

Sending out an SOS

Signals from Conflict-Affected Audiences in the Digital Communication Landscape

CAPRI BURRELL, *Meta*

SARA PARVANEZADEH ESFAHANI, *Meta*

Crisis events can profoundly alter a person's relationship with technology that require product solutions to meet user challenges during these periods of upheaval. We used digital ethnography in two recent events, the internet shutdown and blocking of WhatsApp during the protests in Iran (2022) and the Kahramanmaraş earthquake in Turkey (2023) to examine real-time community organization behaviors in technologically mediated settings in the context of conflict and disruption. In the case of the internet shutdown in Iran, we documented workarounds when access is blocked and when our app does not do the things people need it to do. In the case of the earthquake in Turkey, we learned how people share photos/videos and status updates for information sharing and raising awareness.

BACKGROUND

Phones become a lifeline for people during periods of social upheaval and humanitarian crisis. People engage with online communication platforms for different purposes with different outcomes. In turn, these platforms “create different architectures for participation” (Wesch 2012, 101). Architecture can be defined by barriers like device and data access and affordability, internet blocking and censorship, digital literacy, feature awareness, and product limitations. These barriers are illuminated and exacerbated by crisis situations. We set out to examine these barriers so they might be minimized in future times of disruption.

In H2 2022 and H1 2023 we were part of two critical conversations inside WhatsApp about better serving users in times of upheaval and crisis. This is a novel area of understanding for our organization that led to significant product outcomes and ways of working. We believe that as applied social science researchers supporting an app with approx 2.5B monthly active users, it is our obligation to tirelessly advocate for research that meaningfully challenges adversity and marginalization. It is our hope that our work inspires other researchers and sparks conversation among the research community.

CASE STUDIES

Context

We sought to facilitate our users' access using the insights of digital ethnography in two recent events, the internet shutdown and blocking of WhatsApp during the

protests in Iran (2022) and the Kahramanmaras earthquake in Turkey (2023). We examined real-time community organization behaviors in technologically mediated settings. Because interactions that usually take place in relatively stable and bounded socio-technical environments are different compared to more “volatile environments” (Airoldi 2018 662), we focused on online behavior in the context of conflict and disruption to generate an understanding of needs in the face of instability. We documented how people share information, inspiration, and resources in these circumstances. Use cases ranged from raising awareness beyond borders, coordinating rescue and medical response, and workarounds for when app access is blocked, or functionality is compromised. Analysis of first-hand accounts across internal and external online forums gave us a contextual perspective to develop use cases and jobs to be done that helped inform product recommendations that serve users in times of crisis.

Method Selection

Digital ethnography is an established method to examine social change. It provides the opportunity for social scientists and applied user experience researchers to access vulnerable communities during times of emergency (Masullo and Coppola 2023). Each case study will use digital ethnography to understand digital communication friction in environments of upheaval and rapid change, when face-to-face research methods are not practical or feasible. We took a blended approach of online observation across external public forums (eg Twitter, Instagram, Facebook Groups), internal Meta employee groups, literature reviews of syndicated online sources, and direct insight collection through digital diaries and questionnaires. We demonstrate that where engagement is purely digital, social and geographic barriers to participation or observation are minimized, making hard-to-reach groups and perspectives more accessible (eg. Morrison et al. 2015). We will also discuss how this method lent itself to human-driven storytelling which we used to engender deep stakeholder empathy and compassion that can lead to meaningful product strategy and even organizational change.

Socio-Political Situation & Blocking in Iran

Context

In mid-September 2022 in Iran a 22-year-old woman, Mahsa Amini, was arrested by the morality police for allegedly not wearing hijab in accordance with regime standards. She went into a coma, and a few days later she died in hospital. Eyewitnesses reported that she was beaten while in custody. Following her killing, protesters took to the streets in Iran (Chappel and Hernandez 2022). The authorities immediately shut down the internet and blocked WhatsApp on Sep 20th, 2022. A few weeks later, they restored internet access, but WhatsApp remained blocked.

To work around the block, people started using commercial Virtual Private Networks (VPNs). However, using VPNs was not a sustainable solution for a number of reasons; the regime blocked known VPNs, they were expensive to buy, and they had low reliability, i.e., some work only on wifi, some only on mobile data. It took excruciating effort to maintain reliable access to WhatsApp, but people persisted because they needed private communication.

WhatsApp is a part of daily life in Iran, because both calls and messages are end-to-end-encrypted (E2EE) and free. People only need an internet connection to access free, private communication. Iranians highly value secure and private communication to avoid regime data sniffing (i.e., monitoring and capturing data in a network). Availability of a secure, private platform during protests was critical because people needed to share videos and photos of brutal actions carried out by the regime toward its own citizens. Photo/video evidence helped raise global awareness and create pressure beyond Iranian borders. Unfortunately after WhatsApp was blocked, people were forced to move to less secure communication platforms such as Telegram and fake versions of WhatsApp and other communication apps that lack default E2EE. This is particularly problematic given the regime's track record of surveilling its citizen's online public activity and alleged human rights abuses against those they deem digital dissidents (Biddle and Hussain 2022).

Our Goals and Methods

We set out to understand the scope of the problem and the risks our users in Iran faced as a result of blocking. However, we dealt with two sets of limitations to capture users' experience. First, because of political and financial sanctions we were not allowed to formally conduct research in Iran, mostly because we could not compensate the participants for their contribution. Second and more importantly, the situation needed immediate attention from the product team. Protesters were killed every day on the streets in Iran and they could not share the footage with

Western media to raise awareness and get support from foreign governments to stop regime brutality. We moved fast with WhatsApp leadership to serve these emerging user needs and pain points caused in people's lives.

To overcome these limitations, we tapped out a community of Iranian-born colleagues who have immediate families and close friends in Iran, including this manuscript's second author. We circulated an intake form to collect observations and pain points they heard about or encountered. Almost all of these colleagues used WhatsApp as the primary platform to connect with family in Iran. We also followed Iranian creators who actively posted videos, photos, and screenshots of their communications with people on the streets. We recorded these observations and synthesized them to uncover patterns and develop themes that we presented as a case study to leadership with actionable recommendations to address the gaps in our

product experience. This collective effort led to building an in-app proxy, a secure way to connect to WhatsApp even when the internet connection is blocked or disrupted.

What Worked Well

Our access to a community of trusted individuals who both had knowledge of product infrastructure and fully understood the magnitude of the block's impact made digital ethnography feasible. We collected participants' first-hand experience through screenshots of their app usage. This was critical to our understanding of the situation, users' underserved needs, and gaps in our product. There were a few benefits to leveraging our internal community. First, our ability to quickly share information and ask for input from these subject matter experts. Second, as our colleagues experienced the impact of blocking firsthand (many were fully cut from communicating with their family and friends), people were intrinsically motivated to help the working team collect as much information as possible.

Areas to Improve

As mentioned earlier, we could not hire a vendor or directly reach out to people living in Iran through formal channels due to political and financial sanctions. At Meta, research has a well-developed infrastructure with clear steps. This was a novel situation that required us to get creative to collect firsthand experience quickly. This experience resulted in developing a novel course of action despite limitations beyond our control. One potential improvement is establishing a protocol for research in similar situations in future that allows more clarity and faster action for researchers.

Earthquake and Aftermath in Turkey

“Whoever sees this WhatsApp status, please come and help. Please everyone come and rescue us now” Boran Kubat broadcasting to his WhatsApp network from under rubble in which he, his mother & uncle were trapped. (Economic Times 2023)

Context

In February 2023, Turkey experienced the 5th deadliest natural disaster in modern history, a series of earthquakes impacting an area of about 140,000 sq mi (350,000 km²), or an area about the size of Germany. An estimated 14 million people, 16% of Turkey's population, were affected. Development experts from the United Nations estimate that about 1.5 million people were left homeless. The confirmed loss of human life was just under 60,000 people across Turkey and Syria (Wikipedia 2023).

The scale of the loss and destruction was made worse by logistical challenges responders faced in the first hours and days after the earthquake. Relief efforts were

undermined by several factors, including loss of communication infrastructure. It's estimated that in the Kahramanmaraş Province (the epicenter of the earthquakes), internet traffic fell by 94% following the second earthquake (Data Center Dynamics 2023).

Turkey is a key market for WhatsApp based on the number of daily and monthly active users. During this humanitarian crisis, it became a critical lifeline as people relied on it to share 1:1, group, and community messaging, video and voice calls. Notably, there were reports that users found ways to broadcast their location and requests for help via the Status feature when they found themselves buried in collapsed buildings (Economic Times 2023) – a veritable SOS signal. WhatsApp's role in the earthquake relief efforts became even more critical as the Turkish government reportedly throttled and blocked Twitter (Netblocks 2023) for a period of time reportedly due to a spike in tweets critical of the government's handling of the crisis. WhatsApp's default End to End Encrypted (E2EE) messaging and Voice over Internet Protocol (VoIP) provided users a safe and private forum to share unfettered information without risk of government interference.

Our Goals and Methods

On February 7th, conversations began to surface in internal WhatsApp chat groups about the earthquake and our company's response efforts. Almost as quickly as those conversations began, a cross-functional team met to develop a plan, including leads across marketing, product, policy, social impact, legal, research, design, and content. To understand and address gaps in our product experience, we spent a period of weeks to focus on problem identification and definition, capabilities needed, and developing a common vision and goals. In parallel, research conducted systematic synthesis of the information and feedback shared in the internal groups coupled with the insights gathered from a literature review and digital ethnography. There is conical research that identifies the role of social platforms in disaster recovery across the following dimensions: 1) donations and financial support 2) solidarity and social cohesion, 3) post-disaster reconstruction and infrastructure services, 4) socio-economic and physical wellbeing, 5) information support, 6) mental health and emotional support and 7) business and economic activities (Ogie et al. 2022). We agreed that WhatsApp has the most natural product-market fit with information support-specific use cases, which allowed us to develop a set of themes that encapsulate core information-seeking needs in times of crisis.

People in times of crisis need:

- To both share and access real-time information
- Highly relevant information
- Trusted information

These core needs became governing principles to guide user experience decisions for how we might use in-app communication channels during crisis response:

- Timely
- Relevant
- Authoritative

In addition to need gathering, we learned that information support in high-risk situations can be particularly volatile and fraught with friction. The desire to access trusted information can be intentionally exploited by bad actors, including accelerated spread of misinformation, particularly over public and often unencrypted platforms, as described in the previous case study. These factors hinder access to authoritative, locally relevant, and timely information during a crisis, with life-or-death consequences. The advantage WhatsApp groups and communities provide is that they are largely not discoverable through a search in the app or a search engine, but rather require a direct invite from an existing member. This can engender higher degrees of cohesion and trust in these groups, factors that we observed were critical during the earthquake.

These foundational insights helped inform our nascent WhatsApp-to-user communication strategy and demonstrated the role our platform can provide to empower private and secure community engagement during times of crisis.

What Worked Well

Project success was bolstered by a number of factors. First, it benefited from having the right people involved. This included market and subject-matter experts, key decision makers, and the insights team to ensure a human-centered approach. Second, while the project was reactionary (e.g. not part of a team roadmap), the team was able to pivot quickly to respond to the business and user needs. Lastly, there was immediate definition of principles and goals rooted in user needs, leading to clear decision-making.

Employing digital ethnographic approaches across internal and external platforms enabled us to react quickly. By gathering real-time understanding amid rapid situational change, “the remarkable growth in the diversity and richness of time-critical information that is generated on social media sites during disasters provides a great opportunity to harness large-scale spatio-temporal data of enormous value” (Ogie et al. 2022). Electing not to recruit users to participate in research activities during the earthquake aftermath was also an ethical choice. Given the scale of impact and emotional toll disasters take on the surviving populace, we wanted to minimize adding any undue duress or inadvertently triggering participants for the sake of collecting study insights. The insights gathered from indirect observation methods were sufficient to move our thinking forward, knowing we have the option to conduct more rigorous and direct follow-up research once the crisis has subsided.

Areas to Improve

Because the project was a response to an unforeseen, external event, we did not have a standard operating procedure or playbook to follow. Further, due to the high-risk and volatile nature of that event, the threshold for risk mitigation by delivering high user value was beyond what we could respond to responsibly in the window of time this event demanded. However, as a result of this exercise, we have established crisis response as a critical use case to understand more deeply in order to meet users' communication and grass-roots community building needs.

LEADING ORGANIZATION CHANGE THROUGH INSIGHTS IN MOMENTS OF DISRUPTION

Insights-lead change within an organization during moments of human crisis and upheaval is possible, as highlighted in the two case studies above. We have incorporated our learnings based on our collective successes and failures, into three parts – prioritizing foundational research, creating a unified insights foundation, and turning insights into action through operationalizing cross-functional alignment.

Step 1: Prioritizing foundational research.

The WhatsApp research team commits approx 30% of its annual research roadmap to foundational research that it carries out with cross-functional insights teams like data science and data engineering. This practice allows our insights disciplines to think deeply beyond immediate product needs to understand where our collective blind spots and future opportunities are. Our work on the Internet shutdown in Iran and the humanitarian crisis in Turkey was facilitated by this commitment to foundational understanding. Firstly, because it's a regular part of our planning process and product development roadmap, we have the necessary acumen across teams to structure and execute this kind of work. This includes the ability to quickly pivot when needs arise like regressing engagement trends we observed in Iran and Turkey. Secondly, because this is ingrained in the way our insights organization operates, our other partners – like product, design, and engineering – and our leadership team expect regular foundational insights as a normal way of working and are able to incorporate them into how we think about the relationship between our product and users.

Step 2: Creating a unified insights narrative to drive alignment and influence.

After understanding the reality for our users in Iran and Turkey, we aligned across internal insights functions on the most salient user needs, and values and barriers represented by the product. In each case study, the process was similar and included triangulation of insights across functions and interpretation of those insights into business needs. We consulted with our data science partners for trend

analysis, customer / product operations teams for front-line user tickets analysis, market / consumer product insights for market-level trends, and market specialists for hyper-local awareness and context building. Utilizing these case studies and others, we have created a living insights document focused on our aligned narrative on protecting users during upheaval and crisis. This broad-scale insights development around an aligned narrative has built a robust foundation that provides a high degree of confidence through converging evidence. Additionally, creating a single source of truth helps stakeholders learn quickly. It is now a durable and scalable artifact used across teams and initiatives.

Step 3: Turning insights into action.

We found that leading organizational change with insights entails not only an aligned, human-centered narrative, but a clear goal and a tangible action plan based on organization realities. Getting cross functional buy-in on the insights narrative is table stakes, but the framing is crucial. As applied social scientists, we employed user-centered thinking in our execution and tied our analysis to business goals. Highlighting where our users experience friction and marginalization is a critical piece of this, but cannot be the sole rationale for our product recommendations. In addition to being the right thing to do for our users, the recommendation to launch a proxy feature was made more compelling because of the business justifications.

REFLECTION

Research played a critical role in investigating the volatilities for our WhatsApp users in Iran and provided an on-the-ground perspective that was otherwise impossible given sanctions and internal policies. WhatsApp's end-to-end-encrypted private messaging also ensured users had access to urgent help during natural disaster disruptions like the recent earthquake in Turkey and Syria. Understanding how users organically use products and features not expressly designed to support use cases can help us identify crisis response needs.

Freedom of expression and information exchange will continue to be threatened in the digital landscape. UN High Commissioner for Human Rights Michelle Bachelet has made it clear that "Internet shutdowns have emerged as the digital world has become ever more important, indeed essential, for the realization of many human rights. Switching off the internet causes incalculable damage, both in material and human rights terms" (OHCHR 2022). Further, reliable access to

secure and private messaging will continue to be paramount because of this technology's potential to prevent communication breakdown and reach diverse segments in times of emergency.

It is our hope that our case studies and approaches inspire others engaged in the understanding of online communication and social contexts to advocate for

supporting users during periods of upheaval and crisis to ensure we solve the most exigent real-world problems for our user base and humanity at large.

ACKNOWLEDGEMENTS

Our deepest gratitude goes out to the following individuals for their support of this manuscript: Pushpinder Lubana (chief editor), Katherine Karaus (language and proofreading), Beth Schwindt (inspiration and early reviewer), and to our cross-functional partners and leadership at WhatsApp who helped realize the work described in the case studies.

REFERENCES CITED

- Airoidi, Massimo. "Ethnography and the digital fields of social media." *International Journal of Social Research Methodology* 21, no. 6 (2018): 661-673.
- Biddle, Sam and Murtaza Hussain, "Hacked Documents: How Iran Can Track and Control Protestors' Phones", *The Intercept*, 10/28/2022 <https://theintercept.com/2022/10/28/iran-protests-phone-surveillance/>
- Cleland, Jennifer, and Anna MacLeod. "Disruption in the space–time continuum: Why digital ethnography matters." *Advances in Health Sciences Education* 27, no. 3 (2022): 877-892.
- Chappell, Bill, and Hernandez, Joe. 2022. "Why Iranian women are burning their hijabs after the death of Mahsa Amini." NPR. <https://www.npr.org/2022/09/21/1124237272/mahsa-amini-iran-women-protest-hijab-morality-police>
- "Connecting to WhatsApp by Proxy", WhatsApp Blog, 1/5/2023, <https://blog.whatsapp.com/connecting-to-whatsapp-by-proxy>
- Dutkowska-Zuk, Agnieszka, Austin Hounsel, Amy Morrill, Andre Xiong, Marshini Chetty, and Nick Feamster. "How and why people use virtual private networks." In 31st USENIX Security Symposium (USENIX Security 22), pp. 3451-3465. 2022.
- "Internet shutdowns: UN report details 'dramatic' impact on people's lives and human rights", United Nations Human Rights Office of the High Commissioner, 6/23/2022, <https://www.ohchr.org/en/press-releases/2022/06/internet-shutdowns-un-report-details-dramatic-impact-peoples-lives-and-human>
- Masullo, Giuseppe, and Marianna Coppola. "Potential and limitations of digital ethnographic research: A case study on a web community." *Frontiers in Sociology* 7 (2023): 1092181.
- Morison, Tracy, Alexandra Farren Gibson, Britta Wigginton, and Shona Crabb. "Online research methods in psychology: Methodological opportunities for critical qualitative research." *Qualitative Research in Psychology* 12, no. 3 (2015): 223-232.
- Moss, Sebastian, "Turkish Internet disrupted by devastating earthquakes, telcos deploy mobile base stations", *Datacenter Dynamics*, 2/6/2023 <https://www.datacenterdynamics.com/en/news/turkish-internet-disrupted-by-devastating-earthquakes-telcos-deploy-mobile-base-stations/>

Murthy, Dhiraj. "Digital ethnography: An examination of the use of new technologies for social research." *Sociology* 42, no.5 (2008): 837-855.

"NASA's Satellites Help with Turkey, Syria Earthquake Response", *Clean Technica*, 2/11/ 2023,

<https://cleantechnica.com/2023/02/11/nasas-satellites-help-with-turkey-syria-earthquake-response>

Ogie, R. I., S. James, A. Moore, T. Dilworth, M. Amirghasemi, and J. Whittaker. "Social media use in disaster recovery: A systematic literature review." *International Journal of Disaster Risk Reduction* 70 (2022): 102783.

Perta, Vasile Claudiu, M. Barbera, Gareth Tyson, Hamed Haddadi, and Alessandro Mei. "A glance through the VPN looking glass: IPv6 leakage and DNS hijacking in commercial VPN clients." (2015).

Ports Robbins, Jessica, "Social Media in Disasters", Prepare Center

<https://preparecenter.org/topic/social-media-disasters/>

Seligmann, Linda J., and Brian P. Estes. "Innovations in ethnographic methods." *American Behavioral Scientist* 64, no. 2 (2020): 176-197.

"2023 Turkey–Syria earthquakes", Wikipedia, 9/30/2023,

https://en.wikipedia.org/wiki/2023_Turkey%E2%80%93Syria_earthquake#cite_note-345Kartment-117

"Turkey Earthquake: 20-year-old Boran Kubat rescued from rubble after he shared his location on WhatsApp", *Economic Times*, 2/12/2023, <https://economictimes.indiatimes.com/news/new-updates/turkey-earthquake-20-year-old-boran-kubat-rescued-from-rubble-after-he-shared-his-location-on-whatsapp-details-here/>

"Twitter restricted in Turkey in aftermath of earthquake", *Netblocks*, 2/8/2023

<https://netblocks.org/reports/twitter-restricted-in-turkey-in-aftermath-of-earthquake-oy9LJ9B3>

Wesch, Michael, and Neal Whitehead. "Anonymous, Anonymity, and the End (s) of Identity and Groups Online: Lessons from the "First Internet-Based Superconsciousness" Human no more: Digital subjectivities, unhuman subjects, and the end of anthropology (2012): 89-104.