organized under the leadership of a cadre of community leaders, known as "Majhis". In general, each micro-community, comprising 50 to 250 families, selects its own Majhi. In a larger community, several Majhis are responsible to manage and to represent the people, under the leadership of a head Majhi. The majority of these Majhis are male, with a handful exception of women Majhis. However, our research found no female head Majhi in any of the Rohingya camps in Bangladesh. The army and the Government of Bangladesh recognizes this leadership and work closely with them to reach out to the rest of the Rohingya communities. The primary responsibilities of the Majhis are to ensure proper distribution of humanitarian aids, to regularly update the number of people and family under their direct supervision, and to disseminate important information received from the government, army, or any humanitarian agencies among the FDMNs.

A major part of Majhis' work comprises of access to the right information and communication with communities. Hence, Majhis are heavily dependent on mobile phones. From our in-depth interviews and focus group discussions with them, we found that the government infrequently supports Majhis when it comes to pay their mobile phone bills. Most of the Majhis we have talked with had smart phones and they use online messaging services like WhatsApp and Imo to communicate with their assigned communities and among their peers. During our conversations with them, Majhis mainly pressed on the need to have better mobile network and Internet services in the camps areas. One of the head Majhis told us:

"We do not get network inside the camp after 4 PM. We also have to pay more in the local shops to talk using Bangladeshi SIMs. Such situations affect our abilities to help the community adversely."

The Majhis we conversed with furthermore highlighted the popularity of broadcasting media. According to their opinion, the news and related content from Voice of America's radio program is very popular among general people in the camp areas. A head Majhi (50-year-old) told:

"We listen to VOA all the time. Whenever we get time, we try to sit together in a shop or a shantikhana and listen to the radio programs from Burma or watch TV."

Another senior Majhi (45-year-old) talked about the popularity of YouTube as well:

"Our young people or the mobile repair shops download new news from YouTube in every 3 to 4 days. That helps us to be updated on what is going on outside our camps. Some of us also use Facebook. The use of Facebook is a good thing. People can know our situation quickly through Facebook."

3.4.3 Imams/Religious Leaders: Gatekeepers of digital communication

Imams or religious leaders have been an integral part of Rohingya lives for many decades. In Myanmar, where Rohingyas were forced to live in open-air prisons and their mobility was severely restricted, this religious leadership played a very important role in the daily lives of Rohingyas. In Bangladesh, the situation has been a bit different. According to our observations and inquiries, the relevance and importance of Imams over the Rohingya community in the FDMN camps changed, mainly due to the change in socio-economic needs and support structures for any regular Rohingyas. In addition to the Majhi leadership, different types of NGOs and other humanitarian organizations initiated their own networks to reach out to the Rohingya population more effectively. A new genre of information and communication gatekeepers in the shape of mobile phone recharge/repair shops also emerged (we elaborate on this in the upcoming sub-section). Moreover, in the last few months, we have witnessed the rise of organized political entities among Rohingyas, which was almost absent in Myanmar. All these elements, in the initial months in the FDMN camps of Bangladesh, have pushed the Imams into a bit of oblivion.

However, our research team observed an overall resurgence among the Rohingya communities, as far as the relevance and importance of Imams are concerned. Within the camp areas we have visited, we came across numerous mosques; each of these establishments has speakers and microphones to call for daily prayers. These public service announcement systems are also used for community level announcements and during the need of any quick mobilization of general population within any community.

We found the Rohingya Imams to be involved in providing religious education for the Rohingya kids, in addition to their daily responsibilities of conducting prayers. Each of the mosques also function as Moktobs or informal religious schools for the Rohingyas living in the vicinity. Young Rohingyas usually go to these places twice a day to get lessons on Quran and some basic Arabic. We also found that some of these informal religious schools are also offering informal lessons of Burmese, English, and basic Math for the Rohingya children. In few of the areas, we found the Rohingyas raising money for paying the Imams for these extra lessons.

According to our observations, majority of the Imams use mobile phones and they rely on the local mobile repair shops and younger Rohingya males to have access to the latest audio-visual content. Most of the Imams who talked with us mentioned the videos of different religious sermons as their most favorite content to be downloaded or to be bought from these shops. Similar to Majhis, our Imam participants also highlighted their struggles with poor mobile network and higher

access costs of ICTs. They furthermore complained about women accessing mobile phones. According to one Imam (55-year-old), when we asked him about his thoughts of women using ICTs,

"Women can only watch videos over phone in the presence of any male family members."

The other Imam (39-year-old) shared:

"Imams need to make an example of their own families before preaching others. Hence, the women in our families do not use phones. And we also do not support other women's use of phones."

Some Key Observations

- *Voice calls, Imo, WhatsApp, and Facebook are the most trusted digital platforms for male FDMNs*
- *Voice calls and Imo are the most trusted digital platforms for female FDMNs*
- *Since their arrival in Bangladesh, male FDMNs are using the online social media around three times more than the female FDMNs to find information*
- *Religious Sermons or Waaj is the most popular audio-visual content among Rohingyas*
- *Religion and English Learning are the popular topics for future audio-visual instructions*

3.5 Digital Platforms, Social Cohesion, and Political Leadership in Rohingya Camps

Our qualitative findings indicate that Rohingyas use ICTs as hybrid tools of mobilization, outreach, and networking. Slowly but surely, a group of leaders is emerging out of the Rohingya population, who are outside both: the administrative functionalities of Majhi based network and the theological structures of Imams. These leaders are quite popular among the general Rohingyas in the camp areas. For some of these leaders, the popularity is well beyond the borders of Myanmar and Bangladesh, as they are loved by the expat Rohingyas living in Malaysia, Middle East, some parts of Europe, and the USA. A few of these popular leaders are also widely accepted among the international communities, who are sympathetic towards the cause of the Rohingya population.

Our research team met with one of the leaders (to remain anonymous) in person and explored in details the ways he has organized his followers and political workforce. We observed a significantly different workforce at play. The political leader who provided us with insights into the political communication mechanism adopted by his team, which was a mix of offline-online collaboration. We found this political leader to be active in the social media space (mainly in WhatsApp and Facebook).

In addition to people mobilization, this political leader and his group have been using social media to create short audio-visual content for Rohingyas, covering issues affecting the daily lives as Rohingyas. These contents spread the socio-political agenda of this group as well. One other major thing we observed about this Rohingya political leader is the successful use of social networks, both physical and online, to remain connected with the general population. Right after we completed our latest field mission in the summer of 2019, the socio-political group we studied helped to organize one of the biggest gatherings of Rohingyas to commemorate the second anniversary of the Burmese military crackdown that initiated the latest exodus of Rohingyas from Myanmar to Bangladesh.

Furthermore, we wanted to know whether Rohingyas have been using any digital platforms or organizing online for mobilizing offline. Our objective was to know, based on any respondent's home region in Myanmar, whether they created any social media groups or not, if they did, are they using any technological interfaces to organize or mobilize such groups. We received overwhelmingly negative responses from the Rohingyas. They claimed that have not created any significant number of social groups using any digital platforms, based on their communities of origin in Myanmar, or on their communities of refuge in Bangladesh. Only 5% respondents replied indicated that they have created some social media groups based their country of origin, Myanmar, and expanded those groups within their latest living areas in the corresponding camps. For the question on identifying the top choice of social media platform to organize such groups, only 32 people responded to this question. Among the respondents, 22 FDMNs mentioned the use of WhatsApp. Around 95% of the total respondents notified that they are not part of any social media groups, based on their camps' identity in the host country, Bangladesh. Within the 5% respondents who indicated their usage of social media to organize, WhatsApp and Imo turned out to be the most popular platforms.

Some Key Observations

- *Rohingyas have not created any significant number of social groups using any digital platforms, based on their communities of origin in Myanmar, or on their communities of refuge in Bangladesh*
- *In the absence of the Internet, Rohingyas are accessing previously downloaded audio-visual content from WhatsApp, repair-recharge shops, and YouTube*
- *Rohingya males prefer tea stall and bazaars to communicate with each other. Among females NGO managed safe spaces (Shantikhana) are more popular*

3.6 Rise of Demand for Audio-Visual Contents inside Rohingya Camps

During the qualitative data collection phase of our study, we observed the emergence of mobile repair and recharge shops as the local and popular content distributor among the Rohingyas, primarily the young males. Such findings encouraged us to ask questions to understand and evaluate the following: the demand pattern and range of local content dissemination, Rohingyas' level of willingness to pay for localized content, the level of popularity of offline memory-card transfer and the dependency on male relatives among Rohingya women.

We observed a hugely significant difference between the access pattern of audio-visual content by male and female FDMNs (using chi-square test with p-value of 0.000000001). Overall, community sharing of audio-visual content turned out to be the norm inside any Rohingya camp. For both male and female respondents, Memory Card transfers of audio-visual content from friends and shops is the most popular option (with the latter having lower participation percentage). During our qualitative research, we found that all these memory cards are primarily loaded in the mobile repaid-recharge shops inside different camps. We saw FDMN males to be using online digital platforms more regularly in comparison to women. Across different age groups, we observed that younger groups (Age 18-24 and 25-34) are significantly engaged in more robust access mechanism for audio-visual content, in comparison with others (using chi-square test with p-value of 0.000003). We also found high demand of localized content around the Rohingya camp areas. In addition, Men are collecting and accessing audio-visual content significantly more frequently than women.

We enquired about local content providers as well. We asked the respondents whether they know about any local audio-visual content creator within the camp areas. Around 39% of the total respondents mentioned that they do not know anyone and 46% said “No”. Nevertheless, we go very excited with the 14% yes response, meaning 87 respondents mentioned that they know people in their camp surroundings, who have the knowledge to make audio-visual contents.

3.6.1 Accessing audio visual contents

It is also important to know how regularly the Rohingya people are accessing the content. We found that among the respondents, men are collecting and accessing audio-visual content significantly more frequently than women (using chi-square test with p-value of 0.01). Majority of audio-visual materials are originally circulated around the camp from the mobile repair/recharge shops. Moreover, Rohingya females primarily depend on their male members of the family.

We investigated further about the viability and acceptance level of mobile repair shops within a typical setting of Rohingya camps. The answers given by the respondents aptly reflected the stark difference between FDMN men and women in accessing and using audio-visual content within the camp areas (using chi-square test with an extremely low p-value of 2.04372E-27). According to the replies tallied for the male responses, 33% mentioned that they depend on themselves the most to access audio-visual content, followed by mobile repair/recharge shopkeepers (30.5%), and their friends (29%). In reality, as we have observed during our field visits that all these three factors are interconnected and at the end, majority of these audio-visual materials are originally circulated among the camp residents from the mobile repair/recharge shops.

On the contrary, FDMN females primarily depend on their male members of the family (47% of the total female respondents), followed by friends' (20%) and mobile repair shops' (20%) contribution. Only 12% female respondents mentioned that they mainly rely on themselves to access audio-visual content, a stark contrast to male Rohingyas' replies.

3.6.2 Willingness to pay for contents

We then inquired about the level of willingness to pay and frequency of the locally available content access by the Rohingyas. We found that there is no statistically significant difference between Rohingya men and women (using chi-square test with p-value of 0.08). Majority of the respondents from both the groups have shared that they pay for watching and using the audio-visual content. This furthermore highlights the level of demand for localized content around the

Rohingya camp areas. In addition, the lucrativeness of establishing mobile repair/recharge shops for making a good living by Rohingyas is implied through these findings. Our research showed, all these monetary transactions took place in the different mobile repair and recharge shops inside the camp areas. However, there is a significant difference across the age line in this payment related activities (using chi-square test with p-value of 0.000003). We found that young people (Age 18-24 and 25-34) are more willing to pay for these contents than the senior ones.

3.6.3 Most popular contents

We found that Religious Sermons or Waaj is the most popular content, as stated by both male and female respondents. However, overall there is a significant difference between men and women FDMNs in their preferences for audio-visual content (using chi-square test with p-value of 0.01). Male respondents are consuming entertainment contents related to local drama and music videos, Indian movies, Rohingya Tarana/religious songs, news videos, Bengali music videos, Burmese music, etc. On the contrary, we found that female respondents only prefer local drama and music videos, in addition to the religious sermons. In terms of the different age groups, we found younger groups (Age 18-24 and 25-34) to have statistically different preferences (using chi-square test with p-value of 0.0001) than the senior Rohingyas. The younger Rohingyas expressed their interest to watch and listen to Local drama and music videos, Indian movies, Rohingya Tarana/religious songs, news videos, Bengali music videos, and Burmese music. For the older respondents, this watch-listen list is relatively much shorter, with Waaj being the most liked one.

However, when we asked the respondents about whether they access short audio-visual clips for learning different skill sets, majority of the respondents (79%) said “No”. Among the 21% people (male and female) who said yes, we found males to be in the majority (using chi-square test with p-value of 0.0001). It means, Rohingya males are to some extent having access to different learning based audio-visual materials.

As a follow up of this question, we inquired about future learning/instructional topics that the respondents would like to access as audio-visual content in their camp area. Unfortunately, we found that only 130 participants responded to this question. Out of these respondents, majority were men (89%) and their preferences are significantly different (using chi-square test with p-value of 0.02) than the women respondents (21%). Religion seems to be the most popular topic among the respondents (42% among males and 61% females). In addition, 25% male participants expressed that they would like to see the short audio and video clips on English Learning, which is in huge demand in the camp areas. Better language skills can help any Rohingya to work with humanitarian agencies.

We also wanted to know about the most trusted News Agency by the Rohingyas. Interestingly, around 52.5% of the total respondents mentioned that they are not willing to answer this question. Among the ones who answered, “Rohingya Vision”, an online news channel managed by the expat Rohingyas, was found to be the most trusted one (18%), followed by BBC (10%).

3.6.4 Mobile Repair and Recharge Shops: Heaven for digital contents inside the camps

The first reaction to the blanket banning of mobile phone and internet usage among Rohingyas was the rapid rise of the illegal SIM market. According to our research, the majority of the Rohingyas procured Bangladeshi SIM cards through the black market, with the help of host community people (a big part of these people are ethnically Rohingyas, but took Bangladeshi

citizenship over the years). We also found that, the FDMNs have consistently paid significantly more than an average Bangladeshi for accessing any mobile data or voice related services. In the camps near the border of Myanmar, a significant number of the Rohingyas carry multiple active SIMs with them, of both Bangladesh's and Myanmar's. The signal strength of Myanmar's telecom companies is stronger in those regions. Hence, such practice became standard in order to ensure connectivity among the Rohingya population within and outside Bangladesh.

By the first quarter of 2018, the overall situation in all the major Rohingya camps became more settled and organized, in terms of access to food, shelter, and healthcare. It is around this period, Rohingyas started expressing their multifaceted needs of communicating with others and for accessing localized information. Around the same period, we witnessed the growth of a support structure for mobile phone repairing and recharging, in sync with the ever-increasing use of "illegal" mobile phones. Such supports were primarily provided through numerous small shops, managed by young Rohingyas and financially supported by local entrepreneurs. Inside any camp areas, there are not many opportunities offered to the young male Rohingyas in the shape of education, employment, or entertainment. As a result, establishments like these mobile repair and recharge shops became popular hangout places for this particular demography.

We conducted in-depth interviews with the owners, salespersons, and customers of 15 different shops across four major camps to cover as diverse shops as possible in order to develop a holistic view of such digital technology centered businesses in adverse conditions. Absence of a good, legal mobile network for communication (both voice and data), lack of content, and scarcity of power to charge phones and light up shelters within the camp areas played key roles behind the establishment, growth, and evolution of these shops. According to our observations, a typical shop focusing on mobile phones mainly offered two to three services:

- *Mobile phone (both smart and non-smart) repairing;*
- *Mobile phone recharging; and*
- *Audio-visual file/data transfer from a shop's laptop or phone set to client's memory card or phone.*



Besides, we saw the relatively bigger shops to sell other products as well: refurbished mobile phone sets, memory cards, earphones, mobile chargers, other mobile accessories, small and medium-sized solar panels, solar lamps, etc. Photocopy, scan-print, laminating, printing wedding cards are some of the other services lately provided by some of the mobile repair/recharge shops. There are no electricity grids in the camp area. Each of the shops we covered have multiple power supply sources: solar panel, car batteries, and/or diesel-powered generators.

When it comes to mobile repairing service, majority of the shopkeepers we interviewed had prior technical training, and some of them got assistance in setting up services from the host community experts. However, according to almost all the repair personnel and their customers, the level of service provided by them in the camp areas is very basic and the price range is capped around BDT 200 (US\$ 2.5).

Due to the lack of electricity in the camp areas, recharging mobile is a huge challenge. On top, during the monsoon season, most of the solar lamps used for domestic purposes became too weak to charge any phone sets, due to lack of sunlight during the daytime. Hence, recharging mobile phones became a steady earning source for all the mobile repair/recharge shops. The price of charging phones is strictly regulated by the shop owners across the camps, and it is around **12 cents** for charging any phone completely. To avoid confusions with mobile set ownerships, the shopkeepers came up with their own two-point verification system as well.



The third and arguably the most dynamic service offered by any mobile repair/recharge shop in a Rohingya camp is audio-visual content transfer. As we have mentioned earlier, due to the restriction on accessing mobile phones and the Internet for Rohingyas, there has always been the huge demand of accessing good quality information and entertainment among the FDMN communities. In addition, to make things more pressing, it is worth noting that Rohingyas do not have any official script, based on which newspaper, books, or other literary materials can be written. Hence the importance of audio-visual medium among this persecuted community in a newly adopted host country became significant. The humanitarian agencies working for the betterment of Rohingyas mostly prioritized services on physical health, hunger, shelter related issues over creation and supply of news and entertainment content, customized for Rohingya's consumption.

Mobile repair/recharge shops identified and filled in this gap organically and rapidly. Each of the shops we have collected data from and observed are on average equipped with one laptop. The hard drives connected with these machines are loaded with a wide variety of content. Due to the absence of good connectivity, Rohingyas in Bangladesh are unable to access such content online

and in real time. In order to circumvent this challenge, short audio/video clips on Rohingya related news, reports, and features are being downloaded regularly and saved in a shop's laptop.

There is an organized network of digital audio-visual content providers, which facilitates the supply of newer and relevant contents for Rohingyas on a regular basis. This network is mainly comprised of Bangladeshi entrepreneurs who first download the content in demand using high-speed internet, widely available outside the camp areas, and mainly in bigger cities like Cox's Bazar and Chittagong. Those contents are then gathered and are transferred to some mid-sized content sharing/mobile repair shops on the outskirts of the camp.

For the last mile distribution, the mobile repair/recharge shop owners from the camps go to these mid-sized, intermediary shops and procure content based on their demand. On average, a **500 GB** hard drive, filled with downloaded audio-visual entertainment, news, religious sermons are sold for approximately **US\$ 5**. According to our research, the mobile repair/recharge shopkeepers' collection frequency of newer content ranges from one to four times per month, depending on the level of demand for the content. The shopkeepers are also actively encouraged to choose the types of content they would like to populate their hard drives with, judged based on the popularity of certain contents over the others. According to one mobile repair shopkeeper (Rohingya male, 26-year-old)

“At first we were not sure what to keep in the hard drive. Now we know. We bring new collections (of movies and music video) in every other week from Ukhiya bazaar (a big marketplace right outside the main camp areas). Sometimes, the customers tell us what types of content to bring.”

At the demand side, a typical Rohingya customer usually buy a memory card of **4 or 8 GB** (approximately costing **US\$2 to US\$5**) and then transfer the content he chooses in that memory card. For each such transfer, a customer pays around **US\$ 0.5**. The FDMNs to watch or listen to these contents overwhelmingly use smart phones.

In general, the nature of the audio-visual content can be divided into four broader categories: News, Entertainment, Religious Sermons, and Education. For many years, Rohingyas living in Malaysia, Middle East, Europe, and the USA are running news channels based on YouTube and other social media platforms. Rohingyas living in the camps access these contents mainly through memory card transfers. In some cases, when the infrequent mobile network is available within a camp area, Rohingyas share these news clips via WhatsApp, Imo, or WeChat with their peers. Similarly, a clear pattern of preferences and popularity emerged when we analyzed the contents inside the laptops of the **15 representative mobile repair/recharge shops**.

When it comes to entertainment, we found that Indian, Pakistani, American, Arabic, Burmese, and Turkish movies, music, and dance videos are very high in demand. In many cases, these programs are somewhat unprofessionally dubbed with Rohingya language. Aside from that, Bangladeshi dramas and music videos made with Chittagong's dialect are also very popular, mainly due to the similarity in language. Religious sermons (of religious scholars belonging to Rohingyas, Bangladesh, etc.) are very popular digital contents among FDMNs as well. One customer (Rohingya male, 32-year-old)

“I miss listening to Rohingya Tarana (music). I come to this shop all the time to get new collections of Rohingya Tarana.”

Unfortunately, we found the content of some of these sermons to be fear mongering, belligerent towards Burmese, and many a time filled with false information. At a smaller scale, we found short videos containing educational instructions in Rohingya language, covering issues on opening new social media account, healthcare, etc. These videos are made by the expat Rohingyas and started getting disseminated via the mobile repair/recharge shops and the internet.

Besides the demand and supply chain that emerged out of the demand for audio-visual content in camp areas, we have observed a strong demand of digital content created inside the camps by the Rohingyas, mostly among the expat Rohingya groups based in South East Asia, Australia, Middle East, and Europe. Those contents are also developed and distributed using the same network of "repair shops - mid size shops - bigger shops with connectivity".

As a whole, the entire network of gatekeepers engaged in collecting, creating, localizing, and distributing audio-visual contents for Rohingyas is, in a sense, working similarly to the Internet. The mobile repair/recharge shop laptops' hard drives are full of options, even within their limited scopes, and the Rohingyas have some sort of an agency to choose, to buy, and to watch or listen to whatever they would want or need to. For a population persecuted for decades, and for whom the regular internet or mobile network is officially illegal, such options seem like a welcoming change. One user (a 24-year-old Rohingya male) mentioned:

"We can access to the songs and videos we like from this shop and then can watch those with our family. I do not have access to the Internet. Nevertheless, I am using my smart phone and memory card to get what I want from this shop. I am happy."

However, a significant gender imbalance exists with relation to existing services and customers of this alternative network of content and communication in the Rohingya camps. Rohingya women, who are around 55% of the Rohingyas recently arrived in Bangladesh, are not directly benefitting from the mobile repair/recharge shop-based content network.

One middle-age Rohingya women (39-year-old) told us:

"We watch the videos of songs, dramas, and movies our sons share with us. We don't download those or buy such things from others."

Some Key Observations

- *High demand of localized content has been found around the Rohingya camp areas*
- *Men are collecting and accessing audio-visual content significantly more frequently than women*
- *Majority of audio-visual materials are originally circulated around the camp from the mobile repair/recharge shops*
- *Rohingyas are willing to pay for Memory Card transfers of audio-visual content from friends and shops*
- *Religious Sermons or Waaj is the most popular audio-visual content among Rohingyas*
- *Religion and English Learning are the popular topics for future audio-visual instructions*

3.7 Challenges in Access to Digital Platforms

Beyond access to information and communication, we also wanted to know from the respondents about their thoughts on the major challenges for using different digital platforms in the context of the Rohingya camps. Both male and female FDMNs recognized Poor Network to be the top most challenge faced by them in accessing any digital platforms. The ratio of respondents who had no idea about the major challenges is around 1:2.5 between male and female Rohingyas. High Cost is identified to be the second major challenge. Interestingly, neither group of respondents identified the unavailability of legal SIM cards as a major challenge, thus highlighting the failed Bangladesh Government's policy of banning legal SIM cards among the FDMNs.

As the internet service is very poor in most of the camp areas, we asked questions on the challenges and preferred ways for Rohingyas access to information and communication when there is no net connectivity. We found that in the absence of the Internet, more than 50% Rohingyas respondents (both male and female) reported that they face a lot of problems (around 40%) or some level of problems (around 12%) in communicating with others. In response to the access question, we observed that, for both women (63.5%) and men (60%), Voice Calls using any mobile service is the most popular option for accessing any information. However, when we take into account the other top choices selected by the respondents (e.g., Share/Watch/Listen previously downloaded video/audio from WhatsApp/the repair-recharge shops/YouTube), we saw a significant difference of opinion emerging between men and women (using chi-square test with p-value of 0.009). Male respondents were found to use content collected from offline WhatsApp or mobile recharge/repairs shops significantly more than their female counterparts did.

In terms of the responses on the communication question in the absence of the Internet, the responses were again statistically different between male and female respondents (using chi-square test with p-value of 0.011). Both groups chose Voice Call as their top option. Then female Rohingyas highlighted face-to-face conversations with friends and families to be the second most popular way for communication. For males, the conversation in tea stall and bazaars was the second most popular one. We found females to highlight the NGO managed safe spaces (Shantikhana) more than the males. There has been no difference in these opinions among different age groups (using chi-square test with p-value of 0.4).

Some Key Observations

- *Both male and female FDMNs recognized Poor Network to be the top most challenge faced by them in accessing any digital platforms*
- *High Cost is identified to be the second major challenge*
- *No group identified the unavailability of legal SIM cards as a major challenge*

4. Policy Recommendations

4.1 Legalization of the Mobile and the Internet Networks

The Government of Bangladesh needs to lift the official ban on mobile network and internet services in the camp areas and introduce an inclusive information and communication network for the FDMN communities.

- Our research findings reconfirmed that in reality, all the FDMNs have or can have access to mobile phone services. However, due to Government's restrictions, the quality of both voice and data services are very poor (slow speed, high call drop rate, limited network). Through our research, we found that even amid all such challenges, FDMNs will find ways to communicate and connect with each other using different digital platforms (using online, offline, and hybrid mechanisms). In many cases, such innovations require a lot of resources which could have been spent in some other productive and humanitarian issues.
- Scarcity of good connectivity also ushered in the proliferation of misinformation, exploitation, and poor communication with the FDMN communities. Absence of a good, legal ICT ecosystem also means less efficient outputs from the humanitarian agencies. Especially during this present time of COVID-19, the stakeholders are adversely affected due to the lack of a good, reliable information and communication network for FDMNs.
- The Government can coordinate with the law enforcement agencies, related service providers, humanitarian agencies, and FDMN communities to design and implement a sustainable, legal, and transparent ICT infrastructure for the greater camp areas, in accordance with the existing regulations of Bangladesh. The local telecom experts, leading development partners, ITU, and the related ministries need to be included in this initiative. At first, a certain FDMN camp area can be selected for the pilot connectivity project, and based on the knowledge gained, such service can be expanded in other camps.

4.2 Development of an Inclusive Ecosystem for Digital Platforms

- Our research findings demonstrated the huge popularity of alternative networks of information dissemination and communication, via the mobile repair/recharge shops and memory cards. FDMNs have a higher level of trust for such service points and are also willing to pay to get ICT services from such offline/online digital platforms. The popularity and acceptability of these outlets are also very high among the FDMNs. Hence, this alternative network infrastructure, alongside its stakeholders, need to be recognized and included as a key platform for localized and contextualized content design, development, and dissemination.
 - For example, development stakeholders can use some of their respective safe spaces as digital innovation hubs, with Wi-Fi hotspots, edutainment content, and some provisions for human resource development. Such hubs can be connected with the local mobile repair/recharge shops for content development and dissemination.
- An inclusive digital platform also means that FDMNs from different demographics will have equal access to it, and will be able to actively use it. Our research found a significant bias among the Rohingya patriarchy against the FDMN women with relation to their ICT usage. We have also witnessed how FDMN women are trying to circumvent such societal pressure and innovating their own ways for accessing and using different digital platforms. We

furthermore observed the vulnerability of Rohingya women against trafficking and violence, aided by a number of digital applications. Development organizations need to roll out inclusive programs which will be able to facilitate the availability of direct connectivity (and not indirect ones, via the male relatives/family members) for FDMN women. Selected international ICT projects, which were developed to achieve SDG 5 goals need to be taken into consideration for effective customization and contextualization.

- Our research data showed that the majority of digital platforms and other ICT users belong to the FDMN youth community. Majority of these respondents are active in social media, innovating ways to bypass network restrictions to be connected online, and consuming as well as producing their own digital content. We also found that most of the mobile repair/recharge and accessories shops are also managed by this group, alongside content creation and consumption. We observed that majority of the FDMN women depend on mostly their young male family members to access and use any digital platform. Unfortunately, a big part of this demography are not fully engaged with any formal socio-economic activities in the camp area. Many of them fall prey to misinformation, drug peddling, human trafficking, and extremist activities. Availability of legal and uninterrupted connectivity, alongside relevant human resource development program, aided by localized digital platforms can result in a better future for these young displaced group.
- We observed the significance of religion in the daily lives of the FDMNs. According to our findings, audio-visual files of Waaj or religious sermons (presented by different religious speakers of Rohingya, Bangladeshi, and international origins) are the most popular type of content bought from a mobile repair/recharge shop by an average Rohingya. Majority of the respondents in our qualitative research highlighted about higher level of influence the local clergy has over the FDMN community. And according to our multiple FGDs with Rohingya Imams, many of these religious leaders have pro-ICT perspectives and are regular users of several digital platforms. Hence this group needs to be included in the ideation and development phases of localized digital content for FDMNs.

4.3 Development of Local Content

- Rohingyas have a proud and age-old oral tradition. In addition, we have seen in our research that overwhelmingly, FDMNs, irrespective of gender identity and age, prefer and trust voice based communications, which can be using a conventional mobile voice network or by using mobile applications with voice communication options (e.g., Imo, WhatsApp, WeChat, etc.). Any stakeholder needs to understand this leading trend while designing any Communication with Communities (CWC) initiative.
- Our findings highlighted the huge popularity of content in Rohingya dialect as well, catering local issues. We have observed the majority of the respondents' willingness to pay for such content. In addition to the development of digital infrastructure, we recommend the initiation (even as a pilot project at first) of the co-design, co-development, and co-dissemination of digital contents in Rohingya dialect.
- Such process needs participation from all the related local as well as international stakeholders, who has experiences in such processes for the displaced communities in other parts of the world. Moreover, we need to recognize that at present, there is no official version of Rohingya script. Specific action plans need to be in motion to formalize a recognized Rohingya script/alphabets with digital compatibility.