

# A SHIFTING PARADIGM

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POLICY PAPERS IN PREVENTION  
Social Media and the Changing Nature  
of Conflict and Conflict Response

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## Table of Contents

Introduction .....	3
Imperfect Reflections .....	8
Twitter Social Networks .....	11
YouTube Defections.....	16
Armed Group Formations.....	21
Monitoring Conflict Events with Social Media .....	25
Social Media Evidence of Foreign Military Support.....	29
Active Engagement.....	31
Building Tools to Facilitate Action.....	33
Implications .....	38
Conclusions and Recommendations .....	39

# A Shifting Paradigm

## Social media and the changing nature of conflict and conflict response

### Introduction

#### *Setting the Stage for Change*

In the mid-1990s, the introduction of an Arabic-language satellite news channel known as Al-Jazeera sent shockwaves through Arab capitals that had, until then, enjoyed a near monopoly of control over the content that reached their citizens. Ironically, Al-Jazeera was born of a Saudi attempt to exert stricter control over media. Following Saudi objections to the human rights focus of a BBC documentary on the Kingdom, the existing partnership between Saudi-owned Orbit Communications and the BBC fell apart. The channel's Arabic-language staff and technicians were snatched up by the Qatari government and Al-Jazeera was formed.<sup>1</sup>

The channel started with only 6 hours of programming per day and a weak satellite signal, but quickly managed to secure a stronger transponder by filling the gap left by yet another channel that had run afoul of Saudi censors.<sup>2,3</sup> With a stronger signal that could be

<sup>1</sup> United States Congressional Record, Vol. 148, Pt. 7, May 23, 2002 to June 12, 2002. Pg. 9,480.

<sup>2</sup> *France Seeks to Soothe Arab Anger over Porn Film*, Hurriyet Daily News, 23 July 1997. Web. 02 Sept. 2016.

picked up by the small satellite dishes that were becoming ubiquitous throughout the Arab world, it didn't take long for the region's governments to realize that their careful control over information was coming to an end. By the end of the 1990s, Al-Jazeera's unfiltered reporting on regional politics had led to complaints from almost all of its Arab neighbors. Ambassadors were recalled from Qatar, terrestrial signals were jammed, and correspondents were expelled from or prevented from entering surrounding countries. Desperate, the Algerian government even resorted to cutting power to several major cities in order to block the airing of an Al-Jazeera documentary. All of this just made for better headlines.

Looking back, the hand-wringing caused by Al-Jazeera's critical voice seems excessive, for shortly after the news network had established itself, it was quickly eclipsed by another medium – the Internet. With the spread of the Internet came the seemingly chaotic forums of Facebook, Twitter, YouTube, blogs, and in more recent years, countless mobile messaging apps. The growth in communication technology quickly outpaced the efforts of censors throughout the world, and was thus upheld by many as a tool for democratic empowerment. It would be years, however, before new media would have a noticeable effect on politics.

The first clear instance of new media's effect on political developments came with the Green Movement in Iran in 2009. Though one could easily point to the 2008 U.S. presidential election, or to the general facilitation of political conversation worldwide, it was Iran that truly marked a sea change in the intersection of new media and politics. While millions of protesters took to the streets

<sup>3</sup> The removal of this channel (Canal France International) came as a result of a technician accidentally airing 30 minutes of pornography in lieu of a children's program in Saudi Arabia.

following the country's 2009 election, many more took to social media, in particular Twitter, to share information about what was happening. Twitter was so central to the conversation that U.S. State Department officials requested that the company reschedule planned maintenance on the platform in order to not disrupt the ongoing political conversation.<sup>4</sup>

Shortly after Iran, observers began noticing changes in online interactions in another region: North Africa. When looking for evidence of drug and weapons shipments in the Mediterranean, the chief architect for counter-narco-terrorism at Lockheed Martin stated that he and his colleagues had noticed something strange happening in public social media forums in Egypt, Libya, and Tunisia. People were increasingly discussing how their “uncle” was treating them poorly, saying he was locking people up, torturing them, stealing money, and more. As more people began to join this conversation, it quickly became clear that people were referring to their governments.<sup>5</sup> As the conversations continued, it appeared the situation was getting worse, and the pressure was growing among the populations of these three countries. People were even considering the grim refugee camps in Malta and Italy as a potentially better option.

Noticing the trend as significant, reports were sent up the chain of command, but were largely ignored. A short time later, protests began in Tunisia and quickly spread to Egypt, Bahrain, Libya, Syria, and much of the rest of the Middle East. All of these protests had

<sup>4</sup> Landler, Mark, and Brian Stelter, *Washington Taps Into a Potent New Force in Diplomacy*. The New York Times, 16 June 2009. Web. 02 Sept. 2016.

<sup>5</sup> Just as Americans refer to the U.S. Government as “Uncle Sam,” it is common for people in the Middle East and North Africa to euphemistically refer to their governments as “Uncle.”

one thing in common – they were greatly facilitated and amplified by social media.

Each subsequent country to experience Arab Spring protests reacted in an increasingly harsh manner. In Tunisia, the protests happened so quickly and unexpectedly that the government quickly folded. In Egypt, President Hosni Mubarak fought back, but was eventually forced out by his own military. By the time the protest movement moved to Libya and Syria, the nature of the Arab Spring had dramatically changed.

The new media that had become so closely associated with it had also changed. In just three years' time, social media had gone from facilitating and fostering peaceful protests and being touted by many as the panacea for peace and democracy to coordinating armed insurrections.

With this change, however, came an opportunity. As any digital marketing professional is well aware, online engagement is quantifiable. Online interactions leave traces – data trails that tell researchers who to target for what content, or how their products are being talked about, and more. For political scientists and conflict analysts, the interrelationship between social movements and social media content presents an excellent opportunity for observing these social changes. In the Middle East, these opportunities are greater still. Perhaps as yet another ironic outcome of government censorship, citizens in Middle Eastern countries are over twice as likely to share political or religious views online and have a high portion of their population engaging in social media use.<sup>6,7</sup>

<sup>6</sup> *Social Networking Popular Across Globe*, Pew Research Centers Global Attitudes Project RSS. Pew Research Center, 12 Dec. 2012. Web. 02 June 2016.



The use of social media over the course of the Syrian conflict has been so prevalent, that there appear to be more minutes of video posted online than there have been minutes of real time.<sup>8</sup> In addition to these videos are countless tweets, blog posts, Facebook posts, activist reports, and more. Combined, they offer an unprecedented view of ongoing conflicts. Mediators and humanitarian organizations wishing to respond to the conflict have been able to map and monitor the changing front lines, evolving relationships between actors, the status of vulnerable civilians, the flow of weaponry, atrocities, and, more recently, violations of ceasefire agreements.

Just as new media was not a panacea for conflict response, a social media lens is not without its imperfections. There are biases related to socioeconomic status, age, infrastructure, and, of course, political affiliation. Additionally, while new media in modern conflict provides an unprecedented amount of new information, its very existence changes the way in which conflicts develop. These imperfections notwithstanding, the growing use of social media has changed the way the world engages in and responds to conflict.

<sup>7</sup> Saudi Arabia represented the fastest growing population of Twitter users – and remains number one in terms of percent of population using the platform. See: The Social Clinic Editorial Team, *Saudi Arabia Ranks First on Twitter... Worldwide!*, The Social Clinic, N.p., 17 Nov. 2013. Web. 02 Sept. 2016.

<sup>8</sup> This estimate is based upon information shared with The Carter Center by a handful of Syrian organizations who have archived hundreds of thousands of videos.

## Imperfect Reflections

For researchers, one of the most readily available social media databases (and therefore one of the most widely used) is that of Twitter. Tweets only contain a small amount of unstructured content (140 characters to be exact), but contain a remarkable amount of structured information. A single tweet contains information on who sent it, who re-tweeted it, who “liked” it, who commented on it, how those various users are connected, and of course, the information in the tweet and comments themselves, which can contain hashtags, URLs, photos, videos, and more.

Twitter is also mobile friendly and allows users to include geographic information in their tweets. This fact, combined with a thriving community of users interested in current affairs, makes Twitter data all the more appealing to researchers interested in understanding current events and ongoing major developments, such as mass protests. Making this database even more attractive is the fact that there are numerous companies and academic institutions that are constantly archiving Twitter data, ensuring a constant supply of historic and real-time data – so much so that the full stream of Twitter data is (appropriately) called “the Firehose.”

An unfortunate side effect of this treasure trove of data is that the temptation to use it often results in what is commonly referred to as “the streetlight effect.” The effect is named after an old joke, in which a drunk, having lost his keys in a stupor, is found looking for them under a streetlight. A helpful passerby joins in his search, but after a few minutes of fruitless hunting, asks the man, “are you sure you dropped them here?” To which the drunk responds, “What? No, I lost them in the pub.” Confused, the passerby asks, “Well then, what are you looking out here for?” To which the drunk responds, “Because the light’s better here!” The story, which is a favorite among data scientists, refers to the fact that we often have a

tendency to look for information where its readily available, regardless of whether or not it's the most likely place to find what we're looking for.

Such is the case with Twitter data in a conflict zone. A database of time-stamped, geo-located conversations about an ongoing crisis, complete with information on how users are connected sounds like just the place to look – but are those under fire really all that likely to be tweeting? Also, if one party to the conflict controls access to utilities and the Internet, would they disrupt the provision of these services to those with whom they are fighting? What about relevant socioeconomic divisions? Not everyone has a Twitter-capable smart phone, Internet access, or is computer literate, and it is oftentimes those very people who are most affected by conflict. Perhaps most importantly, does a representative sample of the population feel safe enough tweeting information about an ongoing violent conflict or will they self-censor?

On occasion, the biases in a given database are so stark that they begin to be useful again. Such is the case with Twitter data from Syria. Approximately 1% of the full Firehose of Twitter data is geo-tagged (meaning it contains a precise latitude and longitude).<sup>9</sup> Despite this low percentage, given a database that spans a long period of time, patterns begin to emerge. The following map of geo-tagged tweets from 2012, superimposed with areas of opposition activity at the start of the battle for Aleppo, which began in July of the same year, shows a clear divide in the city.

<sup>9</sup> F. Morstatter, et al, *Is the Sample Good Enough? Comparing Data from Twitter's Streaming API with Twitter's Firehose*, Association for the Advancement of Artificial Intelligence, 2013. Web. 2 Sept. 2016. Available at: <http://www.public.asu.edu/~fmorstat/paperpdfs/icwsm2013.pdf>.

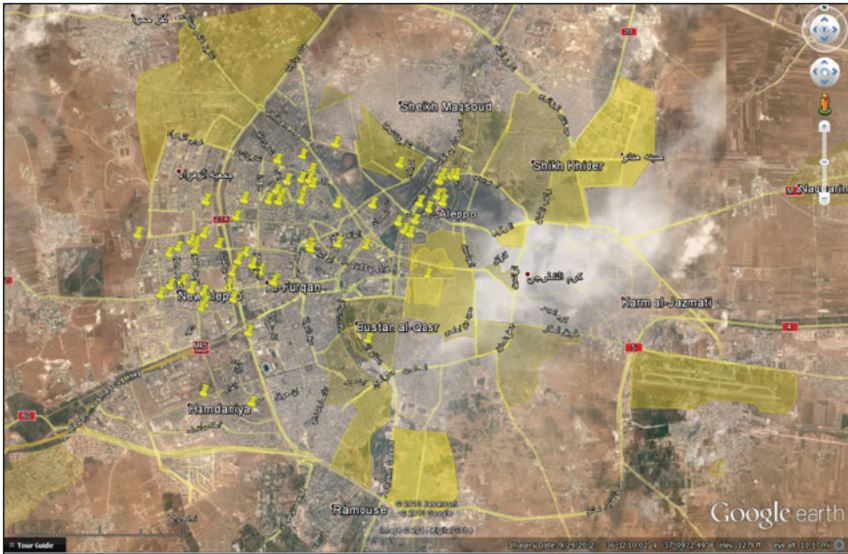


Figure 1: Geo-tagged tweets from Aleppo (yellow pins) and areas with reported conflict activity (zones shaded in yellow). Note that nearly all geo-tagged tweets emanated from areas of government control.

A map of Damascus during the same time period shows an almost identical pattern. With the conflict in full swing by January of 2012, not a single geo-tagged tweet was recorded in the opposition strongholds of Duma, Irbin, Darayya, and the entire eastern countryside.<sup>10</sup>

<sup>10</sup> Geo-tagged tweets were made available by Fred Morstatter et al.



were no geo-tagged tweets from areas of opposition control, there were (and still are) a large number of opposition fighters and activists engaging on Twitter. Despite the fact that biases exist with respect to the geographic distribution of tweets, as mentioned previously, there are a multitude of other ways to view Twitter data. One such approach is to conduct an analysis of social networks on the platform.

Who does an armed group follow on Twitter? With complete lists of “follow-follows” relationships being publicly available on Twitter, answering this question becomes a simple matter of connecting the dots – literally. Twitter’s interface allows researchers to download structured information on relations between Twitter accounts, which can then be visualized and explored with relative ease. As the first major battles broke out in Syria, a growing number of armed opposition groups began to announce themselves and report openly on their activities.

In the central Syrian city of Homs, one such armed group became widely known for its role in holding the southern district of Baba Amro during a prolonged siege by the Syrian military. The group, which was one of the larger armed opposition formations at the time, maintained close ties with the nascent opposition’s leadership, had been in close contact with the UN Observer Mission, and enjoyed a strong local support network. They also followed over 70 accounts on Twitter and amassed a large following of their own.

The following network graph shows a color-coded visual representation of the connections made by this armed group. The 72 blue nodes represent Saudi or Kuwaiti Sunni activists – many of whom had been jailed by their respective governments for outspoken sectarianism or political action. The three green nodes represent Twitter accounts that belong to public figures: one belonging to the editor of al-Quds al-Arabi, the second to a London-

based Palestinian academic and Islamist, and the third belonging (seemingly randomly) to an Iraqi pop singer. The red node in the diagram belongs to the Qatari Ministry of the Interior, and the few black nodes represent three pro-opposition news-focused accounts and two individuals whose identity could not be positively identified.

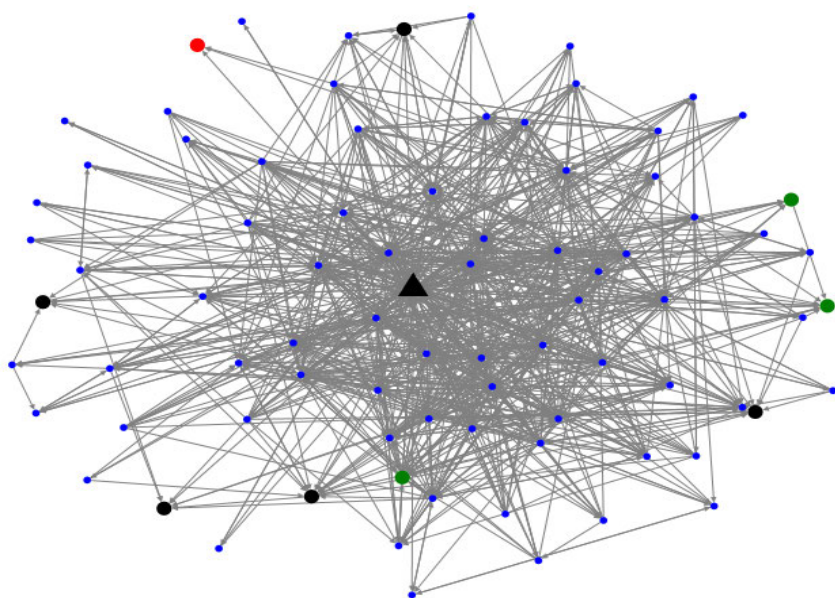


Figure 3: Network graph of Twitter accounts followed by an intentionally unnamed Syrian armed group in July of 2012.

Nearly all of the individuals “followed” by the armed group were of fundamentalist Islamist persuasions, and those that weren’t were clearly on the periphery of the network. Many of the Islamists were scholars of Islamic jurisprudence in Saudi universities or Imams of mosques. Most of the individuals are closely linked with each other as well (as can be seen in the graph).

Again, given the public nature of Twitter, it was readily apparent that the network of individuals was primarily interested in discussing issues facing Muslims worldwide, specifically focusing on

Egypt, Yemen, and Syria. Many of the individuals expressed (often virulent) anti-Shia stances, and nearly all openly advocated funding the Free Syrian Army.

Indeed, despite the many commonalities between the individuals that the Homs-based armed group chose to engage with, the primary attraction to this network of individuals appeared to be the potential for funding. It was also apparent that the administrator of the armed group's account went about building the network with obvious intent. Once a connection was made, the administrator would thank the new connection for "returning the follow" and then ask if that person could put them in contact with yet another individual. In some cases, these requests were publicly accepted, with a note to expect a direct (private) message from their new contact.

Several of these core connections were in charge of charitable foundations and nearly all people in the network advocated funding Syrian armed groups or actively bragged about doing so. They hosted private fundraising parties, publicly posted bank account numbers through which individuals could contribute to the cause, and even photographed themselves on trips to the region. Before long, a fair number of the individuals in this network formed a new fundraising organization and were soon photographed alongside armed group commanders while visiting their beneficiaries.

While the connections between these armed groups and seemingly more sectarian-minded individuals in the Gulf were apparent, what remained unclear was the intent behind them. The motivations of the Saudi and Kuwaiti connections seemed apparent – they were evangelists for their cause – but did the armed group's link to them equate to an endorsement of this more sectarian narrative? The primordial leadership of the Free Syrian Army at the time was



declaredly secular – was this evidence to the contrary or simply an attempt to secure desperately needed funding?

Comparative analyses of other armed groups' networks showed none of the same connections. Many contemporary armed groups only seemed interested in connecting with local activists, prominent Syrian voices, and the growing "Local Coordination Committees", which were organizing opposition activism. However, in following the network of Saudi and Kuwaiti funders, many of whom had since formed themselves into the "Committee for Popular Zakat,"<sup>11</sup> it became clear that they were reaching out to, and funding, a growing number of armed opposition groups throughout Syria. Whether or not the armed opposition movement in Syria began with sectarian intent, the growing influence of sectarian actors was readily apparent less than a year into the violent conflict.

Despite the heavy biases built into Twitter data, these early investigations were able to shed some light on a rapidly changing and complex conflict. But the presence of this information raised as many questions as it answered. Was new technology allowing analysts to view that which was previously opaque or was it changing the nature of the conflict itself? Would these connections have been made if the actors involved did not have access to Twitter? Would the crowdfunding approach employed by the Committee for Popular Zakat have been possible if not for social media? Whatever limited information about the conflict that could be gleaned from these imperfect databases was also tainted as a result of the observer's paradox.

<sup>11</sup> "Zakat" is the Arabic word for charitable donations. Directly translating to "that which purifies," it forms one of the five pillars of Islam, and calls on Muslims to donate a percentage of their income to those less fortunate.

Regardless of the intent behind the establishment of these connections online, it became readily apparent to armed groups that active engagement with social media could only help their cause. It served as a soapbox from which to promote their efforts, a forum for communicating with activists, and a channel for connecting with potential supporters. True, engaging openly on social media put people at great risk and, as a result, some paid the ultimate price for it. But, even given these risks, the benefits were clear. These early lessons meant that the Syrian conflict, and indeed most other conflicts that have begun since, would be waged as much in the digital world as the physical one.

## **YouTube Defections**

Even before armed groups began building support networks online, there were a large number of opposition figures taking to social media to promote their cause. As the military was called in to break up the growing protests across the country, soldiers began defecting in protest. These soldiers and officers did not simply walk away from their posts and join the ranks of the opposition – they took to social media to make their defections widely known.

The first few soldiers to announce their defections via YouTube did so in a very formulaic way. They gave their name, rank, division, before describing where they had been operating, why they were defecting, and what they planned to do afterwards. To confirm their defection, these soldiers held up their identity card to the camera – close enough to be easily read, flipping it around to show the front and back of the document. This format quickly became a standard means of defecting and was widely adopted across the country.



Figure 4: Screenshot from Lt. Col. Hussein Harmoush s defection in June of 2011.

What started with a trickle of individual defections soon became a flood. Both individuals and groups of soldiers started to consistently announce their defections, beginning in the summer of 2011 and continuing well into late 2012. By early 2012, entire units of more than 500 soldiers began defecting en masse. Nearly all of these defectors structured their announcement in the same way as the earliest defectors – and continued to show their identity cards in all but the largest of defections.



Figure 5: Screenshot from the formation announcement of a Syrian opposition group. Masoom512. "21 2 الشمال درع كتيبة وتشكيل وضابط عسكري 500 من أكثر انشقاق سورية شباب" YouTube. YouTube, 21 Feb. 2012. Web. 02 Sept. 2016. Available at: <https://www.youtube.com/watch?v=4Ws7BA9RrE>.

Taken as a whole, the raw amount of information provided by defectors was almost unmanageably large. Information on the ranks and divisions of defectors was so common that it could be used to reverse-engineer the structure of the Syrian military, and to learn which divisions had been accused of firing on protesters, which had defected en masse, which were being deployed to which areas, etc.

Just as with Twitter data, this information was not comprehensive, and certainly not without its biases. Even so, the sheer amount was staggering. A manually collected database of publicly available defections and armed group formations announced during the first ceasefire attempt showed nearly 14,000 fighters between March and August of 2012 alone.

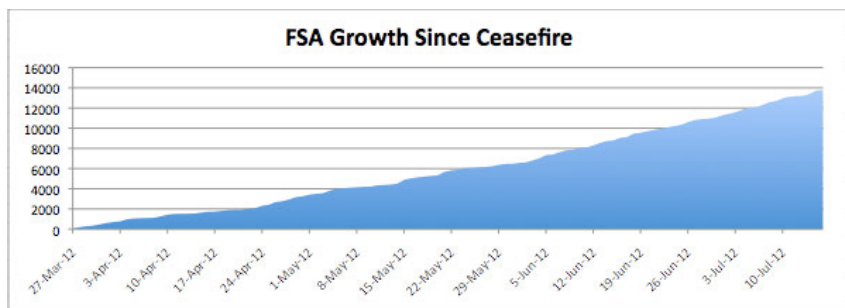


Figure 6: Recorded number of armed opposition fighters seen in formation videos over time.

This wealth of new information showed that not only was the armed opposition growing at a rapid rate, but it also appeared to be completely unaffected by political or military developments – a fact that contributed to the failure of the ceasefire in late May of the same year.

While the nationwide growth in opposition forces during this time period was almost completely linear, it was not uniform. As the following graph shows, different regions of Syria saw vastly different rates of growth in terms of opposition forces. Similarly, the rate of defection of high-ranking defectors appeared to be closely tied to political developments – when something occurred that made the position of the Syrian government untenable, more generals were seen to defect.

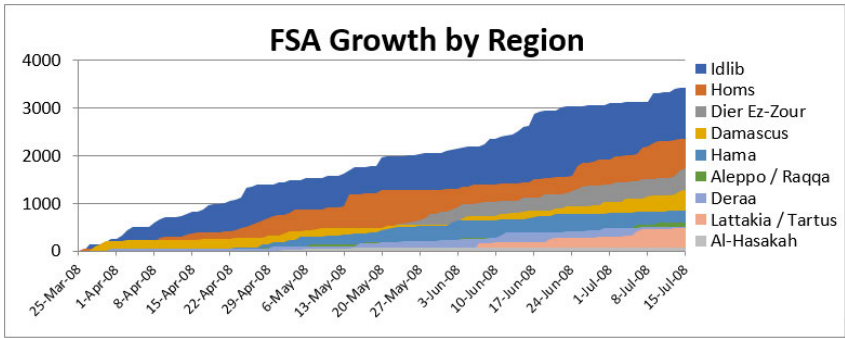


Figure 7: Number of fighters seen in defection and armed group formation videos from the start of the ceasefire through July 16, 2016.

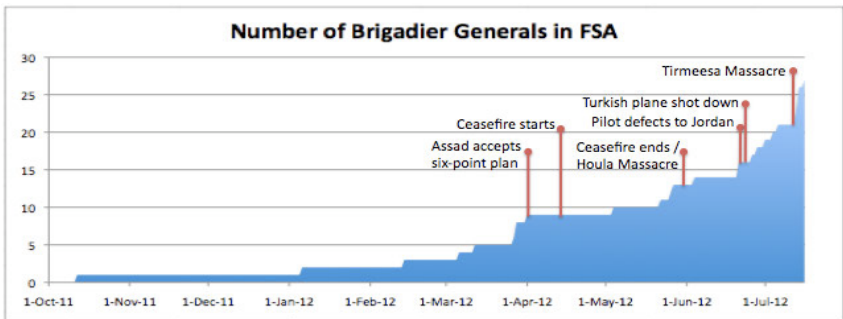


Figure 8: The number of known defections of brigadier generals from the start of the conflict through mid-July of 2012, superimposed with major political events during the same time period.

Reports derived from this newly available data were shared with envoy Kofi Annan and his team, warning of a growing internationalization of the conflict, as well as a continued rise in militancy throughout the country. The success of these initial research efforts led to The Carter Center forming the Syria Conflict Mapping Project in an attempt to glean what information it could from the growing sea of social media data.

## Armed Group Formations

As defections continued, larger and larger opposition groups began to form. Building off the precedent set by defectors, these armed groups announced their formation via YouTube, and, like the defectors, provided an incredible amount of useful information. Soliciting the help of a small team of researchers known as the Syria Conflict Monitor, the Center began collecting information on armed group formations. For each armed group formation video recorded, The Carter Center documented approximately 70 attributes, including information on how many people were seen in the video, the geographic area, whether a group's members were defectors or civilians, which part of the military defectors came from, what equipment or weapons were seen, and most importantly, what connections the group had with other actors in the conflict.

Over the course of the conflict, The Carter Center has tracked the formation of approximately 7,000 uniquely named armed units, in which over 100,000 individuals have been seen.<sup>12</sup> This database, converted into a structured network diagram, has allowed analysts

<sup>12</sup> It should be noted that not all of these 7,000 armed groups were independent of one another, indeed most of them were clustered together in groups that ranged anywhere from 1 to 50 units. When tallying the total number of armed group, however, determining where to draw the line between independent organization and sub-unit becomes difficult. Does a group cease to be a distinct entity when it announces it is subsidiary to another? How much control does a parent organization have to exert over its sub-units for the network to be counted as a single entity? And how can this be determined? The questions are almost innumerable. For this reason, The Carter Center focused on counting all uniquely named units, regardless of size or status in relation to other organizations. As the conflict progressed and relations continued to shift between units, this approach proved crucial for understanding the internal relations and politics of the armed opposition.

to visualize and watch, in near real time, the network of armed groups evolve as new data was entered.

The importance of such a tool, particularly in the early stages of the conflict, is difficult to overstate. Armed group formation continued at a breakneck pace for the first full year of the conflict, peaking at approximately 230 new armed group formations per month by November of 2012. Not only were armed group formations averaging seven per day, but relations between existing groups were in constant flux.

Making matters worse, competing command structures' claims of control were often greatly overstated. For example, in early 2013, at the recommendation of a Western government official, Carter Center representatives met with the leader of a major armed faction. During the meeting, the commander claimed to represent approximately 70% of the armed groups on the ground, however, based upon the declarations of those armed groups themselves, no more than a third of the armed factions in the country could be said to be connected to one another in any shape or form.

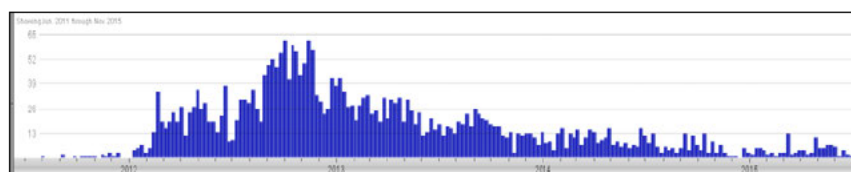


Figure 9: Armed group formations in Syria over time from mid-2012 through mid-2015. Each bar represents one week.

When analyzing this phenomenon, we are once again faced with the observer's paradox. Information on the existence of, and relations between, these armed groups was only available because of the existence of social media. But did the existence of this new lens change the nature of the developing conflict? As noted previously, the existence of social media appeared to facilitate the funding of



many armed groups – did this phenomenon also lower the threshold for entry into the conflict?

Also, just as with Twitter data, the biased nature of this information limited the scope of analysis that was possible – or at very least complicated it. Finding information on new formations proved relatively easy; even if a group did not publicly announce itself, it would be referenced in the formation announcements of other groups, in ad hoc coalitions, or in information about conflict activities.<sup>13</sup> However, groups were much less willing to post information online when their new formation failed. Very few announcements were made discussing the failure of a union between groups, the disbanding of a unit, or (in some cases) its capture or the death of a group of fighters. With growing complexity in armed group networks, knowing which groups were no longer relevant required a dramatic expansion of the Center's work.

<sup>13</sup> The information obtained on the 7,000 groups referenced came from only 3,500 formation announcements.

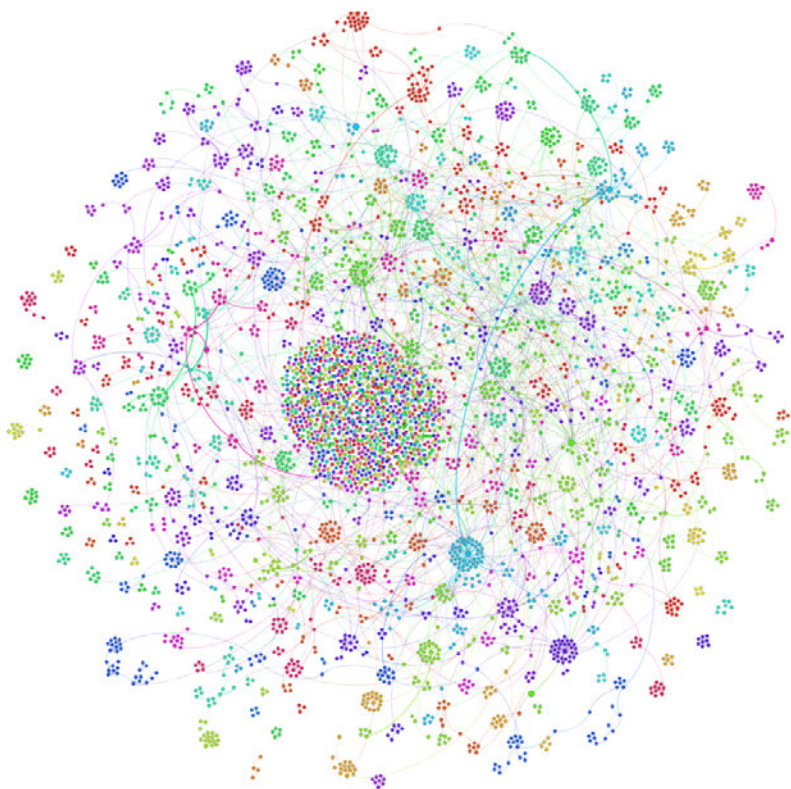


Figure 10: A comprehensive network visualization of all known armed groups and their relations as of November of 2013. Each node in this diagram represents a unique armed unit. Clusters of colored nodes represent groups of closely-networked units (generally part of the same command structure). The large cluster of nodes in the center of the graph represents units that were formed independently and were not known to have joined with any other units.

## **Monitoring Conflict Events with Social Media**

In order to determine which groups are still active, as well as the geographic scope and timeline of their activities, a much broader means of data collection needed to be undertaken. Luckily, as armed groups formed, they did not limit their involvement on social media to merely announcing themselves. All successful operations were bragged about online, often with video of the operation itself. In addition to armed groups reporting on their own actions, the Syrian conflict was heavily reported on by citizen journalists and activists – many of whom put themselves at great personal risk to report on conflict events around them.

While the content of these videos and activist reports represent an incredible resource for analysts, the sheer volume of information is prohibitive. As mentioned previously, for every minute the Syrian conflict has endured, more than one minute of video has been recorded. Unlike Twitter data, however, this information is almost completely unstructured. An uploaded video contains a title, a time uploaded, and very little else that can be used for analysis. Using cues in the video itself, an analyst familiar with the Syrian conflict and video-verification methods can often determine the location a video was shot, what appears to be happening in the video, and who or what was seen in the video. Unfortunately, this process can take a long time, and corroborating information is often necessary to fully verify a video, effectively making a video-based analysis of countrywide developments impossible for even the largest of research teams. Crowd-sourced information can go a long way towards making sense of such a large amount of information, but it can be difficult to maintain a high degree of engagement among a large group of people, and much harder to direct that energy toward conflict and humanitarian response efforts.

Alongside these videos is a somewhat more accessible wealth of information from activist networks. Sometimes shared on Twitter, sometimes on Facebook, private webpages, blogs, or through news agencies, this information is reflective of the collective efforts of activists wishing to document the abuses of one party or another. Though largely text-based – and thus easier to ingest than video data – the information presented its own problems for analysts. It was unstructured, nearly impossible to verify on its own, and, thanks to constant digital attacks, often ephemeral in nature. The multitude of social media platforms used to disseminate this information also presented their own problems. For example, Facebook, which is a preferred platform for many activist networks, made a minor revision to the way in which posts appeared on users’ “timelines” in late 2014. The revision meant that only a month’s worth of posts would be visible on a user’s page; scrolling back beyond one month would only show major, or “highlighted,” posts. While this went unnoticed to most users, the change effectively removed a huge proportion of all activist reports from public record.

Recognizing the need to preserve this information, The Carter Center began to archive reports coming from these activist networks in late 2012. Events reported through networks were recorded, geo-located, and structured to allow analysis of the actors involved, weapons used, targets, and much more. At the time of publication, The Carter Center has recorded and structured information on approximately 80,000 conflict events since nationwide collection began in mid-2013. Though much of the information shared through these networks can be automatically archived, it cannot be automatically analyzed, meaning each of the 80,000 events recorded by the Syria Conflict Mapping Project has been manually entered into the Center’s database.

While conducting this brute-force data collection effort, the Center joined a large community of academics, practitioners, and companies interested in developing tools to help deal with large quantities of unstructured data. Among the many tools developed by this collective of organizations, two in particular stand out as having the potential to dramatically alter the field of social media analytics. Both tools look to tackle the particularly difficult issue of video analytics, but from wholly different perspectives.

The first tool came out of Carnegie Mellon University's School of Computer Science, and uses computer learning to analyze large quantities of video data. The tool, called E-Lamp, looks at the contents of a video (as opposed to metadata fields, such as the video's title or description) and attempts to recognize "people, scenes, objects, and actions" that may be present. Given a large data set (the system was tested on a database of 200,000 videos), a user can search for very specific objects or events and then train the program to improve its search functions. For example, when searching for videos containing helicopters, E-Lamp will return likely matches, which a user can rate for accuracy and "teach" the program to better recognize helicopters in the future. After three or four iterative searches, the tool will have learned to recognize videos containing helicopters, and can confidently identify them in future data sets. The tool itself is not an artificial intelligence, but by allowing a user to sort an exceptionally large database into smaller subsets, it greatly facilitates human analysis.

The second tool, developed by Google Ideas, eschews the computer learning approach and instead works to enable collaborative human analysis. Called Montage, the tool was released publicly in the spring of 2016, and embeds itself in Google's Chrome browser. Users can create collaborative playlists of videos uploaded on YouTube and then "tag" each video with additional information. Similar to E-Lamp, this approach allows users to break down a larger

data set into manageable pieces. Additionally, Montage facilitates geo-location of videos by allowing users to view the video alongside recent satellite imagery from Google Maps.

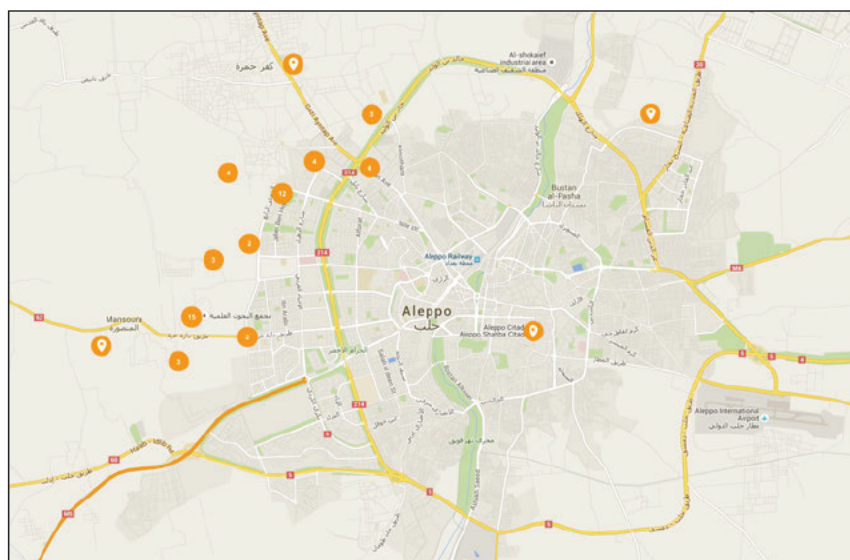


Figure 11: Screenshot of a Montage investigation on frontlines in Aleppo, Syria. The map displays videos that have been collaboratively geo-located around the city. The high concentration of videos on the western outskirts of the city represents an ongoing opposition offensive at the time of the investigation.

Despite the development of tools to facilitate video analysis of conflict data, major obstacles still exist. E-Lamp, while promising, is only useful if given a pre-existing database of videos, and does not have the capacity to scrape the Internet for content. Downloading and archiving videos can be problematic for a number of reasons. First and foremost, it is not legal. No content can be legally downloaded from YouTube or many other video sharing forums without explicit permission granted by the uploader. Even if permission could be attained from all who have uploaded relevant or potentially relevant video footage, the computing and storage capacity required to manage such a large amount of information is prohibitive.

## **Social Media Evidence of Foreign Military Support**

Due to these limitations, rather than attempting to tackle the monumental task of analyzing all video data from the Syrian conflict, the Syria Conflict Mapping Project has focused its attention on smaller subsets of video that can realistically be analyzed comprehensively. One such subset, as discussed previously, is armed group formation announcements. Another slightly larger and more difficult data set is weapon sightings.

By analyzing video content from Syria, the Center has documented thousands of sightings of sophisticated weaponry in the hands of opposition forces that, prior to the outbreak of conflict, was not present in Syria's arsenal. In some cases, groups bragged about their sophisticated arsenal of weaponry – stoking fear in the enemy and rallying sympathetic fighters to their cause. In other cases, the use of social media was actually mandated by the supplier of the weapons as a means of monitoring their usage. Such was the case with U.S. supplied BGM-71 TOW.

The BGM-71 TOW is a tube-launched, optically-tracked, wire-guided (TOW) anti-tank missile that was first seen in Syria on April 15, 2014. The TOW appeared at a time when the United States was reportedly looking to expand its efforts to support the Syrian armed opposition. When it first appeared, the BGM-71 TOW generated a lot of interest for two reasons – first, it was a U.S.-made weapon, making it unlikely to have been provided to groups in Syria without (at least) explicit consent from the U.S., and second, the number of videos of its use uploaded to social media sites was staggering.

Not only was the amount of video content noteworthy, but the structure of the videos themselves appeared odd to many observers. Nearly every video was shot from two different perspectives: one showing the weapon unit and another showing

the trajectory of the missile. The videos would generally start with the weapon being readied, during which the narrator would state the name of the armed group and the location where the video was being shot. Then, the path of the missile would be shown until it made contact with its target. It soon became clear that the intended audience of these videos was broader than just the Syrian opposition community. Intelligence operatives, responsible for the distribution of the weapons were mandating that any missile use be filmed to prove it had been used, and used against a legitimate military target. In order to be re-supplied with additional missiles, an armed unit needed to return with spent missile tubes and a full playlist of videos accounting for each missile fired. Once again, social media video became integrated into the conflict as much as any physical weapon – so much so that a TOW has almost never been used without a camera being used alongside it.

Social media-based information can tell us more than just which countries are involved in supplying arms to participants of the Syrian conflict (or other contemporary conflicts, for that matter). By tracking the location of weapon sightings, and which parties to the conflict are seen with them, The Carter Center has gained invaluable insight on the geographic spread of weapons, as well as the spread of weapons through armed group networks. This information has served to highlight key actors in armed group networks, to uncover which networks of armed actors are supported by which foreign countries, and to better understand front-line developments.



## Active Engagement

All of the analysis discussed so far has been a result of passive observation of social media-based information. With hundreds of thousands of people active online, however, active engagement with online communities can help fill whatever gaps remain in one's understanding of a conflict. This is, essentially, the traditional method of conflict analysis – finding trusted sources of information and building an understanding of the situation based upon their responses. The added connectivity of social media - and the smartphone in particular, however, is beginning to change the field.

A photo taken with a regular camera is just a photo, but a photo taken with a smartphone contains much more. Most smartphones automatically tag photos with valuable metadata such as the time the photo was taken, the location, the device used to take the photo, and more. To an investigator or social media analyst, this information is invaluable.

The first people to take advantage of the additional sensory tools of smartphones, however, were not conflict analysts, but civil rights activists. Concerned about violations of civil liberties, a growing number of organizations began to develop applications that would help witnesses preserve the valuable metadata recorded with their phones. For maximum impact, these applications also preserve a digital “chain of custody” for each photo or video, enabling them to withstand extreme scrutiny – including in a court of law.

These applications, most notably EyeWitness, which had been developed by the International Bar Association, began being deployed to activist networks in conflict zones in 2016. The applications, unfortunately, have not caught on. Despite the extraordinary efforts that many activists have put into ensuring the world is informed about ongoing atrocities or conflict

developments, most are understandably afraid to put themselves at risk by providing such detailed information. With only a handful of people using these tools, the risk of an individual being personally identified, should the information leak, is extremely high.

While Syrian citizens have been unwilling to engage at this level, many are more than willing to provide much needed, non-conflict-related information to humanitarian organizations. Beginning in the spring of 2015, The Carter Center employed a team of researchers to begin soliciting information on living conditions and civilian displacement from people inside Syria. Starting with personal contacts, the research team slowly expanded its network to include individuals living in most areas of Syria – all through social media channels.

When they are able, individuals are asked to provide information about the cost of basic food items, the availability of water and electricity, and, most importantly, whether or not civilians are moving into or out of the area. No information is solicited or accepted regarding the location or activity of armed actors and all individual respondents are made anonymous before ever entering a database. Despite being limited to only 3 of Syria's 14 governorates (or provinces), this effort has tracked the movement of over a million people to date.

Information on these civilian displacements and living conditions are sent immediately to humanitarian organizations operating on the ground in Syria, but also serve to help corroborate information received from other sources. For example, if the Center records an activist report of clashes in a specific town, there will often be a parallel report of people fleeing the fighting. This corroboration of information ensures that there will be multiple sources of information on nearly all major conflict developments.

## **Building Tools to Facilitate Action**

As analysts and researchers have worked to overcome problems surrounding data collection in modern conflict zones, difficulties have arisen related to handling such large amounts of data. With thousands of actors, tens of thousands of conflict events, and millions of civilians on the move, simply having access to information is not enough. To be truly effective in responding to conflicts and humanitarian disasters, an organization has to be able to manage and analyze massive quantities of information in near real time.

The first reports released by The Carter Center's Syria Conflict Mapping Project took nearly a month to produce. As analysis of the data dragged on, the situation on the ground rapidly changed, necessitating revisions and, ultimately, a disclaimer that the information displayed was only accurate up to a certain date. For in-depth political analysis, a delay of this type may be acceptable, but humanitarian and conflict response necessitates rapid analysis.

Shortly after beginning work, the Center was lucky enough to partner with Palantir Technologies, whose software allowed an integration of the Center's network, geospatial, and qualitative information into a single integrated platform. Doing so has enabled collaboration within a growing team, improving the efficiency and timeliness of data analysis. Advanced software tools, particularly those from Palantir, have been deployed to an increasing number of crisis and humanitarian situations. These tools have helped lead the charge in updating the capacity of response efforts, enabling humanitarian organizations to take advantage of the growing amount of data available to the field.

Palantir has not only provided software to organizations, but has deployed a growing team of "Philanthropy Engineers" to build new

tools and help make an organization's data as impactful as possible. Working with these engineers, The Carter Center has been able to share its data in near real time with a growing number of recipients by developing a few new platforms and tools.

### *Understanding Areas of Control*

One of the most persistent issues faced by conflict analysts and humanitarian organizations is staying up-to-date with the shifting areas of control on the ground. In the Syrian context, for example, front lines can change multiple times per day. Traditionally, this would require an analyst to draw a new map for each change by hand, a time-consuming process that makes sharing and updating information difficult. Due to the fact that The Carter Center had been tracking conflict events in a great level of detail, however, it was able to change the way that information is stored on areas of control and, by using Palantir's tools, automate much of the map-making process.

Instead of creating resources by hand, the Center plotted all cities, towns, and neighborhoods throughout Syria onto a map, and color-coded them based upon who controlled each location. Using Palantir's software, the Center was able to automatically update the information on who controlled each location whenever a front-line change was recorded. Thus, without drawing any new maps, information on areas of control can remain up-to-date and available as soon as new data becomes available.

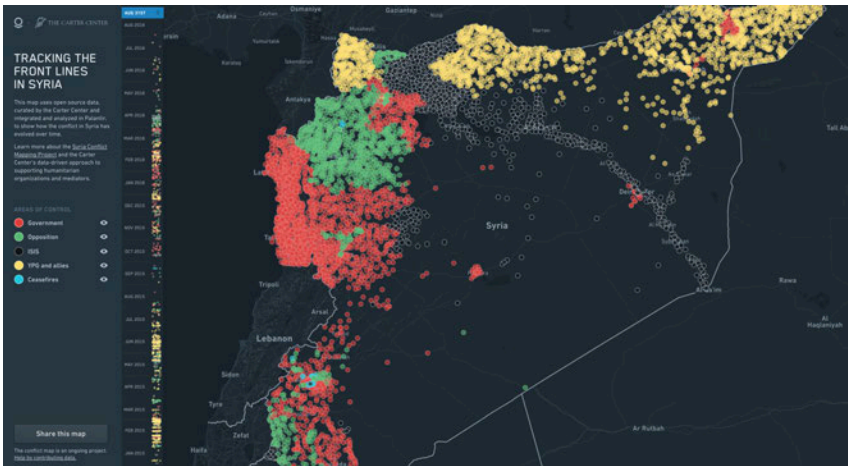


Figure 12: Screenshot from The Carter Center's Front Lines Dashboard (publicly available at: [www.cartercenter.org/syria-conflict-map](http://www.cartercenter.org/syria-conflict-map)). This platform was developed by Palantir Technologies.

Tracking front line changes in this manner also enables further research on the conflict. Information on shifts in areas of control is no longer hidden in a series of maps drawn by analysts at inconsistent intervals, but instead can be quantified and used for future analysis. Palantir's tools have enabled the Center to simply "scroll" back and forth through time and quantify the rate of change over time. This knowledge helps analysts understand how areas of control may change in the future and can highlight major trends in the conflict.

Additionally, this type of database can form the basis for research on questions such as: who is responsible for the majority of deaths? How has the provision of sophisticated weaponry affected front lines? And what combination of conflict events generally precedes a change in front lines? It is also hoped that in a post-conflict period of reconstruction, information on which cities and towns have changed hands multiple times may help direct reconstruction and peacekeeping efforts towards the areas that need them most.

## Early Warning Tools

The "holy grail" of conflict monitoring efforts is the ability to forewarn of impending violence or humanitarian issues – to become proactive instead of reactive. Again, using tools developed with Palantir's team of Philanthropy Engineers, the Center has been able to provide an early warning system to highlight noteworthy developments in the Syrian conflict. Additionally, this tool provides immediate access to information that can be used in responding to the humanitarian fallout of new conflict events.

By tracking conflict events throughout the country, the Center's early warning system can highlight areas that have witnessed an increase in conflict, a change in conflict type, or the introduction of a new actor. The map below shows two-early warning "flags" around the city of Aleppo. Each of these alerts highlights an increase in conflict in the area beyond what has been recorded in recent weeks (or any other customizable time period). For each area affected, the platform also displays the Center's history of recorded civilian displacements in the region, meaning that an aid organization wishing to respond to conflict will also have a good idea of where people may flee to if high levels of violence persist.

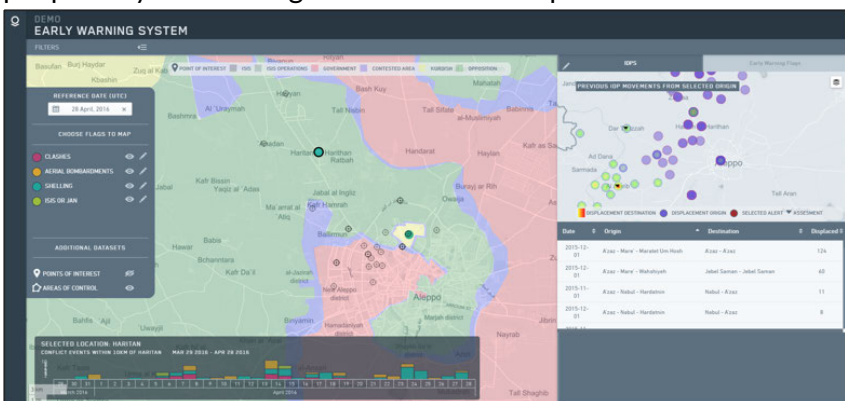


Figure 13: Screenshot from The Carter Center's early warning system, showing alerts near Aleppo city (left) and past civilian displacements in the area (right). This platform was developed by Palantir Technologies.

It is important to note that the output of this early warning system is only as good as the information entered into it. In a conflict zone, this is particularly difficult to assess, as oftentimes when conflict increases, the rate of reporting decreases (simply because those who would normally submit reports cannot operate as easily during periods of active conflict). By combining multiple sources of information and evaluating historical information on the conflict, the Center is currently working on refining its early warning algorithms to address this difficulty. It is hoped that by combining enough information from contributing organizations, the accuracy of the early warning system can be sufficiently improved to make a meaningful impact on the lives of civilians in the conflict.

### *Ceasefire Monitoring*

In the lead-up to the Cessation of Hostilities (CoH) in Syria on February 27 of 2016, The Carter Center was encouraged by many to contribute to the ceasefire monitoring effort. Having already established a system for tracking and classifying conflict events, it was a relatively simple task to structure and present this information in a platform to assist with monitoring ongoing developments.

Working again with Palantir, the Center developed a platform to display reports of conflict between signatories to the CoH. Users could explore reports of conflict events, filtering by region, time periods, and responsible parties in order to better assess what is happening on the ground. The system (displayed in the following screenshot) was provided to humanitarian organizations and the United Nations in order to contribute to their own monitoring efforts.





CoH began to erode, video content from armed actors began to cautiously increase once more, but actors were more acutely aware of the lasting implications of their online engagement.

## **Conclusions and Recommendations**

The way in which both combatants and conflict responders interact with social media in future conflicts will depend on the legacy of the Syrian conflict. What lessons will conflict responders learn for dealing with subsequent conflicts? How will combatants themselves interact with social media? Will the Syrian conflict, with its near free flow of information, become the norm for subsequent conflicts? Or will future conflicts see a more controlled, curated engagement on the part of the belligerents themselves?

The answers to many of these questions depend on how the Syrian conflict ends. Only then, when the dust has settled and peace eventually emerges, will the full ramifications of social media in a conflict zone become apparent. Even without knowing what shape peace will take, there are a few concrete lessons that can be learned from modern conflicts that can help the world respond to and prevent future violence.

### *Documentation for Prosecution*

In past conflicts, negotiators ending the bloodshed have sought a balance between peace and justice. In many conflicts (or at least those that did not end with the total victory of one side), deals were brokered that granted amnesty to combatants in order to encourage them to lay down their arms. Efforts at justice are likewise focused on restorative (as opposed to retributive) justice. How, though, can such a campaign of amnesty or restorative justice be implemented in Syria when so many people have access to actual videos of atrocities taking place?

Never before has there been such a wealth of evidence available, making future prosecution almost inevitable. Justice initiatives have already archived hundreds of thousands of videos and are building strong cases for prosecuting human rights violations, war crimes, and violations of international humanitarian law. This fact will undoubtedly complicate negotiations to end the conflict. Too much damning evidence may lead combatants to spoil attempts at peace in fear of the justice that will follow.

Despite this fact, the world needs to document as much evidence as possible with an eye towards the prosecution of future violations. Those who engage in violence must be sent a clear message that the days of secrecy and impunity are over. Today's world is awash with cell phones, satellites, cameras, and growing Internet connectivity. These signaling devices have the potential to ensure that no atrocity goes unnoticed and should be seen as a tool that empowers civilians everywhere.

### *Improving Access to Safe Documentation Tools*

Civilians in conflict zones have already begun using cell phones, cameras, and Internet applications to document abuses and atrocities – often putting themselves at great personal risk in doing so. If the international community truly wishes to address the abuses of war and conflict, we must do everything we can to further empower these civilians.

In this area, a considerable amount of work has already been done. Civil rights-focused apps, as previously discussed, are increasingly being developed and improved upon. With user safety at their core, they stand to become invaluable tools in future conflict zones. The remaining issue, however, is that tools like this are entirely voluntary and far too scarce. With only a handful of users, the risks

associated with violation documentation tools increase to the point of making them unusable.

This issue collides with ongoing debates around encryption. Should unbreakable encryption exist – and is it a net benefit or risk? Too often this discourse has focused on the risks of terrorism and too rarely on the potential to empower millions of everyday civilians to fight the pervasive abuses of governments and non-state armed groups.

### *Building Socially Responsible Digital Environments*

As online engagement has grown over the years, companies have worked to improve the user experience for those who utilize their products. This is rarely more apparent than in the case of online search tools. Despite the enormous amount of information on the Internet, a simple search through Google or any other similar tool will generally return the results that are best suited for you. Search histories help companies understand what a person is more likely to enjoy, while the ability to identify where someone is located helps filter and target relevant results, and, as more and more online engagement is channeled through a handful of applications (Facebook, Google, WeChat, etc.), the ability of companies to pinpoint what a user is interested in has only sharpened.

In most instances, this is an excellent feature. People can find what they're looking for online, companies can find potential customers, money is made, usability improves, and most people are happy. In a divided society, however, this presents serious problems. Someone who watches a video from an opposition group in Syria will receive suggestions to watch more content from similar sources. Linking up with a pro-government Twitter account will prompt Twitter to suggest that you follow other pro-government users or content. Friend and content suggestions on Facebook often reference existing connections or content that a user has engaged with. In a

divided society, this means that the very algorithms that govern our digital space increase the polarization of our real-world communities.

To better address and prevent future conflicts, this phenomenon must be more closely examined. For the first time, enough evidence exists to begin to evaluate the effects of online engagement in divided societies. As the case of Syria and other modern conflicts have shown us, digital engagement can have a major impact on how people and social movements interact with one another in the real world. We have the knowledge, and with it, more power than most people realize. How then, can we build a digital world that brings out our best?



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