

## Research Article

# Digital Contradictions in Bangladesh: Encouragement and Deterrence of Citizen Engagement via ICTs

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### Abstract

*The research outlined in this article explored the emergence of new-media-driven citizen participation in Bangladesh against a background of contradictory government policy approaches to the use of information and communication technologies (ICTs). The government's Digital Bangladesh initiative aims to make ICTs core to citizen empowerment and development at the national and local levels. At the same time, the "netizens" of Bangladesh are facing the challenges of a conservative ICT legal framework and aggressive state crackdowns on certain uses of new-media platforms. Using online data-mining applications and visualization software, the research analyzed ways in which Twitter was widely adopted in Bangladesh during the Shahbag political mobilization of 2013. The research also looked at positive and negative uses of new media in recent years and the state's draconian responses to new-media platforms and their users. The authors found that indiscriminate arrests, site blocks, and newly amended punitive measures have created hindrances to the development of a truly participatory digital space for communication.*

## 1. Introduction

Bangladesh, as an emerging South Asian economy, has in recent times shown significant progress in several socioeconomic sectors, particularly in the areas of women's empowerment, maternal healthcare, export-oriented garments, and information and communication technology (ICT) infrastructure. With respect to ICT development, the political party in power, the Bangladesh Awami League, has, for the first time in the country's history, introduced a long-term ICT integration strategy in several critical domains at the national and local levels. Officially titled Digital Bangladesh, this multiministry, multistakeholder initiative launched in 2009 has been cast by policymakers as the primary means of leapfrogging toward a better, more developed society (A2I, 2009).

At the same time, there have been numerous instances of ICT policy and of legal, and regulatory steps that created uncertainty in this sector. Previous studies (see Hussain, 2011) have shown the economic challenges posed by government-to-private-sector mobile telephony and other ICT service providers. Now, in addition to the difficulties faced by business entities both large and small, the emergent, youthful "netizens" of Bangladesh are also facing challenges related to ICT policy and practical matters (*The Daily Star*, 2015).

In the period 2012–2014, the country witnessed several events that highlighted the growing importance of new media in mobilizing citizens, at the same time revealing the government's inability to respond appropriately to such activity. In October 2012 in the village of Ramu, members of the Buddhist minority population

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and Buddhist temples were attacked by Muslim gangs organized via social networks and mobile telephony (Gayen, 2012). In February 2013 in Shahbag, a famous intersection in the capital city of Dhaka, tens of thousands of activists gathered, convened via new media, and used new media to publicize their demand that harsher justice be levied against recently convicted 1971 war criminals. In an apparent response to this growth in new-media-based activism, 2013 also saw Bangladeshi authorities implement and strengthen draconian elements of the ICT Act of 2006, with the authorities' actions aimed mainly at suppressing the multiplicity of opinions in the digital space (ICT Division, 2013). The authorities arrested bloggers and took a heavy-handed approach to controlling online content, with Bangladeshi Facebook and YouTube sites regularly blocked without prior notification (Abdullah, 2012).

The actions taken against the new-media activists and new-media content contradicted the aims of the Digital Bangladesh program, through which the government had stated its goal to create a space for a vibrant digital society. Instead of being empowered by the newly available ICT tools, netizens found themselves vulnerable to arbitrary arrest or arbitrary content blocking without access to a protective legal safety net.

In this research, we focused our efforts on understanding these contradictions between growing activism via ICTs (coupled with official support for widespread ICT use in the Digital Bangladesh plan) and, at the same time, understanding the increasing state efforts to block certain forms of activism—with these control efforts by the government made possible by the draconian provisions in the 2006 ICT Act and in the amendments to the Act promulgated in 2013 (ICT Division, 2013).

To accomplish this, we chose the Shahbag Movement of 2013, the first sociopolitical mobilization organized by local online activists, as a case study to analyze new-media-related trends and user vulnerability. To better understand the diffusion and usage patterns of a new-media platform within a society, particularly diffusion and use for sociopolitical mobilization, it is useful to gather information about use of the medium at the point of its initial uptake (Mirani, 2010). In Bangladesh, the Twitter microblogging platform provided us with such an opportunity. While Bangladeshi Internet users have been exposed to many blog sites and Facebook for some time, they only started using Twitter on a large scale during the Shahbag Movement (Alexa, 2013). We used network analysis to understand the “Tweetsphere” in Bangladesh, particularly in relation to the Shahbag Movement.

We also gathered information from news sources and journals on application of the ICT Act. We interviewed several local experts on ICT policy, the ICT industry, and Internet freedom in Bangladesh to further comprehend the vulnerability of users online.

Our data gathering and analysis were primarily aimed at addressing the following research questions:

- How was Twitter used during the Shahbag Movement?
- Through new media, are new communities being created for dialogue among the various Bangladeshi stakeholders?
- Are Bangladesh's ICT policies and the government and its regulatory bodies ready to deal with the freedom-of-expression implications of new media?

In the next section, we briefly introduce Bangladesh's ICT and new-media context, followed by a discussion of the significance of our research. We explain our research methodology and data-collection process before discussing our research findings and drawing conclusions.

## 2. Research Contexts and Significance

### 2.1 ICT in Bangladesh

Bangladesh, with a population of approximately 161 million, has one of the fastest growing and most affordable mobile telephony markets in the world (United Nations, 2015). The number of mobile access paths (SIMs) sits at approximately 78% of the total population (BTRC, 2015a), but only 30% of the population has Internet access, primarily through mobile data services (BTRC, 2015b).

The present government has a political mandate to ensure universal access to ICTs and ICT-related services.

The government's official program for achievement of a knowledge-based networked society by 2021 called Digital Bangladesh was launched in 2009 (A2I, 2009). However, there is a disconnect between the government's Digital Bangladesh policy direction and the draconian features of the ICT Act and regulations, with certain provisions of the Act providing a basis for repression of Internet service providers and Internet users. Freedom House, a U.S.-based nonpartisan, U.S. government-funded NGO that advocates democracy and human rights, identified Bangladesh as a "partly free" country in relation to Internet activity in their yearly "Freedom on the Net" report (Freedom House, 2014).

## **2.2 Microblogging and Activism**

Microblog posts are concise statements whose worth lies to a great extent in their succinctness and brevity, and they are shared within a widely used network (Jansen, Zhang, Sobel, & Chowdury, 2009). Twitter microblog posts, known as tweets, are not always written as a form of one-to-one interaction and are less personal in general. Tweets' immediacy, their outreach, and their permanency (archived in an Internet database as a form of documentation) increase the potency of the statements made (Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004). Blogging (or microblogging) is a verified medium of online political engagement (Gil de Zúñiga & Rojas, 2009). Microbloggers who participate in political discourse online have been called "netizens" by Hauben and Hauben (1997) and "techno activists" by Kahn and Kellner (2004), who further say that microbloggers are engaged in what they term "democratic self-expression" (Kahn & Kellner, 2004), referring to online expression as a show of democratic rights or online expression as marked by its democratic features. Howard (2011) defines this phenomenon as *cyber activism*. The existing studies (e.g., El-Nawawy & Khamis, 2012; Gil de Zúñiga & Rojas, 2009; Howard, 2011; Khan & Kellner, 2004; Mirani, 2010) related to the role and use of microblogging in online political participation, and the related offline impacts do not adequately scrutinize microblogging's inception mechanisms within a political landscape, especially in developing-society settings.

## **2.3 Abuse of New Media**

While the advantages of new-media tools such as Facebook and Twitter have been identified by the Bangladeshi populace as means of effective mobilization, cases of use of such applications for criminal activities have resulted in breakdowns of law and order and massive property loss. For instance, in 2012, members of the minority Buddhist population in Ramu were attacked, which was primarily driven by new media (social networks and text messages). A Buddhist was falsely accused (via a fake Facebook account) of using a Facebook page to defame Prophet Muhammad. Hundreds of people were injured, and temples and houses were vandalized during these attacks (Gayen, 2012). Similar attacks against Hindu minorities occurred in 2013 in Santhia, a small town in the Pabna District. Once again, a fake Facebook account was used to generate the pretext for preplanned attacks (bdnews24, 2013b). The authorities failed in both cases to track down the criminals who abused the ICT tools, leaving the general public unprotected against these new-media-driven crimes.

## **2.4 New Media and the Shahbag Movement**

Bangladesh is following the example of the developed world of using ICTs in support of greater citizen access and empowerment. ICT-enabled collective and collaborative platforms have the potential to foster interactive and transparent dialogue among people, a prelude to increasingly democratic practices. Garrett (2006) explains the power of online collective participation by suggesting that online platforms reduce barriers to participation, allowing users the privilege of not having to be overly selective about what they subscribe to. Furthermore, Garrett notes that such participation feeds individuals' sense of a need to gain relevance within a larger community whose members rally around a common cause. Garrett also cites the importance of ICT platforms' provision of ease of access to publishing. According to Ghannam (2011), "these social networks inform, mobilize, entertain, create communities, increase transparency, and seek to hold governments accountable" (p. 4). Shirky (2003) argues that new media can play several potential roles within the political sphere, depending on the particular political and social contexts that animate new-media use.

Via its Digital Bangladesh plan, the government seeks to narrow the digital divide and allow access to

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information for all. The National Web Portal Framework, Union Digital Center, District e-Service Center, Multimedia Classroom, and *Jatiyo e-Tathakosh* (the national e-content repository) are some key examples of such initiatives (A2I, 2015). The private sector has also played a crucial role by providing cost-effective ICT access to people through a range of services within reach of the buying power of the general population, in accordance with the regulator's directives (ITU, 2013). This wide access to information helped pave the way for greater citizen online inclusion, which in turn, provided the conditions (i.e., easy access to a mobile network and the Internet, using a variety of social media to organize social and political events, etc.) necessary for the emergence of the Shahbag Movement.

The first example in Bangladesh of a new-media-infused, people-led initiative, the Shahbag Movement, empowered citizens to practice their democratic rights. Facilitated by blogs and social networks, the Movement began in February 2013 when a domestic war crimes tribunal sentenced Abdul Quader Mollah, leader of the country's largest Islamic political party, *Jamaat-e-Islami*, to life imprisonment for crimes committed during the country's 1971 war of independence with Pakistan. Deeming Mollah's sentence an inadequate punishment for conviction as a war criminal and demanding the death penalty instead, tens of thousands of protesters gathered for several weeks around Dhaka's Shahbag intersection, bringing together many social, cultural, and political forces (Anam, 2013a). During this protest, Bangladesh, for the first time, witnessed the use and proliferation of the online microblogging platform Twitter, which was deployed during the protest in addition to traditionally popular blog sites and Facebook (Awalin, 2013). People used Twitter both inside and outside Bangladesh to rally others to join Shahbag and broadcast news of the protest to the outside world. Some of the tweets using #shahbag during this movement include:

@tahmima

After over 4 decades of standing by while rapists and murderers were appointed govt ministers, we say enough. #shahbag #Bangladesh #71 (February 8, 2013)  
(Anam, 2013b)

@zuberino

This #shahbag item is now sitting at number 3 on the BBC News main page <http://www.bbc.co.uk/news/world-asia-21492198...#success> (February 17, 2013)  
(Zuberino, 2013)

@nuroidin16

#Shahbag movement entering to 10th successive day within a few min. Come #world, see and learn @CNN @Reuters @AJEnglish @AFP @BBCWorld (February 15, 2013)  
(Din, 2013)

@ShahbagInfo

On March 24, expats AROUND THE WORLD will protest attacks on minorities & seek justice against war criminals: <https://www.facebook.com/events/138372603002649/...#Shahbag> (March 19, 2013)

LATEST: Thousands of people occupy the streets of #Shahbagagain, vowing to resist the long march by radical #Islamists (April 5, 2013)  
(Shahbag, 2013)

### 2.5 Legal Responses

The Bangladesh government gave mixed signals regarding the state of the country's digital freedom. On one hand the government is working, in terms of its Digital Bangladesh vision, on a long-term plan for microlevel ICT integration for citizen services (e.g., information centers, multimedia classrooms, local knowledge portals, etc.). On the other hand, via the law enforcement agencies, the state is coming out strongly against public dissent voiced online. Websites are being shut down. YouTube and Facebook are being blocked for long periods. Online activists are being harassed by elements of the government machinery (Abdullah, 2012). Despite strong protests from local and international experts and civil society organizations that the ICT Act of 2006 contained overly strict measures, it was amended in 2013 to make it even stricter. The act introduced punishments for citizens who violated others' rights to communicate electronically. Under section 57 of this act, different types of electronic violations of social, political, and religious issues are punishable by a minimum of seven and a

maximum of 10 years' imprisonment and fines of up to US\$125,000 (People's, 2006). In the 2013 amended act, prison terms are considerably harsher, increasing the maximum prison term under this act to 14 years. Before the amendment, police needed court permission and a warrant to make any ICT-related arrest. Most important, after the amendments, no warrant was needed to arrest alleged violators, and offences under the act became non-bailable (ASK, 2013; ICT Division, 2013).

The amendments took effect immediately after the Shahbag Movement (whose participants were later interviewed for this research). These changes were made because the government found itself ill-prepared to deal with online activism powered by new media. The newly proposed legal provisions left the general population vulnerable toward the legal oppression from their own government. According to Article 39 of the Bangladesh Constitution, every citizen has the right to freedom of expression (Islam & Hussain, 2011), but this right has been compromised by the amended sections 56 and 57 of the ICT Act. Immediately after the Shahbag Movement, the law enforcement agency arrested four bloggers—Asif Mohiuddin, Rasel Parvez, Mashirur Rahman Biplob, and Subrata Ashikari Shuvo—and charged them with harming religious sentiment under section 57(2) of the ICT Act (*The Daily Star*, 2013). The cases were ongoing when the bloggers were released on bail from the court (Freedom House, 2014). In June 2013, a Dhaka court sentenced a former public university professor to seven years in jail for threatening to kill Prime Minister Sheikh Hasina in an April 2012 Facebook post. The court sentenced the accused in absentia to five years under section 57 of the ICT Act and two years under the penal code for criminal intimidation (*Agence*, 2013). At least eight more arrests were made relating to online activity during the time of this research, allegedly for violating section 57, including NGO activists, a university teacher, and journalists (Freedom House, 2014). The state's heavy-handed approach to online expression was evident when YouTube was banned for nine months due to the posting of an anti-Islamic movie titled *Innocence of Muslims* (Abdullah, 2012). A trailer for this movie was uploaded to YouTube in early July 2012 by Nakoula Basseel Nakoula, using the pseudonym of Sam Bacile (Esposito, Ross, & Galli, 2012). An Arabic-dubbed version was uploaded to YouTube on September 4, 2012, which caught the attention of Muslims within and outside the Arab regions (Willon & Keegan, 2012). Eventually, protests against this movie took place all over the world, primarily led by Muslims, followed by a ban on YouTube in multiple Muslim-majority countries (CNN, 2012).

Against such a backdrop, this article explores the probable consequences of these contradictory government actions. We specifically focus on the recently amended ICT Act, its new punitive measures, and its impact on Bangladesh's fledgling online citizenry.

### 3. Methodology

Our data collection and analysis were conducted on two tracks: (1) an analysis of print media content, supplemented by expert interviews and (2) a data-crawling exercise, which necessarily means going through actual interactions of Twitter users related to the Shahbag Movement within a specific period.

In the first track, we gathered information from leading local news sources on abuse, arrests, and harassment of online activists in Bangladesh. In addition, we conducted seven open-ended expert interviews with two legal experts, two Internet service providers, and three new-media activists. The interviewees, who requested anonymity, shared information regarding the absence of digital freedom in Bangladesh and violations of users' rights. In particular, the experts were asked to give their opinions on the impact of the newly amended ICT Act on users' rights and digital freedom.

The second track studied real-world data to map the characteristics of interactions via Twitter during the Shahbag political mobilization. A data crawl tracked the characteristics of all Shahbag-related Twitter content. In particular, we wanted to explore the degree to which, during the Shahbag Movement, people were engaged in active online dialogues regarding politics and the degree to which communities of users were formed.

#### 3.1 Data Collection Timeline

The expert interviews and news analyses were conducted in the second half of 2013 and the first quarter of 2014. The Twitter data collection drew on data from a 73-day period from February 5, 2013 (the date when

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the Shahbag Movement was initiated) to April 20, 2013. April was chosen as the month to take the first set of results as the movement was then two months old and the volume of user-generated content accumulated in the Twitter database had grown to the level where it could provide a wide data set and minimize the risk of inductive overgeneralization.

The dates April 2, April 13–14, and April 18–19, 2013 were chosen for data analysis because of the dates' affiliation with significant offline events—events likely to be mirrored in the volume of online content generation and intensity of online interaction:

- April 2 was assumed to be reflective of sentiments regarding the arrest of four top bloggers in the country who had been active in the Shahbag Movement and in planning an April 5 march, arranged by a relatively new conservative Islamic group.
- April 13–14 was reflective of reactions to the secular Bengali New Year (April 14), given that this date has a contentious history among conservative Islamic forces.
- April 18–19 was chosen because it was not adjacent to any key offline political events and, thus, would allow the data analysis to gauge the longevity of online participation when not directly attributable to offline political events.

### 3.2 Twitter Data Analysis Tools

We used NodeXL, a data-mining application that is an add-on to Microsoft Excel, to collect Twitter data for analysis (NodeXL, n.d.). Data were collected on all tweets containing the hashtag #shahbag and entered into a database. The crawl was executed for the dates April 2, April 13–14, and April 18–19, 2013, and each entry appeared as a time-stamped record to allow for verification. The data entry for each record was done so that it corresponded to information about each node (a Twitter profile, i.e., a social actor, identified according to the actor's Twitter user id). The information gathered included information on interactions between a node and another node (i.e., another Twitter user).

We used Gephi, a graphic visualization software that constructs network illustrations, to map the data collected through NodeXL (Bastian, Heymann, & Jacomy, 2009). The graphs generated in Gephi were real-time, showing all interactions among a certain set of Twitter users, using specific keywords or hashtags within a specified period. Availability of this real-time element was why we preferred Gephi's visualization software over conventional graphing applications. Gephi's add-on features, which allow for many types of graphic visualization layouts, also led us to favor the software. The graphic visualization layout chosen for this research is called Force Atlas 2 (FA2), a beta version of Force Atlas (Verkostoanatomia, 2011). FA2 is a force-directed layout in which nodes repel each other to construct a spread-out dispersal of data points. To analyze the role of Twitter in Shahbag-oriented online participation, the FA2 visualizations were scrutinized to see the nature of the connections and interactions among nodes and to observe formation of node communities within the network of nodes using the #shahbag hashtag.

### 3.3 Data Analysis Parameters

We analyzed the Gephi FA2 visualizations of Twitter interactions according to several parameters, as follows:

#### Degree

One element of the degree parameter measured the total number of interactions a node (i.e., user) had with other nodes (users). The interactions could be either retweets or mentions. A *retweet* is the sharing of a tweet posted by another node. A *mention* is a tweet in which the node directs followers to another node's profile, using the @ markup tool. Mentions can be viewed by the followers of both the node that posted the mention and by the node that was mentioned.

We also measured degree in terms of indegree, outdegree, and singleton. *Indegree* is the sum of *inward* interactions (i.e., the total number of interactions directed at the node), while *outdegree* is the opposite: the number of interactions a node initiated with another node. *Singleton* tweets are those that used a related #hashtag, but did not address another node directly.

### Betweenness Centrality

When analyzing Twitter activity, extracting data on degree alone is insufficient to measure the influence of any particular user or group across the network. Thus, we also collected data aimed at measuring betweenness centrality, as outlined by Bastian et al. (2009). *Betweenness centrality* is a function of how much a particular node is retweeted or mentioned in an online dialogue. Both of these interactions (degree and betweenness centrality) depend on how much the node shares others' information or messages and tweets by itself. Betweenness centrality is also relative to the distance between a particular node and another node, that is, how often a node appears on the shortest path between two network nodes. Thus, the node through which the greatest number of shortest paths between vertices has the highest betweenness centrality.

### Community Formation

The research measured community formation within the network of nodes using the #shahbag hashtag and the nodes' levels of influence within communities via modularity analysis. Detecting a modularity-based community can be done either by identifying the node with the highest number of communicating *edges* (points of connection with other nodes) as the most active user and then constructing the rest of the community around that node or by creating a focal point consisting of several nodes with similar *edge weights* (similar levels of connection with other nodes).

## 4. Findings

In this section, we present the key findings from our data analyses, address our research questions, and discuss impacts and implications. As mentioned in the introduction, our research questions were:

- How was Twitter used during the Shahbag Movement?
- Through new media, are new communities being created for dialogue among Bangladeshi stakeholders?
- Are Bangladesh's ICT policies and the state and regulatory bodies ready to deal with the freedom-of-expression implications of new media?

### 4.1 The Nature of Communication

First, we turn to the data related to our first research question: How was Twitter used during the Shahbag Movement?

The FA2 visualizations generated by Gephi for April 2, April 13–14, and April 18–19, 2013 generated similar representations of data such that the inferences made were repetitive. Therefore, we decided that only the visualizations of April 13–14 would be taken into consideration in the analysis.

Figure 1, a Gephi-generated FA2 visualization, shows the most active nodes engaged in Twitter activity using the #shahbag hashtag on April 13–14, 2013. The figure shows 152 nodes, with the curved lines denoting the connections among the nodes, that is, connections among the nodes' edges. The nodes' indegree and outdegree measures are also represented in Figure 1, with the former shown by color and the latter shown by size (the darker the color, the greater the indegree; the larger the size, the greater the outdegree). The indegrees and outdegrees illustrated are those between 5–20 so as to reveal only the most prominent nodes.

In Figure 1, only four nodes (i.e., four among nodes with an indegree range of 5–20) appear in a darker color (fzrabbi, rezwan, rayhanrashid, faisal\_osu), while 26 nodes (i.e., among nodes with an outdegree range of 5–20) are large. This means there was a greater outdegree than indegree among the 152 nodes identified.

However, as outlined above, to find which nodes were the most influential, it was necessary to measure betweenness centrality, that is, to identify the nodes being retweeted and mentioned the most. Figure 2 is a visualization in which betweenness centrality is represented by size, and outdegree is represented by color (the larger the size, the greater the betweenness centrality; the darker the color, the greater the outdegree). Outdegree was filtered to 2, such that any node with an outdegree less than 2 was filtered out. (We designated the nodes with both high outdegree and high betweenness centrality as the top broadcasters.)

The visualization in Figure 2 shows 60 nodes. There are nine dark nodes, i.e., nine nodes with a high outdegree. Among them, only one (samhq7) is large (i.e., has a high level of betweenness centrality), followed

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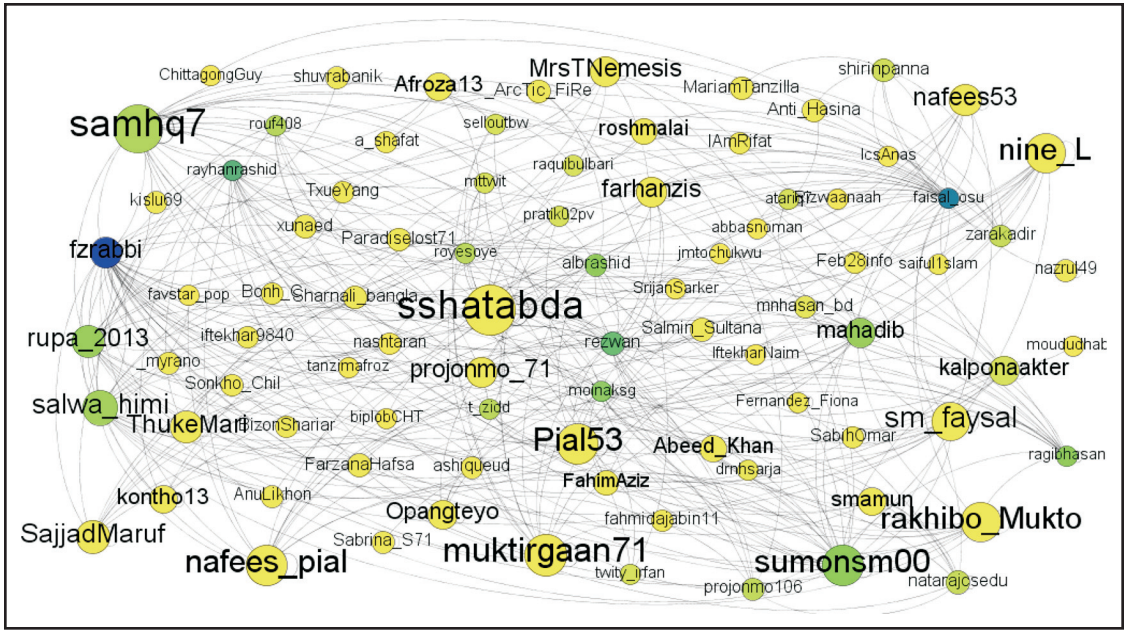


Figure 1. Degree: Nodes using the Twitter hashtag #shahbag on April 13–14, 2013, with indegrees represented by node color and outdegrees by node size. (The darker the color, the greater the indegree; the larger the size, the greater the outdegree.)

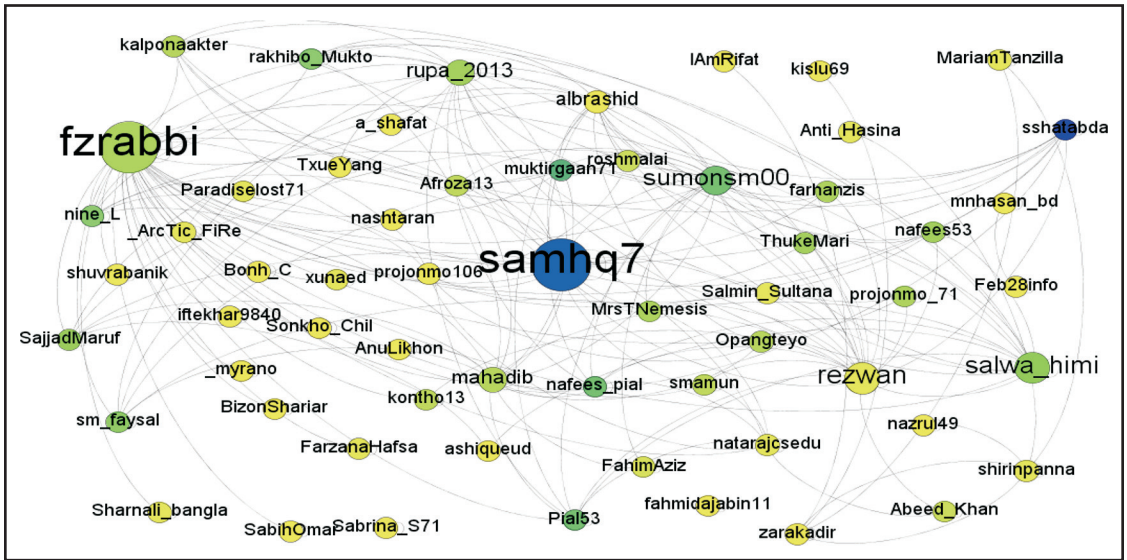


Figure 2. Top broadcasters: Top nodes using the Twitter hashtag #shahbag on April 13–14, 2013 in terms of outdegree (represented by node color) and betweenness centrality (represented by node size).



by sumonsm00. Four other nodes (rezwan, salwa\_himi, rupa\_2013, fzrabbi) are large and, thus, have high betweenness centrality, but they all have much lower outdegree scores than samhq7 and sumonsm00 (i.e., they are all lighter). Especially in the case of samhq7, we observed that he consistently retweeted more tweets from others than most people on the network. Some of his retweets include:

@Piccheee  
Do you know the notorious jamaat leader #GhulamAzam of #71Genocide ? <http://t.co/alg9fVTkeb>  
#Shahbag #SaveBangladesh  
(Hoque, 2013)

@shah\_farhad  
#Jamaat #Shibir calls strike for Monday, #GhulamAzam's verdict day <http://t.co/NVbRC1pxuN>  
#SaveBangladesh #SaveBdesh #AwamiLeague #Shahbag  
(Hoque, 2013)

@\_auditio\_  
Bangladeshi Government: Free and Safeguard Bloggers and Prosecute Islamists <http://t.co/8qDq3ucPZL> via  
@change #Shahbag  
(Hoque, 2013)

One of the four nodes in Figure 2, fzrabbi (a Singapore-based online activist from Bangladesh), is as large as samhq7 (another activist in Bangladesh). This implies that his tweets related to the war crimes tribunal in Bangladesh has greater influence despite having a low outdegree (retweets).

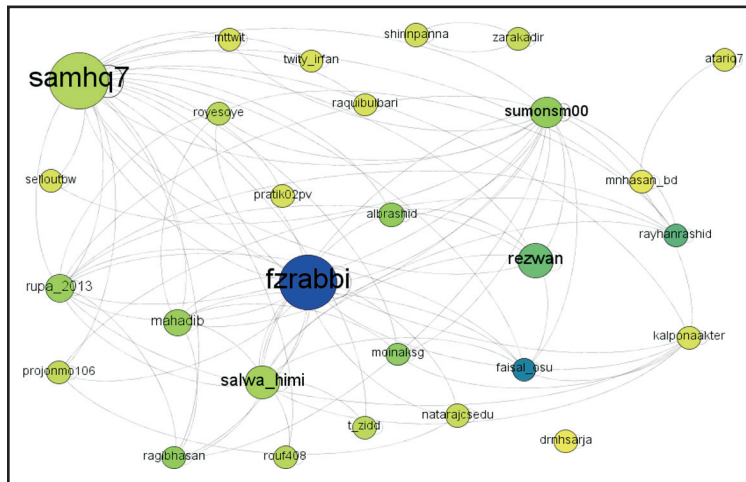


Figure 3. Top opinion makers: Top nodes using the Twitter hashtag #shahbag on April 13–14, 2013 in terms of indegree (represented by node color) and betweenness centrality (represented by node size).

In Figure 3, size again represents betweenness centrality, but this time color represents indegree. The nodes are filtered by 2, such that nodes with an indegree of less than 2 are removed from the visualization. (We designated the nodes with both high indegree and high betweenness centrality as the top opinion makers and characterized them as the most proficient at dialogue.)

Twenty-eight nodes appear in the Figure 3 visualization. Four nodes (fzrabbi, rayhanrashid, rezwan, faisal\_osu) appear as the darkest, showing they have the highest indegrees. Two nodes (fzrabbi, samhq7) appear as the

largest, showing they are the most influential nodes (i.e., with the highest betweenness centrality). Therefore, fzrabbi and samhq7 are probably the biggest opinion makers, that is, they engage in more dialogue than the other nodes. (This finding suggests it is possible for a node [e.g., fzrabbi] to be influential via strength in only one mode of interaction [e.g., in fzrabbi's case, influence based on high indegree, even with low outdegree]).

During April 13–14, fzrabbi retweeted @projonmo106, Let's end the religious bigotry. Happy Bengali New Year #shahbag #BanJamaat, #SaveBangladesh (Projonmo106, 2013). This was retweeted by many. In addition, Xunaed retweeted fzrabbi's tweet: it was true then. It's true now. #SaveBangladesh @AP @AJEnglish@Reuters @BBCNews (Kazi, 2013). Sonkho\_Chil, SabihOmar, iftekhar9840, and several others retweeted fzrabbi's tweet on the terror connection of the political party *Jamaat-e-Islami*, which opposed the Shahbag Movement: RT @fzrabbi: @williamnhutton @SteveGardnerITV Plz stop #Jamaat-E-Islami (JI) funding terrorists from #UK. Help #Shahbag to get justice for #71Genocide (Rabbi, 2013).

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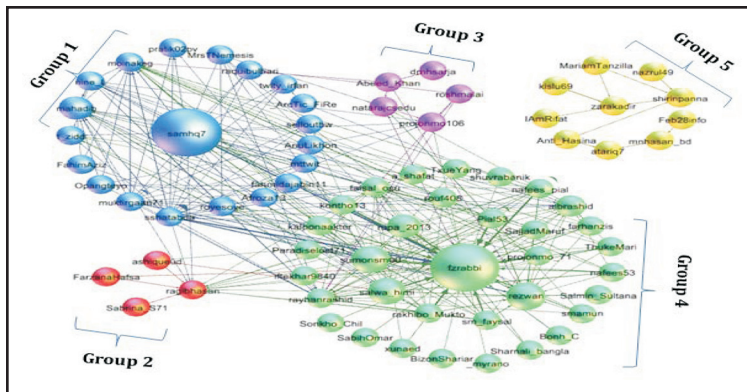


Figure 4. Top communities: The top five communities using the Twitter hashtag #shahbag on April 13–14, 2013 based on modularity analysis, with betweenness centrality represented by node size (the larger the size, the greater the betweenness centrality) and each community of nodes represented by a different color.

bag movement, it seems clear there has been an emergence of newly active citizens into the democratic environment offered by new media, which were not operating on a mass-participation model. Analysis of who the people were behind the key nodes indicated in Figures 2 and 3 found them to be individuals communicating their own thoughts or sharing the ideas they deemed important, thus showing how a free space for dialogue had resulted in idea sharing and content generation.

Interestingly, we did not find representatives of any major online or traditional offline local media giants (e.g., Prothom-Alo, *The Daily Star*, bdnews24, Channel I, ATN Bangla, etc.), political parties (i.e., Bangladesh Awami League, Bangladesh Nationalist Party, etc.), NGOs (i.e., BRAC, Proshika, etc.), or social icons among the people behind the nodes with high betweenness centrality values. Although these traditional opinion makers were relatively slow in covering the Shahbag events, eventually these media houses as well as social and political institutions came up to speed, highlighting the movement through their traditional channels. However, their absence in the social media, specifically in microblogging to reach out to the masses, was noteworthy. This may happen due to the absence of a social media strategy or due to external political pressure or due to a lack of professional dynamism. Seeing the response in the Shahbag Movement's time progresses, it is likely that more people from such stakeholder groups will participate more in the new-media-based outreach models.

### 4.2 Community Formation

We now discuss the data related to our second research question: Through new media, are new communities or spaces being created for dialogue among the Bangladeshi stakeholders?

The current state of the political Twittersphere in Bangladesh implies the emergence of newly empowered entities, suggesting the presence of a young, increasingly connected society, ready to challenge the government and its policies (Shukla, 2013). Most of the people who were engaged in the #shahbag conversation—inside and outside Bangladesh—were young professionals, students, or activists, as we found through our personal networks and as we analyzed their profiles. Figure 4 illustrates the five communities—in the network of nodes using the #shahbag hashtag—identified in the data via modularity analysis. To better understand the higher level of interconnectivity of the nodes in focus, we used a degree range of  $\geq 3$  for this analysis on the selected dates that displayed similar trends: for April 13–14, two major communities and three smaller ones. The two major communities (groups 1 [blue] and 4 [green]) have shared edges with only two of the smaller communities (groups 2 [red] and 3 [purple]). None of these four communities shares edges with group 5 (yellow), which stands alone. In Figure 4, the level of betweenness centrality is again represented by node size. We

Our findings from the Twitter data for individuals using #shahbag suggested that while a great many individuals were participating in tweeting, the users with greatest influence were typically those who generated and disseminated new content and worked as connection hubs (i.e., they had high indegrees or outdegrees; see Figures 1, 2, and 3). The Internet and related communication media strive to ensure a level playing field for generating, sharing, and communicating content, even in the context of developing societies (Tongia, Subrahmanian, & Arunachalam, 2005).

Accordingly, in the case of Shah-

found that the two nodes with highest betweenness centrality were each part of one of the large communities.

In seeking to understand the influence generated within communities during the Shahbag Movement, we analyzed the community formations in the network of nodes using the #shahbag hashtag, as illustrated by Figure 4. We observed certain commonalities across the communities, the most prominent of which was interconnection. The visualization in Figure 4 shows that the concentrations of high-influence nodes (possessing high betweenness centrality) belong to the green, blue, and purple communities, which are the communities with the most communicating edges. On the other hand, the community members of group 5 have a higher internal connectivity, but with apparently almost no influence—due to lack of communicating edges—in the wider network of nodes using the #shahbag hashtag. This highlights the importance of connecting with a wider audience to get one's message effectively disseminated and to generate stronger pressure for fulfillment of one's demands (based on the assumption that such pressure increases as one connects with more supporters).

These findings suggest that for successful political microblogging, there is optimally a prevalence of edges between communities (unlike group 5) within a network so as to indicate that different communities share connections via “broadcast” or “opinion-making” (dialogue-oriented) dynamics. Such connections can also operate as channels that merge different schools of thought.

### **4.3 Government Response to the Rise of New Media**

We now turn to our findings that relate to our third research question: Are Bangladesh's ICT policies, the government, and its regulatory bodies ready to deal with the freedom-of-expression implications of new media?

The Bangladesh Telecommunication Regulatory Commission (BTRC), established under the Bangladesh Telecommunications Act of 2001, is the official regulatory body that oversees telecommunications and ICTs in Bangladesh. However, the current administration amended the act in 2010 and made the Ministry of Post and Telecommunications (MoPT) the primary telecom regulatory authority in the country, making the BTRC an auxiliary organization (Islam & Hussain, 2011). The Ministry of ICT recently merged with MoPT (Telegeography, 2014). In addition, the Prime Minister's office has an Access to Information program that exerts significant influence over top-level telecom- and ICT-related decision making.

In the period 2012–2014, online new-media communication and interaction resulted in several instances of mass participation and citizen mobilization, for both positive (e.g., the Shahbag Movement) and negative (e.g., the Ramu attacks) ends. On the positive side, the huge pressure exerted through Shahbag forced the government to appeal to the court to reassess the war tribunal verdict. The court eventually reconsidered its verdict and decided on capital punishment, which was a clear victory for the online activists (BBC News, 2013). On the negative side, the Ramu attacks resulted in violence and deaths (Manik, 2012). Faced with this rise of both positive and negative use of online new media, the government has shown an inability to distinguish between legitimate democratic use and illegitimate, undemocratic misuse of such media platforms. In apparent contradiction to its plans (via its Digital Bangladesh strategy) to turn Bangladesh into a digitally empowered country (e.g., educated citizens and a globally interconnected nation), the government has used the powers permitted by the ICT Act to exacerbate instability and take action against its citizens. As mentioned earlier, the ICT Act in its present form is increasingly used by the Bangladesh government to suppress online activism. Several elements of these provisions run counter to the intent of the Bangladesh Constitution. The Constitution states in Article 39 of Chapter 2 that freedom of speech is an essential right and the executive and legislative branches of government are to be separated from the judiciary. However, the new amendment has practically paved the way for usurping the jurisdictions of the criminal justice system.

Amid the frequent arrests and the abuse of the ICT Act, we observed that Twitter users enjoyed a relatively free environment for communicating and networking on issues related to Shahbag, and they continue to do so. But given the oppressive provisions of the ICT Act and the authorities' intention to use them, such a free rein for Twitter is unlikely to be sustained. As the population of Bangladeshi Twitter users increases and Twitter-provided information achieves a greater social value in the context of the country (a value that this article has shown to be emergent), Twitter will inevitably show up on the regulatory radar. Twitter users are vulnerable because microblogged content is public by nature and by intent. Such openly available user information has

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been exploited before to silence political movements, for example, in Iran and China (El-Nawawy & Khamis, 2012). Any citizen's right to access information and to communicate freely (whether outward as a form of broadcast or inward as a form of dialogue) needs to be recognized and protected by the Government of Bangladesh. This safety net should encompass people's use of Twitter, Facebook, blogs, and other forms of ICT-based communication.

### 5. Conclusions

Our research has explored and analyzed the ways in which new media, specifically Twitter, started being widely adopted in Bangladesh, through the lens of the Shahbag Movement of 2013. Analyses using online data-mining applications and visualization software showed the emergence of new, individual opinion makers within the Bangladeshi microblogging domain, indicating a slow, yet positive trend toward greater citizen participation in major sociopolitical conversations. The data analysis also revealed the power of interconnected online communities.

Findings in this article furthermore reflected the sense of insecurity prevalent among Bangladeshi online users as it relates to freely expressing their opinions and ideas. We found that indiscriminate arrests, site blocks, and newly amended punitive measures in the ICT Act have created significant hindrances to the development of a truly participatory digital space for communication, hindrances that have not yet directly affected the Twittersphere, but are likely to do so in the near future.

We believe that in any state with poor governance, the default public nature of the Twittersphere (which makes communication open to all) increases the risk of state-sponsored harassment, arrests, torture, and defamation of microbloggers. We believe our research contributes to the global literature on the role of Twitter and other new media in political movements in developing countries and emerging economies. We hope our findings will assist the relevant stakeholders to understand the challenges and opportunities of Bangladesh's nascent digital society and to engage in evidence-based policy formulation that encourages use of new media for empowerment and socioeconomic advancement via, inter alia, development- and democracy-oriented new-media-based applications development. ■

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