

Motivations and Risks of Social Media Crowdsourcing in War-torn Societies: Evidence from Syria

Khaled Saleh Al Omoush
Al-Zaytoonah University of Jordan
Amman-Jordan
e-mail: k.Alomoush@zuj.edu.jo

Saad Ghaleb Yassen
Al-Zaytoonah University of Jordan
Amman-Jordan
e-mail: Saad.yaseen@zuj.edu.jo

Abstract—This research aims to investigate motivations of social media crowdsourcing, potential risks, as well as the determinants of continuity of participating in online crowdsourcing communities via social media during civil wars. Maslow's hierarchy of needs has been used for understanding motivations of social media crowdsourcing. The present research also investigates three major potential risks associated with social media crowdsourcing in civil war-torn societies, including direct personal threats, the penetration of terrorism ideology, and advocacy of hatred. The present study revealed that social media is not just a platform for social interaction or other traditional purposes that have been mentioned in the related literature. In the current Syrian crisis, social media crowdsourcing has been employed effectively in exchanging, disseminating, and sharing information, solutions, and advices to meet the basic Syrians' needs and how to deal with the different and complex features of the crisis.

Keywords—social media crowdsourcing; motivation; risk; moral continuity of participation.

I. INTRODUCTION

The beginning of the 21st century has been marked by the repetitive occurrence of large-scale natural disasters and human-provoked emergencies, events commonly known as crises [1]. Civil wars and the spread of terrorism in different parts of the world are the most tragic human-provoked disasters causing catastrophic humanitarian crises, where civilians are paying the highest price. According to Global Peace Index (2015), Syria has been named as the most dangerous country in the world on international levels of peace and violence for the year 2015. An estimated hundreds of thousands of Syrian civilians were killed. The conflict has also contributed to expulsion and flight of millions of civilians from their homes into refugee camps.

With the absence of governmental institutions, millions of people are still steadfast in their country and struggling to survive using all means available. In such cases, citizens have only themselves to rely on, coping with unpredictable events, and encouraging each other to stay in their homes in spite of the risks. In such situations, the collaboration of citizens is becoming more and more indispensable, where citizens are moving from a reactive behavior to a proactive outlook characterized by free involvement and self-responsibility [2][3]. In such large-scale and long-term crises, one of the greatest challenges

to those involved in crisis management efforts, including citizens, is to have efficient, stable, and accessible telecommunication platforms for reaching a large number of people on a limited amount of time and resources [2]-[4].

The effectiveness of social media tools, including Social Networking Sites (SNSs), image and video hosting sites, Wikis, and blogs, has been increasing in every area of human life in recent years [5]. In the past few years, the initial role of social media as a means to keep in touch with friends, family and colleagues has evolved and they are becoming a more important means of communication and collaboration during emergencies, disasters, and crises [6]. Events of the current civil wars are showing a new kind of powerful crisis community, which is made possible by new social media that supports crowdsourcing approaches.

More than five years ago, social media has represented the artery for feeding the peaceful revolutions aiming to change regimes that protested many Arab countries. Later on, it has played a role in civil war ignition as mobilizing tools on the basis of ethnic and religious identity behind one of the parties to the conflict. The most important good role that a social computing plays is enabling Syrian civilians to participate in the large-scale humanitarian crisis management that is sweeping across the country. Nowadays, Syrians are employing social media crowdsourcing effectively in exchanging, disseminating, and sharing information, solutions, and advices on how to deal with the different and complex features of the crisis.

The current Middle East crises constitute historical events for Information and Communication Technology (ICT) researchers to study the social media crowdsourcing in war-torn societies. Although there is an extensive interest in the role of social media in harassing crowdsourcing, little research exists on the role, uses and potential risks of social media crowdsourcing in war-torn societies. Therefore, the purpose of the present research is to investigate motivations of social media crowdsourcing, potential risks, and the determinants of continuity participating in the online crowdsourcing communities via social media during civil wars. The present study sheds light on the critical role of social media in providing the opportunity for society's members to participate in the crises management alleviating the hardship, miseries, and tribulations of civilians in War-torn Societies.

II. AN OVERVIEW OF SOCIAL MEDIA CROWDSOURCING

Crowdsourcing is basically used to describe the act of taking a task traditionally performed by a designated agent and outsourcing it to an undefined, generally large group of people in the form of an open call [7]. The real power and uniqueness of crowdsourcing lies in the active participation of intelligent humans in a task assigned to them changing the way of solving problems, producing knowledge, generating ideas, and making them actionable [8]. The philosophy of crowdsourcing is grounded in the concept that every member of crowd has knowledge that some other person will find to be valuable, where unique and different perspectives derived from a diverse community represents a very powerful machine for collaborative problem solving [7]. The literature (e.g. [7] - [10]) has emphasized the role of social computing in empowering the concept of crowdsourcing.

The effectiveness of social media tools, including SNSs, image and video hosting sites, Wikis, and blogs, has been increasing in every area of human life in recent years [5]. They have provided a fertile ground for collaborating, accessing and disseminating information, and sharing knowledge. There is a rapid growth of online social networks and an explosion in user-generated content published on the social platforms. Image and video hosting sites, such as YouTube and Flickr enable anyone to upload content such as videos or pictures to be shared with everyone or with a restrictive community of users. Blogging and micro-blogging media also represents a free platform to share facts, values, emotions, ideas, opinions, and expectations. Actually, social media is providing unprecedented levels of citizen engagement and participation in their local and wider communities, revolutionizing the way problems are addressed, and allowing all actors to monitor and act upon almost anything, anywhere, in real-time [11]. These tools have provided unprecedented opportunities to bring individuals and groups of people together constituting the crowdsourcing communities seeing beyond the self.

III. LITERATURE REVIEW

The review of literature indicates that crowdsourcing, as a new model to harnesses the creative solutions from the crowds, is receiving a growing attention. With the rapid development of social computing, and the increasing importance of social media in people life, social media crowdsourcing is gaining more and more attention from researchers in many fields. The unexpected flow and evolving nature of crises accompanied the revolutions that protested many countries did not provide the opportunity to study any aspect of the extensive adoption and contribution in social media crowdsourcing as a platform to participate in the crises management.

Crowdsourcing is an emerging field of study and still in its early stages. The adoption and use of social media crowdsourcing in crises management has not yet received much research attention. However, much of the previous research (e.g., [10][12]) has focused on developing different applications to involve the crowds in the crises

management. Another line of research (e.g. [9][13]) has been dedicated to describe the usage patterns of social media crowdsourcing in the crises and disasters.

A considerable body of researches (e.g., [2][14]) were conducted to investigate the role of social media in the efforts of search, rescue, and emergency response. At a time that some crises, especially those arising out of civil wars, necessitate civilians' self-protection and resilience, it is worth mentioning that the majority of previous studies (e.g., [2][3][15]) have revolved around the existence of a wide range of authorities, such as police, fire, emergency medical and governmental authorities that can be relied upon to coordinate the efforts of crisis management.

The previous research (e.g., [12][15]) agreed that appraising the contribution of social media to crisis management depends on the nature of the crisis and risks that people face, as there is no one-size-fits-all approach. This agreement confirms the need to study the harnessing of social media crowdsourcing for long term crises; especially those accompany with armed conflicts in civil war-torn societies, where very little efforts have been made in this area.

Based on the previous literature review and following up on the Syrian crisis via social media, the present study has derived the constructs of research framework as shown in Table I.

TABLE I. THE CONSTRUCTS OF THE FRAMEWORK

Constructs	Dimensions	References/ Evidences
Motivations	Survival	[17]-[20]
	Safety	[15] [21]
	Sense of Community	[22]-[26]
	Cognitive Motivation	[28]-[30]
	Self-actualization	[1] [4] [28]
Potential Risks	Direct Personal Threats	[4] [24] [32]
	The Penetration of Terrorism Ideology	[33]-[35]
	Advocacy of Hatred	[31] [34] [36]

IV. RESEARCH MODEL

In civil war-torn societies that witness blind deadliest terrorist attacks threatening the life and survival of civilians, it is axiomatic that people are suffering and struggling to secure their basic humanitarian needs and avoiding risks. However, one of the prominent ways to explain motives for using social media crowdsourcing in civil war-torn societies is through Maslow's need hierarchy theory. Maslow's hierarchy of needs has enjoyed widespread acceptance in the area of human motivation. According to Maslow's hierarchy of needs, all human beings endeavor to fulfil a hierarchy of five motivational needs consisting of physiological, safety, belongingness and love, esteem, and self-actualization. Following Maslow's logic, lower physiological and safety needs can come back into focus when facing complex crises, such as those arising out of civil wars, where the people can drop to a lower level that reflects needs of what was lost. Therefore, Maslow's hierarchy of

motivational needs is an appropriate choice to explain motivations of creating and participating in social media crowdsourcing during the crises in war-torn societies. The research model (Fig. 1) proposes that, during large-scale and long-term crises, such as those arising out of civil wars, social media crowdsourcing are motivated by five humanitarian needs consisting of survival, safety, sense of community, cognitive motivations, and self-actualization.

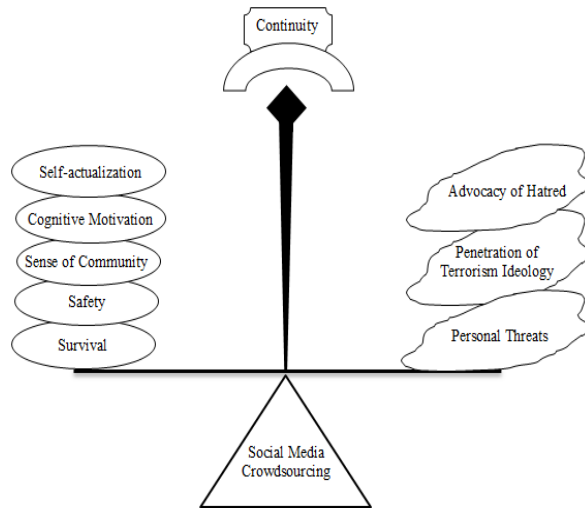


Figure 1. Motivations and risks of social media crowdsourcing in war-torn societies

On the other hand, the present research proposes three major risks associated with social media crowdsourcing in civil war-torn societies that could threaten the participants and society as a whole. Furthermore, the research model suggests that participants continually negotiate and direct the tension between motivational needs and perceived risks to determine the continuity of participation value in social media crowdsourcing.

A. Motivations

Theories of motivation posit that an individual's behavior is driven by his needs that transformed into goal-directed actions to fulfill these needs through available means [16]. There are different motivational theories that have been used to investigate the motivational issues of crowdsourcing. Each motivational theory has its unique ways of motivating factors. For example, Self-determination theory (SDT) that has been developed by Deci and Ryan [16] distinguishes between intrinsic and extrinsic motivations. This theory represents a broad framework for the study of human motivations and explaining the reasons for online crowdsourcing. However, one of the lessons of the literatures is that there are no standard sets of motivations for adopting and using social media, where motivations vary across social media services, environments, situations, and cultures. In civil war-torn societies, people are forced to return to backwardness, disintegration, racism, absolutism eras, and early human communities' needs. On the other hand, using social media in general is mostly selective and motivated

by self-awareness of the individual's own needs and his expectation of satisfying them by particular types of media that give a certain advantage above other already known alternatives. Therefore, for the purpose of the present research, Maslow's hierarchy of needs theory was adopted to clarify the needs that motivate people to engage in social media crowdsourcing in crises situations. Below, we discuss in more detail each dimension of these motivations.

Survival

Maslow considered survival needs as being the first and foremost of all needs through obtaining air, food, drinking water, shelter, warmth, sleep, clothing and others. It is ironic that people who are forced to return to backwardness, disintegration, racism, absolutism eras, and early human communities' needs are thankful for most advanced technologies in securing their basic needs to stay alive and continue their resilience. In Syria, conflicting parties are using siege and starvation as a weapon of civil war. Inhabitants of the besieged cities have inquired about Fatwas (religious edicts) allowing them to eat cats, dogs and donkeys to stave off hunger.

The tools of social media that are used by Syrians include countless examples of disseminating and exchanging information regarding food, drinking water, medical assistance, pharmaceuticals for chronic diseases sources, fuel sources, transportation services to areas where needed, and temporary shelters for Syrians who had lost their homes. The international humanitarian aid organizations mainly depend on the interaction with the crowd through social media in addressing the shortage of human needs and utilities and launching humanitarian aid appeals to help the affected areas. The best examples of these organizations are International Committee of the Red Cross in Syria [17]; and Syrian Arab Red Crescent [18]. Furthermore, SNSs have been employed effectively to help find and collect information about missing and abducted persons. For example, a lot of groups and pages have been initiated on Facebook by volunteers, such as community Organization in Damascus [19] and Missing and Martyrs [20].

Safety

Safety represents the second level of Maslow's hierarchy of needs. This motivation represents the needs for security and protection from harm which is psychologically perceived to threaten life and survival. In the context of civil wars, such needs include freedom from danger, absence of threat, and stability. Many emergencies require an early warning which reaches people as quickly as possible. More and more evidence shows that citizen-driven emergency response is a critical part of an effective response to major disasters and emergencies [15]. In war-torn societies, civilians are looking forward to having guidelines on how to act and what kind of actions are expected from them [21].

Experiences from the current Syrian crisis show that social media plays an important role in providing to the general public up-to-the-minute information about emergencies, risks, and how to respond. It represents a

valuable channel for emergency services to send an alert and warning in real time and even to initiate actions. They are using it to raise awareness of the risks related to the geographical areas where the follower is located and provide recommendations if needed. Social media also used by crowd to send cautions, conduct situational wakefulness instantly, and to provide advice by posting information such as emergency phone numbers, location of hospitals requiring blood donations, evacuation routes.

Sense of Community

The sense of community concept refers to individuals' subjective feeling of attachment and belongingness to a bigger and stable structure which can be relied upon for a variety of purposes [22]. It meets the third level of Maslow's hierarchy of needs, which is fulfilling the need for belonging and love, including friends, a family, and a community. Social media and, more specifically, SNSs can help create a sense of community that gives individuals the feeling that they are not alone in the crisis and that there are others experiencing similar hardships and difficulties [6]. The tools of social media have provided unprecedented opportunities to bring Syrian individuals and groups together constituting a new kind of societies seeing beyond the self. They have provided a fertile ground for sharing the pain of victims.

Social media has provided an open arena to these communities to target specific groups and the wider public to deliver messages about conflict prevention and reduction, disarmament, and reconciliation. It has allowed the voices of ordinary citizens to be amplified communicating and submitting human rights abuses and war crimes committed by all parties in conflict, and calling to neutralize civilians and populated residential areas. Examples of these groups are Syrian Network for Human Rights [23] and Raqqa is Being Slaughtered Silently campaign [24]. Innovative initiatives have been taken place on SNSs to support dialogue for conflict reduction and peace efforts, such as pray for Syria [25] and the Permanent Campaign for Peace in Syria [26], and Peoples Commission for National Reconciliation [27].

Cognitive Motivation

According to Maslow [28], cognitive needs that include perceptual, intellectual, and learning capacities represent a set of adjustive tools, which have, among other functions, that of satisfaction of basic needs. These cognitive needs explain the motivational role of desire to know and understand, curiosity, learning, philosophizing, experimenting or, in other word, to see rather than to be blind [28]. Actually, the cognitive needs have been considered as a major motivation to use social media [29]-[30].

The platforms of social media have contributed widely to build, raise, and share Syrians' awareness about the essence of the crisis, threats and risk, and gaining a broader understanding of the situation as a whole. Furthermore, the growing phenomenon of citizens' journalism through social media has been a great value in providing the first-hand account of Syrian crisis events as they occur in the forms of images, video and audio

messages, and information, thus contributing to the enhancement of the general public' situational awareness. In fact, in the Syrian case, it has been of great value for Syrians and the world to satisfy the need to have the latest and unique information available during crises raising the situation awareness at real-time.

Self-actualization

Maslow [28] believes that in the highest level of needs are self-actualization that leads to creativity and openness to experience. According to Maslow [28], self-actualization refers to individual's aspirations to achieve self-fulfillment, namely, to the tendency for him to become actualized in what he is potentially. This tendency describes a desire that could lead to realizing one's capabilities potential to the fullest [28]. The increased use of social media during a crisis can often involves the recording of the self and others at the scene of a crisis [4]. The great advantage of social media as a driver of creative innovations is that anyone can create a platform to voice their thoughts and set up his own online initiatives.

According to Manso and Manso [1], citizens prove to be highly proficuous in launching and contributing to online innovative initiatives during crises, such as websites, Facebook pages and groups, Wikis, hashtags and tweets created by volunteers to place them at the services of society. These initiatives are highlighting the importance of social media in catalyzing people to be ideal citizens, accept and express of their inner core or self, provide aid and information to others, support dialogue for conflict reduction and peace efforts satisfying their self-actualization needs. The most striking example of self-actualizing efforts in the Syrian civil war is the growing phenomenon of citizens' journalism through social media to communicate, track, and share factual information and hard facts in real time. Furthermore, millions of Syrians fled their country seeking beyond covering their basic humanitarian needs. Social media has driven the awareness to those outside the affected areas, generating volunteers and donors to enhance a community's resilience on the long run.

B. Potential Risks

When dealing with any form of outsourcing of tasks, including crowdsourcing, the risks are non-trivial especially for groups that are more distant geographically, culturally, and intellectually where many situations arise that cannot be foreseen [8]. According to Buecheler et al. [8], crowdsourcing is an extreme case of dealing with the unknown, where the individuals of the crowd are a priori unknown and contingency plans for unexpected behavior of this interacting mass cannot be fully prepared beforehand. The literature on crowdsourcing has raised different risk factors and sources. However, following up on the Syrian crisis, the present research identified three major potential risks that threaten social media crowdsourcing in civil war-torn societies. These are:

Direct Personal Threats

Social media aggregates vast volumes of personal and social information, such as information about the family,

relationships, political views, social activities, and religion. Photos, video footage, message or status updates may contain a visual evidence of an individual being present and help identify his identity and disclosing of private and confidential personal details [4]. In civil war-torn societies, user's anonymity is important if content is to be generated and disseminated without fear of recrimination [31]. Being able to locate individuals in particular places can associate them with certain activities that can put citizen journalists and other individuals at risk [4][32]. For example, the use of social media during the Arab revolutions met with resistance whereby some government authorities used citizens' social media trails to identify, locate, and target online protestors [32]. In the periods of political unrest or civil wars, activists on social media are encountering a wide range of risks and threats, including, but not limited to, exposing the private information, online attacks, imprisonment, harassment, threats to relatives, torture, kidnapping, and death.

In the Syrian civil war, unfortunately, social media are used to identify and target the online antagonists and, in a lot of cases, anti-war activists. According to the website of "Raqqa is being slaughtered silently" (2015), the terrorist Daash (Arabic acronym for ISIS) has launched electronic cells to tail the online anti-activists and gather information leading to arrest and prosecute them. These cells launch fake websites and depictive pages and groups on SNSs opposed to ISIS, attracting and hunting the anti-activists within the city of Raqqa to reveal their true identities. Usually, such people are sentenced to death by beheading. In 30 October 2015, Raqqa is Being Slaughtered Silently campaign has announced that two activists of the group were found beheaded in the Turkish town of Urfa, in what is believed to be the terror group's first assassination out. The Syrian Observatory for Human Rights (2015) reported that Daash elements have executed a girl in Deir al-Zour because they found a conversation against via the application "WhatsApp" on her mobile phone with her brother and another relative. In many instances, the use of social media by members of the public can result in harm to specific individuals who were erroneously identified through vigilante justice and potential harm to responders, including members of the public, who may be operating in a crisis [4].

The Penetration of Terrorism Ideology

The spread of terrorist ideology and the ability of terrorists to penetrate the most fortified segments of societies represent one of the most complex risks facing not only the Middle East but also the entire world. Terrorism ideology can be thought of as the virus that is looking for hardware to settle in. Unfortunately, social media has provided a unique opportunity to disseminate the terrorist ideology across borders and recruit hundreds of thousands of fighters and sympathizers from around the world under cover of religion. It became one of the strategic factors driving the efforts of terrorist organizations for a wide range of purposes, including recruitment, radicalization, indoctrination, and incitement to terrorism [33]-[35].

One of the primary uses of the social media by terrorists is for the dissemination of propaganda to validate the terrorist cause in religious, political and ideological terms in the context of conspiracy theories [33]. For example, According to the Atlantic Website (2015), one of Daash's more successful ventures is an Arabic-language Twitter app called The Dawn of Glad Tidings, or just Dawn as a way to keep up on the latest news about the jihadi groups. The tweets include links, hashtags, and images, and the same content is also tweeted by the accounts of everyone else who has signed up for the app. Propaganda generally takes the form of multimedia communications providing ideological or practical instruction, explanations, justifications or promotion of terrorist activities. The visitors' number of Daash official Website has reached by October, 2015 to more than 3,425,032. Propaganda videos for Daash are disseminated on the Youtube, where users can view over 144,000 videos ranging from messages, interviews by prominent leaders and fighters to videos of beheadings and other terrorist operations using advanced cinematic techniques.

Social media represents an effective platform for the recruitment of minors, who comprise a high proportion of users in the Middle East. According to UN [34], terrorist organizations and their affiliates have employed social media effectively to target minors using a variety of tactics, such as mixing cartoons and children's stories, mixing blaring religious songs and terrorist operations, computer games with messages promoting the terrorism ideology. Moreover, several studies [33]-[35] have described the influential role of the social media in enhancing the likelihood of self-radicalization. Behr et al. [35] clarified the impact that watching terrorists' videos on a daily basis and having constant access to terrorists' online platforms have on the speed of self-radicalization without even socializing with radical groups.

Advocacy of Hatred

While hatred is found in almost all societies, including those where the risk of violence is limited, the concept of hate speech aims at isolating acts that have a significant probability of catalyzing violence by one group against another [36]. In this context, the purpose of hate speech is to intimidate, create a fear denigrate the dignity, humiliate, harass, and put antagonists under psychological and social pressures. Many of international civilian institutions as well as researchers have expressed their concern over the spread of hate speech in the social media [31][34][36]. Hatred represents the spirit of Middle East conflicts, especially the current civil wars. It is the dominant motivation for the continuation of destructive Syria's civil war. In the Syrian civil war, social media has become a platform for organized hate groups to recruit and organize attacks against their antagonists.

Syrian religious population is made up of many faiths and sects, including Sunni, Alawites, Shia, and Ismaili, as well as Christians. The Syrian population also has traditionally been composed of a rich diversity of ethnic communities, such as Arabs, Kurds, Armenians, Chaldeans, Assyrians, Turkmen, and Circassians.

Actually, many of Syrian antagonists are using social media to disseminate, incite, and justify all forms of hatred including aggressive nationalism, discrimination, ethnocentrism, and hostility. The online ruthless campaigns are targeting, particularly, families of minority communities to force them to leave their cities and towns in an attempt to change the demographic map of the Syrian society structure, carrying out widespread ethno-religious cleansing. Terrorist organizations are depending to a large extent on social media to stir up panic and hatred of other members' branches and religions to keep and maintain the sectarian clashes. The terrorist social media platforms have exploited, in the most horrendous manner imaginable, hatred against followers of other branches and religious communities to attract fighters and a popular incubator among the Syrians.

C. The Continuity of participation in Social Media Crowdsourcing

Many of previous studies (e.g., [37] [38]) confirmed that satisfaction of users' needs is the major driver to continue using social media through perceived usefulness and conformation of expectations. At the same time, prior studies (e.g. [37] [39]) revealed that perceived risks are a critical determinant to the decision of continue adopting and using social media. In essence, by engaging in social media crowdsourcing, the members decide to deal with various degrees of risk of the free actions of others.

The literature (e.g. [32][40]) reveals that participants continually negotiate and direct the tension between perceived risks and expected outcomes of using social media. A number of researchers (e.g. [39] [40]), agreed that because of the perceived risks, users may change their evaluation of participating in social media crowdsourcing over time. Therefore, the present research suggests that, in war-torn societies, civilians and activists are constantly evaluating the value of using social media and building their own perceptions towards the benefits and risks of participating in social media crowdsourcing. The consequences may affect their inner thoughts concerning the value of continuity of participation in such crowds.

V. CONCLUSION AND FUTURE WORK

Although there is an extensive and evolving interest in the social media crowdsourcing in the normal stable conditions, comparatively little research exists on harnessing social media crowdsourcing to participate in crises management in war-torn societies. The purpose of the present research was to investigate motivations of social media crowdsourcing in war-torn societies and potential risks as the determinants of continuity of participating in online crowdsourcing communities via social media during civil wars. The present study revealed that social media is not just a platform for social interaction or other traditional purposes that have been mentioned in the related literature. Maslow's hierarchy of needs has been used for understanding motivations of social media crowdsourcing. The present research also investigates three major potential risks associated with

social media crowdsourcing in civil war-torn societies, including direct personal threats, the penetration of terrorism ideology, and advocacy of hatred.

There are some limitations which can serve as directions for future research. The research framework needs to be tested empirically. Furthermore, the present research did not address all possible motivations and risks that have been discussed in previous studies.

REFERENCES

- [1] M. Manso and B. Manso, "The Role of Social Media in Crisis: A European Holistic Approach to the Adoption of Online and Mobile Communications in Crisis Response and Search and Rescue Efforts," *Proceedings of the International Command and Control Research and Technology Symposium (ICCRTS)*, June 19 - 21, 2012, Fairfax, Virginia, USA, 2012, pp. 1-50.
- [2] C.-M. Huang, E. Chan, and A. A. Hyder, "Web 2.0 and Internet Social Networking: A New tool for Disaster Management? Lessons from Taiwan," *BMC Medical Informatics & Decision Making*, 10(1), 2010, pp. 57-61.
- [3] S. Wigley and W. Zhang, "A Study of PR Practitioners' Use of Social Media in Crisis Planning," *Public Relations Journal*, 5 (3), 2011, pp. 1-16.
- [4] H. Watson, L. Baruh, R. Finn, and S. Scifo, "Citizen (In)security?: Social Media, Citizen Journalism and Crisis Response," *Proceedings of the 11th International ISCRAM Conference*, May 2014, University Park, Pennsylvania, USA, S.R. Hiltz, M. Pfaff, L. Plotnick, and P. Shih, eds, 2014, pp. 294-298.
- [5] A. Eksi, S. Çelikli, and G. Kıyan, "The Effects of Social Networking on Disaster Communication Used by the Emergency Medical and Rescue Staff," *The Journal of Academic Emergency Medicine*, 13 (2), 2014, pp. 58-61.
- [6] K. Sedra, "The Role of Social Media & Networking in Post-Conflict Settings: Lessons-Learned from Egypt," *Proceedings of the World Bank/TDRP - African Development Bank Conference*, June 5-6, Tunis, 2013, pp. 1-12.
- [7] J. Howe, "Crowdsourcing: Why the Power of the Crowd is Driving the Future of Business," New York, 2008. NY: Crown Business.
- [8] T. Buecheler, J. Sieg, R. Fuchslin, and R. Pfeifer, "Crowdsourcing, Open Innovation and Collective Intelligence in the Scientific Method," *Proceedings of the 12th International Conference on the Synthesis and Simulation of Living Systems*, Odense, Denmark, 19-23 August, 2010, pp. 679-686.
- [9] S. Vieweg, A.L. Hughes, K. Starbird, and L. Palen, "Microblogging during two Natural Hazards Events: What Twitter may Contribute to Situational Awareness," *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (2010, April) ACM*, 2010, pp. 1079-1088.
- [10] J. Rogstadius, et al., "CrisisTracker: Crowdsourced Social Media Curation for Disaster Awareness," *IBM Journal of Research and Development*, 57 (5), pp. 2013, 4:1-4:13.
- [11] M. Boulos, et al., "Crowdsourcing, Citizen Sensing and Sensor Web Technologies for Public and Environmental Health Surveillance and Crisis Management," *International Journal of Health Geographic*, 10(1): 67, 2011, pp. 1-29.
- [12] L. Sweta, "Early Warning Systems and Disaster Management using Mobile Crowdsourcing," *International Journal of Science and Research*, 3(4), 2014, pp. 356-365.
- [13] K. Starbird, L. Palen, A. Hughes, and S. Vieweg, "Chatter on the Red: What Hazards Threat Reveals about the Social Life of Microblogged Information," *Proceedings of the ACM Conference on Computer supported cooperative work*, 2010, pp. 241-250.
- [14] M. Latonero and I. Shklovski, "Emergency Management, Twitter, and Social Media Evangelism," *International Journal of Information Systems for Crisis Response and Management*, 3 (4), 2011, pp. 1-16.
- [15] I. Kotsiopoulos, "Social Media in Crisis Management: Role, Potential and Risk," *Proceedings of the 2014 IEEE/ACM 7th International Conference on Utility and Cloud Computing*, 8-11 Dec, London, 2014, 681 - 686.
- [16] R. M. Ryan and E. L. Deci, "Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions," *Contemporary Educational Psychology* 25(1), 2000, pp. 54-67.

- [17] <https://ar-ar.facebook.com/ICRCsy> [retrieved: March, 2016].
- [18] <https://www.facebook.com/SYRedCrescent> [retrieved: March, 2016].
- [19] <https://www.facebook.com/missing.syria> [retrieved: March, 2016].
- [20] <https://ar-ar.facebook.com/MissingAndMartyrs> [retrieved: March, 2016].
- [21] A. Flizikowski, W. Hołubowicz, A. Stachowicz, L. Hokkanen, T. Kurki, and N. Päivinen, "Social Media in Crisis Management the iSAR+ Project Survey" Proceedings of the 11th International ISCRAM Conference, University Park, Pennsylvania, USA, S.R. Hiltz, M.S. Pfaff, L. Plotnick, and P.C. Shih, eds, 2014, pp. 707-711.
- [22] <https://www.facebook.com/snhr> [retrieved: March, 2016].
- [23] <https://ar-ar.facebook.com/vdcsv> [retrieved: March, 2016].
- [24] https://twitter.com/Raqqa_SL [retrieved: March, 2016].
- [25] <https://www.facebook.com/prayforpeaceSYRIA> [retrieved: March, 2016].
- [26] [https://www.facebook.com/-\|jno-ik-ءial|ef|cd-ء Y'aY|l-WXYZ \[_389850064469574-/timeline/](https://www.facebook.com/-\|jno-ik-ءial|ef|cd-ء Y'aY|l-WXYZ [_389850064469574-/timeline/) [retrieved: March, 2016].
- [27] <https://www.facebook.com/PeoplesCommissionforNationalReconciliation> [retrieved: March, 2016].
- [28] A. Maslow, "A Theory of Human Motivation," *Psychological Review*, 50(4), 1943, pp. 370-396.
- [29] Z. Tufekci, "Can You See Me Now? Audience and Disclosure Regulation in Online Social Network Sites," *Bulletin of Science, Technology & Society* 28 (1), 2008, pp. 20-36.
- [30] J. Hart, C. Ridley, F. Taher, C. Sas, and A. Dix, "Exploring the Facebook Experience. A new Approach to Usability," Proceedings of the 5th Nordic Conference on Human-computer Interaction: Building Bridges, 18-22 October 2008, Lund, Sweden, 2008, pp. 471-474.
- [31] A. Skuse and T. Brimacombe, "Social Networking, Social Media and Complex Emergencies," Australian Civil-Military Center, <https://www.acmc.gov.au/wp-content/uploads/2014/09/Social-Media-and-Complex-Emergencies-Annotated-Bibliography.pdf>, 2014, pp. 1-76.
- [32] E. Iskander, "Connecting the National and the Virtual: Can Facebook Activism Remain Relevant after Egypt's January 25 uprising?," *International Journal of Communication*, vol. 5, 2011, pp. 1225-37.
- [33] A. Aly, "The Terrorists' Audience: A Model of Internet Radicalisation," *Journal of Australian Professional Intelligence Officers*, 17(1), 2009, pp. 3-19.
- [34] United Nations Office on Drugs and Crimes, "The Use of the Internet for Terrorist Purposes," United Nations, New York, 2012, https://www.unodc.org/documents/frontpage/Use_of_Internet_for_Terrorist_Purposes.pdf, 2012, pp. 1-158.
- [35] I. Behr, A. Reding, C. Edwards, and L. Gribbon, "Radicalisation in the Digital Era: The Use of the Internet in 15 Cases of Terrorism and Extremism," (RAND Research Reports, RR-453-RE), 2013, pp. 1-76.
- [36] I. Gagliardone, D. Gal, T. Alves, and G. Martinez, "Countering Online Hate Speech," UNESCO, France, 2015, pp. 1-73.
- [37] T. Hu and W. Kettinger, "Why People Continue to Use Social Networking Services: Developing a Comprehensive Model", Proceedings of the International Conference on Information Systems (ICIS), Paris, France, 14-17 December, 2008, pp. 1-11.
- [38] Cao, H., et al., "Maslow's Hierarchy of Needs Analysis of Social Networking Services Continuance," *Journal of Service Management*, 24(2), 2013, pp. 170-190.
- [39] F. Stutzman, R. Capra, and J. Thompson, "Factors Mediating Disclosure in Social Network Sites," *Computers in Human Behavior*, 27(1), 2010, pp. 590-598.
- [40] K. Al Omoush, S. Yassen, M. Alma'aitah, "The Impact of Arab Cultural Values on Online Social Networking: The Case of Facebook," *Computer in Human Behavior*, 28(6), 2012, pp. 2387-2399.