

The London School of Economics and Political Science

*Subject, Crowd and the Governance of Activity:
the Role of Digital Tools in Emergency Response*

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A thesis submitted to the Department of Media and Communications of the
London School of Economics and Political Science for the degree of
Doctor of Philosophy, London, September 2016

Declaration

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Abstract

This thesis examines the role of digital platforms in emergency response contexts and the constitution of relationships between platform users and disaster situations. The conceptual framework is derived from a reading of the Vygotskian notion of tool-mediated, object-oriented activity, which is juxtaposed with the Foucauldian notion of governance. This framework provides the basis for an investigation of the role of digital platforms, exploring the associations between digitally mediated forms of user activity and the discursive relationships among actors in specific situations.

The empirical study examines crisis mapping projects and the role of digital platforms in emergency situations, mainly in Russia and Australia. The data collection methods included interviews with key actors and web archiving of digital platforms. The data analysis relies on the integration of a thematic analysis informed by activity theory and by Foucauldian discourse analysis.

The thesis highlights the ways in which digital tools constitute the user as subject or object in relation to certain activities. The analysis explores the extent to which digital platforms contribute to the capacity of users to define their relationships with disasters, that is, to engage in self-governance. It also considers the capacity of institutional actors to become dominant in these relationships. The analysis sheds light on various modes of digital governance of the subject by distinguishing between “governance through inclusion” and “governance through exclusion”.

Factors found to contribute to the salience of a specific mode of digital governance include “discursive mirroring” and “discursive opportunities”, seen as modes of relationship constituted between individual and institutional actors. Discursive mirroring is shown to be more likely to be associated with governance through exclusion, while discursive opportunities are more likely to be associated with governance through inclusion. An analysis of crowdsourcing practices provides a way of illustrating how, in the context of disaster response, the discursive construction of the crowd by institutional actors is associated with the governance of the crowd’s resources.

Acknowledgements

I would like to express an extraordinary gratitude to my supervisor, Professor Robin Mansell, who turned my PhD into a fascinating intellectual journey and uniquely life-changing experience of self-discovery and expansion of the boundaries of my individual imaginary. Thanks to dedication, guidance and support from Professor Mansell, I was able not to get lost in the garden of forking paths, and to reach a destination which often seemed to be beyond the final frontiers.

Thoughtful advice and inspiring insights from Dr Bart Cammaerts and Dr Shani Orgad significantly contributed to my progress. I am also very grateful for feedback and important ideas to Professor Lilie Chouliaraki and Dr Alison Powell. I gained energy from conversations with my PhD colleagues Keren Darmon, Alex Free and Cornelia Reyes from LSE and Alex Gekker from Utrecht University.

I would like to thank the LSE for providing me with an LSE PhD Scholarship and the POLIS Institute at the LSE Media and Communications Department for providing me with a Roger Silverstone Scholarship.

I would like to express a special thank-you to some of the people who supported my work. First, Professor Steven Livingston who has continuously supported me as a mentor and as a friend since we met at his GW 2009 class. His belief in my work is a driving force that has constantly moved me forward. I am also deeply indebted to Professor Monroe Price and the team at the Internet Policy Observatory for supporting my research and inviting me as a fellow to the Annenberg School at the University of Pennsylvania. I am also very thankful to Jean Morris, who provided me with great and prompt proofreading support.

I would like to thank many people who helped me to conduct my fieldwork, and the interviewees for my research. Among others, vital assistance was provided by Tatiana Strunina in Russia. Victor Hurley opened the doors of his house in Mildura and allowed me to get a unique perspective on the world of emergency response in Australia. I should also express huge gratitude to colleagues and friends from the global crisis mapping movement, as well as the team at the Russian Help Map project, Alexey Sidorenko, Anastasia Severina, Elena Kobayakova, Glafira Parinos and others. Without the Help Map experience this research

would never have started. Personal and intellectual support was provided by Dr Dima Adamsky. I should also mention separately one of the interviewees, Dr. Elizaveta Glinka, a head of the Fair Aid charity NGO and one of the leading Russian humanitarian activists, who tragically died in a plane crash in December 2016.

My parents are the most important people in my life who made this possible. My research continues the intellectual, scientific and spiritual genealogy of my father, Professor Alexander Asmolov, who was a constant source of inspiration and the role model through all the years of my PhD. The wisdom, emotional intelligence and infinite support of my mother, Dr Evgeniya Feigenberg-Gilat, were indispensable in order to complete this journey.

I would like to dedicate my thesis to the memory of my grandfather, Professor Joseph Feigenberg, who passed away in January 2016. When we met a few weeks before his death in the hospital, he continued asking me about the progress of my research. I wish he could hold the bound copy of this thesis in his hands.

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Glossary of Terms

4GAT – Fourth Generation of Activity Theory

AKUT – Search and Rescue NGO in Turkey [Arama Kurtarma Derneği]

AEMI - Australian Emergency Management Institute

ANT – Actor-Network Theory

CFA – Country Fire Authority (Victoria, Australia)

CHAT – Cultural Historical Activity Theory

CT - Chaos Theory

DEPI - Department of Environment and Primary Industries (Victoria, Australia)

DHN – Digital Humanitarian Network

EPPM - Extended Parallel Process Model

FEMA - Federal Emergency Management Agency (U.S.)

FIRMS - Fire Information for Resource Management System

FDA – Foucauldian Discourse Analysis

GIS - Geographic Information Systems

HHI – Harvard Humanitarian Initiative

ICTs – Information and Communication Technologies

ICT4D - Information and Communication Technologies for Development

MAPS - Mapping and Planning Support

MCHS –Ministry of Emergency Response [Ministerstvo Chrezvychanyh Situatsiy] (Russia)

MDA – Mediated Discourse Analysis

NCMC - National Crisis Management Centre (Russia)

NGO – Non-Governmental Organization

NCS - Nature Conservation Squad (Russia)

NSW – New South Wales

RFS – Rural Fire Service (NSW, Australia)

RQ – Research Question

SAR – Search and Rescue

SBTF – Standby Task Force

SCCT - Situational Crisis Communication Theory

SES – State Emergency Service (Queensland, Australia)

SMEM – Social Media for Emergency Response

SMM – Social Media Marketing

EQ – Empirical Question

UN OCHA – United Nations Office for the Coordination of Humanitarian Affairs

VGI - Volunteered Geographic Information

VOST – Virtual Operation Support Team

V&TCs - Volunteer & Technical Communities

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1. Introduction.

1.1 Background

With experience of living in crisis-prone environments, including the former USSR and the Middle East, I have always been intrigued by how people's lives change in a situation of crisis. The political unrest around the collapse of the Soviet Union was a part of my childhood. In 1993 I saw tanks firing on the White House in Moscow, the Russian parliament building at that time. My work as a Middle East correspondent allowed me to witness and acquire first-hand information about crisis situations on a daily basis. In 2010, when I was studying in the US, a significant wildfire spread in Western Russia. Despite the distance from Cambridge, MA, to the zone of that disaster in Russia, social media allowed me not only to follow, but also to engage in the emergency response. Relying on the knowledge that I had acquired as part of my graduate studies, I initiated a crowdsourcing project that facilitated the participation of volunteers in emergency response and helped to link those who needed help and those who were interested in helping them. The Help Map became one of the first Russian crowdsourcing projects and one of the biggest crisis-related crowdsourcing deployments at that time (Meier, 2015).

My personal experience has driven my interest in deepening understanding of the role of information and communication technologies (ICTs) in crisis situations. Media and ICTs play an increasing role in the communication of crisis situations. Today we can get to know more and more quickly about emergencies in different locations all over the world. Social media provide first-hand accounts from people in the zones of emergencies. Crisis situations become increasingly mediated through digital technologies. One of my interviewees in Australia told me that citizens who could see the fires from their windows were still looking for information from social media. ICTs also enhance and change various aspects of emergency response. As pointed out by Alexander (2014), ICTs have a significant impact on emergency response systems since "Information technology tends to favour collaboration over command, cooperation over control" (Alexander, 2014, p. VI).

My interest, however, has not been specifically in either how natural disasters are represented or how ICTs can improve disaster response, but first of all in crises in general. There are many apparent differences between natural and man-made disasters, although geophysical, biological and anthropogenic hazards are becoming more and more interrelated due to the increasing "geological power" of people (Vernadsky, 1998 [1924]) in the Anthropocene era, defined as "a new geologic epoch defined by human geological agency"

(Clark, 2014, p. 19). Despite the differences between revolutions, hurricanes, political protests, environmental disasters, earthquakes, wars and other types of emergency, there seems to be a common denominator that unites all these situations. The crisis disrupts everyday life and becomes a central point of reference for individuals and institutions.

There are a number of reasons why I decided to focus on natural disasters as a topic for my research. First, drawing upon my participation in the Crisis Mappers Network¹ and the International Conferences of Crisis Mappers in 2011, 2012 and 2013, I could see how the role of ICTs can vary considerably in different cases and countries by comparison with my experience in Russia. Second, my interest in emergency situations was also triggered by the argument that disasters seem to be playing an increasing role in our lives. As pointed out by Rodin, “crisis is becoming the new normal” (Rodin, 2015), while disasters, apparently, become larger-scale and more frequent (Editorials, *New Scientist*, 2013). Last, but not least, as pointed out by Barton (1969), natural disasters “constitute a ‘unique laboratory’ for the study of individual and group behavior under extreme stress” (p. xiv). The sociology of disasters discusses diverse potential forms of change on the societal and individual level in situations of disaster, which sometimes suggests contrasting models of behaviour. The investigation of disasters as a stress test for the resilience of society can also provide important insights that are relevant in everyday life.

Therefore, my interest in the investigation of ICTs in emergency situations was less concerned with how these technologies afford new forms of response, and more with how these technologies can potentially contribute to conditions that give rise to change in user attitudes and behaviours. In that light, there is a need to examine how the increasing role of ICTs can be associated with the position of users with regard to their environment in a situation of crisis. Accordingly, this study is focused on the intersection between crisis situations and the role of ICTs. At the centre of this intersection are located the users of these technologies, the subjects.

1.2 Defining the problem

Most of the research on ICTs in emergencies is driven by the notion that ICTs can potentially create opportunities for improving emergency response capabilities, and examines some challenges that need to be taken into account in order to propose a robust response to a crisis situation. The literature can also be divided between approaches that are driven by

¹ <http://crisismappers.net>

cyberoptimism and accordingly rely on an assumption that ICTs can improve disaster response and save more human lives, and those that look at the role of ICTs through the lens of cyberscepticism and question the role of ICTs. A significant body of literature seeks also to create a balance between the two approaches, proposing a form of cyberpragmatism. That said, in focusing on the role of ICTs in the transformation of the subject, the problematization of the role of ICTs in a context of emergency situations can go beyond questions about challenges and opportunities. The focus on ICTs as something that can potentially enhance emergency response or create new challenges for emergency response arguably neglects a consideration of the meaning of crisis as a transformation of socio-political reality. The problematization in this research project of the role of ICTs in situations of disaster focuses on the role of ICTs within a context of transformation of social and political structures associated with emergency situations.

Accordingly, the topic suggests an exploration of the role of ICTs in a context of socio-political transformation in disaster situations and, specifically, the relationships between citizens and authorities and among individuals and institutional actors. Exploring the role of ICTs in the context of socio-political transformation in emergency situations suggests a concentration on the role of digital platforms in positioning the subject with regard to the crisis. In this research my focus has been not on the role of ICTs in emergency response, but on the associations between the role of digital platforms and the transformation of social and political structures in emergency situations. In that light, the role of ICTs is examined in the context of the set of relationships among different actors in a situation of emergency.

The principle objective of this study has been to examine how digital technologies constitute the position of users in relation to emergency situations. Relying on a mapping of the potential role of ICTs in shaping the relationship between users and disasters, this study is specifically interested in the factors associated with the development of particular modes of relationship mediated by digital technologies. The research aims to investigate how, and for what reasons, digital platforms can be associated with different positions of the subject in situations of crisis. Examining this aspect underlines the need to take into account the social and political context of emergency situations. Therefore, the analysis is situated within the context of the relationships of power among different actors in emergencies.

The meaning of “digital platforms”, as the object of investigation of this thesis, requires a brief clarification. An “ecosystem” of digital platforms used in crisis communication and response relies on hardware and software, as well as on different types of communications networks that allow connection between end-users. The hardware includes

desk-based (computers and laptops) and handheld devices (including tablets, mobile phones and pagers). Most of the devices communicate visual content through screens (including images, video, maps and texts) and sound through speakers to the user.

The software includes web-based tools, mobile applications and computer programmes. The web-based tools include stand-alone websites, social networking platforms, blogospheres and online services (e.g. search engines). Specific attention is dedicated to crowdsourcing platforms; however, as clarified in Section 3.6, crowdsourcing is not a platform, but a digitally mediated practice that may rely either on dedicated crowdsourcing software (e.g. in the case of the Ushahidi platform) or on other platforms including social networking websites and blogs. Mobile applications include software developed specifically for handheld devices. Some of these applications use specific features of handheld devices, e.g. geolocation features, as well as visual content-generation capabilities (photo and video cameras). The computer programmes include mostly dedicated products for emergency management used internally by emergency organizations. That said, some of the programmes are also linked to external, web-based tools and mobile applications available to a public.

Finally, an important aspect of digital platforms is their capacity to communicate with other hardware devices relying on different types of software. This includes communication through digital networks relying on the World Wide Web, as well as mobile communication, satellite communication and radio communication. The theoretical chapter provides a more nuanced conceptualization of “digital platforms” in terms of activity theory, as “clusters of artifacts” used in crisis communication and response (See Section 3.3.4).

Particular attention is dedicated to crowdsourcing as a digital practice often associated with digitally mediated emergency response. The notion of crowdsourcing captures two important elements for the analysis in this research. The notion of a *crowd* reliant on digital technologies allows me to explore the role of individuals and collective actors as subjects in a context of digitally mediated emergency response. The notion of *sourcing* focuses attention on the activities of digital users in a particular situation (e.g. emergency response) and specifically on the digitally mediated mobilization of the resources of users.

1.3 Introducing the research questions

This study addresses two main research questions (RQs). The first explores the role of ICTs in the constitution of the subject. Specifically, it explores how different digital platforms constitute the relationships between the user, as a subject, and an emergency situation. The second question explores the factors associated with the role of digital

platforms in the constitution of the subject. Specifically, it explores how the position of users with regard to an emergency is associated with the relationships of power among different actors potentially involved in the emergency response. Empirically, the research is interested in exploring the differences in the way digital platforms for emergency response that are developed by institutional actors and those developed by independent actors constitute the role of the user with regard to emergency situations. It also is interested in understanding the factors that shape the role of digital platforms in emergency response, through exploring the differences among tools used in global and various national environments and the distinctiveness of tools that deal solely with the online dimension of emergency response as opposed to the offline dimension.

In order to address the two overarching theoretical questions, the conceptual framework that is developed provides a means of addressing the notion of the user as a subject, the role of digital platforms in the constitution of a subject in emergency situations, and the relationships of power around the constitution of subjects. For that purpose, the conceptual framework was developed through an assessment of the literature addressing the role of ICTs in the manifestation of relationships of power and the role of ICTs in emergency response. The role of digital platforms in the constitution of the subject in specific situations was conceptualized by drawing on Cultural Historical Activity Theory (CHAT), which offers a notion of tool-mediated, object-oriented activity. This notion has been used to conceptualize the role of digital platforms in the constitution of the subject. The notion of the object allowed me to incorporate emergency situations into an analysis of how the subject is constituted. The notion of the mediation of activity suggests links between the users of digital tools as subjects and the emergency as an object of activity. Emergency response itself is treated as an activity system. The subject is regarded as an outcome of the relationships of power among different actors. The conceptual framework also draws on the Foucauldian concept of the subject (Foucault, 1982) and develops an understanding of relationships of power around the constitution of the subject, drawing on notions of governance by others and self-governance, as proposed by Foucault.

The juxtaposition of two theoretical traditions offers a means of examining the role of digital platforms in the constitution of the role of users in crisis situations as a part of the complex dynamics of relationships of power. Specifically, it also focuses attention on mapping the role of digital tools in the mediation of different types of relationship between users as subjects and emergencies as objects. It examines whether particular tools contribute to the governance of users by others or through user self-governance, as well as the factors

which may be associated with the role of the tools in these contexts. Special attention is dedicated to examination of the role of crowdsourcing as an illustration of the manifestation of governance and self-governance in digital mediation and, specifically, the associations between the discursive construction of the “crowd” as a subject and “sourcing” as a digitally mediated form of activity.

A novel methodological approach is used, relying on a combination of thematic analysis informed by activity system models and a modified form of Foucauldian discourse analysis (FDA). I examine the mediation of action as a form of subject-object relationship embedded in the structure of mediating artefacts. The methodology for exploring the role of digital tools in the mediation of subject-object relationships is derived from Engeström’s (1987) model of activity systems in order to suggest the components of the thematic analysis. The method for exploring the relationships between different actors potentially involved in emergency response was inspired by FDA. This was chosen in view of the emphasis in the conceptual framework on the need to understand the objectification of the subject in the context of a structuring of the possible field of actions. Accordingly, the discourse analysis of objectification as a means of constituting the relationship among actors as subjects has been conducted in the context of specific situations (emergencies). It focuses on how the subject is constituted in the light of potential forms of subject activity with regard to specific objects of activity (natural disasters).

The integration of these methods has been used to develop a framework for the discursive analysis of activity. This is applied in order to explore the discourses of activity associated with digital tools. The discourse of activity analysis examines the discursive location of the subject within a context of activity associated with the tools and with the speech employed by a range of actors. The notion of a discourse of activity is used to indicate that the discursive location of the subject within a context of activity is associated with both tools and speech. This approach enabled me to examine tools as artefacts that mediate the relationship between users and disasters, and the relationships between subjects since their discourse indicates how actors perceive the position of other actors within the context of an activity in emergency situations.

In terms of theory, this research project was designed to contribute to our understanding of the role of ICTs in social and political transformation in situations of emergency. A case is presented for combining the analysis of the subject’s development as an outcome of a mediated relationship with regard to an environment characterized by the use of Activity Theory and a Foucauldian understanding of the subject’s constitution through

relationships of power. I thereby address the lack of references to power in much of the activity theory literature. Empirically, the research aims to offer a nuanced and sophisticated understanding of the factors associated with the role of digital platforms in crisis situations. The analysis also gives rise to some policy insights relevant to the field of disaster response and specifically to the development of digital platforms that may allow enhanced collaboration, while preserving a horizontal allocation of resources and the capacity of users to manifest some degree of self-governance in a situation of crisis.

1.4 Overview of thesis

The background chapter (Chapter 2) locates the investigation of the role of digital tools in a socio-political context of disasters. The theoretical chapter (Chapter 3) conceptualizes the role of digital tools. The relationships of users with regard to their environment is contextualized within their relationships with institutional actors. CHAT draws on the heritage of Lev Vygotsky and is used to conceptualize the role of digital tools in the mediation of object-oriented activity. The role of digital tools in the mediation of activity is situated within a context of the relationship among actors and specifically between users and institutions, drawing on Foucauldian notions of objectification and governance. The legitimacy of the juxtaposition of the Vygotskian and Foucauldian traditions is explained, and commonalities in the respective concepts of the subject in the two theoretical approaches are discussed. The conceptual framework highlights associations between the digitally mediated relationships of users with regard to their environment (subject-to-object relationships) and the relationship between users and institutional actors (subject-to-subject relationships). Crowdsourcing is introduced to highlight how the objectification of the digital *crowd* by institutional actors may be associated with the digital mediation of *sourcing*, and the association between the objectification of the crowd and the digital mediation of sourcing is conceptualized as the “*governance of the crowd*”.

The methodology chapter (Chapter 4) introduces the research design, which includes global and national case studies and case studies that deal with online and offline forms of activity. Russian, Australian and global crisis mapping initiatives provided the focus for the collection of data. The operationalization of the research questions explains how the activity systems model (Engeström, 1987) and Foucauldian Discourse Analysis (Willig, 2001) are integrated.

The empirical part of the thesis consists of three chapters. The first of these discusses crisis mapping initiatives (Chapter 5). Crisis mapping is a case where mediated activity takes

place mostly online. It offers a preliminary discussion of differences in the role of digital tools in the constitution of the subject on the global and national levels. This chapter also considers the transformation of crisis mapping in the context of relationships with institutional actors. The following two chapters focus on the role of digital tools in national environments and specific disasters. The second empirical chapter (Chapter 6) is focused on the role of digital platforms in the relationships between users (subjects) and disasters (objects). It explores various types of digitally mediated subject in the context of disasters in Russia and Australia. The third empirical chapter (Chapter 7) is focused on the relationship between institutional and independent actors. It examines differences in the discursive boundaries between actors, and how actors can be understood to objectify one another in the context of emergency response.

Chapter 8, the analytical chapter, builds on the previous chapters to provide an analysis in response to the research questions. This chapter discusses how various digital tools yield different discursive locations for users as subjects or objects of activity within a context of digitally mediated subject-object relationships. It explores how discursive locations may be associated with the role of digital tools in the self-governance of users or the governance of users by others and the structures of digitally mediated activity systems. The analysis in this chapter gives rise to a series of insights into modes of discursive relationship between subjects – *discursive mirroring* and *discursive opportunities*. It also suggests the value of differentiating between two types of digitally mediated governance that are found to be associated with the role of digital tools in the constitution of a subject: *governance through inclusion* and *governance through exclusion*. In addition, crowdsourcing is depicted as a digitally mediated form of governance of the crowd's resources, and global crisis mapping is considered in relation to governance through inclusion, in contrast to governance through exclusion, which seems to be more associated with national initiatives.

The conclusion (Chapter 9) highlights the theoretical contributions of the thesis. In particular, it highlights why the juxtaposition of Activity Theory and a Foucauldian notion of governance offers substantial insight into the role of digital tools in the constitution of a subject and into the factors associated with shaping the role of digital platforms in the relationship between users and their environments. The limitations of the research and alternative theoretical and methodological pathways which might have been taken are discussed. The contributions of the research to the development of disaster response systems are considered, together with recommendations for further research and some policy implications.

2. Background: ICTs and Socio-Political Aspects of Emergency Situations

2.1 Introduction

This chapter provides the foundation for my study of the role of information and communication technologies (ICTs) in emergency situations. Section 2.2 discusses the major trends in research on the role of ICTs in emergency situations. The following section (2.3) reviews tensions around the conceptualization of crowdsourcing in a context of emergency response.

Research on ICTs used in emergencies identifies a variety of challenges, but it deals primarily with the optimization of disaster response. Looking beyond the instrumental role of digital platforms in emergency situations requires a deeper examination of the role of ICTs in the social and political contexts of disasters. Section 2.4 reviews the field of sociology of disasters, focusing on the tension between approaches to disasters as opportunities to introduce a better society and disasters as moments of social disruption. Section 2.5 introduces a transition from social to political aspects of disasters. It reviews approaches to the relationship between institutions and citizens in emergency situations and highlights the literature that sees disasters either as a threat to the stability of political systems or as opportunities to strengthen these systems. Section 2.6 addresses the role of communication in emergency situations and specifically disasters as social ritual and as symbolic constructions that may serve various political interests, exploring the representation of disasters as an issue in political struggles among different actors. Section 2.7 presents a review of field of crisis communication in order allow discussing the contribution of this research to this field. The last section (2.8) focuses on the socio-political role of disasters, drawing on a review of the literature concerning emergency situations in Russia.

2.2 The role of ICTs in emergency management and disaster response

The development of innovative tools and new practices for emergency response is often associated with large-scale emergencies such as the tsunami in South Asia (2004), Hurricane Katrina (2005), the tsunami in Japan (2011) and Hurricane Sandy (2012). A number of communities of crisis-related ICT experts and volunteers, including Crisis Mappers, Crisis Commons and SMEM (Social Media for Emergency Response), started to develop around 2009-2010 (Wardell & San Su, 2011; Meier, 2015). A number of scholars point out that the earthquake in Haiti (2010) was a focal point for the role of ICTs in emergency response. As argued in a report by the Harvard Humanitarian Initiative (HHI)

(2011), “On the timeline of the Internet’s evolution, the 2010 Haiti earthquake response will be remembered as the moment when the level of access to mobile and online communication enabled a kind of collective intelligence to emerge—when thousands of citizens around the world collaborated in volunteer and technical communities (V&TCs) to help make sense of a large scale calamity and give voice to an affected population” (HHI, 2011, p. 11).

The literature concerning the role of ICTs in emergency response includes numerous policy reports, as well as a variety of academic articles associated with different academic disciplines. Sometimes there is a degree of overlap between the policy-oriented and academic literature. Many members of the community of practitioners have academic affiliations. Also, due to the nature of the topic, a substantial part of the research addresses instrumental questions that seek to support policy-making and the development of new tools to improve emergency response systems. Consequently, the research often relies on collaboration by academics and practitioners, which is supported by various institutions.

Both policy reports and academic articles have proposed the mapping and classification of the role of ICTs in emergency response. A report for the US Department of Homeland Security suggests that social media can be used for three purposes: “(1) as a channel for public service announcements, (2) as a source of information, and (3) as means to “crowdsource certain capabilities” (Jacobs & Tuohy, 2012, p. 3). A report by the Congressional Research Service differentiates between the dissemination of information on a crisis for the general public and using social media as an emergency management tool, e.g. the issuing of warnings, communication with victims, supporting situation awareness and the facilitation of recovery efforts (Lindsay, 2011). Simon et al. (2015) highlight the fact that social media are used both for information gathering from a variety of sources, including official sources, local community and general public, and for emergency management. Alexander identifies seven types of functionality of social media for disaster response, recovery and risk reduction, including listening to the public, situation monitoring, “integration of social media into emergency planning and crisis management” and crowdsourcing (Alexander, 2014, pp. 720-724).

A broad body of literature on the role of ICTs seeks to support the development of new digital technologies that can improve emergency response and ensure that “mechanisms for leveraging the collective intelligence of the public are accelerated in a systematic fashion, and with serious consideration to ethics, the practical aspect of emergency management, and human needs” (Palen et al., 2010, p. 10). Potts (2014) uses the methodology of Actor-Network Theory (ANT) to propose an architecture of information systems that should allow

us to “start building spaces that can engage participants” (Potts, pp. 22-23) in disaster response. There is also research that seeks to develop ICT-based solutions for integrating volunteers into the activities of institutional actors (Detjen et al., 2015). Other scholars focus on how algorithms contribute to the analysis of big sets of user-generated data and the automatic coordination of resource allocation relying on the mapping of citizens’ resources and the needs of affected communities (Purohit et al., 2014).

Efforts to address the role of ICTs in disaster response are also evident in the emergence of new disciplinary frameworks, including crisis informatics (Hagar, 2010), crisis mapping (Ziemke, 2012) and neogeography (Meier, 2011), as well as in new research associations, such as ISCRAM (Information Systems for Crisis Response and Management). For instance, Pipek et al. (2014) describe crisis informatics as an “interdisciplinary perspective on the socio-technical, informational and collaborative aspects of developing and using technologies and information systems in the context of the full disaster lifecycle” (p. 339). Among other issues, research has addressed how ICTs change the practices of gathering information on a disaster and the curation, verification and distribution of information in order to inform the public and increase the situational awareness of responders (Shklovski et al., 2008; 2010). Palen and Liu (2007) discuss the role of ICTs in the development of new information pathways between different actors including the public affected by a crisis, the public outside a zone of crisis and the emergency agencies. In this light they stress the need to support new forms of peer-to-peer communications in emergency situations through ICT development (Palen & Liu, 2007, p. 734). Some scholars focus on the role of specific platforms in emergency situations. For instance, Bruns et al. (2012) explore the role of Twitter during floods in Queensland in 2011. They highlight how Twitter was used not only by citizens who shared their observations, but also by institutional actors including police, local authorities and traditional media. They also discuss the role of hashtags in the coordination of emergency response (Bruns et al., 2012).

A broad literature discusses how ICTs contribute to the participation of users in emergency response. According to Palen and Liu (2007), the active participation of the general public in disaster response is “becoming more visible, active, and in possession of greater reach than ever seen before” through the use of ICTs (p.727). Steinberg et al. (2016) propose that influential private citizens can be considered as key actors in disaster information networks relying on social media. The concept of participatory sensing (Goldman et al., 2009) suggests that citizens acquire new roles, not only as consumers but also as producers of information concerning a disaster. Some scholars highlight the way that

citizens' involvement also includes "filtering and making sense of existing information for emergency response functions such as crisis mapping" (Papadimitriou et al., 2014, p.156).

Citizens' participation in crisis mapping can be conceptualized as a contribution of volunteered geographic information (VGI), a term coined by Goodchild (2007).

Crowdsourcing of geographic information allows faster collection and verification of information, while "authoritative information is much slower to appear than VGI" (Goodchild & Glennon, 2010, p. 238). Liu and Palen (2010) highlight the benefits of the integration of professional and participatory geotechnologies in situations of crisis. The public can also assist in "classifying and sorting the large amounts of information" (Simon et al., 2015, p. 614). According to Meier (2011, p. 1242), crisis mapping has four pillars: "information collection, visualization, analysis, and decision support". Petersen explores the socio-political aspects of crisis mapping as a social construction of disaster. Relying on comparative analysis of mapping of wildfires in San Diego in 2007, she demonstrates how crisis maps that are affiliated with different type of actors "carry with them different assumptions about the public's relation to disaster response" (Petersen, 2014, p. 109). According to Petersen, while the strict, top-down county map imposed a hierarchical way of disaster management and focused solely on first responders, while leaving the general public interested in engagement in response "out of picture", the independent, ad-hoc map was "built in a way to accommodate this type of public engagement during the disaster" (p. 109).

Baruh (2015) highlights how social media offer "new possibilities for citizens to organize, engage and coordinate action as activists" (p. 132). Scholars highlight how online platforms "help organize action and mobilize people, as well as resources" (Papadimitriou et al., 2014, p. 16), as well as involving citizens in various phases of an emergency (Watson & Hagen, 2015). Simon et al., (2015) identify four types of social media user in times of emergency: innovative, reactive, responsive and proactive users.

A broad literature discusses the challenges associated with the role of ICTs in a context of emergency response, including citizen security and ethical considerations (Baruh, 2015). Alexander (2014, p. 718) highlights the need to give equal attention to "the advantages and drawbacks of social media" in emergency situations. The challenges associated with digitally mediated engagement include privacy considerations, "threat of vigilante activity", and "the danger to citizens' well-being as a result of their activities in collecting and sharing information via social media" (Watson & Hagen, 2015, pp. 146-149) Some reports (Meier & Coyle, 2009) address a variety of policy challenges, including increasing real-time situational awareness, analysis of big data around disasters, verification of information, liability etc.

Other reports propose a critical review of specific tools and digitally mediated crisis response cases (Morrow et al., 2011; Bailard et al., 2012).

ICTs create new challenges for traditional institutional actors on the national level as well as for the members of the international humanitarian system. Both sides, institutions and individuals, can be empowered by the new tools. However, ICTs can also disrupt the traditional structure of emergency response systems. Alexander (2014) discusses how the command and control structure of traditional emergency response systems, as well as the bureaucratic nature of emergency-related organizations, is challenged by ICTs that enable horizontal communication, data sharing and participation by the public. Alexander highlights how “one of the effects of information and communications technology has been to make the chain of command flatter and less hierarchical”, as well as a shift “from authoritarian command towards a more collaborative form of management and hence a more distributed form of command” (Alexander, 2008, p. 138). The HHI report (p. 19) identifies an information gap due to the increasing complexity of communication in a time of crisis, while the population in disaster areas become “mobile-enabled” and produce more data. An additional challenge is the increasing role of the “swarm of global volunteers”, who also produce data and seek opportunities to participate in emergency response (HHI, 2012, p. 9). Some of the research literature that explores the challenges that are associated with the role of ICTs approaches emergency situations as instances of “creative adaptation of technologies for coping with crisis” (Shklovski et al., 2010, p. 1231), which can be also conceptualized as “innovation overload” (Herbig & Kramer, 1994). Latonero and Shklovski (2010) discuss the role of “evangelists” from within formal organizations in introducing innovation and adaptations in ICTs.

One notable challenge is that of collaboration between emergency services and citizens (Crowley, 2013). The HHI report highlights a lack of formal protocol for collaboration between actors from the traditional humanitarian system and volunteer and technical communities (V&TCs), and suggests that there is a need to “create an ecosystem where each actor understands its role” (HHI, 2011, p. 9). Goodchild and Glennon (2010) argue that making volunteer-generated data useful requires the development of protocols for communication between volunteers and traditional actors. According to Alexander (2014), the role of ICTs needs to be examined in the context of “a continuum between command-based and collaborative models of emergency management” (p. 721), while social media, with their lack of hierarchical structures, “fit much better into a collaborative model than a command one” (p. 721). Available research also presents case studies on the development of

new modes of collaboration between formal institutions and informal organizations, as exemplified by Virtual Operation Support Teams (St. Denis et al., 2012) or by the Humanity Road project (Starbird & Palen, 2013).

2.3 Crowdsourcing and disasters

Some forms of user participation in emergency response, specifically the “creation of different types of maps rapidly,” as well as platforms that are used for this purpose, are often described as crowdsourcing (Simon et al., 2015, pp. 613-614). According to Alexander (2014), crowdsourcing is a collaborative practice that relies on a notion that “the first responders are the public”, while enabling the mobilization of social capital, including people’s skills and networks. Alexander highlights how free-access crowdsourcing platforms such as Ushahidi or Sahana “are particularly useful for places where disaster management and response are poorly developed and resources are scarce” (Alexander, 2014, pp. 722-723).

That said, while the term crowdsourcing is actively used in the literature that discusses the role of ICTs in disaster response, in many cases the definition of crowdsourcing is outside the scope of this investigation. First, “crowd” requires a distinct conceptualization due to the significance of contradictory approaches. The word “crowd” often has negative connotations. For instance, crowds are defined as “co-acting, shoulder-to-shoulder, anonymous, casual, temporary, and unorganized collectivities” (Brown, 1954, p. 840). In contrast, the literature discussing the notion of the crowd in the context of ICTs often highlights the positive role of the crowd as a potential source of solutions to a variety of problems, as in the concept of the “smart mob” (Rheingold, 2003) and the “wisdom of [the] crowd” (Surowiecki, 2005).

One of the first scholars to investigate the phenomenon of the crowd was Gustave Le Bon, author of a classic book, *The Crowd: A Study of the Popular Mind* (1903). Le Bon argued that a crowd could be approached “as a distinct form of collectivity” (Dean, 2016, p. 9) where people lost sight of their individual selves, normative limits and rational thinking through a sense of anonymity. Le Bon depicted the crowd as an emotional, uncivilized actor which could potentially play a destructive and violent role. Dean (2016, p. 7) stresses that this depiction of the crowd as brutal and primitive cannot be separated from the historical context of the 19th and 20th century: “Inseparable from the rise of mass democracy, the crowd looms with the threat of the collective power of the masses, the force of the many against those who would exploit, control and disperse them”. The crowd also appears as an object of control and manipulation through propaganda by dictators.

Some scholars have opposed the view of the crowd as a source of madness. According to Dean, the crowd can be viewed as a potential force for democratization: “A benefit of the democratic reading of the crowd is its revelation of a split: the mob or the people. The crowd forces the possibility of the intrusion of the people into politics” (Dean, 2016, p. 8). The convergence theory of the crowd suggests that a crowd is a group of like-minded people who join together around common goals (Milgram & Toch, 1969). Reicher (1984) also challenges the dominant understanding of the crowd as an irrational, anonymous actor and highlights the role of common social identity as a major factor that can be associated with the emergence of a crowd. In Reicher’s account the crowd become a “rational actor” connected to socio-political contexts and driven by shared norms and objects, although it can manifest resistance to a dominant structure of power.

Greenberg (2010) highlights how the crowd can be either active or passive. Relying on Brown (1954), he describes four types of crowd behaviour: aggressive, escape, acquisitive and expressive. Some of these types of behaviour are particularly associated with situations of emergency. For instance, “escape behaviour” is seen in a situation of irrational panic in the light of a threat. Acquisitive behaviour suggests “a competition for some object that is in short supply” (p. 575), e.g. fighting for limited resources or looting in a case of disaster. At the same time, Johnson (1987) argues that the crowd can consist of small groups of individuals who are able to manifest mutual aid behaviour towards one another in a situation of emergency.

Another “optimistic turn” around the notion of the crowd is associated with the context of crowdsourcing. Crowdsourcing has been a topic for academic debates ever since Howe introduced the concept in 2006. Initially, Howe defined crowdsourcing as “the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call” (Howe, 2006, online). Howe’s definition presented crowdsourcing as a new type of business model allowing increasing profit for firms, and limited the actors who could employ crowdsourcing to institutional entities. Scholars, however, disagree about the identity of actors potentially participating in crowdsourcing, the nature of the relationship between those actors, and what crowdsourcing can be used for.

Brabham (2008, p. 75) suggests a broader approach and defines the purpose of crowdsourcing as an “online, distributed problem-solving and production model”. However, this definition still locates the understanding of crowdsourcing within a discussion about the efficiency, profit and utilitarian aspects of ICTs. Brabham also challenges the definition of

crowdsourcing as managed by institutional actors. He suggests that the locus of control over crowdsourcing can be either on the side of the organization or on the side of the community, although situations where “the organization is merely incidental to the work of the crowd” are not considered by Brabham to be crowdsourcing (2013, p. 4).

The nature of the resources mobilized is also disputed. Some researchers suggest (drawing on Surowiecki, 2005) that what is mobilized is the “wisdom of crowds”. Others approach this as “crowd capital”, relying on Bourdieu’s notion of capital (Prpić & Shukla, 2013). The discussion around the nature of resources differentiates between those used for simple mechanical tasks and those that can address complicated tasks (Erickson et al., 2012). Scholars have developed models for the optimization of the crowdsourcing process and “guidelines for matching the right crowd to the right job” (Erickson et al., 2012, p. 7). Some research highlights how crowdsourcing allows specific forms of participation, e.g. it allows “capable crowds to participate in various tasks, from simply ‘validating’ a piece of information or photograph to complicated editing and management” (Gao, Barbier, & Goolsby, 2011, p. 10). The role of crowdsourcing is discussed in contexts of crisis response (Liu & Palen, 2010), the production of volunteered geographic information (Haklay, 2010; Boulos et al., 2011), governance (Bott, M., Gigler, B.-S., & Young, G., 2011) and citizen science (Haklay, 2011), among others.

Estellés-Arolas and González Ladrón-de-Guevara (2012) analyse more than 40 definitions of crowdsourcing in order to introduce a comprehensive definition:

Crowdsourcing is a type of participative online activity in which an individual, an institution, a non-profit organization, or company proposes to a group of individuals of varying knowledge, heterogeneity, and number, via a flexible open call, the voluntary undertaking of a task. The undertaking of the task, of variable complexity and modularity, and in which the crowd should participate bringing their work, money, knowledge and/or experience, always entails mutual benefit... (2012, p. 9)

The point that crowdsourcing “always entails mutual benefit” is questioned by Marxist scholars, who emphasize the role of crowdsourcing as a form of exploitation of digital labour that serves the interests of commercial actors (Fuchs & Sevignani, 2013). That said, as Brabham (2008, p. 86) points out, “narratives from superstars in the crowd indicate more agency than Marxist critiques would allow”. Shirky (2010) discusses crowdsourcing as something that supports generosity, creativity and the agency of individuals.

Reviewing the debates around the conceptualization of crowdsourcing can contribute to understanding the role of ICTs in emergency response. The role of digital technologies for the mobilization of the resources of the crowd is particularly important, since emergency

response is often defined as a process that “involves matching urgent needs with available resources in the most rapid and efficient way possible” (Alexander, 2013, p. v). That said, the discussion of the role of ICTs in a situation of disaster suggests a need to go beyond the role of technology and situate the role of ICTs within their social and political context. Accordingly, the following sections discuss how disasters affect people’s behaviour and how this can influence political institutions.

2.4 Disasters, human nature and social transformation

History provides many accounts that allow us to examine social behaviour in emergency situations, starting from the destruction of Pompeii and Herculaneum following the eruption of Mount Vesuvius in AD 79. One of the first cases that offer evidence of global response to disaster is the Lisbon earthquake in the 18th century, when the perception of the earthquake led to a rise in international solidarity (Orgad, 2012; Pantti et al., 2012).

The question of how people’s behaviour and the social order change in situations of emergency is one that has been addressed in research field of the sociology of disasters. Guggenheim (2014) differentiates between two movements in addressing disasters within social science. The first “relates to an interest in breaks and ruptures, rather than continuity and structure” and explores the production of new compositions of the world that can be associated with disasters (pp. 2-3). The second is focused on treating disasters as non-human actors, and is associated with Actor-Network Theory.

Russian sociologist Pitirim Sorokin was one of the pioneers of disaster research. In his book *Man and Society in Calamity* (1942), Sorokin focused on exploring the ambivalent role of disasters in society. According to Sorokin, on the one hand a disaster leads to an unprecedented splash of generosity. On the other hand, it removes “sociocultural, religious and normative masks” (Sorokin, 1942, p. 134) and gives rise to antisocial behaviour, immorality and excessive manifestations of egoism. Another perspective on the negative social impact of emergencies is offered by Klein (2008) in *The Shock Doctrine*, where she portrays civilians as frightened and disoriented during times of crisis.

Barton addresses the transformation of society in the face of disaster as a transition from an everyday-life social system to an “emergency social system”, suggesting an alternative set of roles, behaviour and normative structure:

Any large unfavorable change in the inputs of a social system disrupts its normal flow of activities and threatens the satisfactions and values of its members. Something has to be done to restore equilibrium, either by starting new activities to meet people’s needs or by inducing people to accept a lower standard

of goal achievement. If the environmental change is gradual and continues for a long time, the system adjusts to it through normal processes of collective decision making and change in role systems. But if the change is rapid, it disrupts these processes and creates new ones, which call into being an “emergency social system”. This is much more loosely organized than the normal social system, but it is by no means a state of chaos. (Barton, 1969, p. 66)

Barton highlights how disasters make “prior social status and relationships less relevant” (Barton, 1969, p. 245). He describes the emergence of an altruistic community as an alternative to the community to be found in everyday life.

Alongside the discussion of altruistic communities, a separate body of literature discusses the emergence of disaster-related volunteerism and in particular volunteering by people who have no prior affiliation with volunteer organizations. While traditional definitions of volunteering tend to “ignore episodic, spontaneous and virtual volunteering” (Lewis, 2013, p. 8), a number of researchers argue that there is a shift towards preference for short-term tasks (Handy et al., 2011, p. 206) and a transition from traditional to episodic volunteering (Lewis, 2013, p. 9). Suzuki (2006, p. 153) highlights the decline in Japan of traditional forms of volunteering that rely on permanent organizational frameworks, while at the same time “the number of people volunteering to participate in relief activities has increased”. The decline of traditional volunteering due to demographic and economic changes has also been identified in Australia (McLennan & Birch, 2005).

Medina highlights the role of spontaneous volunteers as a form of pragmatic participation by the public “in response to needs that are made apparent to them by media (mainstream and social media), and stories of people they know” (Medina, 2011, p. 16). However, as pointed out by Barton (1969), the role of media in defining needs can lead to an unequal allocation of the resources of spontaneous volunteers, which is conceptualized as a “convergence problem”. Alexander highlights the allocation of resources as one of the central issues for disaster management: “The main purpose of command in civil emergencies is to ensure that resources and tasks are allocated and put to good use in the most efficient and effective way” (Alexander, 2008, p. 138).

In this light, scholars and policy experts seek to develop models for the management of spontaneous volunteers by institutional actors. According to Gossett and Smith, “Unaffiliated volunteers present a special challenge to disaster relief efforts because these workers are not necessarily integrated into the existing disaster management systems” (Gossett, & Smith, 2013, p. 323). Orloff (2011) argues that the management of spontaneous volunteers requires new approaches in order to avoid “confusion, chaos, and ill will between

community members and official responders” (p. 5). Alexander (2008) points out that “the challenge of the 21st century is to democratize emergency preparedness in such a way that ordinary people take more responsibility for their own safety” (p. 143), while “modern information flows need to be the catalyst for sharing the burden of disaster” (p.144).

An additional question that is asked with regard to the social consequences of disasters is whether a disaster can trigger social transformation or enhance social change. Cuny (1983) suggests that “disasters create a climate wherein changes in society are more acceptable” (p. 12), which can then lead to change in governmental policies or institutional change, as well as changes in the structure of community leaders. Sorokin argues that the development of new religions and other normative development took place under an impact of large scale disasters, while calamities release a creative energy which lays the foundation of new society (Sorokin, 1942, p. 201). Rodin (2015, online) says the meaning of resilience is “the capacity to bounce back from a crisis, learn from it, and achieve revitalisation”.

According to Solnit’s book, *A Paradise Built in Hell* (2010), disasters allow us to see alternative modes for the existence of a society. She argues also that disasters provide a common purpose and introduce alternative ways of maintaining social order which reject social alienation and support the improvisation of new forms of social order (Solnit, 2010). Hannigan (2012, p. 8-9) describes this type of approach to the period following an emergency situation as “post-disaster utopia” and “a kind of ‘Arab Spring’” of disasters. The question, however, is whether the “window of opportunity” offered by disasters remains open after the end of an emergency. For instance, Sorokin (1942) suggests that the positive things that appeared in a time of emergency may subsequently also work in times of post-disaster stability. That said, Barton questions the long-term impact of disasters on a social system, while pointing out that “the mechanism by which changes become permanently embodied in social systems as a result of particular events are little known” (1969, p. 263).

Barton (1969) describes how an emergency-related social system that relies on altruism fades away, while “people get tired of helping activities, the enthusiasm wanes, the normal antagonisms revive” (p. 301). In such a case, “unless the social system restimulates the original experience or supports the first emotional reactions with other motivations, the behavior evoked by the disaster will gradually be reduced” (1969, p. 302). That said, he leaves some space for the institutionalization of practices developed in a time of emergency as the “bureaucratization of mutual aid” (1969, p. 306).

Beck develops an argument concerning the association of emergencies and changes in the social structure on a global level. In his concept of the *risk society*, Beck depicts a social

structure increasingly organized around risks and the anticipation of emergencies. He identifies individualization and reflexivity as two major features of the global social structure:

The individual must cope with the uncertainty of the global world by him- or herself. Here individualization is a default outcome of a failure of expert systems to manage risks... As a consequence, people are thrown back onto themselves, they are alienated from expert systems but have nothing else instead. (Beck, 2006, p. 336)

This individualization suggests an alternative to the institutional system in the light of the failure of institutions to manage risk, and the notion of reflexivity proposes that individuals access potential risks alongside actions by institutions. In this context Beck (2006, p. 338) argues that global risks have “an enlightenment function”, since “they destabilize the existing order” and contribute to the “construction of new institutions”.

2.5 The politics of disasters

Hannigan (2012, pp. 7-8) points out that there is a “tendency to treat disaster and disaster response as essentially *non-political* in nature, or at least ideally so”. According to Hannigan, such a de-politicization is an illusion. Rozario (2007) suggests that emergency situations played a key role in the development of the American nation, US institutions and national consciousness. Natural disasters can affect the public’s support for officials and have an impact on local elections (Abney & Hill, 1966).

Guggenheim distinguishes between “disasters producing politics” and “politics producing disasters” (2014, p. 6). In the first case, disasters produce a certain type of politics in order to address disasters, while in the second case politics can be approached “as a mode of ordering the world that produces disasters for its own purposes and according to its own rules” (p. 6). Green (2008, as cited by Hannigan, 2013, p. 107) argues that “Just as earthquakes release the accumulated tensions in tectonic plates beneath the earth’s crust, disasters unleash the underlying social and political tensions that have built up over the decades, and expose the effectiveness of states, whether democratic or authoritarian, to the harshest of scrutiny”. Akgungor (2015, p. 201) says that disaster not only “puts the political system under stress by creating urgent situations and demands to be addressed but it also opens the way to criticism of the performance of those in authority.”

Pelling and Dill (2006, pp. 4-5) suggest that “the failure of the state to respond adequately to disaster can create a temporary power vacuum” and call for “opening to scrutiny dominant political and institutional systems”. They conceptualize disasters as a

“tipping point” that might lead to a various types of political transformation and shift in the balance of power between a government and citizens/ non-governmental organizations (Pelling & Dill, 2010). Meier suggests that natural disasters may “potentially provide a momentary window of opportunity to catalyze regime change” (Meier, 2012, online).

Sorokin (1943) argues that in times of emergency, specifically hunger, the political system tends to become more totalitarian. Hewitt suggests that the dominant purpose of disaster response by institutional actors is not the reduction of the damage of a disaster and protection of human life, but rather the restoration of “all forms of regulation and enforcement of state power” (Hewitt, 1998, p. 90). According to Guggenheim (2014), the Foucauldian perspective suggests that “a disaster, for politics, is not an event out there, but a decision to be taken with repercussions for state action and the state’s relation to the population” (p. 9). This approach is developed by Agamben in the notion of the “state of emergency” (2005). Agamben’s notion is described by Guggenheim as a situation that allows us “to impose new forms of politics on the population” and “to enforce stricter control of the population, a new biopolitics that would not be possible in normal circumstances” (Guggenheim, 2014, p. 9). Guggenheim builds on Agamben’s argument and proposes that “in a state of emergency, what matters is that disasters become a resource to justify whatever the state of emergency proclaims” (p. 9).

Pelling and Dill underline that the concern of state institutions with control over the population is particularly visible in relation to volunteers. According to Pelling and Dill (2008, p. 13) “spontaneous citizen-based self-organization is a threat that can be addressed through repression”. This point also resembles Barton’s argument that “The more rigid and authoritarian the organization, presumably the less easily they can cope with the opportunity and necessity of using public help” (Barton, 1969, p. 188). Klein (2008) contradicts the idea that disasters can help citizens to oppose traditional institutions. She argues that power-holders can manipulate a situation of collective shock in order to advance their goals, while the capacity of the public to protect its interests is weaker in times of emergency.

Research into the “politics as disaster” also addresses the organizational structure of emergency response. Following Tierney and Bevc (2007), Guggenheim highlights how “the state and its disaster organizations use disasters for a militarization of response and for taking responsibility out of citizens’ hands”, while there is a tension between “the organized, bureaucratized and militarized work of state organizations” and “the improvisational skills of the population” (Guggenheim, 2014, p. 11). Alexander (2008) points out that the 20th-century emergency response system was dominated by the rigid and authoritarian military model of

command and control, which is focused on directing people: “One of the largest issues is that command and control structures may in extremis be used either to safeguard the chosen few, rather than the public in general, or to safeguard the state against the demands of the public” (Alexander, 2008, p. 143). Alexander stresses the need for a democratization of disaster response systems and “the general transition from military to civilian forms of command” (2008, p. 137).

There are also scholars who highlight the ways in which disasters present political opportunities for traditional institutions. Sobolev et al. (2012) argue that disasters can increase the trust of citizens in the authorities. Egorova and Cullen (2014) suggest that, while disasters can contribute to internal political destabilization and new armed conflicts, they also can create “new arenas for interaction between the parties, such as joint management of disaster response or coordination of international relief supplies, thus creating opportunities for cooperation and dialogue” (p. 2). A similar argument is developed by Le Billon and Waizenegger (2007). These issues are addressed specifically by the field of “disaster diplomacy”. According to Kelman (2012), “disaster diplomacy investigates how and why disaster-related activities do and do not induce cooperation amongst enemies” (p. 13). Evidence of the dilemmas around the political role of disasters can be found by exploring communication at a time of emergency, while disasters not only may lead to political consequences, but they are also a political issue in themselves.

2.6 Communication in disasters

According to Dayan and Katz (1992, p. 5), disasters are often addressed as media events that “intervene in the normal flow of broadcasting and our lives”. The original concept of media events does not address the coverage of disasters (Couldry, 2003). Katz and Liebes introduced a notion of disruptive events as part of the revision of the notion of media events (2007). Jimenez-Martinez (2014) considers whether disasters can be addressed as either integrative or disruptive media events. A notion of “mediatized rituals” as “exceptional and performative media phenomena that serve to sustain and/or mobilize collective sentiments and solidarities on the basis of symbolization and a subjunctive orientation to what should or ought to be” (Cottle, 2006, p. 415) can also be used in order to conceptualize media coverage of disasters.

The discussion of disasters as events that constitute their audience can be associated with a ritual model of communication that explores how information creates and sustains the social order. Silverstone describes the role of communication in rituals as one of creating

“momentary spaces and times when the profane and ordinary world is put one side and where the power of the albeit dispersed collective is mobilized in a project of mutuality and togetherness” (Silverstone, 2002, p.194). From this point of view, communication around disasters enables the development of a new sense of community. In that context, the critical exploration of how disasters are mediated to the global community proposes an analysis of the mediation of distant suffering (Chouliaraki, 2004; 2006), and that imagining the other in a situation of natural disaster is part of the development of a global imagination (Orgad, 2012), with a focus on the role of media in the construction of spectator-victim relationships.

Different streams of research emphasize that media have a focal role in the construction of the representation of disaster. For instance, Calhoun (2004) emphasizes the constructed nature of emergencies through the development of a notion of “emergency imaginary”. According to Calhoun (2004, p. 376), the imaginary of emergencies shapes “the way in which we understand and respond to specific events, and the limits to what we think are possible actions and implications”. A number of scholars highlight ways in which the representation of a disaster is associated with potential forms of action of audiences in response to disaster (Weick, 1999; Jasanoff, 2010; Hannigan, 2012).

Cottle (2008, p. 170) argues that “How different global crises become communicated, contested and constituted within the world’s media formations and communication flows – within its evolving global new ecology – may not only be the harbinger of new (forced) cosmopolitanism but also prompt re-imagining of the political within an increasingly interconnected, interdependent and crisis-ridden world”. The role of symbolic power in situations of crisis is also highlighted in Beck’s (2006, p. 332) concept of global risk society: “Without techniques of visualization, without symbolic forms, without mass media, etc., risks are nothing at all”. He concludes that “in risk society relations of definition are to be conceived as analogous to Marx’s relations of production” (p. 333).

The national dimension of an analysis of the symbolic construction of disaster deals with such questions as the existence of a disaster and its scale, the degree of control over emergency by institutional actors, and the attribution of blame. Entman (1993) suggests a model of risk-framing which allows us to explore the framing of actors who respond to a disaster. According to Pantti et al., “media today perform a leading role in the public constitution of disasters, conditioning how they become known, defined, responded to and politically aligned“ (2012, p. 5). The attribution of blame has been widely analysed in the case of Hurricane Katrina (e.g. Malhotra & Kuo, 2008).

Accordingly, control over the representation of disaster and its framing become a major political issues alongside the response to disaster. The capacity to limit information about the scale of a disaster can be associated with the power to promote a specific vision of the emergency, relying on control of information flows. On the one hand, one might expect a government to argue that a situation is under control and the relevant institutions are taking care of the crisis. On the other hand, if the situation on the ground is different, we might expect the emergence of an alternative frame that would emphasize a lack of appropriate emergency response and present the real scale of the disaster.

Pantti et al. highlight the ways in which ICTs provide new opportunities to challenge state-driven framings and construct new meanings of disaster: “When mediated in and through this rapidly evolving media and communication ecology, disaster communications promise to unsettle traditional hierarchies of communication power” (Pantti et al., 2012, p. 4). Moreover, disaster coverage “opens up a rare space for ‘ordinary people’ to communicate injustice and direct criticism at power holders in society – corporations, governments, and other social institutions that they otherwise rarely have the opportunity to directly hold to account” (Pantti et al., 2012, p. 204).

The tension around the framing of disaster can also be found between authorities and media. For instance, Bennett et al. (2007) argue that Hurricane Katrina changed the relationship between the US authorities and the US media:

Whether on radio, TV, or in the papers, journalists were suddenly and surprisingly taking adversarial positions with officials, and even informing those officials about the realities of the situation at hand. This was indeed a rare reversal of the more familiar pattern of reporting official accounts of situations that journalist often know are being spun to gain political advantage. (Bennet et al., 2007, p. 167)

At the same time, an analysis conducted by Tierney et al. showed how the mediation of Katrina included political discourses constructing the victims in a way that could create legitimacy for a military-type response (as cited in Pantti et al., 2012, p. 27).

Akgungor describes how media framing can contribute to the politicization of public participation in disaster response when “through effective manipulation of catastrophe as a symbol, deeper social, political, economic problems are brought out and (occasionally) transferred into political agendas” (2015, p. 202). The mobilization of the volunteering search and rescue organization AKUT following an earthquake in Turkey was portrayed by the media as a political movement that highlighted the state’s failure and allowed journalists to call for political change (Akgungor, 2015).

To sum up, control over the representation of disaster has substantial importance for

traditional institutions. In some cases, a lack of physical capacity on the part of the state to respond to a disaster can be compensated for by the exercise of symbolic power whereby institutions conceal the degree of a disaster or the lack of ability to deal with it, or/and construct images of an efficient emergency response. At the same time, some actors try to introduce alternative framings in order to challenge traditional power-holders. Interestingly, Sen highlights the fact that independent media play a focal role in the reduction of the possible consequences of disasters. He argues that independent media allow us to identify the problems in the functioning of the system, while misleading information is associated with a continuation of calamities (Sen, 1999).

2.7. Crisis communication as an interdisciplinary field

The discussion of the technological, social, political, and media-related factors related to disaster response presented above should be situated within the broader context of the field of crisis communication. The review in this section seeks to map this field in order to enable later a discussion of how this research contributes to the field of crisis communication.

According to Coombs (2010), crisis communication can be defined as “the collection, processing, and dissemination of information required to address a crisis situation” (p. 20) while a crisis “creates a need for information” (p. 25). Palttala et al. (2012) highlight how “crisis communication has its origins in public relations and is grounded in strategies to manage and frame public perceptions of an event” (p. 3). Sellnow and Seeger (2013) define crisis communication as “the ongoing process of creating shared meaning among and between groups, communities, individuals, and agencies, within the ecological context of a crisis, for the purpose of preparing for and reducing, limiting and responding to threats and harm” (p. 13). Garnett and Kouzmin (2007) view crisis communication through four lenses: “(1) crisis communication as interpersonal influence, (2) crisis communication as media relations, (3) crisis communication as technology showcase, (4) and crisis communication as interorganizational networking” (p. 171). According to Sturges (1994, as cited by Olsson, 2014, p. 115), crisis communication can be divided into “instructive information, which informs people on how to react in terms of personal protection; adjustive information, which helps people to cope with uncertainty; and internalising information, which refers to information that helps an organisation manage its reputation”.

The conceptualization of crisis communication, however, relies on a definition of crisis. Many scholars highlight the absence of consensus around a universally accepted

definition of crisis (Coombs, 2010; Heath, 2010; Roux-Dufort, 2016). Coombs defines a crisis as “the perception of an unpredictable event that threatens important expectancies of stakeholders and can seriously impact an organization’s performance and generate negative outcomes” (Coombs, 2007, pp. 2–3, cited in Coombs, 2010). Seeger et al. propose that “a crisis may be defined as a specific, unexpected, non-routine event or series of events that creates high levels of uncertainty and a significant or perceived threat to high priority goals” (Seeger et al., 2003, cited in Sellnow & Seeger, 2010, p. 7).

The notion of crisis addresses a variety of situations, “including scandals, product failures, natural disasters, and environmental crises” (Fearn-Banks, 2011/1996, as cited by Olsson, 2014, p. 114). Mackey (2015) refers to the categorization of crises by Lerbinger as “crises of the physical world” (e.g. natural disasters); crises of the ‘human climate’ (e.g. criminal actions and political conflicts) and crises attributable to management failure” (pp. 15-16). A conceptual unpacking of the notion of “crisis” is also offered through division of crisis situations into phases. The common approach divides a crisis into three stages: pre-crisis, crisis response, and post-crisis (Coombs, 2010, p. 46). There are, however, alternative views about the structure of crisis phases (Sellnow & Seeger, 2013; Mehta & Greer, 2015).

Weick addresses a crisis as a cosmological episode, where “people suddenly and deeply feel that the universe is no longer a rational, orderly system” (cited in Sellnow & Seeger, 2013, p.6). Some definitions highlight the complexity of a crisis in the context of Chaos Theory (CT) and approach it as an increase in entropy. Sellnow and Seeger describe crises as “cascading events”, which include a chain of crises, e.g. an earthquake leading to a tsunami and then to a nuclear disaster in the case of Fukushima (2013, p. 7). The notion of “cascading events” also highlights the interaction of “natural phenomena with human systems” (Sellnow & Seeger, 2013, p. 9)

As highlighted by Olsson (2014), crisis communication has traditionally perceived crises as man-made and organizationally centred, with a strong focus on preserving an organization’s reputation (p. 114). A crisis around the reputation of a particular organization is focused on the question of “who caused a crisis” and may challenge organizational legitimacy (Sellnow & Seeger, 2010, pp. 87-88). One of the major concepts to explore the attribution of responsibility for a crisis is Situational Crisis Communication Theory (SCCT), developed by Coombs and Holladay (2004). SCCT relies on the attribution theory, which suggests that people assign responsibility for unexpected events because they “have a need to control events that happen in their social environment and to perceive them as predictable”, and explores the process of causal attribution (Schwarz, 2008, p. 32).

Coombs argues that “attributions of crisis responsibility have a significant effect on how people perceive the reputation of an organization in crisis and their affective and behavioural responses to that organization following a crisis” (2010, p. 38). Accordingly, SCCT explores the association between the perception by stakeholders of an organization’s responsibility, the degree of threat to the image of an organization, and the crisis response strategies of organizations. The assignment of guilt for a crisis and strategies for responding to it are also addressed by image restoration theory (Benoit, 1995). In this context, special attention is dedicated to the role of the media in the attribution of responsibility, where “the media often seek immediate explanations regarding cause and blame” (Sellnow & Seeger, 2013, p. 30). New challenges to the reputation of organizations are associated with the increasing role of digital platforms, where “social media comments can frame a crisis” and give a space for “the wrath of angry netizens” (McLean & Hopwood, 2015, p. 65). Hess and Maller (2015) highlight how the nature of social media makes it challenging for traditional organizations to control the message (p. 124). A particular role in creating “[social] media firestorms” which threaten a company’s reputation is played by frustrated customers and “slacktivists” (Quinn-Allan, 2015).

While the traditional crisis communication field deals with the image of organizations, there are a number of subfields that explore the role of communication in a context of crisis, including risk communication and disaster communication. Risk communication theory explores “how risks and threats are communicated” (Rogers & Pearce, 2016, p. 34) and how the understanding of risk and individual behaviour are associated. Accordingly, risk communication studies examine the effectiveness of warning systems, the social and psychological factors that influence the public’s perception of risks, decision-making, and the generation of “desired behavioural outcomes” (Sellnow & Seeger, p. 60). Risk communication studies are specifically concerned with failures in the perception and interpretation of risks. They explore the issues of non-compliance with evacuation requests and of rumours. Some scholars suggest that effective risk communication requires “a shift from one way communication of risks to a dialogue”, with social media providing “an outlet for two-way risk communication to be socially constructed in real-time” (Mehta & Greer, p. 142, 2015). The extended parallel process model (EPPM) (Witte, 1994) explores the role of fear as an emotional stimulus to individual reaction. It differentiates between situations where fear is linked to a message that the risk can be controlled and reduced by individual behaviour, on the one hand, and cases where the target audience see no effective solution and therefore may reject the message about risk, on the other hand.

However, some scholars argue that traditional concepts of crisis communication and risk communication have a limited capacity to address disasters due to the “complex multilayer nature” of these events (Mehta & Greer, 2015, p. 142). Adkins (2010, p. 93) stresses the need to differentiate between the definition of crisis and the definition of disaster. Coombs argues that “crisis communication and disaster communication will have similarities, but are not isomorphic” (Coombs, 2010, p. 54), since “disasters are larger in scale and require interagency coordination therefore” (Coombs, 2010, p.62). Sellnow and Seeger (2013) highlight how disaster communication addresses mainly the communication of messages to the affected public and coordination between different responders (p. 106). The unique nature of disaster communication as communication in a multidimensional situation is also highlighted by Chaos Theory (CT). Here communication is seen as a core process that is needed for self-organization and specifically for the participation of citizens as a “natural response to crisis” (Sellnow & Seeger, 2013, p. 108). In this light “the principles of CT point to communication both as a form of bifurcation producing variance and as an attractor leading to emergent organization” which can potentially contribute to renewal and improvement of the system (Sellnow & Seeger, 2013, p. 112).

A particular topic of interest for disaster communication is the organizational structure of emergency response, where “the coordination of the multiple agencies becomes a pivotal communication concern” (Coombs, 2010, p. 60). Adkins (2010) underlines how “a single organization is very rarely the sole ‘owner’ of a disaster or crisis situation” (p. 96), requiring a focus on the communicative behaviour of multi-organizational networks. A taxonomy for different types of organizational structure of emergency response coordination is offered by Tierney (2005) and includes the bureaucratic perspective, the structural perspective and the networked perspective. The bureaucratic model is associated with a military, top-down doctrine of command and control by a central authority. The structural approach examines the dynamic relationships between four elements including domains (D), tasks (T), material resources (R) and activities, and explores how structural aspects constrain structural means (Sellnow & Seeger, 2013, pp. 115-117). The network perspective “privileges the instrumental communication dimensions of coordination” (Sellnow & Seeger, p. 119) and provides more space for innovation and collaboration with informal actors.

In this context, some scholars have explored as a dominant national emergency response strategy the “all hazards approach”, which suggests using a common emergency response system for different emergencies (Schneider & Jordan, 2016, pp. 16-17), and requires the improvement of communication between different state agencies. Boersma et al.

(2012), however, argue that “a top-down implementation strategy for a single nation-wide information system will fail” (p. 1), and stress the importance of a net-centric approach as an underlying principle of a national emergency response system. According to Boersma et al. (2012), net-centric work that relies on information systems can overcome fragmentation, link different institutional and individual actors and contribute to the development of “shared cognition and situational awareness” among all the actors in a time of disaster.

Wolbers examines cross-boundary coordination during emergency response, which he defines as “a temporally unfolding and contextualized process of managing interdependencies in response to the discontinuity of a boundary, in order to realize a collective performance” (2015, p. 28). He highlights how coordination is associated with a “different sort of boundaries” (p. 28, 2015) and challenges the argument that a dominant coordination approach leads to integration. On the contrary, the dominant coordination practice is one of fragmentation, where “crisis managers are inclined to reinforce the functional, knowledge, and normative boundaries they encounter, instead of bridging them” (Wolbers, 2015, online). That said, according to Wolbers, fragmentation does not necessarily have negative connotations. He argues that fragmentation “allows them [emergency responders] to demarcate their responsibilities, engage in continuous adaptation, and employ their expertise, to keep sufficient speed and flexibility in the response operation” (2015, online). The relationship between coordination and fragmentation practices is addressed as “the paradoxical relation between *designed* and *emergent* coordination that is present in emergency management.” (2015, p. 18).

According to Charman (2015), the drawing of boundaries between response organizations may also rely on cultural similarities and differences. Relying on an analysis of working relationships between police officers and ambulance staff, Charman proposes that “boundary crossing” practices that support interoperability in a time of emergency “can be witnessed in the shared characteristics of black humour, storytelling, empathy, cynicism, common sense, exclusion and communication which operate at both an explicit and tacit level” (p. 171). That said, Charman highlights how relationships with the fire services are much more challenging due to the differences in cultural characteristics.

The focus on the relationship between organizations highlights not only interorganizational networking (Garnett & Kouzmin, 2007), but also relationships between institutions and other types of stakeholder, including NGOs, businesses, the community and individuals, in the context of a disaster situation. Some literature emphasizes how the public’s role in emergency situations is characterized “by such orderly, spontaneous and adaptive

responses as opposed to the panic of some paralyzing disaster syndrome” (Sellnow & Seeger, 2013, p. 109). The role of the public is also conceptualized through the notion of “community resilience” as a “coping ability, the ability to bounce back, pull through or adapt to the disruption of a crisis.” (Sellnow & Seeger, 2013, p. 123).

The role of citizens in emergency management is addressed through a shift from top-down command and control to people-centred approaches relying on the tenet that “the public is a central element and resource in disaster risk management” (Scolobig et al., 2015, p. 204). People-centred approaches suggest that “involving people in risk decisions empowers them, encourages ownership, responsibility, and participation” (Scolobig et al., 2015, p. 203). According to Scolobig et al. (2015), “sharing responsibility means deciding, communicating and accepting new allocations of responsibility” between the authorities and the public (p. 207). Sharing responsibility requires institutional and cultural transformation and “designing effective institutional frameworks that suit people-centred approaches” (p. 206). People-centred approaches also require different types of communication process which rely on the principles of “the public right to information and transparency” (p. 206,) which is supported through online platforms like Ushahidi (p. 206).

The literature explores cases of what can be considered as examples of people-centred approaches. For instance, Holderness and Trupin (2016) explore PetaJakarta.org as a case of the use of social media for two-way communication between citizens and local government in Jakarta (Indonesia) in order “to coordinate the creation of a crowdsourced flood map and relay information about government responses to the flooding, both in real-time” (p. 130). They argue that “the project was able to initiate a process of civic co-management as a methodology for promoting resilience to flooding in the flood-prone, coastal megacity of Jakarta” (p. 130). That said, Mulder et al. (2016) offer a critical examination of crowdsourcing initiatives for disaster response and argue that “crowdsourced crisis data can end up reflecting societal inequalities”, while “crowdsourced local crisis information becomes gradually less accessible to certain affected communities” (p. 10). Schmidt et al. (2016) raise one of the core dilemmas for people-centred approaches: “Should response agencies organize and formalize community response (e.g. via volunteer recruitment), or should they become more adaptive, aligning themselves with emergent community initiatives?” Relying on an analysis of the benefits and drawbacks of both options, they conclude that the major challenge is “to find initiatives that are able to function as a bridge between formal and citizen disaster responses” (p. 6).

The institutional and technological changes required for the incorporation of additional stakeholders also raise the topic of innovation in a context of crisis and disaster communication. Sellnow and Seeger highlight how communication is located at the centre of constant adaptation and evolution of organizations (2013, p. 83). A set of theories explores the diffusion of innovation in response to crisis situations as “an incentive for innovation diffusion” (Sellnow & Seeger, 2013, p. 157), including exploring the role of different agents of change within institutional systems. According to Garnett and Kouzmin (2007), “Crises become opportunities to showcase the capabilities of advanced, virtual communications hardware and software” (pp. 177-178).

The role of social media in emergency situations is one of the core issues in exploring innovation. Houston et al. (2014) introduce “a comprehensive framework that outlines who uses disaster social media and how social media has been (or might be) employed in disaster communication” (p.5). The framework relies on uses and gratification theory and provides a mapping of how individuals use social media in a situation of emergency at different phases of a disaster, while recognizing “that both traditional media content creators (such as news organisations, corporations) and traditional users (such as individuals) can create and consume content” (p. 5). The scope of the functions identified is seen as “ranging from preparing and receiving disaster preparedness information and warnings and signalling and detecting disasters prior to an event to (re)connecting community members following a disaster” (p.1).

Emergency response organizations, however, may be less flexible in the face of a crisis. While other organizations are forced to change in a crisis situation, emergency response organizations are created to address crisis situations and may not approach a crisis as a trigger for change. According to Veil (2010), there is a need in “the discursive justifications” to “rationalize and legitimize the adoption of an innovation” (p. 45). Boersma et al. (2012) describe innovation diffusion to support the interoperability and implementation of net-centric information systems as an ongoing process of negotiation where “heterogeneous partners discuss the meaning of the new (technological) concept” (p. 6) and government uses various “sticks” and “carrots” in order to drive innovation.

There is, however, an additional challenge that may be faced by emergency response organizations in disaster situations. Lerbinger differentiates between three types of crisis situation: “Crises of the physical world, for example natural disasters including human-made technical disasters; crises of the ‘human climate’, including criminal actions and political and pressure group disruption; and crises attributable to management failure” (as cited in Mackey,

2015, p. 15-16). However, as highlighted by CT scholars, disasters may create a chain effect by triggering a range of secondary crisis situations including internal political unrest and international conflicts, crime (e.g. looting) and organizational crisis. In the latter case, the responding institutional actors, including local authorities and emergency agencies, may face a dual crisis where they have to address the disaster and at the same time to protect their own reputation which are at risk of public dissatisfaction. The attribution of “responsibility” to nature for the damage caused by a disaster may shift towards attributing blame to the institutions responsible for emergency management (Schneider & Jordan, 2016, p. 20).

Coombs (2010) points out that “...during disasters, organizations may also need to engage in crisis communication. Crises can be embedded within disasters and poor disaster management can create crises for the agencies tasked with handling the disaster” (p. 62). For instance, Adkins (2010) says that “a disaster (e.g., a tornado) can lead to the recognition of weaknesses (a problem with a town’s tornado warning system that causes it to fail), which can in turn lead to the creation of a crisis situation (accusations surface that the town council wrongfully diverted monies earmarked for upgrading the town’s warning system to a different project)” (p. 98). Mehta and Greer (2015) argue that media framing can shift from “fame to blame” during the post-disaster phase (p. 143). The protection of reputation is particularly challenging due to the increasing role of social media (Kaur, 2015, p. 73).

Garnett and Kouzmin (2007) differentiate between community-oriented and reputation-oriented crisis communication, which can both be found in the case of a large-scale crisis. Disaster communication and crisis communication also create an inherent contradiction, described as a mismatch, “when, rather than providing instructional messages designed to assist the public in self-protection and recovery, organizations attend initially to their reputations by stone-walling, denying responsibility or shifting blame” (Coombs, 2012, cited in Sellnow & Seeger, 2013, p. 258), as well as “the tendency to favour reputation over instructing communication” (Millner, Veil & Sellnow, 2011). The nature of this contradiction is also captured by distinguishing between reputation-oriented and resilience-oriented information (Olsson, 2014).

The literature provides numerous case studies of how emergency organizations deal with reputational crisis in a context of disaster. For instance, Hurricane Katrina (2005) is often approached as a case that illustrates how “disasters can become crises for government” (Coombs, 2010, p. 60). “The hurricane hitting the Gulf Coast was a disaster. The inept management of that disaster spawned a crisis... Charges of incompetence require addressing the deficiencies and working to repair reputations” (Coombs, 2010, p. 60). Relying on SCCT,

Adkins (2010) explores how responsibility for the failures in response to Hurricane Katrina were attributed to different types of institutional actor in the US, including the presidential administration, the Federal Emergency Management Agency (FEMA) and local authorities. Adkins (2010) highlights how poor communication between different types of institutional responder lead to blame-shifting and different “antagonistic forms of disaster and crisis response” (p. 113).

The transformation from disaster communication to crisis communication can also be seen in other national contexts. As pointed out by Horsley, “the Australian media were not hesitant to blame the government for deaths following the 2009 Black Saturday bush fires”, while “the media framed its coverage in terms of an ill-defined fire evacuation policy” as the reason for the high number of victims (Horsley, 2016, p. 161). Samoilenko (2016) argues that in Russia “indifference and negligence on the part of local and federal authorities oftentimes turn into the source for new crises” (p. 400). He argues that blame games, shifting responsibility or concealing crises are traditional practices for Russian institutional actors which can be approached as a legacy of Soviet totalitarian practices, while the state plays a dual role as “crisis manager” and as “risk producer” (p. 406).

As described above, the differences in the approach to disaster communication and crisis communication can be seen in various political and cultural contexts. A distinguished body of literature suggests applying cultural theory in order to explore the approaches to risks and crisis situations. According to Sellnow and Seeger (2013), “cultural theory explains how institutions moralize, politicize and prioritize risks within a given culture” (p. 204). Tansey and Raynder (2008) point out that, according to cultural theory, “risk becomes politicized not simply because it is a threat to life but because it is a threat to ways of life” (p. 76). The role of culture in shaping the perception of risks can be seen in the analysis of the association between religion and attribution of blame when disaster can be attributed to immoral behaviour, and the response relies on punishment of those who have committed a sin.

The notion that perceptions of risk are produced by institutions highlights the importance of comparative analysis of emergency response in national contexts that suggest different cultural environments for the perception of crisis situations and for the attribution of blame. That said, Schwartz et al. (2016a) highlight how, while “variation in cultural differences” is an important factor for the analysis of crisis communication, crises are physically and symbolically “transcending national and cultural boundaries in terms of their causes and consequences”, as well as “in terms of international public discourses on potential crises (risks), ongoing crises, and post-crises (commemoration, learning)” (pp. 1-2). In this

light, they identify two dimensions for comparative crisis communication studies: “consideration of national or cultural context factors as independent or explaining set of variables” and “the observation of crisis communication as a cross national or cross-cultural communication process” (Schwartz et al., 2016a, p. 3).

That said, while the field of crisis communication offers a rich diversity of theories and conceptual approaches to questions concerning the role of ICTs in emergencies, there are also some limitations. For the most part, either the theoretical framing of issues proposes a broad understanding of crisis and risk or the focus is principally on the tools in specific case studies with a view to guiding research or planning a crisis response. While these traditions of research in the crisis communication literature draw on a number of theoretical models, they do not lend themselves to providing comprehensive insight into similarities and differences in the way the specific activities that occur in disparate crisis contexts are influenced or mediated both by digital technologies and by complex power relationships that become institutionalized in a variety of ways. The insights arising from this literature can be amplified by introducing a theoretical framework that helps to enrich our understanding of the factors associated with variations in the role of ICTs in emergency response in different national contexts and in a context of power relationships between stakeholders. This goal is addressed in the theoretical chapter through the juxtaposition of Cultural-Historical Activity Theory and the Foucauldian notion of governance.

2.8 Socio-political aspects of disaster response in Russia

The association between politics and disasters, and some of the contradictions around the socio-political role of disasters, can be seen by referring to the literature that addresses Russian political history, governance and communication. Geographers argue that the beginning of the “time of troubles” in Russia can be associated with the eruption in 1600 of the Huaynaputina volcano in Peru which caused a global environmental effect and was linked to the worst hunger in the history of Russia.

In Russia, the winter of 1601–1602 was severe, and more than 500,000 people are believed to have died between 1601 and 1603 in what is considered the worst famine in Russian history. The resulting social unrest and political discontent were major factors leading to the overthrow of the reigning monarch, Tsar Boris Godunov. (Verosub & Lippmen, 2008)

The Russian national poet Alexander Pushkin (1825) highlighted how Godunov was blamed for a failure to respond to famine and fires, despite his efforts to respond to the emergencies:

*God sent a famine; perishing in torments
 The people uttered moan. The granaries
 I made them free of, scattered gold among them,
 Found labour for them; furious for my pains
 They cursed me! Next, a fire consumed their homes;
 I built for them new dwellings; then forsooth
 They blamed me for the fire! Such is the mob,
 Such is its judgment! Seek its love, indeed!*

Barton highlights how natural disasters continued to play a significant role in Russian history: "In nineteenth-century Russia the overcentralization of power by the Tsar left local government so weak and unpopular that its efforts to control a disaster led to riots, and there was massive disobedience" (Barton, 1969, p. 293). That said, the participation of the public in emergency response can also be associated with support of state institutions by the public. Raab (2011) argues that, despite expectations that volunteering will be a manifestation of independent civic activism, in the 19th century volunteer firefighters "consistently supported the traditional values of an authoritarian state" (Raab, 2011, p. 4). Accordingly, there is a paradoxical relationship between volunteering as a manifestation of civic society and the conservative, semi-military nature of volunteers' organizations (Raab, 2011).

The attribution of blame and the role of the media in the framing of disaster have a significant political importance in the Russian case. According to Giuliano (2013), following the fires in 2010 and the floods in 2011, "Of the three options available to citizens following natural disasters, praising government performance, blaming the government, or failing to perceive disasters in political terms—citizens in Russia have chosen the latter two" (Giuliano, 2013, pp. 6). Giuliano (2013) suggests that the federal government made efforts to frame the events in order to attribute the failure to local authorities. That said despite these efforts "victims and citizens outside the affected areas affix some responsibility onto regional leaders and some, albeit less, onto federal leaders" (pp. 6-7). Sobolev et al., however, argue, drawing on interviews with Russian citizens from rural areas who were affected by the wildfires in 2010, that this natural disaster increased public support for the central government (Sobolev et al., 2012).

Bertrand (2012) provides an analysis of the tactics of the Russian authorities in the symbolic construction of disasters. According to Bertrand (2012, p. 34), in the case of the fires in 2010 the media highlighted how the crisis was under the personal control of Prime Minister Putin: "The prime minister's insistence on personal control appears to be a general

mode of government, a representation of the exercise of power conveyed by state leaders”. Bertrand (2012) suggests that the Russian case illustrates the argument, proposed by Borraz and Gilbert, that in emergencies state leaders are concerned with the “affirmation of state authority and disengagement from its responsibility” (Borraz & Gilbert 2008, as cited in Bertrand, 2012, p. 37). In that light, “federal authorities are described as accountable agencies of control, while regional structures promote stability by acting as scapegoats” (Bertrand, 2012, p. 37). Bertrand (p. 39) also points out that the government sought “to hush up the role played during the emergency phase by a large and spontaneous organization of citizens” in order to allow the government “to construct an image of a capable state and leaders to prevent any loss of credibility at the national and international levels”. Roffey (2014) argues that concealment of the “real magnitude of the problem” can often be seen in Russia:

The denial of crises is not a new phenomenon in Russia, due to the perceived risk that they can generate secondary threats and discontent among citizens. Denial of crises is often related to poor performance by a ministry or agency, and it is common to shift the blame for not managing a disaster well on to other individuals or agencies... There is a risk that a natural disaster and the crises it generates will undermine the influence and legitimacy of key actors and leaders.

Controlling the flow of information to the public is therefore seen as essential. (Roffey, 2014, p. 79)

Another case that highlights the politics of disaster communication is the nuclear disaster in Chernobyl. Rostova (2015 [RUS]) highlights how the USSR government made efforts to conceal the explosion since it was concerned that the information about the incident would be used in “anti-Soviet propaganda”. Kuchinskaya (2014) highlights the imperceptible nature of radiation, which means that “individuals’ experience of it is always highly mediated”. In that light, Kuchinskaya conceptualizes the role of mediation as “the production of invisibility of Chernobyl’s consequences—that is, the practices of producing representations that limit public visibility of Chernobyl radiation and its health effects” (p. 2).

The Russian case illustrates a number of contradictions around disaster response that are highlighted by the literature reviewed in this chapter. For instance, on the one hand, disaster presents an opportunity for civic engagement. On the other hand, the structure of a state-led emergency response system seeks either to embed citizens within a military type of structure or to prevent their participation. This case also illustrates how in cases of emergency the leading concerns of the traditional institutions may be related mainly to the political consequence of the emergency situation. Last but not least, the literature on emergency response in Russia highlights how the emergency is an outcome of symbolic construction, while the institutional actors make efforts to control the representation of the disaster and the

representation of their own role in the context of emergency response.

2.9 Conclusion:

This review has presented the background for an investigation of the role of ICTs in emergency situations. It started with an examination of the literature on the role of ICTs for disaster response which is dominated by an instrumental approach that mainly seeks to map the functions of ICTs and proposes ways in which digital platforms can be used to improve emergency response. This review, however, suggests that addressing the complexity of the factors that might be associated with the role of digital platforms in disaster response requires a clarification of the notion of crowdsourcing and an account of the social and political processes associated with emergency situations.

This literature suggests that there are contradictions around the social and political consequences of disasters, not least for the structure of the social order and for the structure of power relationships between formal state institutions and the public. Symbolic struggles around the different forms of representation of disasters have also been highlighted. The review emphasizes the need for a framework for further investigation emphasizing that the role of ICTs in emergency response needs to be examined in the context of social and political processes, and recognizing that communication plays a major role in the mediated construction of emergency situations.

3. Theoretical Foundations: the Role of Digital Mediation in the Governance of Subject-Object Relationships

3.1 Introduction.

The sociology of disasters literature presents diverse views about people's conduct and the role of communities in emergency situations, and about the potential socio-political influence of disasters. The literature also discusses the role of ICTs in emergency response, mostly focusing on the instrumental aspects of how ICTs contribute to disaster response. This thesis addresses two principle research questions:

- *Research Question 1: What is the role of digital tools (mediating artefacts) in the constitution (governance) of the subject? (RQ1)*
- *Research Question 2: What factors are associated with the constitution of the subject through the digital mediation of activity? (RQ2)*

To address these questions, it is essential to build a bridge between these bodies of literature. Linking discussion of how disasters change people and of the role of ICTs in emergency response can be achieved by exploring how ICTs contribute to shaping the role of users of digital platforms in times of disaster.

The first theoretical goal of this thesis is the conceptualization of the genesis of the subject within a context of relationships of power. The second goal is the development of a theoretical understanding of the role of digital platforms in the genesis of the subject by conceptualizing digital mediation. The third is the incorporation of situational contexts and the environment of the subject, which is in this case emergency situations, into an analysis of the genesis of the subject.

In the context of this thesis, "subject" refers to a single user of digital platforms. The word "genesis" is used to refer to a change in the subject that may be associated with the use of digital tools. This word was selected because it is not commonly used in a context of examining the transformation of a subject, and it avoids using words that are associated with particular theoretical constructs, specifically the word "constitution", which is linked to critical examinations of the subject and of relationships of power and the role of social structures in shaping individual actors. Similarly, the word "development" is associated with developmental psychology and studies of how specific practices, e.g. education, can contribute to the development of individual actors.

Addressing the three theoretical goals started as a journey through various bodies of literature that deal with the role of ICTs and relationships of power. I came to this research fascinated by a concept that is used to examine the role of ICTs in a context of networking power (Castells, 2007; 2011). I soon realized that a focus on networks as a unit of analysis would not allow me to explore how digital tools may be associated with the genesis of a subject in specific circumstances. I also considered approaching ICTs as part of actor-networks (Latour, 2005), as new forms of collective action (Bennet & Segerberg, 2012), as something that contributes to change in affordances (Gibson, 1977; Hutchby 2001), and as a change in the mediation of opportunity structures (Cammaerts, 2012). The examination of models in the communication field, including the transmission, ritual and mediational models, led to my focus on mediation, a concept that is particularly fruitful for examining the role of ICTs in the genesis of the subject (Silverstone, 2005). This still required a model of mediation that would allow me to conceptualize a link between the subject and her/his environment.

I reviewed concepts that examine the place of the subject in the context of relationships of power. This included an examination of the role of individuals in the context of risk society (Beck, 2006), of the limited statehood literature exploring situations of a retreat of institutional structures allowing more space for individual agency relying, among other things, on the usage of ICTs (Livingston & Walter-Drop, 2014), and of complexity theory exploring the dynamics of self-organization and hidden patterns in network behaviour using the notion of autopoiesis (Mingers, 1995).

The search for a framework that would allow me to conceptualize the role of ICTs in emergency situations and to incorporate power relationships as one factor shaping the role of ICTs in the genesis of the subject led me to the notion of governance as introduced by Foucault. This allowed me to address two interrelated aspects of the constitution of the subject. It helped me to characterize how actors constitute one another through discursive practices, and suggested an outcome to this constitution as the structuring of possible fields of action. The Foucauldian concept of governance highlights the option of resistance by the subject to the constitution by other actors and opportunities to take a part in the constitution of the self through the notion of self-governance. A Foucauldian approach seemed to offer a way to examine how ICTs can contribute to structuring possible fields of action and how different modes of governmental practice for the constitution of subjects may be associated with the role of ICTs. However, a Foucauldian approach offered little purchase on the role of

ICTs within the context of a genesis of the subject, and had a limited capacity to incorporate specific situational contexts within my analysis.

Cultural-Historical Activity Theory (CHAT) offered a fruitful concept of mediation as developed by Vygotsky and his followers. This notion of mediation addresses the role of ICTs as digital tools and mediating artefacts within a context of the relationship between the subject and his/her environment. CHAT, however, is focused mainly on the development of the subject, and neglects the role of relationships of power in the subject's genesis. In this chapter I therefore juxtapose the Foucauldian notion of governance and the CHAT notion of mediation in order to develop a conceptual framework for this study.

This chapter continues with a discussion of the Foucauldian notion of the subject (3.2). Section 3.3 introduces the notion of the subject according to CHAT, and considers the role of tools in the genesis of the subject. The following section (3.4) discusses the strengths and limitations of the juxtaposition of a Foucauldian approach and CHAT. Section 3.5 introduces the conceptual framework for this study and Section 3.6 conceptualizes the notion of crowdsourcing in the light of this framework. Section 3.7 briefly discusses theoretical pathways that were not followed.

3.2 Subject: the constitution of the subject and relationships of power.

3.2.1. Two sides of the constitution of the subject: From knowledge to action.

Although the Foucauldian project had different stages, it represented an effort to explore human beings as the constitution of a subject. According to Foucault, in order to explore the constitution of a subject, we need to focus not on particular hegemonic groups, but on practices and techniques of power:

This form of power applies itself to immediate everyday life which categorizes the individual, marks him by his own individuality, attaches him to his own identity, imposes a law of truth on him which he must recognize and which others have to recognize in him. It is a form of power which makes individuals subjects. There are two meanings of the word 'subject': subject to someone else by control and dependence; and tied to his own identity by a conscience or self-knowledge. (Foucault, 1982, p. 781)

One can identify two dimensions to the investigation of a subject. On the one hand, Foucault explores the constitution of the subject as an object of knowledge and objectification which is manifested through discursive practices. On the other hand, he suggests approaching a subject as an object of constraints on his/her actions, conceptualized as a structure of a "possible field of actions" (Foucault, 1982, p. 790).

The analysis of the constitution of a subject in this research study builds on the notion

that the subject is constituted in two interrelated layers. The first layer is how the subject is constituted as an object of knowledge, relying on discursive practices, which are also conceptualized as “games of truth” (see Section 3.2.3). Objectification also involves a “practice of division”, where a group of subjects is constituted in accordance with a particular discourse and thereby divided from other groups. The second layer concerns how the action of a subject or group of subjects is objectified and constrained in his/her “immediate everyday life” (Foucault, 1982, p. 781). This layer is conceptualized using the notion of the governance of subjects. The notion of the governance of subjects suggests that the process of constitution of a subject is not a coercion, but a continuous, complex process that involves a variety of actors and opportunities to resist particular forms of objectification and constraints on action. Accordingly, the constitution of subjects is an outcome of a tension between the governance of a subject by others, and specifically by institutional actors, and the self-governance of the subject. This thesis aims to explore how the objectification of a subject is associated with modes of governance of the subject that are manifested through digital platforms.

3.2.2 Dividing practices and knowledge: the constitution of the subject through objectification

According to Foucault, the objective of his project was to “create a history of the different modes by which, in our culture, human beings are made subjects” (Foucault, 1982, p. 777). Foucault underlined that “the subject himself is posited as an object for possible knowledge” (1984, p. 942). Examination of the constitution of the subject involves exploring how the subject approaches herself/himself as an object of knowledge, which includes “the formation of procedures by which the subject is led to observe himself, analyze himself, interpret himself, recognize himself as a domain of possible knowledge” (Foucault, 1984, pp. 942-944).

Foucault identifies three modes of objectification “which transform human beings into subjects” (Foucault, 1983, p. 777). The first mode is the exploration of scientific thought and in particular of the classification structure in the human sciences (Foucault, 1983, pp. 777-778). This mode is linked to an archaeological approach. In the second mode, Foucault shifts his attention to the study of “dividing practices”: “The subject is either divided inside himself or divided from others. This process objectivizes him. Examples are the mad and the sane, the sick and the healthy, the criminals and the ‘good boys’” (Foucault, 1983, pp. 777-778). This mode is used to explore how specific groups are constituted by institutional actors

and their practices. The second mode is linked to a genealogical approach which explores techniques of power that are “designed to observe, monitor, shape and control the behavior of individuals within a range of social and economic institutions” (Gordon, 1991, pp. 3-4). The third mode, which is linked to the notion of governance, suggests that human beings can transform themselves into subjects, for instance in the case of “how men have learned to recognize themselves as subjects of ‘sexuality’” (Foucault, 1983, p. 778).

The constitution of the subject is often associated in the literature with discursive practices. However, the notion of discourse was not specifically conceptualized by Foucault, nor did he propose a specific method for the investigation of discourses. Foucauldian Discourse Analysis (FDA) was proposed as a methodology for investigating modes of objectification (Willig, 2001). This is discussed in the methodological chapter (Chapter 4, Section 4.2)

Foucault emphasizes that “it is not power but the subject which is the general theme” of his research (Foucault, 1983, p. 778). He argues in *Discipline and Punishment* that the constitution of the subject through knowledge is a manifestation of power relationships linked to control over different groups of subjects who have been constituted through objectification: “...there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time, power relations” (Foucault, 1977, p. 27). Gaventa sums up Foucault’s theoretical innovation, highlighting how Foucault addresses power as “diffuse rather than concentrated, embodied and enacted rather than possessed, discursive rather than purely coercive, and constitutes agents rather than being deployed by them” (Gaventa, 2003, p. 1).

While the first two modes of subject objectification may create an impression that the constitution of the subject is dominated by hegemonic actors, Foucault opposes the idea that power relationships have a hierarchical structure. He suggests that power is not linked solely to specific types of actor and that it can potentially produce a positive effect (Kelly, 2009, p. 38). Lemke points out that in this view power is not necessarily “exercised against the interests of the other part of a power relationship” and is not “intrinsically ‘bad’” (Lemke, 2002, p. 53). The next section discusses the productive nature of power and the capacity of subjects to take part in their own self-constitution.

3.2.3 *The governance of the self: freedom, strategic games and resistance*

Foucault is known for his statement about the death of man as a consequence of the constituted nature of the subject. That said, some scholars stress that “Foucault’s account of

the subject is very different from what certain commentators have made of it” (Ambord, 2009, p. 64). According to Racevskiis, the subject “is both active agent and an object acted upon” (cited in Ambord, 2009, p. 55). Ambord says that the declaration of a man’s death is the starting point for the resurgence of the subject: “Just as the death of God gave rise to the concept of man, so too does the death of man give rise to the condition of the possibility of Foucault’s own project” (Ambord, 2009, p. 62). Foucault underlines that the constitution of the subject is a dynamic process that involves a variety of actors, which he conceptualizes as a “game of truth”:

The discourses of mental illness, delinquency, or sexuality say what the subject is only in a certain, quite particular game of truth; but these games are not imposed on the subject from the outside according to a necessary causality or structural determination. They open up a field of experience in which the subject and the object are both constituted only under certain simultaneous conditions, but in which they are constantly modified in relation to each other, and so they modify this field of experience itself. (Foucault, 1984, pp. 943-944)

The notion of “truth games” highlights the struggle between different versions of knowledge about a subject. According to Gordon (1991), Foucault suggests that “power is only power (rather than mere physical force or violence) when addressed to individuals who are free to act in one way or another” (p. 5). Foucault states that the possibility of struggle is the essential condition for examination of the constitution of a subject:

For, if it is true that at the heart of power relations and as a permanent condition of their existence there is an insubordination and a certain essential obstinacy on the part of the principles of freedom, then there is no relationship of power without the means of escape or possible flight. (Foucault, 1982, p. 794)

Foucault suggests that one type of technology for the political management of society is “the technologies of the self, which permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality” (Foucault, 1988, p. 18). This type of technology is contrasted with “technologies of power, which determine the conduct of individuals and submit them to certain ends or domination, an objectivizing of the subject” (Foucault, 1988, p.18). For Foucault, the “contact between the technologies of domination of others and those of the self” is what he calls “governmentality” (Foucault, 1988, pp. 19).

According to Lemke, “Governmentality is introduced by Foucault to study the ‘autonomous’ individual's capacity for self-control and how this is linked to forms of political rule and economic exploitation” (Lemke, 2002, p. 52). In this light, Lemke clarifies that “domination refers to those asymmetrical relationships of power in which the subordinated

persons have little room for manoeuvre...” (p. 53). Foucault observes that governance is an outcome of equilibrium between different technologies of power that constitute the subject:

Governing people, in the broad meaning of the word, governing people is not a way to force people to do what the governor wants; it is always a versatile equilibrium, with complementarity and conflicts between techniques which assure coercion and processes through which the self is constructed or modified by himself. (Foucault. 1993, p. 203-4)

To summarize, understanding the process of the constitution of a subject requires us to take into account the participation of the subject in self-constitution and the possibility of struggle around different versions of truth around the subject. The Foucauldian concept of governance allows for an association between the constitution of the subject through objectification and dividing practices and the manifestation of ongoing struggle around the constitution of the subject in “immediate everyday life” (Foucault, 1982, p. 781).

3.2.4 *The governance of the subject: action upon action and the field of possible actions*

Foucault defines the programme for an investigation of how power is manifested as “studying the methods and techniques used in different institutional contexts to act upon the behavior of individuals taken separately or in a group, so as to shape, direct, modify their way of conducting themselves, to impose ends on their inaction or fit it into overall strategies” (Foucault, 1984, pp. 942-943). Foucault suggests that power as a practice is exercised on an ongoing basis in every action. In his essay *The Subject and Power*, Foucault says:

In effect, what defines a relationship of power is that it is a mode of action which does not act directly and immediately on others. Instead, it acts upon their actions: an action upon an action, on existing actions or on those which may arise in the present or the future. (Foucault, 1982, p. 789)

He proposes that the term “conduct” is the best to describe the nature of power since it suggests the existence of “a total structure of actions brought to bear upon possible actions” (1982, p. 789). Accordingly, “The exercise of power consists in guiding the possibility of conduct and putting in order the possible outcome” (1982, p. 789). Foucault concludes the development of the link between power and action in his definition of government:

‘Government’ did not refer only to political structures or to the management of states; rather, it designated the way in which the conduct of individuals or of groups might be directed: the government of children, of souls, of communities, of families, of the sick. It did not only cover the legitimately constituted forms of political or economic subjection but also modes of action, more or less considered or calculated, which were destined to act upon the possibilities of action of other people. To govern, in this sense, is to structure the possible field of action of others. (Foucault, 1982, p. 790)

Gordon elucidates that “government”, according to Foucault, is “a form of activity aiming to shape, guide or affect the conduct of some person or persons” (Gordon, 1991, p. 2).

In other words, the subject is constituted through shaping his/her actions. In that light, the level of the analysis for investigation of power relations is “the area of the singular mode of action” (Foucault, 1982, p. 790). An investigation of power can approach it “as a mode of action upon the actions of others” and as “the conduct of conduct”. Power is manifested when the subject acts in a social world within a field of possible actions.

When writing about the government of action, Foucault distinguishes between how “individuals are driven by others” and how “they conduct themselves” (Foucault 1993, pp. 203-4). In that light, every single action is an outcome of a tension between external efforts to shape the mode of action and the agency of the subject. The field of possible actions is also a field for possible resistance. As pointed out by Gordon (1991, p. 5), “the history of government as the ‘conduct of conduct’ is interwoven with the history of dissenting ‘counter-conducts’”.

The notions of governance of others and self-governance explore not specific actors, but the relationships between actors. Neither the notions of “objectification” and “dividing practices”, nor the concept of governance as “action upon action” privilege a specific type of actor as one that has a particular capacity to manifest power over others. Nevertheless, Foucault gives special attention to the set of relationships between the state and citizens. The next section focuses on state-citizen relationships within a Foucauldian approach to the constitution of a subject.

3.2.5 Governmentalization: the role of the state and institutional actors

Foucault distinguishes the notion of government as a mode of power relationships from the notion of government as a political institution. That said, the question that remains open is: what is the role of state institution within the Foucauldian framework? Foucault shifts attention from institutions to ongoing actions, while “power relations are rooted in the system of social networks” (Foucault, 1982, p. 793). As Mennicken and Miller elucidate, “governing, understood in this sense, is not only about overtly political structures or states, rather it covers all socially legitimated modes of action that are more or less considered and calculated” (p. 15, 2014). However, Foucault clarifies that he does not mean that institutions are outside the scope of his analysis:

I wish to suggest that one must analyze institutions from the standpoint of power relations, rather than vice versa, and that the fundamental point of anchorage of the relationships, even if they are embodied and crystallized in an institution, is to be found outside the institution. (Foucault, 1982, pp. 791)

Foucault underlines that power relations cannot be explored without reference to the

state: “It is certain that in contemporary societies the state is not simply one of the forms or specific situations of the exercise of power—even if it is the most important— but that in a certain way all other forms of power relation must refer to it” (Foucault, 1982, p. 792). He concludes that “power relations have come more and more under state control”, while the state plays an increasing role in the constitution of the subject:

In referring here to the restricted sense of the word "government," one could say that power relations have been progressively governmentalized, that is to say, elaborated, rationalized, and centralized in the form of, or under the auspices of, state institutions. (Foucault, 1982, p. 793)

Foucault also examines what goals drive the state’s involvement in the governance of others, particularly governance of the *population*. These goals are not necessary abusive:

I don't think that we should consider the ‘modern state’ as an entity which was developed above individuals, ignoring what they are and even their very existence, but, on the contrary, as a very sophisticated structure, in which individuals can be integrated, under one condition: that this individuality would be shaped in a new form and submitted to a set of very specific patterns. (Foucault, 1982, p. 783)

In that context, the term governmentality can be understood to describe a form of governance linked to the modern state which seeks to administer a population relying on a specific set of goals.

According to Mennicken and Miller (2014, p. 13), governance relies on “techniques and practices that seek to link up the administration of individuals and the administration of populations”. Foucault suggests that one needs to distinguish between sovereignty, which deals with territory, and government, which “does not bear on territory but rather on the complex unit constituted by men and things” (Foucault, 1979, p. 11). He links the state’s governance with the emergence of the population:

...governmental state, essentially, [is] defined no longer in terms of its territoriality, of its surface area, but in terms of the mass of its population with its volume and density, and indeed also with the territory over which it is distributed.... (Foucault, 1991. p. 104)

Smart summarizes that “the condition of the population rather than the power of the ruler or of the sovereign, became the aim of government” (Smart, 2002, p. 130).

Foucault defines governmentality as a form of power which is “the ensemble formed by the institutions, procedures, analyses and reflections, the calculations and tactics that allow the exercise of this very specific albeit complex form of power, which has as its target population, as its principal form of knowledge political economy, and as its essential technical means apparatuses of security” (Foucault, 1991, p. 102). This definition indicates that governmentality relies both on knowledge as a form of objectification of subjects and on

the means of exercising power that can be found in the governmental apparatuses (Foucault, 1991, p. 103).

Foucault argues that “the state is no more than a composite reality and a mythicized abstraction, whose importance is a lot more limited than many of us think” (1991, pp. 103) and focuses attention on the “governmentalization” of the state. He suggests that state boundaries are defined through the practices of governance. In that context, governmentality is “the tactics of government which make possible the continual definition of what is within the competence of the state and what is not, the public versus the private, and so on” (Foucault, 1991, p. 103).

The discussion above identifies four concepts that will play a role in my conceptual framework. The first is a concept that deals with the constitution of a subject by relying on *objectification* and the *division practices* that create boundaries and divide groups of subjects. These practices are understood to have a discursive nature. The second is a concept that differentiates between the *governance of others* and the *governance of self*. It recognizes that the constitution of the subject is the outcome of the tension between two modes of governance manifested through “*games of truth*”. This tension is possible due to the subject being basically free and having opportunities for *resistance*. Third is the insight that the objectification of a subject is manifested through *the structure of the possible field of actions of the subject* and groups of subjects in everyday life. Governance as “action upon action” of the subject is associated with the objectification of a single subject and the practices of division of groups of subjects. The fourth concept is related to a specific set of relationships between state institutions and citizens and focuses on the “*population*” as the main collective entity governed by the modern state. The issue that remains open is how to address the role of ICTs in structuring the possible fields of others, and how ICTs contribute to the governance of the subject by others, or the self-governance of the subject.

3.2.6 Foucault and digital platforms: the conceptual gaps

While Foucault explored technologies, “Foucault never wrote explicitly about ICTs” (Willcocks, 2006, p. 277). At the same time Foucault “recognized that the technologies he was interested in were physical in part, for example, the architecture of prisons, schools, the clinic” (Willcocks, 2006, p. 274). Technologies were discussed by Foucault as a method for the constitution of the subject, not as a device. Besley (2005, p. 78) clarifies that “Instead of an instrumental understanding of technology, Foucault used ‘technology’ in the Heideggerian sense as a way of revealing truth”. There are many scholars who apply a Foucauldian

analytical lens to the role of ICTs. For instance, Boyle (1997) uses the Foucauldian concepts of “surveillance” and “discipline” in order to question a “set of beliefs about the state's supposed inability to regulate the Internet” (p. 177). Often the notion of the Panopticon is used in the literature to discuss the Internet as an omnipresent structure that allows surveillance. For instance, Rajagopal (2014, online) argues that “ICT, as does the Panopticon, objectifies people as scientific categories, in order to manage them”.

Attention has been given to the role of digital technologies in self-governance. Bakardjieva and Gaden (2011) conceptualize social media as technologies of the self and highlight how the capacity of users to generate content contributes to their capacity to transform themselves. Cammaerts (2015) applies the notion of self-governance in his analysis of ICTs and integrates this with the notion of self-mediation. He argues that the technologies of self-mediation are “shaping and constraining action and imagination” and “determining the horizon of the possible” for collective movements (Cammaerts, 2015, p. 89). Willcocks (2006) identifies a few fields of research where Foucault has been applied to the study of ICTs, including studies of surveillance technologies, new managerial technologies and the critical analysis of the new modes of information in digital databases conducted by Poster, who highlights “the interdependence of language and action” (Poster, 1990, p. 97). Willcocks concludes that “Foucault’s work still awaits the further application it deserves in the ICT studies” (2006, p. 291).

Although there is an extensive body of literature that applies a Foucauldian framework to exploring ICTs, the specific role of digital platforms in the constitution of the subject through digitally mediated constraints over action has, to this writer’s knowledge, not been investigated through this lens. One can question what the role of digital platforms is in the objectification of the subject, including the classification of the subject and games of truth around the subject. And to situate the role of ICTs within the concept of governance it is necessary to conceptualize what the role of digital platforms is in shaping the conduct of conduct and structuring a field of possible actions by others.

Mennicken and Miller (2014) suggest asking: “Who can govern, to what ends, through what devices...” (p. 14) and analysing “programmes of conduct that have prescriptive effects concerning what is to be done, and codifying effects regarding what is to be done” (2014, p.17). Foucault’s concept of governance suggests exploring the role of digital platforms in narrowing the possibilities of actions of others, and how groups of subjects are divided and classified. In this context, digital platforms may play a double role, as tools that objectify and divide subjects into groups, and as tools that constrain the action of

those groups.

While discussing modes of objectification and governance, Foucault is mostly focused on the role of language and symbolic systems that constitute knowledge about the subject. He discusses material things in the *“The Order of Things”* (1973), although this discussion is limited to things as something classified through systems of signs and language, but not as part of structures that participate in the constitution of the subject. It would seem that the Foucauldian lens excludes material things from the means that constitute the subject, and this limits the opportunity to analyse the role of digital platforms in the constitution of the subject. However, the notions of “action upon action” and “conduct of conduct” suggest the mediated nature of action, while power is exercised in a way that defines the fields of possible actions of the subject. Accordingly, I suggest that conceptualizing governance in the context of my study requires further exploration of the mediation that constrains action.

Foucault’s notion of action upon action resembles a notion of mediation, but he does not employ the concept of mediation. Nor does he conceptualize the role of tools in the constitution of the subject. My conceptual framework needs to address the role of digital platforms as devices of governance that take part either in the mediation of the action of others or in the governance of self, and in a way that conceptualizes how the constraining of action can potentially be associated with context and with the purpose of a specific action.

The rest of this chapter seeks to build a bridge between the notion of conduct of conduct and a notion of mediation, in order to conceptualize the role of a digital platform in the structuring of the possible field of actions. It also discusses the purpose and the context of the action, in order to facilitate my study of the role of digital tools in the constitution of a subject in particular situations (e.g. natural disasters).

3.3 Activity theory: the role of tools in the development of the subject

In order to address the limitations identified above, I juxtapose the Foucauldian concept of governance with the notion of tool-mediated, object-oriented activity introduced by the founder of CHAT, Lev Vygotsky (1896-1934). To accommodate the role of a digital platform in the context of governance, I address what mediated is and how mediation is exercised. While the Vygotskian-inspired theory proposes that the subject is formed through tool-mediated activity, my juxtaposition with Foucault’s insights situates action upon action within a notion of digital tools as tools that mediate activity.

CHAT argues that symbolic tools (e.g. signs and language) and materials tools take part in the mediation of activity as a process in the development of the subject. This allows

me to address the exclusion of material tools in Foucault's treatment of the genesis of the subject. Activity theory suggests that the tool-mediated development of a subject be examined in the context of the purpose of a user's activity. To conceptualize the role of context, environment and purpose, activity theory introduces the notion of "object" and conceptualizes mediated activity as a subject-object relationship.

The meaning of "object" in CHAT differs from the meaning of object for Foucault (which is linked to the process of objectification of the subject). In activity theory, the object is both the purpose of activity and the object in the environment towards which the activity is directed. Activity theory seeks to establish a link between the environment of the subject, the purpose of the subject's activity and the subject's genesis. The notion of an object also incorporates the role of non-human factors (e.g. disasters) in the genesis of a subject.

Although both Foucault and Vygotsky explored the subject, their discussions came out of different contexts. While Foucault was interested in the social and political aspects of the *constitution* of the subject, the Vygotskian-inspired framework was focused on the *development* of human beings as subjects within a context of developmental psychology.

3.3.1 *The development of the subject through mediation: the triangular model*

Vygotsky was primarily interested in exploring the development of the higher mental functions of individuals. He argues that the formation of consciousness has a social nature, while an understanding of the development of individuals has to focus on the mechanism that links the specific individual and her/his environment. In response to efforts to find the linkage, Vygotsky argues that "a central fact of our psychology is the fact of mediation" (Vygotsky, 1982 cited in Wertsch, 2007, p. 178). Vygotsky's roots were in early Marxist philosophy. Marx had argued that: "Labour is, first of all, a process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature" (Marx, 1867, p. 283). Following Marx, Vygotsky rejects the Cartesian division between body and mind, and between individual and social environment. Cole points out that in the Vygotskian tradition "the individual and the social were conceived of as mutually constitutive elements of a single, interacting system", while "cognitive development was treated as a process of acquiring culture (Cole, 1985, p. 148).

Kaptelinin points out that "the most fundamental principle of activity theory is that of the unity of consciousness and activity" (1996, p. 55). The role of mediation in the development of the subject was conceptualized by Vygotsky as a triangle with three key elements: subject, tools, and objects.

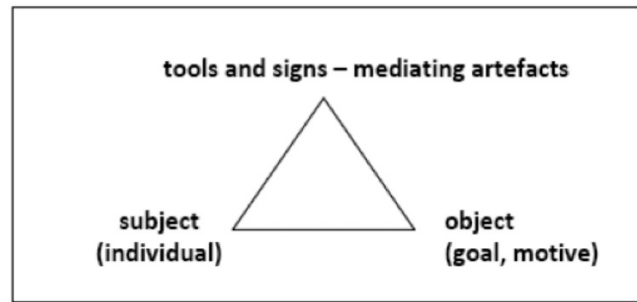


Figure 3.1: *The Vygotskian mediational model of subject's development*

The triangular model shown in Figure 3.1 became the basis for “the concept of artifact-mediated and object-oriented action” (Vygotsky, 1978, p. 40). The subject in this case is the individual person, the object of the subject’s activity represents the environment, and the tools (artefacts) link between the subject and the object, and this linkage is conceptualized as a mediation of activity. Cole describes the model as “the basic mediational triangle in which subject and object are seen not only as ‘directly’ connected but simultaneously as ‘indirectly’ connected through a medium of artifacts / tools (culture)” (Cole, 1996, p. 119).

The notion of the *object* in activity theory has a dual nature. The object is something that is located in the external environment of the subject and it is also a goal and an expected outcome of an activity. In other words, the object is both the target of activity and the purpose of activity. Karanasios (2014) defines the object as “the problem, situation, or focus of the activity”. Kuutti clarifies the notion of the object, while emphasizing the shared nature of objects by a group of individuals:

Transforming the object into an outcome motivates the existence of an activity. An object can be a material thing, but it can also be less tangible (such as a plan) or totally intangible (such as a common idea) as long as it can be shared for manipulation and transformation by the participants of the activity. (Kuutti, 1996, p. 27)

The activity model also suggests that objects can introduce a contradiction within an existing structure of activity (Engeström, 1995; 2001) and may be associated with the development of new forms of activity by a subject. As Karanasios points out, “objects have a life of their own, which is emphasized when objects resist the attempts of the subject to control them” (Karanasios, 2014, p. 4). The concept of the object indicates that exploring the development of the subject needs to be situated within the context of a subject-object relationship:

Essentially, Vygotsky (1978) defined human activity as a dialectic relationship between subject and object, i.e. a person working at something. In this dynamic, purposeful relationship the 'always active' subject learns and grows while the object is interpreted and reinterpreted by the subject

in the ongoing conduct of the activity. (Crawford & Hasan, 2006. p. 50)

CHAT suggests that the subject-object relationship always has a mediated nature.

Accordingly, the remaining element of the Vygotskian triangle is the tools which play the role of mediators. Vygotsky differentiated between the types of tool and the role of tools in the development of the subject. The first of these is different in material tools and in signs. Vygotsky (1983 [RUS]) argued that the differences between tools is the direction of mediation:

A tool serves as a mediator of the influence of a person on the object of his activity: it has external direction; it seeks to cause some types of change in the object; it is a means of external activity of an individual, which is directed at conquering nature. A sign does not change anything in the object of psychological operation, it is a means of psychological influence on behavior – either the behavior of another person or one's own behavior, a means of internal activity; it is directed toward self-mastery by the person himself, the sign is directed inwards. (Vygotsky, 1983 [RUS], p. 90, my translation)

Second, the model distinguishes between the mediation of mental functions and the mediation of external activity. The tools mediating internal cognitive processes are conceptualized as “psychological tools”. This is elucidated by Kaptelinin and Nardi:

Technical tools are intended to help people affect things, while psychological tools are signs intended to help people affect others or themselves... Psychological tools transform natural mental processes into instrumental acts, that is, mental processes mediated by culturally developed means. (Kaptelinin & Nardi, 2006, p. 42)

Wertsch (2007) differentiates between *explicit mediation* as a form of activity that is mediated through technical tools and *implicit mediation*, as mediation of internal cognitive processes relying on psychological tools. It should be noted that the notions of “tools” and “mediating artefacts” are often used interchangeably. Gillespie and Zittoun (2010, p. 46) highlight how the stream of CHAT that deals with the external “mediation of action in the world” has “a tendency to suppress Vygotsky's distinction between tools and signs, and instead to use more general terms such as ‘artifacts’ (Cole, 1996, chapter 5), ‘mediational means’ (Wertsch, 1998, p. 17), and ‘cultural artifacts’ (Gauvain, 2001, p. 126)” (2010, p. 46).

My research focuses on explicit mediation as described by Kaptelinin and Nardi:

The structure of a tool itself, as well as learning how to use a tool, changes the structure of human interaction with the world... The use of mediators, whether crushing a nutshell with a hammer or orienting oneself in an unfamiliar city using a map, changes the structure of activity. (2006, p. 56)

However, the external functions of the tools cannot be separated from the internal processes of the genesis of subject. This is captured by the *internalization* of mediated activity. Through internalization, external cultural artefacts are integrated into cognitive processes and define the human relationship with reality:

Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological) and then inside the child (intrapsychological)... All the higher functions originate as actual relationships between individuals. (Vygotsky, 1978, p. 57)

According to Kaptelinin and Nardi, “Internalization of mediated external processes results in mediated internal processes” (1996, p. 43). Internalization of mediated activity is a part of the cultural-historical process of human development. This point is elucidated by Kuutti (1996, quoted in Foot, 2014):

The tool is at the same time both enabling and limiting: it empowers the subject in the transformation process with the historically collected experience and skill ‘crystalized’ to it, but it also restricts the interaction to be from the perspective of that particular tool or instrument only; other potential features of an object remain ‘invisible’ to the subject. (p. 27)

Foot pointed out that CHAT has a proximity to archaeological methodologies, since it allows the study of “something about the relationship between actors and their object-concept at the point in time in which the tool was appropriated or created” (Foot, 2014, p. 336).

The Vygotskian model of the development of the subject also addresses the role of tools in human agency. Vygotsky rejected the behavioural notion of “stimulus-response” and emphasized that cultural tools are a “technique of self-control” allowing individuals to master their own behaviour (Vygotsky, 1978, p. 73). Vygotsky wrote:

By the formation of higher psychological functions, a new form of activity – free activity – will emerge. Free action is independent of immediate needs and of stimulus from the environment. Free action is proactive, directed to the future. (Vygotsky, 1999, pp. 64-65)

According to Cole (1996, p. 104), CHAT “assumes that individuals are active agents in their own development but do not act in settings of their own choosing”. Engeström in turn emphasizes the self-determination of the subject as one of the core ideas of Activity Theory and argues that “activity theory has the conceptual potential and methodological potential to be a pathbreaker in studies that help humans gain control over their own artifacts and thus over their future” (Engeström, 1999a, p. 29).

3.3.2. Activity systems as a level of analysis: from developmental psychology to social theory

Vygotsky’s followers, particularly Leontiev (1978), shifted the focus from the mediation of higher mental functions to the role of tools in explicit mediation as part of the interaction between the individual and the environment. From Leontiev’s perspective, activity is “the purposeful interaction of active subjects with the objective world (i.e. the ‘S ↔ O’ interaction), rather than on higher mental functions and their ontogenetic

development” (Kaptelinin, 2014a, pp. 207-208). Kaptelinin summarizes Leontiev’s notion of mediation as follows:

Tool mediation shapes the entire structure of meaningful, purposeful activities. Over time, some external components of an activity can be translated into the internal plane through internalization to ensure efficiency, and, as a result, transform a person’s mental processes. (Kaptelinin, 2014a, p. 208)

Leontiev treated human activity “as the unit of analysis that is distributed among multiple individuals and objects in the environment” (Yamagata-Lynch, 2010, p. 20). Kaptelinin and Nardi (2006, p. 32) point out that “activity is proposed as the basic unit of analysis providing a way to understand both subjects and objects, an understanding that cannot be achieved by focusing on the subject or the object separately”.

A further step in transforming activity theory into an interdisciplinary social science theory was taken by Yrjo Engeström (1987). Engeström developed an analytical framework for the analysis of collective activity, defining his primary level of analysis as a “joint activity or practice” (Engeström, 2005a, p. 154) and activity systems as “systems of collaborative human practice” (Engeström, 1988, p. 30), as shown in in Figure 3.2, below.

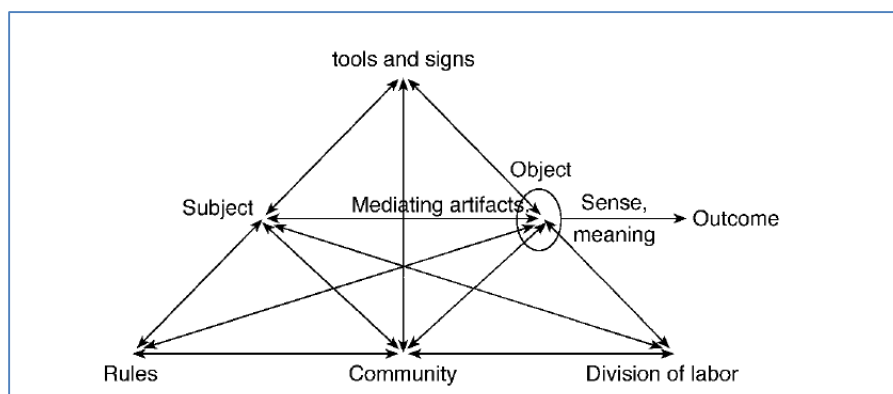


Figure 3.2. The structure of a human activity system (Source: Engeström, 1987, p. 78)

The elements at the top of the triangle in Figure 3.2 can be linked to Vygotsky’s notion of mediation: subjects, mediating artefacts and objects. The model, however, extends Vygotsky’s triangle by focusing on collective forms of external activity as “activity systems” mediated through artefacts. The model identifies three new components: rules, community and division of labour. Karanasios (2014) summarizes the contributions of Engeström’s model to activity theory:

Engeström (1999a) describes the activity system as a strong candidate for a unit of analysis which is ‘object-oriented, collective, and culturally-mediated’ (Engeström, 1999a, p. 9) and as the ‘root model’ of human activity (Engeström, 1987). This follows that a subject (a person or group) is driven by a motivation(s) to undertake an activity and in this process uses tools (technologies, mental tools, language, etc.) to act upon an object (a person, group, or thing) to produce an outcome. (p. 4)

The notion of *community* suggests conceptualizing a group of subjects that share a common object. The notion of *division of labour* suggests that different subjects can accomplish different tasks as a part of their object-oriented activity within the same system. An activity system is also based on a set of *rules* shared by members of its community.

This model of an activity system also suggests that there will be emerging contradictions between different nodes within the activity system. According to Kuutti (1996), “external influences change some elements of activities, causing imbalances between them” (p. 34). According to Engeström, contradictions can have both an external nature (between activity systems) and an internal nature (within a system):

Activities are open systems. When an activity system adopts a new element from the outside (for example, a new technology or a new object), it often leads to an aggravated secondary contradiction where some old element (for example, the rules or the division of labor) collides with the new one. Such contradictions generate disturbances and conflicts, but also innovative attempts to change the activity.

(Engeström, 2001, p. 137)

Foot (2014) highlights how “contradictions reveal opportunities for creative innovations, for new ways of structuring and enacting the activity” (p. 337). Activity systems can undergo ongoing emergence and resolutions of contradictions which are seen as “expansive cycles” (Engeström, 1999b, p. 35).

3.3.3 Activity theory and research on ICTs

Although activity theory is mostly associated with developmental psychology, learning theories and organizational studies, from the beginning of the 1990s it started to be popular in research on information systems and human-computer interaction (HCI). The conceptualization of ICTs as mediating artefacts has dual status in these studies. First, ICTs are both material and symbolic. This dual status of ICTs as physical objects and as symbolic means is also highlighted by Silverstone (1994) in the notion of “double articulation”. Second, they can play a role as psychological tools that mediate cognitive functions or as material tools that mediate external forms of object-oriented activity. As pointed out by Engeström, “digital media make very problematic the Vygotskian distinction between tool and sign” (Engeström, 2008a, p.11).

According to Nardi (1996, p. 4), activity theory has helped to address challenges in HCI research and in particular in the “struggle to understand and describe ‘context’, ‘situation’, ‘practice’ of how technologies are used by people”. Kaptelinin suggests that activity theory expands the range of the research on ICTs, since “the only way to come to an

adequate understanding of human-computer interaction is to reconstruct the overall activity of computer use” (Kaptelinin, 1996, p. 56). Kuutti proposes that ICTs “can be the principal enabler for an activity” that otherwise would be impossible (Kuutti, 1996, p. 35). Allen et al. (2013) argue that applying the notion of activity systems as a single unit of analysis in the investigation of information systems also allows us to overcome the “analytical dualism” which separates the analysis of information systems from the analysis of activity.

In order to conceptualize participatory, digitally mediated activity, including peer-to-peer production (e.g. Wikipedia), Engeström proposes a notion of “wildfire activities” and “mycorrhizae activities” as an interaction “without a single stable center” (Engeström, 2008a, p. 9). In this context Engeström distinguishes between activity systems that rely on relatively stable institutional formations and dynamically changing activity systems “without rigid predetermined rules or a fixed central authority” (Engeström, 2007, p. 5) described as “knotworking” (Engeström et al., 1999). In the latter case activity may rely on a “formation [which] typically does not have strictly defined criteria of membership” while “its members can be identified by their activism” (Engeström, 2007, p.11).

Kaptelinin (2014) suggests a broad notion of the “mediational perspective on digital technologies” (p. 203). According to this view, “technology is considered as mediating means that affects, and even shapes, the structure, functioning and development of human mind and action” (2014, p. 203). Crawford and Hasan suggest that activity theory is helpful in the investigation of rapid changes in socio-technical systems “where people, their purposes (objects) and their tools are in a process of rapid and constant change” (Crawford & Hasan, 2006, p. 66)

The role of CHAT is also linked to the development of new ICT-mediated forms of activity and new activity systems. According to Kuutti (1996), CHAT allows us to deal with “developmental and dynamic features of human practices” (p. 38). Kaptelinin (1996) points out that an activity is important in a context of development “to both the individual level and the group or organizational level” (p. 56), while it can also support the development of the tool design. Mursu et al. suggest that CHAT is “a promising approach to work-oriented and participatory information systems development” (2007, online). Some scholars underline that activity theory can also contribute to the ICT4D (Information and Communication Technologies for Development) field. For instance, Karanasios (2014) suggests that activity theory can allow us to identify the emancipatory potential of digital tools for the development and empowerment of the subject.

Applying activity theory in exploring the role of ICTs is popular in the education context (Lim, 2002; Rouadi et al., 2014; Larkin & Finger, 2010). Attention has been dedicated to the development of online learning systems (Nyoni, 2013) and the role of blogs/social networks in learning (Heo & Lee, 2013). Er and Lawrence (2011) have explored the role of ICTs in the development of activity systems that rely on mobile workers. Foot (2001) shifts attention from the investigation of technology towards networked organizations that rely on technology. Her investigation of the conflict-monitoring network EAWARN as an activity system focuses on the construction of objects and mediating tools as a part of the development of a network. Foot (2001) suggests that CHAT can be considered as a “practice theory” yielding insight that helps to improve systems.

The activity system approach has been applied as a framework in order to explore the organizational structure of emergency response organizations and the role of technologies in emergency response. Emergency response is often conceptualized as a private case of an activity system. For instance, CHAT was used in an analysis of NASA’s response to the Challenger disaster (Holt & Morris, 1993). Owen (2007) used activity theory in an investigation of the emergency response to bushfires in Tasmania and the theory was used to investigate the emergency response to attacks in Mumbai (Shankar et al., 2010). Mishra et al. (2011) applied activity theory in an analysis of contradictions in an emergency response system (e.g. contradictions between emergency response officials and the technologies they use, as well as between subject and rules) as a trigger for innovation.

Activity theory is also applied in order to explore challenges concerning information sharing and interoperability in the management of emergency response. Allen et al. (2014) highlight the contradictions between forms of activity that rely on “rigid organizational structures” and proposed activities relying on the mediation of technology: “In activity theory terms such technologies could introduce contradictions, whereby the technology allows information sharing and interoperability but the organisational rules and norms do not” (p. 428). Scholars have proposed “using the notion of activity” in order to resolve contradictions and foster “a paradigm shift for system design” in the context of emergency response (Allen et al., 2014, p. 430). This includes using “new and emerging technologies to redesign activity systems, moving to alternative decentralised forms of organization” and “integration of systems used during major incidents into routine work practices” (Allen et al., 2014, p. 429). Bharosa et al. (2012) have used activity theory to examine the role of ICTs in disaster management. Focusing on a cross-border flood management project, VIKING, they argue that mediating artefacts can help to overcome contradictions between organizations.

Most of the applications of activity theory in emergency response analysis focus on institutional structures and not on the general population. Karanasios (2014), however, suggests that the notion of “connected/networked activities” allows us to investigate the relationship between different activity systems, including volunteer organizations, in response to the same incident by conceptualizing this as a “shared object”:

For example, in an environmental disaster (flood, earthquake, etc.) the fire, police, medical services, international donors, and volunteer organizations converge on the scene and work largely independently toward a shared object(ive) of managing the disaster... (Karanasios, 2014, p. 9)

Karanasios concludes that sharing the same object, but managing response according to different rules or norms, can also lead to contradictions (Karanasios, 2014). Engeström (2008) suggests that situations like disasters can be considered as “runaway objects”, large-scale developing and unpredictable situations that require different types of activity by numerous actors, while these activities can also produce a new object. According to Engeström, runaway objects “can also be powerfully emancipatory objects that open up radically new possibilities of development and well-being” (2008, p. 3).

3.3.4 Digital platforms through the lenses of activity theory

It is necessary to expand considerably on this definition of digital platforms by introducing several conceptual elements so as to treat digital platforms as mediating artefacts. The term “digital platform” is conceptualized in terms of CHAT and by a positioning of such platforms within an “ecosystem” of digital artefacts used in crisis communication and response. The conceptualization presents a particular challenge due to the ambiguous nature of digital platforms and their location between the material world of things and the symbolic world of computer code. As pointed out by Leonardi (2012), “when one moves from the realm of the physical to the digital, it is much more difficult to isolate the materials out of which a technology is built” (p. 28). In order to address this challenge, it is fruitful to develop the conceptualization by addressing the specific artefacts explored in this thesis.

“Ecosystems” of digital artefacts used in crisis communication and response include a variety of collections of hardware and software. According to Schwartz et al. (2016b), the technologies and applications used in crisis communication and disaster management include: warning systems (e.g. sirens, mobile phones, two-way radio and paging); mobile communication systems; software-based solutions for emergency management, monitoring and processing of information and software for crisis communication; and web-based crisis communication tools for the dissemination of information and two-way interaction (including

social media) (p. 466). In addition, there are innovative tools, e.g. augmented reality applications, that “have rarely been the object of study for crisis communication scholars” (Schwartz et al., 2016b, p. 466).

Schwartz et al. (2016b) suggest a number of criteria for distinguishing between different types of platform. These include distinguishing between tools for the *management* of responders, including coordination of their activity in the disaster, and for *communication* with different actors, including communication between agencies and communication with citizens; distinguishing between *external* communication open for different actors, including citizens, and *internal* crisis communication open only to members of specific organizations (p. 467); distinguishing between *centralized* information systems and *horizontal* systems that do not imply clear hierarchy, and distinguishing between technology used at *home/office*, e.g. desktop computers and in the *field*, e.g. mobile phones and handheld devices.

Kaptelinin and Nardi (2006) describe the domain of human activity as a hybrid of “physical-virtual” work environments. The activities in these environments are mediated by “clusters of artifacts” (Bertelsen & Bodker, 2002), which include “both information processing and more traditional technologies” (Kaptelinin & Nardi, 2006, p. 85). Emergency response systems which rely on multiple actors may resemble a type of “distributed and mobile work supported by a coordinated use” (Kaptelinin & Nardi, 2006, p. 85) of clusters of artefacts, including different types of stable (desktop) and mobile device. The cluster of artefacts in this case consists of different types of application, software and online platforms that can be used by relying on different devices. In particular, the digital artefacts used in emergency situations explored in this thesis include: mobile applications for alerting and emergency management; dedicated software for emergency management; social media (including social networking platforms and blogs); crowdsourcing platforms, and standalone websites. All the platforms rely on digital code and are used through screens, either on desktops or on mobile devices.

Activity Theory proposes that a cluster of tools used in an emergency situation should be seen in a context of activity systems. The object (purpose of the activity) of tools may differ depending on whether they are focused on the emergency or on other actors. Tools focused on other actors as the object of activity may be considered as tools for crisis communication, and accordingly can be regarded as constituting activity systems for crisis communication. Tools focused on the disaster itself can be considered as tools for emergency management, and accordingly constitute activity systems for emergency response. That said, it is often challenging to distinguish between tools for communication and tools for

management, since in many cases communication and management are interrelated and may take place within the same platform.

In addition, one of the major differences between digital platforms concerns whether they are used for internal communication by institutional actors or for external communication with other actors. In this light, the clusters of artefacts may include three general categories of tools. First is that of digital tools used solely by institutional actors. Second, tools used solely by citizens and non-state actors. Third, there are tools that support communication between two groups of actors, e.g. interaction between citizens and responding agencies. In this light, every group of tools can be understood as mediating a different type of structure of activity systems, which either have an internal nature for a specific group of actors, or connect different actors around a shared object.

The role of digital platforms can therefore be conceptualized according to what type of activity system they may constitute in an emergency situation. First, is the object of activity other actors or the emergency itself? Second, who are the actors taking part in activity systems, either as clusters of artefacts that constitute citizen-based activity system, as internal activity systems within emergency response organizations, or as activity systems linking different actors? In addition, one can distinguish whether the system mediates online or offline, or both types of activity. Lastly, it is possible to distinguish between centralized activity systems that are coordinated in a hierarchical mode through the control/administration of digital artefacts, and artefacts that enable horizontal communication and allow egalitarian activity without hierarchical control.

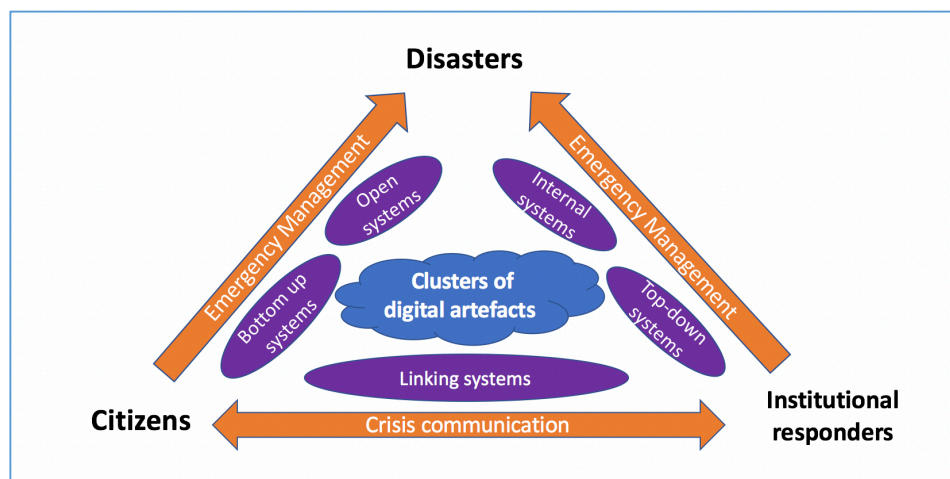


Figure 3.3 Ecosystem of digital artefacts used in crisis communication and response

Figure 3.3 proposes that each cluster of emergency-related artefacts exists in a context of the criteria discussed above and, accordingly, these artefacts mediate different types of emergency-related activity system. That said, it is difficult to link a specific type of platform

to a specific function or specific type of mediated activity in a context of disaster response, due to the flexible and generative nature of digital platforms.

Digital artefacts lack stability and are open to continuous change due to the “editability” which can be achieved by “rearranging the elements of which a digital object is composed (such as items in a digital list or subroutines in a software library), by deleting existing or adding new elements, or even by modifying some of the functions of individual elements” (Kallinikos et al., 2013, p. 358). The openness of digital platforms to continuous change can also be conceptualized as “generativity”, which is “a capacity to produce unanticipated change” (Zittrain, 2009, p. 70). The editability and generativity of digital artefacts suggests that digital platforms can potentially mediate infinite unanticipated forms of activity around a variety of potential objects, while digitally-mediated activity systems are potentially open to continuous changes of structure, which is conceptualized as “wildfire activities” (Engeström, 2007). In addition, the role of digital platforms can change through usage. As highlighted by Kaptelinin and Nardi (2006), the “integration of artifacts into the structure of human activities” includes “adjustments of artifacts to human need”, which is conceptualized as “instrumentalization” (p. 110). Accordingly, the same digital tools, e.g. mobile applications and social networks, can be used in a context of different objects and can mediate different forms of activity or change their functions as a part of ongoing activity.

Clusters of digital artefacts can be seen within a context of activity systems as mediating artefacts that constitute various forms of relationship between subject and object. That said, the conceptual definition in terms of activity theory of digital platforms used in crisis communication and response is not limited to the actual forms of activity manifested in a particular case of emergency response. Activity theory proposes that digital platforms be seen as mediating artefacts embedding an ideal structure of activity systems. The concept of the “ideal” (Ilyenkov, 1977) suggests a framework that links human activity, material objects and the world of the ideal.

According to Ilyenkov, the “ideal” is embedded in material artefacts and manifested through the practice of human activity. Human activity links the ideal world embedded in an artefact and the objective material world. The ideal and the real worlds are viewed in a dialectic relationship, where the ideal is manifested through artefact-mediated activity and the activity changes artefacts and revises ideal forms:

The ideal form is a form of a thing, but outside this thing, namely in man, as a form of his dynamic life-activity, as goals and needs. Or conversely, it is a form of man’s dynamic life-activity, but outside man, namely in the form of the thing he creates, which represents, reflects another thing, including that

which exists independently of man and humanity. ‘Ideality’ as such exists only in the constant transformation of these two forms of its ‘external incarnation’ and does not coincide with either of them taken separately. It exists only through the unceasing process of the transformation of the form of activity into the form of a thing and back – the form of a thing into the form of activity (of social man, of course). (Ilyenkov, 2012, p. 192)

Allen et al. (2013) suggest that Ilyenkov’s notion of activity is fruitful in the examination of digital artefacts, for instance, when “it can be seen that computer codes intrinsically relate to material activity once they are brought down to earth by being viewed as an essential and characteristic part of a specific activity system” (p. 839). In this light, digital platforms can be viewed as clusters of artefacts that not only mediate existing activity systems for emergency management and crisis communication, but also embed the ideal forms of activity system for emergency response which are manifested differently in specific crisis situations. Therefore, exploring the roles of digital tools suggests not only the examination of actual mediated forms of activity in specific emergency situations, but also the mapping of ideal forms of emergency response that are embedded in the digital tools as mediating artefacts and can be seen as being formed as part of a cultural-historical process.

3.3.5 Criticism of activity theory

The practical value of activity theory also opens the doors to critics of CHAT and specifically of the analysis of ICTs within an activity framework. Nardi (1996, p. 4) points out that activity theory is “a powerful and clarifying descriptive tool rather than a strongly predictive theory”. Karanasios (2014, p. 11) points out that the interest of ICT researchers in activity theory is “pragmatic rather than following a doctrinaire line of thinking”. A situation where a theory allows analysis of any tool and any situation may lead to an over-focus on rich description and less attention to theory.

Although the theory emphasizes the role of the cultural and historical context, it downplays issues related to power. The conventional application of CHAT is not interested in how different types of mediating artefacts and activity systems manifest in relationships of power. One reason that activity theory has little or no purchase on power relationships is that the initial motivation of Vygotsky’s project dealt with the development of a new human being linked to the spirit of liberation following the Bolshevik’s revolution. According to Sawchuk and Stetsenko, Vygotsky suggests that understanding the cultural and historical roots of the development of individuals can “empower subordinate groups—especially through education—across divisions of class, race, ethnicity, gender, and disability” and offer a uniquely dynamic and dialectic, emancipatory perspective on human development and

subjectivity” (Sawchuk & Stetsenko, 2008, p.344). Sawchuk and Stetsenko also argue that “Vygotsky and his colleagues felt education was a pathway to empowerment and freedom, allowing people to become conscious agents of their own development, as well as their societies’ development” (p. 344). At the same time, “the right to question existing power structures and seek ways to transform them was abandoned under conditions of state coercion” (Sawchuk & Stetsenko, p. 344). Silvonen highlights the historical reasons for the absence in activity theory of interest in the power of relationships:

The exclusion of power and communicative relations from the theoretical apparatus was the price the proponents of Activity Theory had to pay for its existence. In doing so they adapted the rules of Soviet discursive practices and became part of power games and the production of knowledge. (Silvonen, 2010, p. 192)

Therefore, according to Sawchuk and Stetsenko “the goal to consistently explore how particular social structures, with their power constellations and systems of privilege, shape development has never been pursued” by Vygotsky and his colleagues (Sawchuk & Stetsenko, 2008, p. 344), resulting in a rigid and canonical version of CHAT in which the scholars “relinquished questions of social change and agency and instead focused on narrowly conceived instrumental issues”, while “the effects of this shift still reverberate today” (p. 344). Contemporary contributions to the field of CHAT research continue to downplay the role of relationships of power, but there are calls to bring activity theory back to its origins proposals for a “noncanonical version of CHAT” concerned with issues of power (Sawchuk & Stetsenko, 2008).

To sum up, this discussion identifies concepts that play a role in my conceptual framework. The first is *activity as a unit of analysis*, which focuses attention on the structure of *activity systems* and specifically on the relationship between the *subject* and the *object* of activity as a part of an analysis of the development of the subject. The second is *mediation by tools*, where tools mediate the relationship between the subject and the object and play a focal role in the development of activity systems. The third is *contradictions*. Internal and external contradictions can result in the development of new forms of subject-object relationship and, accordingly, in new activity systems.

3.4 Governance and activity theory: obstacles and opportunities for juxtaposition

A conceptual framework relying on two theoretical approaches requires some discussion, since the Foucauldian concept of governance and CHAT are rooted in different traditions. Foucault’s work emerged in a poststructuralist stream of thought, inspired by

Nietzsche's notion of human nature. The Vygotskian tradition is associated with material studies of human nature by Marx, although it was not related to critiques of capitalism. While CHAT is related to developmental psychology, the Foucauldian project is mostly associated with social theory. That said, both are informed by a common interest in the genesis of the subject. This proximity is highlighted by Chin:

The theories of both Vygotsky and Foucault are closely related in the social formation of knowledge and identity. However, they differ from each other in the manner in which their focus takes place. Vygotsky highlights the sociocultural and historical forces through socialization and internalization, but Foucault emphasizes that such processes – which are constitutive of identity formation and knowledge construction – can only occur within discourse. (Chin, 2014, p. 123)

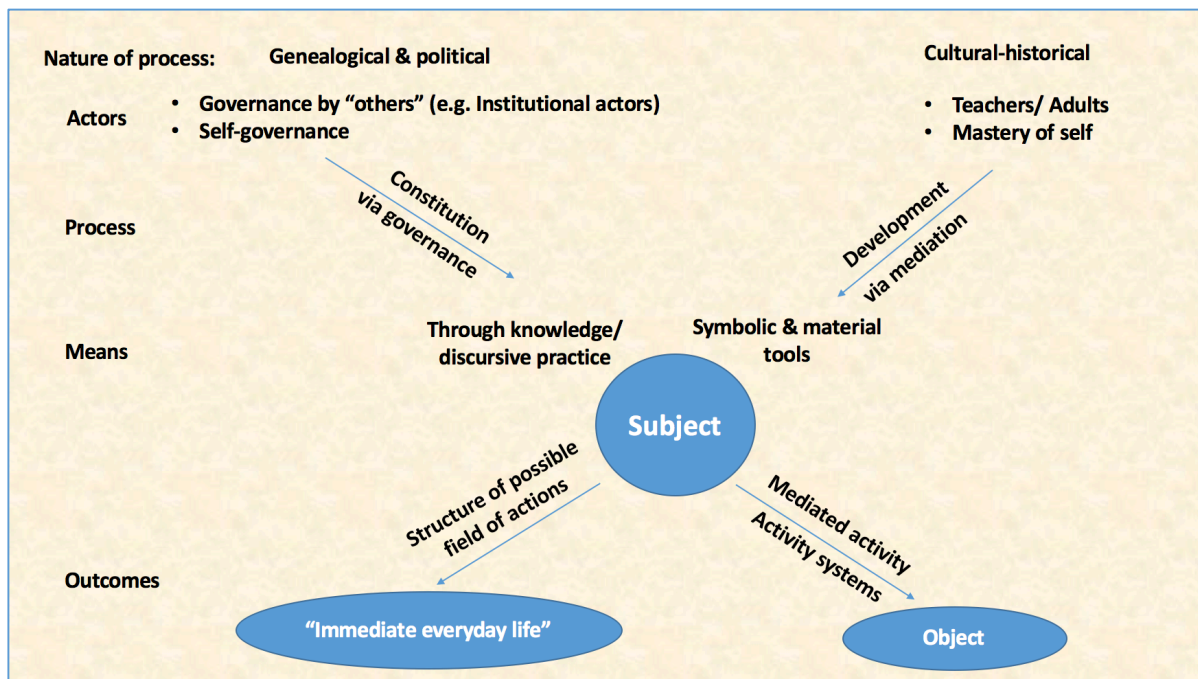


Figure 3.4 Comparison of the Foucauldian and Vygotskian frameworks

Figure 3.4 compares the two theoretical frameworks. The external roots of the genesis of the subject is a common denominator. Both highlight the importance of historical context for the genesis of the subject and examine the subject in the context of his/her environment. Activity theory underlines the cultural-historical dimension of investigation, and archaeological and genealogical approaches also link the subject to historical context. The main difference with regard to external factors is the different understanding of history as a cultural process or as a genealogical process of the creation of knowledge that manifests in the relationship of power.

The Vygotskian approach is focused primarily on the "development" of the subject within the context of learning and growth of the child and approaches the subject as a higher cognitive function. Foucault's notion of "constitution" puts the genesis of the subject in a

context of power relationships and approaches the subject as a construction within the poststructuralist context. Whereas the notion of development proposes that a scientific approach can enhance the development of new subjects, the notion of constitution is associated with a critical approach which is driven by the idea of deconstructing the existing modes of subject that have been constructed within historical and political processes.

The Vygotskian notion of development of the subject relies on mediation by tools within a context of the relationship with an object. The Foucauldian notion of the constitution of the subject relies on objectification and discursive practices, as well as on governance of the action of the subject. In other words, Foucault approaches the constitution of the subject as an outcome of a structure that relies on language and knowledge, as well as something that is constituted through technologies and practices that constrain the action of the subject. Activity theory scholars argue that not only language but any artefact can play a role in mediation.

There is some proximity between the notions of *action* and *activity*, as well as between the notions of the *possible field of action* and *activity systems*. In both cases, there is a focus on constraints and possibilities of subject behaviour as a part of the subject's genesis. However, the concepts represent different views of how to examine the action/activity of the subject. According to Foucault, the outcome of the constitution of the subject is continuously reproduced in everyday life; however, he does not really consider the link between the constitution of the subject and a specific context. The Vygotskian framework, in contrast, explores the outcome of development within the context of the relationship of the subject to an object of activity.

Some scholars adopt a Foucauldian lens in order to address specific circumstances. For instance, Hewitt (1998) approaches disasters from a Foucauldian perspective on governmentality as a situation in which there is a loss of control by political institutions. In this context, he suggests that the dominant purpose of disaster response by institutional actors is not the reduction of damage or protecting lives, but the restoration of "all forms of regulation and enforcement of state power" (Hewitt, 1998, p. 90). Thus,

The first official concern of the authorities and a large role of the military and police service in most disasters is to restore order. And that means the instruments, infrastructure and appearance of a *centrally administered* order. (Hewitt, 1998, p. 90)

There is an additional common aspect to these traditions. Both Foucault's and Vygotsky's followers introduce a shift from the micro level of individual subject analysis to the macro level, while linking the exploration of the subject to explorations of society.

Foucault emphasizes that governance addresses the conduct not only of individuals, but also of groups. As pointed out by Gordon (1991), Foucault argues that there is no discontinuity between studying relationships of power on the microphysical layer of “individual human subjects within particular, local institutions” and the macrophysical layer of “governing populations of subjects at the level of a political sovereignty over an entire society” (p. 4). Mennicken and Miller (2014) emphasize the linkage between the governance of the individual body and the governance of collectives, while “individual lives, as well as life viewed collectively, were made subject to explicit calculations designed to allow it to be governed and administered” (p. 17). In the case of CHAT, there is a shift from a focus on the development of a child to the development of the collaborative practices of adults and the notion of community as a group, as introduced within the activity systems model (Engeström, 1987). In this case, different members of a community may have different roles as part of an object-directed activity, which means that every community has its own division of labour.

An additional aspect of comparison is the structure-agency relationship in both theories. On the one hand, both theories propose that an external structure is developed as part of an historical process and has a central role in the genesis of a subject. This external structure relies either on power-knowledge or on the cultural tools that shape the relationship between subjects and objects. On the other hand, both theories presuppose not only the freedom of the subject as a basic condition, but also the capacity of the subject to take part in his/her own genesis. While Foucault discusses the governance of the self, Vygotsky highlights the role of tools in self-mastery and self-regulation. That said, there is a difference in how the tension between the subject and the environment is discussed. While Foucault introduces concepts of “games” and resistance as a part of the relationships between different actors, activity theory suggests a neutral notion of contradiction between the subject and his/her environment as a driving force of change.

Activity theory made a step towards being a sociological theory, for instance by focusing on collective action, but to what extent can the Foucauldian project for the investigation of the subject be linked to a theory that has psychological roots? Efforts to build a bridge between activity theory and Foucauldian discursive practices are evident in the development of mediated discourse analysis (MDA), as highlighted by Scollon:

I would argue that interactional sociolinguistics and critical discourse analysis (including the more general sociological practice theory of Bourdieu and even Foucault) works with an implied but not well-developed psychological theory. This has led in some cases to profound but unanalyzed differences between cognitive-based and basically rationalist analyses of social interaction and sociocultural, activity

theory accounts of human learning and action. (Scollon, 2001, p. 9)

Scollon (2001) argues that “sociohistorical psychology within the Vygotsky-Lurian tradition is highly compatible” with efforts to develop a discursive approach to the analysis of “mediated social action” (p. 9).

The Foucauldian heritage may be closer to the psychological tradition than it may seem. The early writing of Foucault reveals the psychological nature of his project. Foucault (1957/2015)² writes that his research interest was driven by the failure of modern psychology to become a science exploring the subject due to its focus on a positivist investigation of individuals. According to Foucault (1957/2015 [RUS], pp. 228-229), modern psychology is just “an empirical analysis of the current modes of human existence as it is manifested in the worlds” and lacks a critical exploration of the subject. He proposes an alternative psychology which seeks “to analyse human existence in its most fundamental structures” (1957/2015, p. 228). He argues that a true psychology needs to investigate not only the human being, but the range of possibilities of being, and why and how specific modes of being are manifest in specific circumstances (Foucault, 1957/2015).

Foucault’s scientific journey started with a search for an alternative psychology as a science of the modes of existence of human beings. The investigation of the genesis of human beings as a part of a cultural-historical process, introduced by Vygotsky, and the notion of a variety of possible structures of subject-object relationships, underline the constructed nature of the subject and a wide range of possible modes of being in different contexts of culture and history. The historicity of the subject is a common denominator between Vygotsky and Foucault. That said, unlike Vygotsky’s, Foucault’s project suggests a *political-historical psychology*. The political realm not only depicts a mechanism for the genesis of the subject, but seeks to identify the practices that lead to a dominance of certain constitutions of subject.

The proximity of Vygotsky and Foucault may have even deeper roots, associated with the philosophical anthropology of the 19th century, which offers a critical investigation of human nature. Nietzsche, who is associated with Foucauldian thought about the subject, and Marx, who had a significant impact on Vygotsky, belong to what Paul Ricoeur has labelled a “school of suspicion”. Ricoeur’s hermeneutics of suspicion identify three figures (the third figure is Freud) who focused on critical analysis of false consciousness and “sought to unmask, demystify, and expose the real from the apparent” (Robinson, 1995, p. 12). The idea

² I was unable to find English translations of this essay and rely here on my own translation from a Russian edition (2015 [RUS]).

that the human mind is constituted by external forces suggests that the subject cannot be explored outside a social, cultural, historical and political context. Both Foucault and Vygotsky rely on the principles of the hermeneutics of suspicion.

The critical nature of the Foucauldian project may seem opposite to Vygotsky's optimistic position that understanding human nature can help to fight social injustice. That said, as pointed out by Gaventa (2003, p.2), Foucault recognizes that "power is not just a negative, coercive or repressive thing that forces us to do things against our wishes, but can also be a necessary, productive and positive force in society" (Gaventa, 2003, p. 2). The ideas of resistance and self-governance proposed by Foucault underline that this understanding of human nature can also be seen as having a degree of optimism about the capacity of the subject to take a part in the genesis of the self. Accordingly, both Foucault and Vygotsky would seem to share not only roots of suspicion, but also some degree of optimism.

This section has highlighted the links between the notions of "activity systems" and of "possible fields of action". The comparison highlights the need for a focus not on action itself, but on the possibility of the action. It draws attention not to the actual manifestation of subject behaviour, but to opportunities for and constraints on the behaviour of the subject as this is manifested through governance. The juxtaposition identifies two layers for the analysis. The first is the objectification and the dividing practices that shape the discursive boundaries of the subject on the individual and collective level. The second is the role of tools in the mediation of a subject's activity and the relationship between the subject and the object as conceptualized by CHAT. The comparison also highlights the potential participation of the subject in the governance of his/her own activity as opposed to the governance of activity by other actors. In this context, the concept of contradiction proposed by CHAT and the notion of resistance proposed by Foucault appear to mutually enrich each other. Resistance may take place in situations of contradiction and lead to changes in the structure of activity systems. Finally, the Foucauldian notion of governmentality focuses attention on the modes of governance of sets of actors, namely the relationship between the state and the population.

3.5 Conceptual framework: digital mediation and the governance of activity

The conceptual framework is developed to guide my study of the role of digital platforms in emergency response and to explore the social and political factors that may be associated with the role of digital platforms in different socio-political environments. The conceptual framework is informed by my interest in bridging a gap in the literature on the

social and political aspects of disaster response and the literature on the instrumental role of ICTs in emergency situations. The framework is responsive to three challenges: the conceptualization of the role of digital platforms, the conceptualization of the relationship between actors that potentially take part in emergency responses, and the incorporation of the role of disasters as a part of the analysis.

Theoretically, the framework focuses attention on the notion of the subject, which incorporates single users and institutional actors. The collective nature of the subject is highlighted by the notions of *community* (Engeström) and of *population* (Foucault). Activity theory is used to highlight how the subject develops in a mediated relationship with an object – the *subject-object relationship*. The object is related to the external environment, and this encompasses the emergency situation (natural disasters) and the activities that may be associated with an object (e.g. disaster response). In other words, the disaster is an object located in the environment of the subject, while the subject's activity is driven by goals related to the object. The notion of a subject-object relationship is also used to suggest that the subject does not necessarily have to be active, while an absence of activity is also a form of subject-object relationship.

In this context, digital platforms are conceptualized as digital tools that mediate the relationships between the subject and the object, and that can be associated with the particular structure of an activity system. At the same time, while CHAT underlines that digital mediation plays a role in the development of the subject by proposing a particular type of relationship with regard to emergency situations, the Foucauldian framework highlights that the subject is an outcome of self-governance and governance by other actors, manifested through objectification and action upon action. My conceptual framework, building on a juxtaposition of Foucault and CHAT, allows me to explore the role of digital tools in shaping the activities of individuals and groups, and approaches the digital tools within the context of the governance by others or self-governance. Different modes of action upon action, reflected in the difference between digital artefacts that mediate different types of activity, are explored within the context of power relationship among different subjects. Accordingly, the understanding of digital mediation is situated in a context of the relationships among actors and, specifically, the relationship between citizens and institutional state-affiliated actors.

The juxtaposition of the two theories enables me to propose the “governance of activity”. This incorporates a conceptualization of the role of digital tools in the structuring of subject-object relationships and power relationships as a tension between governance of self and governance by others. This, I suggest, plays a role in shaping the position of the subject

with regard to the object. Situating the analysis of the structure of activity systems within a context of governance also suggests that digital tools can manifest action upon action and suggest a possible field of action. The notion of the “governance of activity” proposes that digital tools can manifest the relationship of power among actors by playing a role in the constitution of the subject and facilitating a particular type of mediated relationship between the subject and her/his environment. The notion of the governance of activity suggests a way to address the first overall research question (*Research Question 1*): *What is the role of digital tools (mediating artefacts) in the constitution (governance) of the subject?*

The notion of a subject-object relationship as a manifestation of the governance of activity is used to explore the question: *What are the modes of subject-to-object relationships that are mediated through digital tools in crisis situations? (Research Question 1.1)*. The notion of governance and the potential forms of resistance around the constitution of the subject highlighted by Foucault suggest a focus on whether and how mediating artefacts contribute to governance by others or to self-governance of the subject. This is reflected in Research Question 1.2: *Do digital platforms contribute more strongly to the governance of subjects by others, or to self-governance? In what ways do digital platforms contribute to the governance of subjects by others and to self-governance?* The conceptual framework focuses attention on the tension around different modes of action upon action and explores whether digital tools support resistance to imposing a specific structure of possible actions in emergency situations. The juxtaposition of the notion of governance and the notion of object-oriented activity highlights how digital tools can contribute to the capacity of the subject to define his/her objects of activity as a manifestation of self-governance or impose objects of activity which are associated with “governance by others”.

The second overall question highlights my interest in factors that shape the role of digital tools in the governance of activity and, specifically, in exploring why in different socio-political environments these tools might play a different role, reflected in different types of tension between the governance of activity by institutional actors and self-governance by users. The second main research question (Research Question 2) is: *What factors are associated with the constitution of the subject through the digital mediation of activity?*

To respond to this question, the conceptual framework conceptualizes different sets of relationships between actors (subjects) that may be found in different environments, and specifically different sets of relationships between users and state-affiliated actors. In order to conceptualize the relationship between the actors within a context of governmentality as a

part of the relationship between the population and state actors, the conceptual framework includes the notions of *objectification*, “*dividing practices*” that define the boundaries of groups, and “*the games of truth*” that deal with mutual processes of discursive construction of individuals and collective subjects by one another.

The juxtaposition of Foucauldian theory with CHAT suggests that the relationship between different actors within a context of activity around a particular object, e.g. natural disasters, is conceptualized as a “*subject-to-subject*” relationship, while the relationship between actors and disasters is conceptualized as a *subject-to-object* relationship. The analysis of the discursive construction of the subject-to-subject relationship is informed by the model of activity systems. This explores the perception of the role of other subjects in emergency response, with a focus on the potential resources that can be mobilized, the potential objects of activity for a specific subject, and how the labour between subjects is divided.

In order to address Research Question 2, this study focuses on the association between two dimensions of the Foucauldian concept of power: the subject as an outcome of objectification, knowledge and the practices of division, on the one hand, and the governance of the subject as conduct of conduct, which suggests fields of possible actions for others, on the other hand. Various modes of conduct of conduct are understood to embed a particular discursive construct of subjects, which may be associated with different modes of governance of activity as manifested through mediation by digital tools. This drives attention to exploring the association between subject-to-subject (objectification and division) and digitally mediated subject-to-object (governance) relationships. In the case of subject-to-subject relationships, the level of analysis is the discursive practices through which the subject is constituted by other subjects in a specific situation. In the case of subject-to-object relationships, the level of analysis is activity and the structure of activity systems around the situation of emergency.

Figure 3.5, below, depicts the structure of digitally mediated subject-object relationships as a form of governance of activity and the structure of subject-to-subject relationships as a manifestation of objectification, practices of division and games of truth around the constitution of the subject:

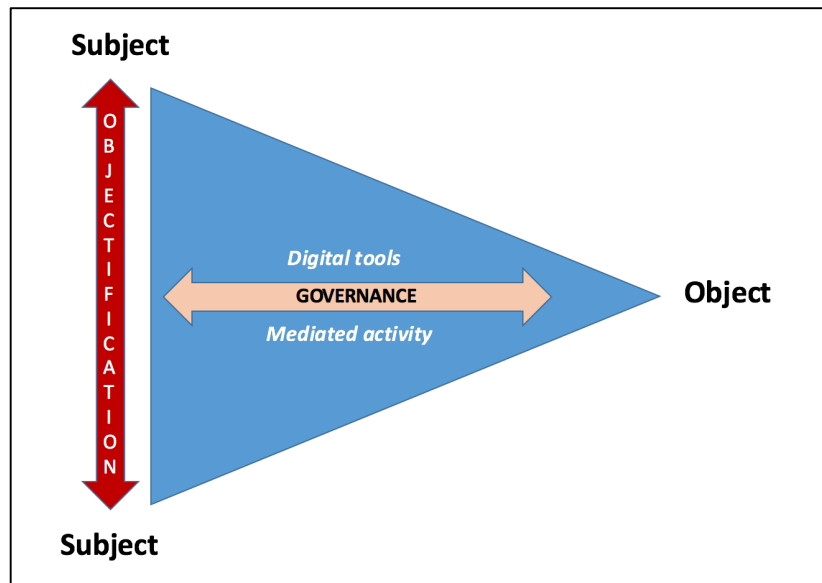


Figure 3.5: The conceptual framework: the role of digital platforms in the constitution of the subject

The pink (horizontal) arrow of “governance of activity” represents the focus of Research Question 1, which explores the role of digital tools in the governance of the relationship between subjects (users) and objects (disasters) and the structuring of possible fields of action, as well as proposing an action upon action. The opposite direction of the arrow, from objects to subjects, represents an option of contradiction to existing activity systems that may be associated with potential challenges to governance and the transformation of activity systems to address these contradictions. The red (vertical) arrow represents the relationships between actors related to a specific object (e.g. a disaster), and specifically between users/population and institutional actors/state. This relationship is manifested through modes of objectification and practices of division that constitute the discursive boundaries of groups of subjects.

The triangular model highlights the association between the subject-to-subject relationship as practices for the discursive constitution of subjects, and the subject-object relationships as the relationship between the subject and the environments mediated through digital tools. It highlights the structure of mediating artefacts that plays a role in the governance of the activity of subjects and is associated with subject-to-subject relationships. In other words, the conceptual framework highlights how understanding the role of digital tools requires an investigation of two aspects of the constitution of the subject: constructing knowledge about the subject and the objectification manifested in various discourses, and the role of digital platforms in constraining the actions of the subject by imposing a particular mode of action upon the subject’s action.

The conceptual framework presented in Figure 3.5 gives rise to two specific sub-questions associated with Research Question 2. The first explores factors that contribute to the role of digital tools in the self-governance of the subject or the governance of subjects by others: *What factors are associated with the role of traditional institutions in the governance of the subject through digital mediation? What factors contribute to the role of digital tools as a form of self-governance of the subject?* (Research Question 2.1). It is also necessary to look specifically at the structure of subject-to-subject relationships: *What is the role of subject-to-subject relationships in the digitally mediated constitution of the subject?* (Research Question 2.2). The notion of contradiction proposed by CHAT assists us in conceptualizing the tension between governance by others and self-governance that may be manifested in the structure of mediating tools and in the relationships between different subjects, and specifically suggests that this tension may be associated with a change in the structure of the digital mediation of subject-object relationships and the structure of activity systems.

3.6 Governance of crowds: crowdsourcing through the lens of a conceptual framework

The role of crowdsourcing is central to this study, as indicated in Chapter 2 (Section 2.3). This section completes the conceptual framework through addressing crowdsourcing in terms of the juxtaposition of CHAT and of Foucault's concept of governance. It introduces two sub-questions that explore crowdsourcing, derived from the two overall research questions (Research Question 1; Research Question 2). As discussed in Chapter 2 (Section 2.3), there are diverse concepts of crowdsourcing and many approaches to the role of the crowd and its resources in a situation of crisis. My conceptual framework situates crowdsourcing in the context of digital mediation and the governance of activity. This requires a nuanced analysis of the actors and the processes associated with crowdsourcing. Accordingly, two aspects of crowdsourcing – the “*crowd*” as an actor and the “*sourcing*” as a process – are conceptualized separately.

Sourcing can be defined as “a process of finding supplies of goods or services” or as an “act of obtaining good or components from a specified source” (Collins, online). These definitions highlight how sourcing deals with the mobilization of resources from external sources. Bourdieu proposes that capital relies on four types of resource: economic, symbolic, cultural, and social (Bourdieu, 1986). Burchell observes that Foucault's concept of governance approaches the population “as part of a natural resource to be exploited”. (Burchell, p. 120, 1991) In CHAT studies, culture is a resource (Gillespie & Zittoun, 2010).

On the one hand, mediating artefacts as outcomes of cultural development are approached as a resource. On the other hand, resources are associated with a subject.

According to Baltes (1997, as cited by Gillespie & Zittoun, 2010, p. 43), “the notion of resource designates any means to achieve the selected goals”. Zittoun (2006, cited by Wagoner et al., pp. 4-5) suggests four types of resource, including social resources; material resources including financial and physical possessions; knowledge and experience including cognitive skills; and cultural resources as “meaning-making devices”. In this context, digital tools have a dual nature, as a resource allowing the mobilization of a variety of resources, and as a cultural resource which makes meaning from the resources of subjects.

In the conceptual framework, sourcing is conceptualized as a digitally mediated form of the relationship between subject and object which relies on the mobilization of the resources of the subject. Therefore, crowdsourcing is conceptualized as a digitally mediated activity that mobilizes a subject’s resources to achieve a particular object. This highlights how crowdsourcing is not a particular type of platform, but a digitally mediated process manifested by using a variety of digital tools, including social networking platforms, mobile applications and dedicated websites. Accordingly, crowdsourcing is conceptualized as the digitally mediated mobilization of the resources of the subject (community) around a specific object. Digital platforms used for crowdsourcing are understood as mediating artefacts associated with specific structures of an activity system.

The juxtaposition of CHAT with a Foucauldian approach highlights the ways in which the role of digital tools is not limited to a particular structure of activity, but may also suggest a form of governance of the subject, including her/his resources. Crowdsourcing is investigated within a context of the constitution of the subject as a part of a digitally mediated activity directed toward an object. Relying on the first overall research question (Research Question 1), which explores the role of digital tools in the constitution of the subject, and on Research Question 1.1, which explores the governance of user activity as subject-object relationships, the sub-question Research Question 1.3 asks: *What is the role of crowdsourcing platforms in the mediation of subject-to-object relationships and the constitution (governance) of users (as subjects)?*

Sourcing highlights a particular aspect of the subject as a potential owner of a variety of resources that can be mobilized around a particular object. This study goes beyond the role of crowdsourcing in mediating subject-object relationships by focusing attention on factors that may be associated with the role of platforms, by considering subject-to-subject relationships and exploring how the crowd is constituted as a part of the objectification by

institutional actors, and specifically the objectification of the crowd as a potential resource that can be harnessed to needs related to the specific object of activity. Thus the crowd is treated not only as a subject within an activity system, but also as an object of governance, consistent with the Foucauldian part of the conceptual framework.

Two notions of the group are introduced: the notion of community (Engeström) and the notion of population (Foucault) highlight the dual nature of the crowd as an actor within an activity system and as an object of governance. This suggests that we focus on whether the crowd is governed as a subject potentially able to take a part in a different type of activity around various objects. The part of the conceptual framework informed by CHAT proposes an exploration of specific aspects of the crowd in the context of activity systems: the division of labour and the types of task assigned to the crowd, and the degree of diversity of the tasks. The part of the conceptual framework informed by Foucault's notions of objectification and governance suggests that we examine the constitution of the crowd as an object of knowledge and explore either the digital tools used in the governance of the crowd by others or how it allows the crowd to manifest self-governance through taking a part in defining its own tasks.

Informed by the conceptual framework, this study examines factors associated with the role of digital platforms in the digitally mediated governance of the crowd. Figure 3.6, below, represents how the conceptual framework (Figure 3.5) is adjusted for the purpose of the examination of crowdsourcing.

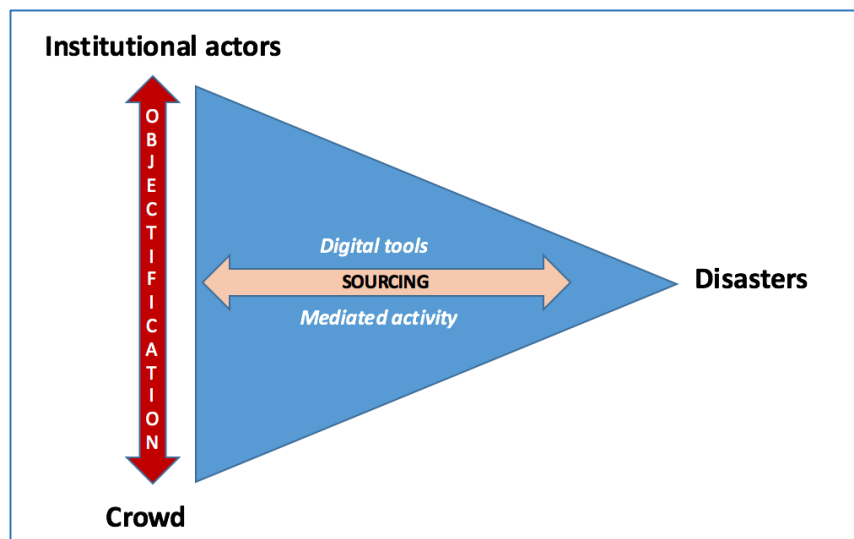


Figure 3.6: The role of crowdsourcing in the constitution of the subject

Figure 3.6 highlights the association between the role of digital tools in the mediation of sourcing as a form of subject-object relationship (the horizontal arrow) and the role of objectification in the constitution of the crowd as a part of the subject-to subject relationships between members of the crowd and institutional actors (the vertical arrow). The association

between the objectification (discursive construction) of the crowd as a potential owner of resources (subjects-to-subject) and the structure of mediating tools, suggesting a particular mode of mediated activity (subject-object relationships) relying on the mobilization of the resources of the crowds, is explained in this study in terms of the question: *How is the discursive construction of “crowd” associated with the digitally mediated governance of the crowd, and specifically with governance by others and self-governance?* (Research Question 2.3), a sub-question to Research Question 2, which addresses the factors associated with the constitution of the subject through the digital mediation of activity.

The analysis of the objectification of the crowd also addresses the contradiction between the vision of the crowd as an uncontrolled mass of people that needs to be managed and the view of the crowd as a source of wisdom and positive change, as highlighted in Chapter 2 (Section 2.3). It also explores the difference between the notion of a population and the notion of a crowd as a subject of objectification and an object of governance.

The Foucauldian concept of governmentality highlights how a population typically exists within the geographical sovereign space of the state. In the case of crowdsourcing, the crowd is a digitally mediated actor in cyberspace and is not bounded by sovereign borders or geographical limits. This suggests that the emergence of a digital space can be associated with a new type of digitally mediated subject and perhaps a new object of governance for institutional actors. If this is the case, the digitally mediated crowd introduces challenges for the governmentality of populations because of the increased distance between “digital populations” and physical territories. The emergence of the networked crowd as a new subject suggests a need to explore the *governance of crowds*, including whether crowdsourcing practices contribute to the capacity of members of a crowd to govern themselves by structuring their own possible fields of action, or to the capacity of others, particularly state-affiliated institutions, to govern a crowd.

To sum up, the study of the role of digital tools in the constitution of the subject focuses on the relationship between the crowd and the state. This section has suggested that crowdsourcing has a dual nature, both as an activity system with a particular mode of subject-object relationship in a context of object-oriented activity mediated by a digital tool, and as a practice of governance and action upon action, suggesting a field of possible actions to a group of subjects through digital mediation. The conceptual framework suggests an exploration of how the discursive constitution of the crowd as an object of knowledge may be associated with the digital mediation of sourcing.

The conceptual framework gives rise to the overarching research questions for this study which are concerned with the digitally mediated governance of activity as a particular form of relationship between a subject and his/her environment and the factors that can be associated with the role of digital tools in the constitution of a subject. The presentation of the conceptual framework in Section 3.5 and in this section allows us to sum up the main questions and sub-questions for this study. These are summarized in Table 3.1, below.

Overall Research Question 1	<i>RQ 1: What is the role of digital tools (mediating artefacts) in the constitution (governance) of the subject?</i>
<i>Sub questions to overall Question 1</i>	<p><i>RQ 1.1: What are the modes of subject-to-object relationship that are mediated through digital tools in crisis situations?</i></p> <p><i>RQ 1.2: Do digital platforms contribute more strongly to the governance of subjects by others, or to self-governance? In what ways do digital platforms contribute to the governance of subjects by others and to self-governance?</i></p> <p><i>RQ 1.3: What is the role of crowdsourcing platforms in the mediation of subject-to-object relationships and the constitution (governance) of users (as subjects)?</i></p>
Overall Research Question 2	<i>RQ 2: What factors are associated with the constitution of the subject through the digital mediation of activity?</i>
<i>Sub-questions to overall Question 2</i>	<p><i>RQ 2.1: What factors are associated with the role of traditional institutions in the governance of the subject through digital mediation? What factors contribute to the role of digital tools as a form of self-governance of the subject?</i></p> <p><i>RQ 2.2: What is the role of subject-to-subject relationships in the digitally mediated constitution of the subject?</i></p> <p><i>RQ 2.3: How is the discursive construction of a “crowd” associated with the digitally mediated governance of the crowd, and specifically with governance by others and with self-governance?</i></p>

Table 3.1: List of research questions

3.7 Pathways not followed

The Foucauldian concept of the subject is a central tenet of this conceptual framework. One could argue, however, that the challenges addressed in this study relying on activity theory could have been explored through other theoretical lenses. A number of

alternatives to CHAT and its concept of mediation were considered. Specifically, the notion of mediation proposed by Silverstone (2002, 2005), with his focus on the double articulation of technology, highlights a limitation of the Foucauldian approach to material objects in a context of digital mediation. That said, his notion of mediation has been applied mainly to the symbolic aspects of mediation in the constitution of reality of the subject and it proved challenging to integrate his concept of mediation within a Foucauldian perspective of governance as action upon action.

The notion of affordances rooted in ecological psychology (Gibson, 1977) was also considered. Gibson and his followers suggest that the way animals live in their environments is shaped by their affordances as “the possibilities that they offer for action” (Hutchby, 2001, p. 447), and literature often approaches ICTs as having the potential to change the structure of human affordances. Relying on the concept of affordances, Hutchby (2001) highlights how the constraints and opportunities of action are associated with the social construction of technologies: “affordances of artefacts do not necessarily derive from natural features of the artefact’s materiality... Affordances can also be designed into the artefact” (Hutchby, 2001, p. 449). The role of affordances in power relationships is also highlighted by Cammaerts (2015) in his “communicative affordances of social media for self-mediation” framework, which integrates the notion of affordances with a Foucauldian notion of technologies of the self.

The notion that affordances are socially constructed proposes that technologies play a role in the governance of the relationship of users and their environments by shaping their forms of action. However, it would have been challenging to apply the notion of affordances in response to research questions in this study. The study of affordance deals with the notion of the subject only in terms of the possibilities of and constraints on external action of an individual user of technology. Most of the affordances literature also downplays the role of technologies in the constitution of the structure of collective action, which in contrast is central to the model of activity systems (Engeström, 1987). As pointed out by Kaptelinin and Nardi (2006) “Affordances are typically interpreted in terms of low-level manipulation with physical artifacts” and “therefore, the concept is limited to the level of operations” (p. 81). The notions of mediation and contradictions allowed me to explore the dialectical relationship between subject and object. The notion of affordances as an outcome of social construction explores how the behaviour of users is associated with relationships of power, but does not lend itself easily to a study of the role of digital technologies in the constitution of the subject. The concept of “connective action” (Bennet & Segerberg, 2012) might also

have elucidated important aspects of the role of ICTs in response to emergencies, but this seems to deal more with the structure of response than with the role of the subjects.

The integration of disasters as a part of my conceptual framework might have suggested employing Actor-Network Theory (ANT) (Latour, 2005), but in this perspective the major actor is less an individual, than a network. Moreover, ANT provides a powerful descriptive framework for exploring the relationship between human and non-human actors, but is generally claimed to treat all actors equally, which would present a challenge in my study of power relations. ANT seems to offer little purchase on the relationships of power which are so central to this investigation. The next chapter presents the methodology of this study.

Finally, a number of paths were not taken in relation to the use of Activity Theory in this thesis. As is often highlighted by scholars, CHAT is not only a theory, but a paradigmatic framework which introduces a rich apparatus of ideas, conceptual notions and methodological tools. Therefore, while relying on some underlying tenets and specific notions introduced by CHAT, it is not possible to encompass all the diverse aspects of activity theory within a single study, particular if that study also develops a conceptual framework which juxtaposes aspects of CHAT with another theoretical framework. That said, it is important to mention conceptual paths that the CHAT perspective might have suggested and to explain the choices that were made.

First, activity theory suggests focusing on the *internalization* of the tool-mediated activity as a part of the cognitive development of the subject, while the external and social components of activity become internal. As summed up by Kaptelinin (2014b, online), “in activity theory internalization is used in a broader meaning as any re-distribution of internal and external components of an activity that results in a shift from the external to the internal”. The conceptual framework of this study is focused mostly on the examination of the structure of activity systems, while the subject is approached in a context of activity as a collective social phenomenon. Accordingly, the psychological aspect of internalization as a process of individual development is beyond the focus of the investigation in this study.

Another aspect of activity theory that is not included in the conceptual framework is the hierarchical structure of activity. Leontiev (1978) proposed a three-layer model of activity which includes activity itself, actions and operations. The *activity* deals with a need and is driven by a motive, while *actions* address specific goals which can be associated with a general need, and *operations* are routine process of which “people are typically not aware” (Kaptelinin, 2014b, online). According to Bødker (1991), these three layers address the

questions of Why, What and How, while the hierarchical model proposes a complex “combined analysis of motivational, goal-directed, and operational aspects of human acting in the world” (Kapltelinin, 2014b, online). That said, while the three-layer model suggests a potentially more nuanced account of tool-mediated activity, applying this model would have significantly increased the complexity of the analysis. In addition, the differentiation between levels of activity is less significant in cases where the investigation is focused on the analysis of the structure of activity systems as in this study, and not on the individual.

CHAT also highlights how activity systems are never stable, but under constant development. Accordingly, CHAT is interested not only in the present, but also in the past as well as the future of an activity. The importance of the past is underlined by the principle of *historicity of activity* which suggests focusing on the transformation of activity over time, while “history itself needs to be studied as local history of the activity and its objects, and as history of the theoretical ideas and tools that have shaped the activity” (Engeström, 2005b, p. 64). The notion of historicity also resembles the Foucauldian genealogical analysis. At the same time, Vygotsky introduced the notion of *zones of proximal development* in order to highlight how activity is always experiencing an expansive transformation and should be studied in the context of its potential futures. That said, the present research pays little attention to the process of formation and is mostly concerned with the relationships between digitally mediated activity systems, based on specific cases examined in a specific period of time, although activity system mapping is conducted as a part of the effort to detect whether there are substantial differences between ideal models of activity (Ilyenkov, 2012).

The dynamic nature of activity systems is also highlighted by the notion of “dialectical logic” (Ilyenkov, 2008), which regards the emergence of contradictions and their resolution as the driving force in development and innovation in activity systems that are considered to be always open to change. The notion of contradiction is present in the conceptual framework of this study. However, although Engeström (1999a) proposed a more nuanced typology of contradictions between and within activity systems, the analysis in this study is limited to focusing on contradictions between state-led and citizen-driven activity systems. These contradictions are also highlighted in the notion of the multi-voicedness of activity systems (inspired by Mikhail Bakhtin scholarship) which underlines how “an activity system is always a community of multiple points of view, traditions and interest” with “multiple layers and strands of history engraved in its artifacts, rules and conventions” (Engeström, 2005b, pp. 63-64). That said, while recognizing that activity systems are diverse and encompass many internal contradictions, the analysis in this thesis is focused not on the

internal complexity of specific activity systems, but on the relationships between ideal types of activity system (in Ilyenkov's sense) relying on empirical examination of activity systems in emergency situations.

Last but not least, the development of CHAT scholarship is regarded by Engeström and his followers as developing through four generations of activity theory. The differences among the first three generations are summarized as follows:

The first generation built on Vygotsky's notion of mediated action. The second generation built on Leontiev's notion of activity system. The third generation, emerging in the past 15 years or so, built on the idea of multiple interacting activity systems focused on a partially shared object. (Engeström, 2007, p. 6)

According to Kaptelinin (2014b, online), "when studying complex real-life phenomena, applying one activity system model is often not sufficient. Such phenomena need to be represented as networks of activity systems". Accordingly, the third generation highlights how the world relies on an endless number of activity systems that manifest contradictions and tensions in their relationships. Methodologically, the third generation suggests drawing on the multiplicity of activity systems to be found in particular situations and focusing analytical attention on the relationships between these systems.

While the analysis in this study recognizes the importance of focusing on relationships between activity systems, it does not undertake what might be considered a traditional analysis following the third generation of activity which would have meant examining the complexity of the diversity of activity systems found in a specific situation around a shared object. Instead, it is concerned with the ideal types of activity system (Ilyenkov, 2012) and their expression in selected cases which are associated with different modes of relationship of power and with the capacity of the subject to control his/her own forms of digitally-mediated relationship with the object of his/her activity. Accordingly, while this study acknowledges the ideas developed in the third generation of activity, it is situated around the notion of the activity system as a unit of analysis which is associated with the second generation of CHAT.

The development of CHAT has introduced a fourth generation to address new forms of networked collective action and the rapid emergence of ad hoc networks of individuals around specific objects. Spinuzzi (2014) highlights that the third generation of CHAT is particularly concerned with traditional forms of agricultural and industrial works and, therefore, that the third generation "has not been well equipped to deal with situations that are more common in knowledge work, such as collaboration and coordination across multiple

activities” (p. 94). According to Spinuzzi (2014) “In 4GAT, the object(ive) is inherently multiperspectival, polycontextual, and transient, and the actors’ collaborations typically involve heavy boundary-crossing in what are often temporary collaborations across networks of interrelated activities” (p. 94). In order to address the dynamics of the development of activity systems in a networked environment, Engeström has introduced notions of “*wildfire*” and of “*mycorrhizae-like*” activities, as well as the notion of “*knotworking*” as “a movement of tying, untying and retying together seemingly separate threads of activity” (2005, p. 98). In the same context, Engeström has developed the notion of a “runaway object” as a large-scale, complex object which is “pervasive and its boundaries are hard to draw” (Engeström, 2007, p. 5) and which is associated with “distributed multi-activity fields” (Engeström, 2005c, p. 10).

The notions associated with the fourth generation of activity analysis can be considered specifically relevant to studies that deal with digitally mediated activity systems relying on digital networks, as in the case of this study. That said, while the fourth generation of activity analysis acknowledge changes in the dynamic of the development of activity systems, it relies on the principles introduced in the first and second generations of activity theory. Therefore, while the fourth generation enriches the analytical apparatus of activity theory, it does not offer concepts that are essential for addressing the research questions in this study.

4. Methodology

4.1 Introduction.

This chapter presents the methodology for the investigation of the role of mediating tools in the constitution of the subject in emergency situations, informed by an integration of thematic analysis inspired by the activity system model and Foucauldian discourse analysis (FDA) and in line with the conceptual framework discussed in Chapter 3.

The following sections present: the research design, which includes the structure of case studies (4.2); the description of the process of data collection (4.3); the methods used to analyse data (4.4); the data analysis (4.5), and the operationalization of empirical research question (4.6). The chapter concludes with methodological reflections (4.7).

4.2 Research design and case selection

This section presents the design of the research which was developed in order to address the research questions for this study. My interest in the research topic was triggered by the observation that the same crowdsourcing platform (Ushahidi) had been used in response to wildfires in Russia and bushfires in Australia (See Chapter 1). This suggested an initial focus on these two countries as potential cases for comparison. The final selection of cases was guided by the need to consider the socio-political factors that may shape the role of digital tools in emergency response. This suggested a selection of cases to support comparison between national environments, local and global environments, and offline and online dimensions of mediated activity. Table 4.1, below, presents the outcome of the selection:

Type of comparison	Case 1	Case 2
National	Russia	Australia
Global vs local	Crisis mapping (Global)	Crisis mapping UK
Online vs offline	Online: Crisis Mapping	Offline: Russia/ Australia

Table 4.1: Selection of cases

The cases were also selected in order to achieve a balance between those cases addressing ongoing digitally mediated initiatives responding to emergencies (e.g. in the case of crisis mapping), and those cases examining a variety of tools and initiatives in the context of specific emergency situations (e.g. in the cases of specific emergencies in Russia and in Australia). Examination of the first type of case was expected to support investigation of the transformation of activity systems in one emergency as compared to another. To explore

ongoing digitally mediated projects, the research focused on crisis mapping, which is a global movement of crisis-related activism and digitally mediated engagement of volunteers in crisis response. The Standby Task Force (SBTF) was selected as one of the most active initiatives in the crisis mapping movement, with projects linked to SBTF including the Digital Humanitarian Network (DHN) and the MicroMappers platform. Local UK-based and Australia-based crisis mapping initiatives were used in order to examine the relationship between crisis mappers and local emergency response institutions. Table 4.2, below, presents the crisis mapping initiatives that were included in the data collection phase.

Global	Description
SBTF Standby Task Force http://www.standbytaskforce.org	A global network of volunteers set up in 2010 to conduct crisis mapping and support humanitarian agencies
DHN Digital Humanitarian Network http://digitalhumanitarians.com	“A consortium of Volunteer & Technical Communities (V&TCs) that aims to provide an interface between formal, professional humanitarian organizations and informal yet skilled-and-agile volunteer & technical networks” ³ launched in 2012 ⁴
Micromappers http://micromappers.org	A crowdsourcing platform for classifying social media content and online imagery developed by Qatar Computer Research Institute in partnership with the UN & SBTF
Local	
VOST UK http://www.vostuk.org ⁵ Part of global VOST movement http://vosg.us	Virtual Operation Support Teams created in order to support local emergency response agencies and relying on the use of social media
Crisis Mappers UK	Local UK branch of crisis mappers
MAPS (Australia) http://www.maps-group.org/	Mapping and Planning Support – a group of professional volunteers in crisis mapping established in 2003 and supporting local emergency response agencies

Table 4.2: List of global and local crisis mapping case studies

³ <http://digitalhumanitarians.com/about>

⁴ <http://blog.veritythink.com/post/132620108984/the-co-founders-story-setting-up-a-digital>

⁵ The domain is no longer active

The selection of crisis mapping case studies was designed to balance two features: the domain of the emergency response (online/offline), and the scale of the project (global/local). The domain of response was used in order to distinguish between the projects relying solely on digital mediation, and those with some offline activity. It was expected that these features would provide contexts for the analysis of the relationship between traditional institutional responders and independent actors. The physical offline space has geographical boundaries subject to specific institutional responsibilities within a specific sovereign national system. The online digital space is not linked to a particular geographical space, and users are not bounded by distance. Similarly, the local projects are more likely to be connected to a specific structure of relationship with state-affiliated institutions, while the global projects are more likely to exist in a space with a more complicated structure of relationship with institutional actors. This point is highlighted by neo-realists (Waltz, 2000), who explore international space as a space of anarchy and therefore a space that is less regulated and potentially more fluid than offline and local spaces.

The national cases were selected to include diverse national environments. Australia and Russia were selected to support the examination of the role of digital tools in specific emergencies. These two countries were selected because in the period between 2009 and 2013 they experienced disasters of the same type: wildfires/bushfires and floods. In addition, both countries are large geographical territories. Russia is the biggest country in the world, with 17,075,200 square kilometres, while Australia is sixth largest in the world, with 7,686,850 square kilometres. In addition, both countries have a structure of federated states. The selection of these countries also requires us to take into account some of the principal differences between them.

The Economist Democracy Index 2015 puts Australia in 9th place and considers it a “full democracy” (in 2010 Australia was in 6th place). Russia is in 132nd place and considered an “authoritarian regime” (in 2010 Russia was in 107th place and classified as a “hybrid regime”) (Economist, 2011, 2016). One can suggest that the countries also differ in their capacity to address challenges, and this is often conceptualized by classifying them as fragile/failing or strong states (Naude & McGillivray, 2011; Nay, 2013; Grimm et al., 2014). The selection of country case studies was informed specifically by the notion of limited statehood (Risse & Lehmkuhl, 2006; Livingston & Walter-Drop, 2014; Risse 2013), defined as “territorial or functional spaces within otherwise functioning states that have lost their ability to govern” (Risse, 2011, p. 5). Limited statehood may apply to a specific area for a limited period of time. Risse uses Hurricane Katrina as an illustration of a temporally limited

zone of statehood experienced by a country (Risse, 2011). The cases of Russia and Australia were expected to offer insights into different degrees of statehood in emergency situations.

While both countries have a federal institutional state structure, in Australia the states and territories have a high degree of independence and the federal institutions (Commonwealth Government) are said to have limited authority, although some factors challenge this view of the structure and show an increased role of the Commonwealth Government (Bennett, 2006). In contrast, the Russian system of governance is associated with a notion of “vertical of power”, suggesting a centralized, top-down system of governance (Gel'man & Ryzhenkov, 2011; Monaghan 2012). Russia and Australia therefore represent different degrees of decentralization. It was expected that these differences would be associated with different structures of institutions dealing with emergency response and differences in the role of volunteers participating in emergency response.

The Russian and Australian cases focused on emergencies in the period from 2009 to 2013 (the fieldwork was conducted in 2013). The emergencies are presented in Table 4.3, below.

Australia	
Post “Black Friday” events	A series of bushfires in Victoria that caused the 173 deaths on February 7 th 2009. The tragedy was followed by an investigation by the Royal Commission and can be considered as a point of reference in change to the emergency response system in Australia. ⁶
Queensland Floods, 2010-2011	A series of floods that hit Queensland and specifically Brisbane, beginning in December 2010. At least 90 towns and over 200,000 people were affected. ⁷
Bushfires in NSW, October 2013	A series of bushfires in New South Wales considered the worst in NSW since the 1960s. ⁸ The bushfires took place at the time fieldwork was being carried out.

⁶ https://en.wikipedia.org/wiki/Black_Saturday_bushfires

⁷ https://en.wikipedia.org/wiki/2010%E2%80%9311_Queensland_floods

⁸ https://en.wikipedia.org/wiki/2013_New_South_Wales_bushfires

Russia	
Wildfires in West Russia, 2010	A series of several hundred wildfires, mostly in Western Russia, that affected Moscow and led to 54 fatalities. ⁹
Floods in Krymsk (Krasnodar region), 2012	Overnight floods that began on July 7 th 2012, caused 171 deaths and damaged the homes of nearly 13,000 people. ¹⁰
Floods in Amur region (Russia's Far East), 2013	Floods within the Amur River basin in mid-August 2013 (a few weeks prior to fieldwork in Russia) ¹¹ .

Table 4.3: List of emergencies in Russia and Australia

The national cases were not limited to digital platforms used in the context of specific emergencies. The cases support an examination of national emergency response systems embracing a complex set of platforms, cases and relationships, and the specific emergencies are used as major points of references in the empirical study. Some of the digital platforms investigated are active beyond specific emergency situations. This includes mobile applications, platforms for the mobilization of volunteers, social media platforms and some crowdsourcing deployments. In addition, the data includes two cases of Search and Rescue (SAR) organizations, providing insight into the role of digital tools in everyday life. For Australia, the case of the Bush Search and Rescue Victoria group (<http://bsar.org/>) was included. For Russia, an SAR movement, Liza Alert (<http://lizaalert.org/brjaska.asp>), and a SAR group, Extremum (<http://www.extremum.spb.ru/>), were included.

The type of actor served as an additional criterion for the selection of cases to include independent users, traditional institutions and other actors potentially involved in an activity around a specific object. Four types of actor – institutional actors, actors affiliated with institutions, non-government organizations, and independent actors with no organizational identity, were included. Table 4.4, below, presents the classification of the actors.

Types of actor	Examples
State actors	Ministries; departments; local authorities
State-affiliated actors	Response agencies Affiliated volunteer organizations

⁹ https://en.wikipedia.org/wiki/2010_Russian_wildfires

¹⁰ https://en.wikipedia.org/wiki/2012_Krasnodar_Krai_floods

¹¹ https://en.wikipedia.org/wiki/2013_China%E2%80%93Russia_floods

Non-governmental organizations	Media; IT-firms; business, consultancies, international NGOs (e.g. Greenpeace)
Independent actors	Volunteers, independent developers, activists, bloggers, social network admins

Table 4.4: Types of actor examined as a part of subject-to-subject relationships

The research also distinguished between different types of volunteer. A number of classifications for types of volunteer are available, based on their affiliation with traditional institutions, on their degree of commitment and on forms of engagement. Gosset and Smith (2013), for instance, differentiate between established volunteers, episodic volunteers and spontaneous volunteers, where all three types are affiliated with organizations that coordinate volunteer activity. Wymer (2006, as cited by Handy et al., 2011) focuses on differing degrees of commitment among “ongoing volunteers” and “episodic volunteers”. Another type of classification distinguishes between “formal volunteering”, affiliated with an institutional structure, and “informal volunteering”, not attached to any institution (Lewis, 2013). As a result, an attempt was made to include formal and informal forms of participation as well as established and spontaneous volunteers.

To sum up, the research design incorporates a variety of key factors identified in the conceptual framework in Chapter 3 as those that could potentially contribute to an exploration of the factors associated with the role of digital tools for the mediation of activity and the governance of a subject. It should be noted that the research design does not support a full comparison of cases, but instead provides a diverse sets of cases which complement one another, while also providing an opportunity to consider similarities.

4.3 Data collection

4.3.1 Types of data

Data were collected in order to explore the role of digital tools in the constitution of the subject and the factors that can be associated with the role of the tools, as discussed in Chapter 3. The first data set consists of information about the digital platforms. This includes information about emergency-related mobile applications, dedicated websites and social media pages used in a context of emergency, and specifically global and local crisis mapping platforms, as well as digital platforms used in Russia and Australia. The collection of data focused on platforms used in a context of specific emergencies, as indicated in Section 4.2. Data collection on crisis mapping focused on initiatives associated with the Standby Task Force and on crisis mapping platforms in the United Kingdom and Australia. The unit of

analysis was the structure of platforms considered as artefacts that mediate the relationship between users and an emergency. The content of the platforms, including texts about their purpose and rules, as well as interaction of users, were examined where these helped to understand how the platforms were used. These data were collected between November 2012 and December 2013.

The second set consists of interview data concerning the role of platforms in emergency response and the role of actors. These data were collected to explore the mutual perceptions of different actors who had been involved in emergency response. The interviews covered four sets of actors (as indicated in Table 4.4). The data also include interviews with actors who did not use digital tools, in order to explore their perceptions of the role of tools and other subjects. Interviews were conducted between August 2013 and December 2013. The first pilot interview was conducted on August 20th in the UK. Most of the interviews were conducted face to face as a part of fieldwork in Russia (September 2013) and in Australia (October 2013). Some interviews were conducted in Kenya at the International Conference for Crisis Mapping and in the UK (in relation to UK-based crisis mapping initiatives). Four interviews were conducted via Skype due to logistical limitations. The full list of interviewees is in Appendix I. The total number of interviews for Russia was 32, for Australia 25, and the overall number of interviews was 62.

Supplementary data sets include site visits and observations. Five sites were visited in Australia. One participatory observation was conducted in Russia. The list of visits is in Appendix I. Supplementary data also include information about the structure of local emergency response systems, to provide a context for the investigation and to see how digital tools were being used in everyday routines dealing with emergencies and preparation for potential disasters.

4.3.2 Methods of data collection

The collection of data on digital platforms relied on web archiving, including screenshots and PDF files saving specific pages of websites and mobile applications (Brügger, 2005; Brügger, 2011; Lomborg, 2012), as well as web archiving of Facebook pages (McCown & Nelson, 2009). The screenshots collected include a set of data about crisis mapping platforms and about platforms in Russia and Australia. The screenshots include the front page and all pages providing information about the structure of the activity systems associated with a platform. A number of platforms were changed/ deleted during the fieldwork period. Some of the data about platforms therefore rely on documentation or were

provided by the site developers. Most of the screenshots were collected prior to the fieldwork, on the basis of desk research which focused on identifying digital platforms used in emergency situations and included in the research sample (see Table 4.3). Desk research was conducted between October 2012 and July 2013. Some of the screenshots of mobile applications and geolocation-based platforms were collected as a part of fieldwork, since these applications could be revealed better through usage of the app in the field. The total data set includes about 150 screenshots.

The rest of the data collection relied on fieldwork conducted in Russia and Australia, as well as in Kenya and the UK. The interview was the major method for collection of data. Supplementary data was collected through ethnographic observation and on-site interviews. Field notes and photography were used to support this data collection method.

Semi-structured in-depth interviews (Mason, 2004) were used to explore the role of digital tools in the mediation of activity and the factors that can be associated with the role of the tools. The interview topic guide included questions dealing with elements of the activity model (see Figure 3.2, Chapter 3) in order to examine the role of tools within subject-object relationships. The guide encompassed both “what” questions about the role of digital tools for emergency response and “why” questions that looked for factors to explain the role of a particular tool in a particular context (Bauer & Gaskell, 2000, p. 58). In addition, a set of questions examined the views of interviewees on the role of different actors in the context of emergency situations. “Active interviewing”, as a process of production of knowledge (Holstein & Gubrium, 1997), involved explaining the purpose of the research, introducing some elements of the activity model, and other cases which facilitated the process of knowledge production.

The purpose of the topic guide was to maintain a balance between flexibility and structure. A guide to “organizing semi-structured interviews with key informants” was used as a template for the structure of the topic guide (Laforest et al., 2012). The template differentiated between primary and probing questions, and distinguished between the main and additional questions. A pilot interview was conducted in the UK. Following the interview, the guide was slightly revised (see Appendix III). The guide defined the procedure, which included: self-presentation; explanation of the research topic; discussion of confidentiality and consent; request for permission to use a voice recorder, and discussion of the status of citation. The default status of the interviews was “on the record”, but if the interviewee requested it this was changed to “off the record”.

The sampling strategy sought to include major actors associated with specific emergency response situations (see Table 4.3), and to include the four types of actor (see Table 4.4). The structure of the interviews was different in the cases of Russia and of Australia due to substantial differences in their emergency response systems. In Russia, the official emergency response system is more centralized (for a detailed overview of the Russian system of disaster management, see Roffey, 2016). Therefore, most of the interviews with state-affiliated actors were conducted with officials who worked for the ministry of emergency response (MCHS). In Australia, every state has an independent emergency response system with a number of local ministries and agencies. The interviewees included representatives of agencies in several states (New South Wales, Victoria and Queensland). Interviews with representatives of emergency-related institutions in Russia and Australia explored how state-affiliated responders envisaged the role of digital tools in disaster response and the roles of other actors. The interviews with independent actors explored their visions of the digital tools and of other actors.

The selection of interviewees relied on a two-phased approach (Bauer & Gaskell, 2000). The first set of interviewees was selected on the basis of desk research and for the second set “snowball sampling” and recommendations by other interviewees were used. The sampling also addressed geographical diversity. The Russian case studies cover a number of regions, including the Moscow region (interviews took place in Moscow and in Egor’evsk); South Russia (three interviews with interviewees from Krasnodar were conducted via Skype); and Saint-Petersburg. The Australian cases cover three states, New South Wales, Victoria and Queensland, as well as the Australian Capital Territory (Canberra). In order to avoid focusing solely on big cities, some interviews were conducted in Mildura (Victoria).

The fieldwork included site visit observations. The fieldwork in Russia included visiting a fire station and joining in the search and rescue operation of the Liza Alert volunteer network for 24 hours. The fieldwork in Australia included visiting fire stations in Sydney, Mildura and Canberra and attending a fire volunteers’ day in Canberra. The fieldwork in Australia took place during the fire season, when the Sydney area was experiencing significant bushfires. In addition, as part of my fieldwork, I organized a few academic presentations in Russia and in Australia (RMIT in Melbourne, QUT in Brisbane), to discuss my research with local experts.

The data collection phase faced some challenges. Due to my background with some emergency response projects there, I had more connections and knowledge about Russia, which assisted me in approaching potential interviewees. That said, the Russian official

emergency response system is considered to be a closed, semi-military structure, which makes it challenging to interview people. Issues around the state-citizen relationship in Russia, in particular around crisis situations, are considered sensitive. While I was able to interview a few people from the Ministry of Emergency Response, as well as former officials, access to representatives of the emergency response organizations on the regional level and to the firefighter units was not possible within the timeframe of the fieldwork. The issue of consent was particularly sensitive in the case of Russia. In Russia the signing of any paper, particularly by officials, is considered as a threatening act and could be a reason to decline an interview. Therefore, while the consent form was prepared prior to fieldwork (Appendix II), I did not use the form and explained the issue of consent verbally. In order to gain the confidence of the interviewees, I briefly described my personal experience with crisis mapping and the major reasons for my interest in this topic.

As an additional measure, the interviews with all state-affiliated interviewees and with representatives of organizations have been anonymized except where the interviewee agreed to be referred to by full name. In order to anonymize the interviews, a coding scheme was developed, which included the geographical location of the interviewee, the institutional affiliation of the interviewee and a number specific to the identity of the interviewee. For the coding scheme and the list of specific codes for groups of interviewees, see Appendix I.

In Australia the emergency response system is more open, but I had less background knowledge on which to draw in gaining access to official representatives. There were challenges to conducting my interviews in Australia due to the complexity of the structure of emergency response agencies. A particular challenge was to cover several states in a limited timeframe. The accessibility of representatives of agencies was restricted in New South Wales because of the bushfires happening at the time of the fieldwork, and I was unable to interview social media managers of the firefighting agency in New South Wales. Two requests that were declined were for interviews with a representative of the platform Emergency Volunteering in Queensland, and with a founder of one volunteer-based project.

The dataset for the Russian and Australian cases is relatively robust, while the data set for the crisis mapping is somewhat less so. The data for crisis mapping includes four in-depth interviews conducted in Kenya and in the UK, and one in Australia. In this data set there are no state affiliated actors, or actors associated with global organizations. This was not considered problematic for my study because the analysis of crisis mapping as a transformation of an activity system focused mainly on the online emergency-related practice, not on responses to specific emergency situations. In addition, the analysis of crisis

mapping relied mainly on information about the structure of digital platforms and focused on the analysis of digital tools as activity systems. The interviews played a secondary role to support this analysis.

In line with the research design, the crisis mapping chapter (Chapter 5) focuses on a comparison of the global and local dimensions in the online domain (see Table 4.1). The chapter highlights the need to go beyond a focus on specific tools, and serves as a bridge between the theoretical and methodological chapters and the two chapters that focus on Russia and Australia (Chapter 6 and Chapter 7).

4.4 Methodological choices: discourses of activity

The juxtaposition of CHAT and the Foucauldian notions of governance and objectification within the conceptual framework (see Chapter 3) suggested the need for a discursive analysis of activity. This meant that not only language, but also digital tools that mediate subject-object relationships and constitute activity systems, should be addressed as a form of discourse. In addition, it was important to integrate an analysis of the role of digital tools as mediating artefacts with an analysis of relationships of power drawing upon the Foucauldian approach.

Engeström (1999c) highlights the need to integrate discourse analysis and the analysis of object-oriented activity as a part of organizational studies. An illustration of efforts to integrate discourse analysis with CHAT is Mediated Discourse Analysis (MDA). Scollon (1999, 2001), who developed MDA, was interested in the incorporation of the mediational means of actions, that is, material objects, as one of the elements in a discursive analysis. The purpose of MDA is “to move discourse analysis beyond the analysis of texts to consider questions about the actions people take with them, as well as with other cultural tools, and the social consequences these actions have” (Norris & Jones, 2005, p. xi). While MDA seeks to develop a connection between CHAT and sociological theory, and proposes that mediating tools need to be addressed in a discursive investigation, the focus of MDA is different from the methodological approach in this study.

According to Scollon (2001), MDA “seeks to keep the focus upon the concrete, real-time social action and to see these social actions as fundamentally discursive” (pp.8-9). The unit of analysis is mediated everyday action, conceptualized by Scollon as a “site of engagement” and addressed as “an intersection of social practices and mediational means (cultural tools)” (Norris & Jones, 2005, p. 139). The focus of my research is not mediated action, but the mediation of action, the possibilities of action as embedded in the structure of

mediated artefacts and factors associated with the development of these artefacts (see Chapter 3). The unit of analysis in my research is not the action, but the structure of mediated activity systems. This means that my methodology needed to explore not the action, but the “action upon action”.

My research is interested in artefacts, but not in the manifestation of practices associated with these artefacts. I aim to explore the “conduct of conduct”, through the notion of tool-mediated activity as discussed in the conceptual framework (Chapter 3). Accordingly, the methodology supports a discursive investigation of tools in order to understand the structure of subject-object relationships and the relationship between different actors. This may be associated with visions of the discursive position of the subject within the context of his/her relationship with regard to an environment in a specific context. I therefore integrate a thematic analysis informed by Engeström’s model of activity with some of the aspects of a Foucauldian discourse analysis, with the aim of investigating the “*discourses of activity*” manifested in the structure of digital tools and in the relationships between different actors.

The thematic framework was developed on the basis of elements of the activity system model (Engeström, 1987), as indicated in Chapter 3 (Section 3.3.2). My coding framework is therefore a deductive, theory-driven framework (Boyatzis, 1998; Guest et al., 2012; Braun & Clarke, 2006). Table 4.5, below, shows the elements of the theoretical model operationalized in the coding framework.

Element of model	Key issues
Subject	Who is considered to be a user of the platform? What is the role of the subject in relation to the object?
Object	What is the object of activity? What resources are required in order to address the object?
Community	Who is considered as a community of users around a specific tool? Is this community open or bounded? What are the boundaries of the community (e.g. criteria for membership)?
Division of labour	How are different object-related tasks divided between different members of the community?
Rules	Who defines/ revises the elements of the activity system;

	what is the object/ what are the community boundaries? When is the community activated and who is allowed to decide when to activate it?
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Table 4.5: Elements of the thematic analysis informed by the activity system model

The relationship between different nodes within and between the activity systems is also characterized by a notion of “*contradiction*” (see Chapter 3, Section 3.3.2). Therefore, for instance, the analysis looks for contradictions among different actors concerning the object of activity within a specific activity system, and how these contradictions have been resolved. This analysis also sought insight into the changes in the structure of activity systems, including the transformation of objects of activity and resources associated with these objects, the boundaries of community, the degree of inclusion/exclusion of subjects, the structure of the division of labour and the rules of activation.

The thematic coding was not limited to deductive elements. It was also open to the emergence of inductive elements and proposed a hybrid of inductive and deductive approaches (Fereday & Muir-Cochrane, 2006; Boyatzis, 1998). To support an integration of theory-driven codes and inductive codes, I used the concept of thematic networks (Attride-Stirling, 2001). A *thematic network* is an analytical tool that suggests a hierarchical relationship between three themes: a global theme which constitutes the network; organizing themes linked to the global theme, and basic themes linked to organizing themes. While the global and organizing themes were defined prior to the analysis, the basic themes were more flexible and open to revision during the data analysis. Treating an activity system as a thematic network allowed me to conduct a multidimensional mapping of activity systems. Organizing themes were defined in a deductive manner, relying on elements of the activity model (see Chapter 3, Figure 3.2), and the inductive categories emerged on the basic level. This resulted in the matrix in Table 4.6, below.

Type of theme	Manifestation of theme	How theme is defined
Global theme	Activity system	Deductive
Organizing theme	Elements of activity model	Deductive
Basic themes	Categories of the analysis that can be associated with a particular element of the model	Deductive and inductive

Table 4.6: Activity systems model as a thematic network

Thematic analysis can apply not only to texts, but also to other types of data (Boyatzis, 1998; Saldana, 2009). Accordingly, my thematic approach was applied to data on the structure of digital tools and to interview texts.

My conceptual framework indicates that the thematic analysis of elements of an activity system must examine the modes of objectification in the relationships between different actors. As indicated in Chapter 3, activity systems are not only a form of mediated subject-object relationship, but also a form of governance, and the elements of activity systems can be expected to reflect particular types of relationship between conventional formal institutions and individuals. Accordingly, the elements of my thematic analysis are considered to be discursive, and to be constructed through “games of truth” around the role of the subject in a specific context. In addition, the boundaries of communities needed to be situated in relation to dividing practices, as proposed by Foucault. This suggests that my thematic analysis, informed by Engeström’s model, should also examine the discourses of the subject in relation to the role of the subject as an outcome of relationships of power.

As indicated in Chapter 3, Foucault did not provide a clear account for a methodological approach to the investigation of discourses. However, “Foucauldian-informed work often focuses on unmasking the privileges inherent in particular discourses and emphasizes its constraining effects, often leading to studies of how grand or ‘mega’ discourses shape social reality and constrain actors” (Phillips & Hardy, 2002, p. 21). The principles of Foucauldian Discourse Analysis (FDA) have been proposed by Willig (2001), for whom the purpose is “to map the discursive worlds people inhabit and to trace possible ways-of-being afforded by them” (p. 138). A FDA asks about the meaning of the discourse for action: “a focus on orientation allows us to gain a clear understanding of what the various constructions of the discursive object are capable of achieving” (Willig, 2001, p. 132). FDA offers “a systematic exploration of the ways in which discursive constructions and the subject positions contained within them open up or close down opportunities for action” (Willig, 2001, p.133). Willig points out that FDA should compare the repertoire of potential actions offered by “discursive locations from which to speak and act” (Willig, 2001, p. 132). This emphasis on associations between the discursive construction of the subject and the action of the subject has been particularly helpful in this study for situating the role of digital tools in the mediation of subject-object relationships in a context of governance.

The integration of thematic analysis informed by CHAT and FDA presents a methodological framework for investigation of the *discourses of activity* that combine an

investigation of digital tools and an investigation of the interview texts. The methodological framework corresponds to the conceptual framework (See Chapter 3).

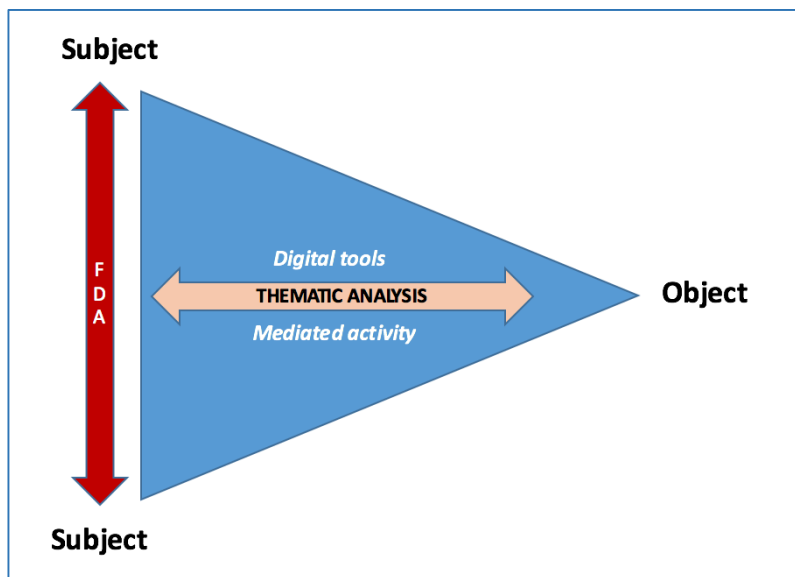


Figure 4.1: A model for discursive analysis of activity

The notion of the *discourses of activity* proposes a focusing of methodological attention on the constitution of the subject in the context of his/ her potential activities in specific situations. As illustrated by Figure 4.1, above, the investigation of the discourse of activity relies on two levels – the investigation of the subject-to-subject relationship based on FDA (vertical arrow), and the investigation of the role of digital tools for the mediation of subject-object relationships relying on thematic analysis (horizontal arrow). Examination of the discourses of activity requires us to follow the *discursive location* of the subject in the context of possible fields of action as this is offered by other actors (subjects) and potential activities and as it is mediated by tools in relation to objects. The discursive location can be applied not only to a single subject, but also to collective actors, e.g. the discursive location of the crowd in the context of a specific type of situation. On the one hand, the discursive location of the subject can be associated with the investigation of objectification, dividing practices, and games of truth. This also includes a comparison not only of the discursive locations offered by one subject to other subjects, but also of the self-allocation of a discursive location by a subject in the context of a specific activity. On the other hand, the discursive location of the subject is associated with the role of tools in the mediation of activity.

The notion of the discursive location of the subject allows me to consider the elements of the model of activity systems in the context of FDA as something that is constituted within a context of the relationships between subjects. The discursive location of

the subject is addressed in relation to a specific object of activity. The types of resource mobilized to address the object are also considered part of the discursive location of the subject. The notion of *community* highlights the ways in which the boundaries of collective actors taking part in an activity rely on dividing practices. These boundaries are explored in order to determine the discursive location of groups of subjects (e.g. the crowd), and whether a subject is included in or excluded from the boundaries of a specific community that acts around a specific object. The notion of *division of labour* proposes that the discursive location of the subject is associated with the type of tasks that rely on the mobilization of specific resources within a community. The notion of *rules* suggests that the discursive location of the subject is associated with the rules that can be linked to a specific platform, including who is allowed to define what can be considered as an object, who defines the boundaries of communities, and when the members of a community are activated.

In summary, the methodological framework highlights how the discursive location of the subject in the context of possible fields of action is associated with subject-to-subject relationships (objectification) and with tool-mediated subject-to-object relationships (activity). The notions of the discourses of activity and the discursive location allow us to operationalize the research questions of this study, to guide the empirical investigation and to develop a framework for data analysis.

4.5 Data analysis

Some 42 hours of interviews were transcribed, including 22 hours in Russian and 20 hours in English. The interviews ranged in length from 15 minutes to two hours, most being between 20 and 50 minutes. The transcribing of interviews in English was done by the Way With Words group. The transcribing of those in Russian was done by a professional transcriber from Saint Petersburg. Following the transcribing, all the texts were reviewed and those that were unclear were corrected by me, using the voice recording. The data on digital platforms was arranged into separate folders, together with all the screenshots and supplementary data about a specific platform.

As presented in Section 4.4, the purpose of data analysis was to explore the discourses of activity that can be found in the structure of digital platforms and in the text of the interviews. As highlighted by Figure 4.1, the analysis explores the subject-object relationships relying on the notion of activity systems and the subject-subject relationships relying on FDA. Accordingly, two types of coding framework were applied. The first segment of coding relied on a thematic network informed by the activity system model. The

second segment of coding was informed by FDA, and specifically by the notions of objectification and the division practices. Table 4.7, below, summarizes the structure of analysis of the data.

Type of coding	Structure of coding framework
Subject's discursive location according to subject-object relationships	Thematic framework informed by structure of activity systems, including global, organizing and basic themes
Subject's discursive location according to subject-to-subject relationships	Objectification of subject in the context of an emergency situation Discursive boundaries of actors (practices of division) Relationship between the actors

Table 4.7: Structure of data analysis

The data are analysed here through the lens of the coding framework, emphasizing the discursive location offered by digital tools relying on the notion of activity systems, and the discursive location offered by other subjects relying on the discursive boundaries between actors and the mutual vision of actors in the context of activity around a specific object. The two types are, however, interrelated. The analysis of objectification was informed by the model of activity systems. For instance, it was concerned with exploring the perception of the object of activity associated with a particular subject, as well as with the location of the subject in accordance with the division of labour and the boundaries of the community for the subject's inclusion/ exclusion.

The coding frame for the mapping of the subject-object relationship was developed deductively as a thematic network including global, organizing and basic themes, as indicated in Table 4.6. The organizing themes related to the elements of the activity system model, as indicated in Table 4.5. The initial coding frame yielded a range of additional basic themes related to specific organizing themes that were also coded. The codes for the basic themes were organized in groups according to organizing themes. In addition, a separate code was used to rank the importance of the evidence. Another group of codes was used to indicate the data related to specific digital tools and online projects, as well as to specific emergency situations.

The coding frame for exploring subject-to-subject relationships was informed by the discursive location within the discourses of activity, focusing on the modes of objectification of specific actors. These themes were divided into three groups. First was the type of actor, including independent citizens, and specifically volunteers, the government, state-affiliated

volunteers, and non-government organizations. Second was the perception of the role of the actor in emergency situations, including the capabilities and motivation of the actors, as well as informed by the model of activity systems. Third was the type of attitude towards other actors and the relationship, including collaboration, suspicion, mutual disregard and various types of hostility. The set of actors was defined deductively, but the types of relationship emerged inductively through the coding. That said, the set of actors was also revised inductively to account for insights emerging from the data analysis.

The analysis of interview data was conducted using Atlas.Ti software, after consideration of alternative options and attending a qualitative data analysis software workshop at the University of Manchester. The initial codes from the thematic framework that was developed prior to the fieldwork in March 2013 were uploaded to Atlas.Ti (see Appendix IV). The first stage of analysis was conducted on the data for crisis mapping. Then the coding frame was revised in order to correspond better with the structure of data analysis as it presented in Table 4.7 (see Appendix V). The rest of the data were analysed using the codes in Atlas.Ti. The data associated with a particular code were then exported to a separate Word document file, where every file includes extracts related to a specific code. A separate extract includes the elements of data that were considered important illustrations.

The next stage involved dividing the data according to their relevance to the three empirical chapters. The analysis of data on crisis mapping was particularly concerned with the discursive location of the crowd in the context of the emergency, and with the discursive construction of sourcing as a digitally mediated practice that proposes a form of subject-object relationship. It also considered the transformation of the boundaries of communities and the structure of crisis mapping as an activity system.

The data arising from the fieldwork in Russia and Australia were divided into two sets, in line with the conceptual framework (see Chapter 3). The first set, on subject-object relationships, was primarily concerned with the role of specific digital tools around specific types of emergency. The data were structured around codes dealing with particular digital platforms in specific emergency situations and their role for the mediation of subject-object relationships, relying on the thematic framework informed by the activity system model. This analysis was integrated with the analysis of screenshots of digital tools, relying on the organizing themes, which were also informed by the activity system model. The second set, on subject-subject relationships, was structured around types of actors' codes. The analysis relied on the codes dealing with the mutual perceptions of actors' role in emergency situations.

4.6 Operationalization of RQ

Focusing the empirical investigation on the discourses of activity and the digitally mediated discursive locations of the subject in emergency situations allowed me to operationalize the research questions (see Table 3.1) and to ask empirical questions that guided the collection and analysis of data. The first set of empirical questions was concerned with mapping the role of the digital platforms in constituting the position of the subject in a context of emergency:

- *Empirical Question 1: What is the role of the digital platforms in emergency response, and specifically how do different platforms constitute relationships between users and disasters?*

In order to respond to this question, an analysis of digital platforms as mediating artefacts was conducted, relying on the model of activity systems. It asked a number of questions linked to the elements of the activity systems model. Specifically, it asked what the object of activity was, who could be considered as a part of the community of users, what the rules relating to usage of the platform were, and how the labour was divided between the members of the user community.

The analysis of the discourses of activity was informed by comparative analysis of digital platforms, which is specifically concerned with contradictions around the discursive location of users:

- *Empirical Question 1.1: What are the major differences between different types of tool?*

The analysis of differences between platforms was also concerned with a comparison of platforms affiliated with institutional actors and platforms supported by independent actors:

- *Empirical Question 1.2: What is the difference between the tools created by institutional actors and those developed by independent actors?*

The analysis of data also explored whether users of digital tools were able to take a part in defining their discursive location in an emergency situation:

- *Empirical Question 1.3: To what extent do digital tools allow users to take a part in constructing their relationships with emergency situations?*

Finally, the first overall empirical question was also addressed specifically to explore crowdsourcing as a form of digitally mediated subject-object relationship:

- *Empirical Question 1.4: How is the constitution of the subject manifested through crowdsourcing as a specific illustration of digitally mediated and emergency-related practices?*

In this last case, the notion of “community” was used in order to operationalize the question and examine who was considered to be a crowd around a specific platform. Exploring the object and the division of labour helped to identify the nature of “sourcing” as a mediated form of subject-object relationship relying on the digital mobilization of the resources of users. The focus on “rules” around using the platforms proposed to explore decision-making around the mobilization of the crowd and the “objects” of sourcing.

The second set of empirical questions explored factors shaping the role of tools in emergency situations. It dealt with the social and political factors shaping the role of digital platforms in emergency response:

- *Empirical Question 2: What are the social and political factors that shape the role of digital platforms in emergency response, and specifically, what is the relationships between digital users and emergency situations?*

The research design identified some dimensions of comparison that helped to explore the factors that could be associated with a difference in the role of digital tools in the constitution of a subject: the factors that shape the role of tools in different national environments; the comparison between global and national environments, and the differences between the online and offline dimensions.

- *Empirical Question 2.1: What are the roles of tools in different national environments?*
- *Empirical Question 2.2: What are the differences among tools in global and national environments?*
- *Empirical Question 2.3: What are the differences between tools that deal solely with the online dimension of emergency response and those that deal with the offline dimension?*

The conceptual framework proposed that the analysis of these factors in accordance with Empirical Questions 2.1, 2.2 and 2.3 should focus on the differences in the subject-to-subject relationships in the different environments and dimensions. Derived from the notion of Foucauldian Discourse Analysis, this set of questions was concerned with tracing the “possible ways-of-being” (Willig, 2001) afforded by discursive constructions in different environments and dimensions of activity. Specifically, the “ways-of-being” were concerned

with the notion of the possible field of actions and discursive vision of the subject within a context of his/her potential activity in a situation of emergency.

Accordingly, the operationalization of this set of questions explored how institutional actors viewed the potential types of activity of various groups of independent subjects, and specifically users of digital platforms, and conversely how independent actors viewed the role of institutional actors in different dimensions and environments. The notion of dividing practices was addressed through the notion of the boundaries of communities, which is concerned with exploring how discourses define who can be either included or excluded from a particular type of activity around a specific object.

The empirical questions for this study are summarized in Table 4.8, below.

Overall Empirical Question 1	<i>EQ 1 What is the role of digital platforms in emergency response, and specifically how do different platforms constitute relationships between users and disasters?</i>
<i>Sub-questions to overall Empirical Question 1</i>	<i>EQ 1.1 What are the major differences between different types of tool? EQ 1.2 What is the difference between the tools created by institutional actors and those developed by independent actors? EQ 1.3 To what extent do digital tools allow users to take a part in constructing their relationships with emergency situations? EQ 1.4 How is the constitution of the subject manifested through crowdsourcing as a specific illustration of digitally mediated and emergency related practices?</i>
Overall Empirical Question 2	<i>EQ 2 What are the social and political factors that shape the role of digital platforms in emergency response, and specifically what is the relationships between digital users and emergency situations?</i>
<i>Sub-questions to overall Empirical Question 2</i>	<i>EQ 2.1 What are the roles of tools in different national environments? EQ 2.2 What are the differences among tools in global and national environments? EQ 2.3 What are the differences between tools that deal solely with the online dimension of emergency response and those that deal with the offline dimension?</i>

Table 4.8: List of empirical questions

4.7 Methodological reflections

Lincoln and Guba (1985) suggest a number of criteria for achieving methodological consistency in qualitative analysis, including credibility and transferability. In this study, the data collection was theory-driven and specifically informed by the model of the activity system. Relying on a specific theoretical model can narrow the focus of an investigation and create preliminary bias which may challenge the credibility of the data collection. The semi-structured interviews and active interviewing approach in this study sought to mitigate any theory-driven bias. Focusing on specific case studies can also call into question whether the outcome of the analysis can be transferred to other cases. That said, the purpose of the analysis is to enrich a theoretical understanding that can support the critical investigation of other cases. In this study I used data on the role of digital tools in a disaster response context to consider potential imagined forms of relationship between users and disasters. The research questions were informed by an interest not only in specific cases, but also in mapping the range of possibilities.

Another factor that could have influenced the data collection and analysis was my personal experience as a co-founder in 2010 of the crowdsourcing platform Help Map for Russian Wildfires. I have also been a member of the international crisis mapping network since 2010. Some of the interviewees in Russia, as well as members of the crisis mapping network, knew me personally, which may have had an influence on the conversation. My experience of being an independent volunteer also could potentially have led me to be more critical of the role of state-affiliated actors. However, the structure of the research questions was helpful in avoiding normative judgements about what might be considered to be a good or bad model for the relationships between institutional actors and citizens. Additionally, the Foucauldian view of the productive nature of power allowed me to approach the study with a view of power beyond power as a form of abuse.

4.8 Conclusion

The notion of the discourse of activity proposes approaching activity as a discursive construction of the subject-object relationship and exploring the discursive location of the subject within the context of potential object-oriented activity. Emergency response is a specific case of activity that allows us to explore how the relationships between digital users and emergency situations are discursively constructed by relying on the mediation of digital tools and on speech about the activity. The combination of CHAT and FDA highlights how

discourses can be studied not only in speech about a subject, but also in the structure of mediating artefacts and in speech about the artefacts.

The next chapters investigate how a discursive location is constructed in emergency situations in different environments. The first empirical chapter (5.0) examines the discursive construction of the notions of the “crowd” and of “sourcing” through digital artefacts, and the role of digital tools on the global and local online levels. The second empirical chapter (6.0) shifts attention to the role of tools in the context of emergencies in specific national environments. Relying on data about the platforms and on the interviews, this chapter examines how these tools constitute subject-object relationships and the contradictions in the way platforms constitute the role of users. The third empirical chapter (7.0) is focused on how the discursive location of the subject is constructed through mutual relationships between different actors. It examines how discourses of activity constitute the boundaries of specific actors and assign particular positions to the subject in the context of his/her relationship with an object of activity.

5. Crisis Mappers: Volunteering and the Constitution of the Subject in Cyberspace

5.1 Introduction

The global reaction to a catastrophic earthquake in Haiti included not only response by states and international agencies, but also engagement of Internet users, including an Ushahidi crisis mapping deployment initiated by volunteers in the US (Zook et al., 2010; Norheim-Hagtun & Meier, 2010). Since 2010 the crisis mapping movement has gained momentum. Various crisis mapping initiatives have attracted the interest of researchers (Starbird & Palen, 2011; Ziemke, 2012).

The crisis mapping is often treated as a borderless form of citizen participation, harnessing the participatory potential of ICTs and allowing members of a global crowd to take part in saving people's lives. My intent in studying crisis mapping is to explore the role of digital tools in the constitution of the role of digital users in relation to emergency situations, and the factors that can be related to mediation of subject-object relationships in the case of crisis mapping. This chapter interested in contributing to an understanding of the discursive location of the crowd, and in the digitally mediated construction of sourcing as a form of mediated subject-object relationship. It focuses on: what is considered as an object of activity of crisis mappers; who is considered as a community of crisis mappers; what is the division of labour between crisis mappers, and what rules regulate the activity of crisis mappers. The selection of cases included global and national projects, as well as projects related to the online and offline domains.

<i>Geo-dimension of activity</i>	National	Global
<i>Domain of activity</i>		
Online	VOST UK Crisis mappers UK	DHN SBTF Micromappers
Offline	MAPS (Australia)	X

Table 5.1: Structure of crisis mapping case studies

As shown in Table 5.1, Digital Humanitarian Network (DHN), Standby Task Force (SBTF) and Micromappers, represent the global online dimension. VOST UK and Crisis Mappers UK represent local online crisis mapping initiatives. MAPS is a national digital volunteering initiative that is deployed offline. This chapter draws on information that was collected about the digital platforms presented in Table 5.1 and on interviews with the founders and key personnel of these projects.

5.2 Digital volunteers and the subject of crisis mapping

The idea that “the crowd” is a source of resources that can be harnessed to take part in emergency response appears as a fundamental assumption of many crisis mapping initiatives. The purpose of this section is to map different notions of the crowd in crisis mapping initiatives.

5.2.1 Digital volunteers in global crisis mapping projects.

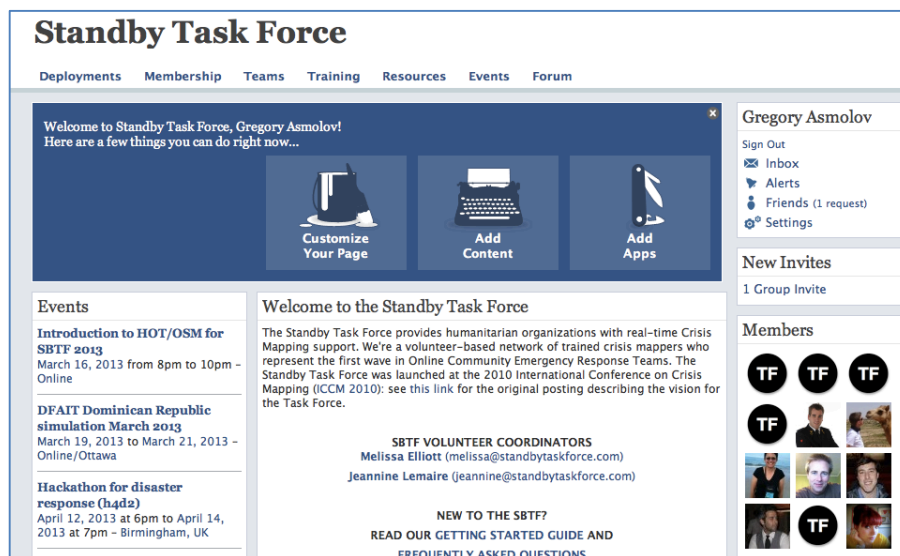


Figure 5.1: Front page of SBTF (<http://standbytaskforce.ning.com>). Screenshot taken in March 2013

SBTF was founded by a group of activists in October 2010. According to the Standby Task Force website, SBTF “organizes digital volunteers into a flexible, trained and prepared network ready to deploy in crises”.¹² The mapping is conducted online. The volunteers are located all over the world and work through personal computers. As can be seen in Figure 5.1, the main sections of the website address deployments (the crisis situations that requires the activity of volunteers); membership (the requirements from members); teams with specific tasks, and the training required in order to be a member of a specific team (as indicated by Figure 5.2).

¹² <http://blog.standbytaskforce.com>

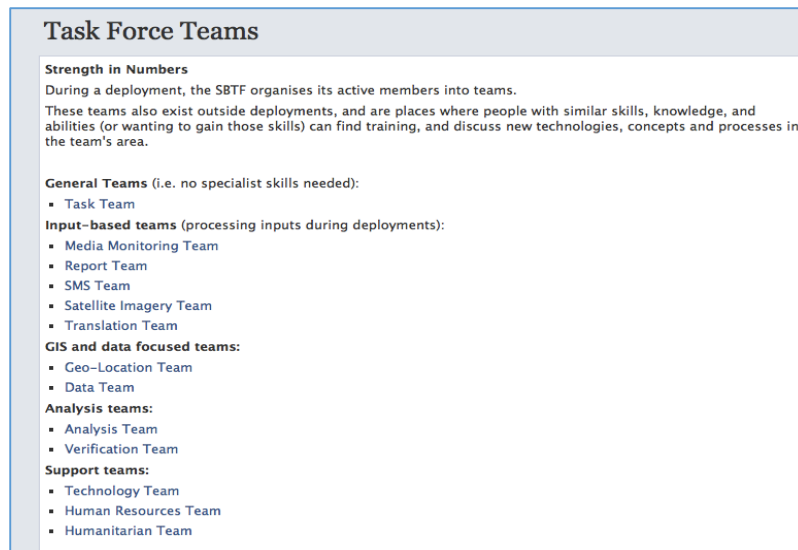


Figure 5.2: Task Force Teams list. Screenshot taken in March 2013

The SBTf website describes the nature of the volunteer community:

Some members of the SBTf are professionals working in the fields of ICT and humanitarian response; many others come from diverse backgrounds and have been trained by the SBTf in the necessary skills to contribute.¹³

The “crowd” in the case of SBTf has a dual nature. On the one hand, anyone, with no prior requirements, can apply to be a member of the SBTf by filling in a special form. On the other hand, access to the SBTf platform relies on membership, which needs to be approved by administrators. Accordingly, access to membership of SBTf is to some degree limited. The “crowd” in this case is a bounded group of members who need to have skills, although, these skills may rely on prior knowledge or may be learnable.

Alongside an increase in the number of members of SBTf, there was also an increase in the number of crisis mapping initiatives over the period from 2010 to 2013. The need for better coordination between various groups of digital volunteers led to the emergence of a coordination mechanism. The Digital Humanitarian Network (DHN) was founded in 2012 by Andrej Verity of the United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA) and one of the SBTf founders Patrick Meier.

¹³ <http://blog.standbytaskforce.com/about-2/>

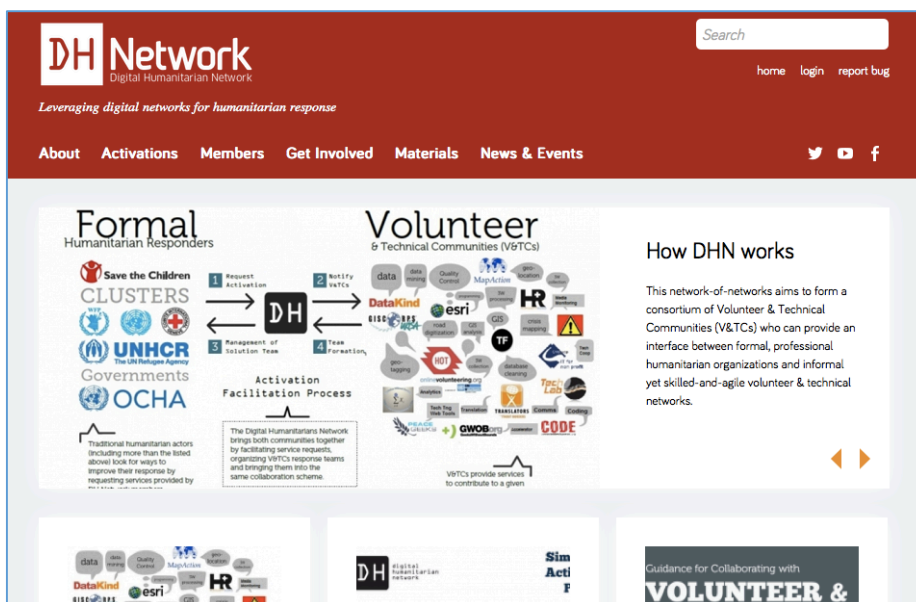


Figure 5.3: DHN front page. Screenshot taken in October 2014.

As indicated by Figure 5.3, DHN was defined as a “network-of-networks, enabling a consortium of Volunteer and Technical Communities (V&TCs) to interface with humanitarian organizations that seek their services”.¹⁴ According to Meier (GLOBIND1), the existence of DHN as a coordination mechanism suggests a further specialization of specific groups of volunteers: “If there could be just one organisation within the DHN that was purely focused on geolocation, that would be amazing”. The question, however, is what happens with those volunteers who are not expert enough in order to become a member of a specific organization. According to a former member of the SBTF core team (GLOBIND2), SBTF looked into new ways to allow the participation of Internet users which would not be restrained by membership or specific skills:

We started working not just with our volunteers, but also with people that we didn’t know, that weren’t part of the SBTF, so integration between volunteers that had been engaged with the SBTF before, but also the overall crowd, outside engagement of the SBTF. (GLOBIND2)

Meier led a collaboration between SBTF and the MicroMappers initiative (micromappers.org) developed by the Qatar Computing Research Institute in partnership with UN OCHA and SBTF (GLOBIND1).

¹⁴ <http://digitalhumanitarians.com>

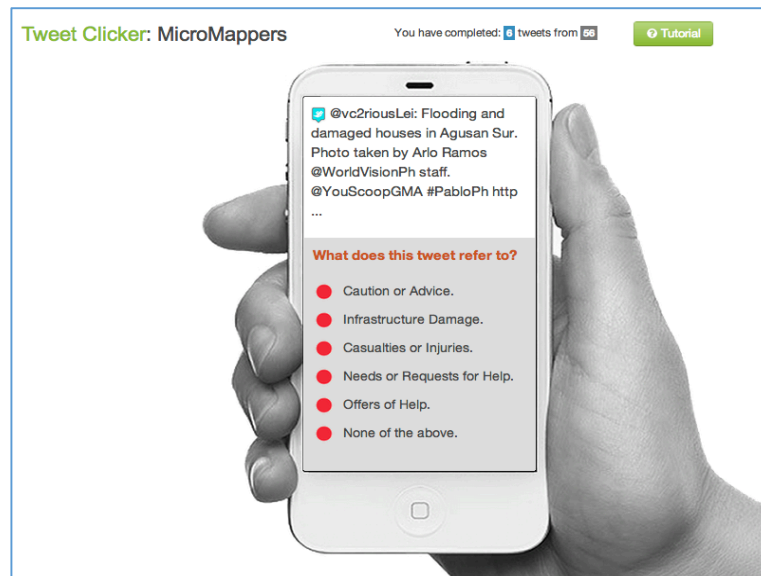


Figure 5.4: Illustration of functions of Twitter “clicker” (Meier, 2013b)

The Micromappers platform introduced a selection of “clickers” –tools that allow the classification of pieces of visual or textual information from social media data sets. Micromapping does not require prior training or identification of the volunteer.

5.2.2. Digital volunteers in local crisis mapping projects

This section looks into crisis mapping within national spaces. Crisis Mappers UK was founded in 2012. The Crisis Mappers UK membership relies on informal criteria, although it is primarily based on people with a background in crisis mapping and local social media activists. Activation of the network around a specific goal is conducted by relying on a mailing list, which is not open to a wide public. Being a member of the mailing list can be considered a form of membership. Unlike in the case of SBTF, where the website plays a substantial role in defining the boundaries of the communities, in the case of Crisis Mappers UK the criteria are less formal and less transparent.

Virtual Operations Support Teams (VOST), a crisis mapping model applied in a number of countries, suggests an additional opportunity to examine how the boundaries of a digital volunteering community have been shaped on a local level. Unlike the case of Crisis Mappers, VOST members do not seek to create publically available maps.

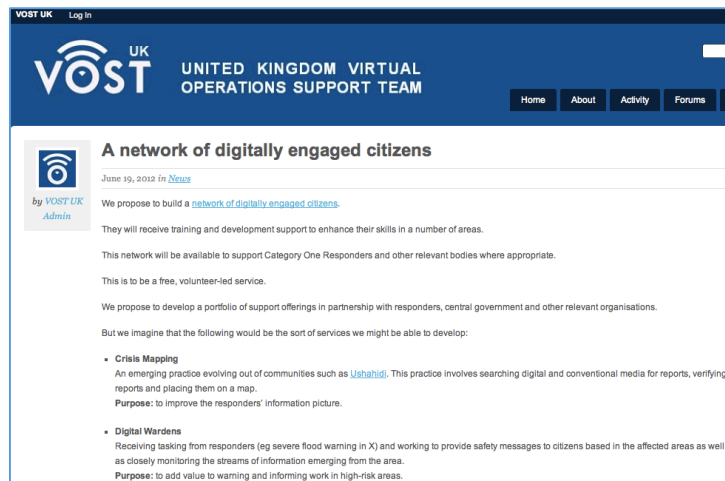


Figure 5.5 VOSTUK Info Page. The screenshot was taken on March 12th, 2013¹⁵

UKIND1, a leading coordinator for VOST UK, explains that “the key job of VOST is to monitor the social media environment and to provide a summary of what is going on, so that local responders can respond more effectively” (UKIND1). UKIND1 points out that, although the crisis-related activities of VOST members are conducted online, members have to be local “so that you can physically meet these people and develop some trust”. UKIND1 highlighted that VOST volunteers do not need specific skills: “You just need some geeks who are prepared to do it, who all share Google accounts, have a Google Doc, and train occasionally” (UKIND1).

In case of VOST, the major factor that defines the boundaries of the community is the degree of trust between the crisis mappers and the response agencies. UKIND1 underlines that VOST is a team of “trusted agents” while “one of the distinctive things about VOST is that they are quite allied to the state” (UKIND1). He argues that VOST is an online extension of traditional volunteering, and suggests calling the VOST UK members “digital wardens”:

In fact, when we are talking to especially police officers, we are trying not to use VOST because we’ve decided that’s a pretty unhelpful term, so we talk about digital wardens, online wardens. That feels a bit more British and people map it then onto things like flood wardens in local areas. (UKIND1)

UKIND1 emphasizes that the development of VOST was driven by the need to address the state’s concerns about online volunteers: “I think that VOST-type projects will start anyway and will be profoundly threatening to the sector, not necessarily practically threatening, but the state will find them threatening and [that they] might go in – from a state perspective – undesirable directions” (UKIND1).

To sum up, Crisis Mappers UK is an independent local community that seeks to inform the public, and VOST creates teams of volunteers to support traditional responders. In

¹⁵ <http://www.vostuk.org/intranet/2012/06/network/> (the website was not available in 2016)

both cases the crisis mapping activity is conducted solely online. There are, however, cases where a community of crisis mappers has been formed online, but acts offline.

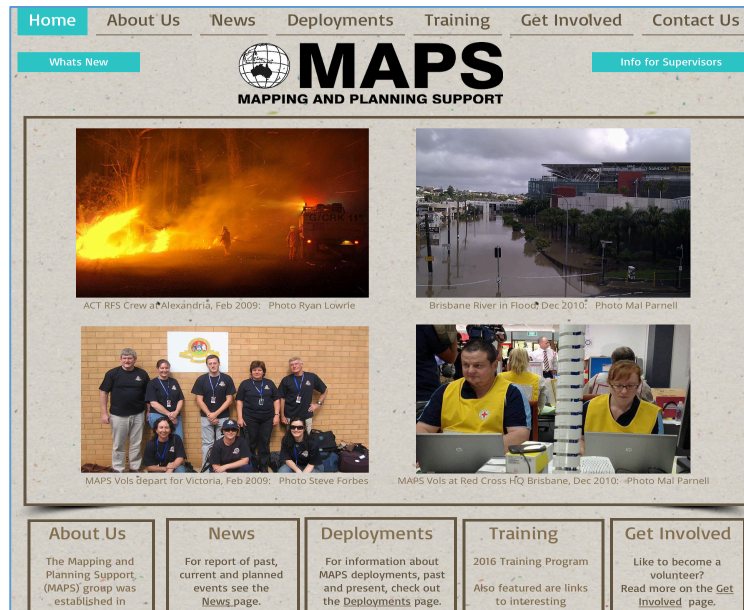


Figure 5.6: Front page of a new version of MAPS website. The screenshot was taken on April 2016

One such case is MAPS (Mapping and Planning Support), an Australian network of GIS (Geographic Information Systems) experts who volunteer to help emergency response organizations. MAPS was established in response to the 2003 Canberra fires when the local Emergency Services Agency “ran out of people to work the GIS” (Maps-group.org, 2013). Accordingly, MAPS was created in order “to provide the link between the emergency managers and volunteer GIS professionals” (Maps-group.org, 2013).



Figure 5.7: A MAPS volunteer in the NSW situation centre. Photo taken in October 2013 during fieldwork.

MAPS membership requires both a professional background in GIS and a certain degree of trust, which relies on affiliation with state-affiliated organizations and professional ties.

According to a co-founder of MAPS Ian Batley (AUSIND8), MAPS volunteers go to the operational centres of emergency agencies and get access to the computer systems of the responding organizations.

To sum up, in most cases the “crowd” engaged in crisis mapping digitally mediated activities is bounded by some type of membership, while the criteria for becoming a member can vary. In the case of SBTF the community is bounded, but anyone can apply to become a member. In the case of Crisis Mappers UK, the criteria for becoming a member are also linked to skills and training, although the process of becoming a member is less formal. VOST also presents a case of a bounded community of digital volunteers, where the key criterion is the degree of trust that allows them to establish relationships with traditional responders. In the case of MAPS, the boundaries of the community rely on stricter criteria, including professional background and trust. Only in the case of Micromappers are there no boundaries, and anyone can participate in the mediated activity through the platform.

5.2.3 Discursive boundaries of the subject in crisis mapping communities

This section presents how the notion of a “crowd” is manifested in discourses about digital volunteering communities. One of the titles commonly given to digital volunteers involved in emergency response is “crisis mappers”. Another title often used in relation to the Internet and emergency response is SMEM (social media for emergency response). This title suggests a broader notion, focused not on a particular activity (crisis mapping), but on a particular technology (social media) in the context of emergencies. Another common title used by DHN (see Figure 5.3) and found in policy documents (Blanchard et al., 2011) is Volunteer and Technology Communities (VTCs).

At the same time, the title of DHN refers to the concept of “digital humanitarianism”. While the notion of VTCs underlines that digital volunteers are a community of unpaid experts with certain technological skills, the title Digital Humanitarian Network underlines the normative nature of volunteering. The subjects in this case are not defined through a specific object of activity (crisis mapping), but by relying on the notion that they share the same humanitarian values. The titles given to the global crowd of non-professional volunteers also underline the normative dimension. Meier argued that the purpose of Micromappers platforms was to make sure that “channels are open to worldwide goodwill” (Meier, 2013a). An additional title given by Meier (2015) to micromappers is Digital Jedi. On some occasions Micromappers were also approached as “clickers”. In the latter case the title of the crowd relies on the activity they are engaged in (clicking). An additional set of discourses underlines

the type of relationship between volunteers and traditional emergency responders. In the case of VOST volunteers are called “trusted agents” and “digital wardens” (UKIND1).

The review of the data seems to identify three sets of discursive arguments that can be associated with the discursive location of the crowd in the context of an emergency-related, digitally mediated activity. The first set of arguments underlines the skills and expertise of volunteers. This set of arguments situates volunteers in a context of using specific technology (e.g. SMEM) or in a context of a specific activity (e.g. crisis mapping, clickers). The second set of discourses approaches the volunteers as a value-driven force (digital Jedi, global goodwill, digital humanitarians). The third set of discourses is focused on volunteers as intermediaries between the general population and traditional institutions (trusted agents, digital wardens). The analysis suggests the identification of three types of community: communities of experts that rely on common skills; normative communities that rely on common values, and communities of trust that rely on common relationships.

5.3 Digital mediation and the mobilization of resources

This section is focused on “sourcing” as a form of digitally mediated relationship between subject and object (as indicated in Section 3.6). It investigates the resources mobilized through relying on the mediation of digital tools. The structure of SBTF teams (as indicated in Figure 5.2) illustrates the nature of the resources mobilized by the SBTF. For instance, in the case of Media monitoring and Verification, what is required for data analysis is primarily analytical skills. Translation requires knowledge of specific languages. Geo-location requires GIS skills. The initial structure of the SBTF teams covered a diversity of functions. However, according to Meier, the emergence of new crisis-related digital initiatives led to a change in the resources offered by SBTF:

That’s been hard for the SBTF to digest, that they are no longer the be-all and end-all, that there are other people doing some of these processes better, so we should then shed away what we no longer have a comparative advantage in, and focus on our core added value. (GLOBIND1)

Meier points out which are the resources that no longer need to be provided by SBTF:

We had, once upon a time, the satellite team. We don’t need to do that with Tomnod and OpenStreetMap. We had a mapping team that would create maps. We’ve got GISCorps. (GLOBIND1)

MacKinnon, from the SBTF core team, suggests that the skilled resources of SBTF members should not be engaged in tasks that do not require advanced skills e.g. “asking people to input data into a Google spread sheet” (UKIND2). The analytical resources for data classification not requiring any prior knowledge are offered by platforms that enable a

mobilization of the resources of global crowds. The MicroMappers platform introduced a selection of tools for the classification with one click of information from social media. Meier underlines the simplicity of participation by an unbounded crowd: “People who don’t have the skill sets, maybe are not fluent in English, only have three minutes, but they can tag 20 pictures in three minutes, can help” (GLOBIND1). That said, while the rise of micromapping allowed the number of SBTF’s tasks to be reduced, it also added responsibilities including quality control and management of unskilled volunteers (GLOBIND2).

Crisis Mappers UK see themselves as a local branch of the international crisis mapping network. Accordingly, they offer resources of a relatively similar type, including those based on some degree of professional background in GIS, as well as analytical resources. One can argue that the nature of the resources is more flexible, with the group relying less on the platform and more on facilitation by the network’s leader. In the case of VOST, the volunteers offer primarily data aggregation and data mining that rely on analytical skills in order to prepare reports for local emergency agencies. MAPS offers solely professional GIS resources. In addition, in the case of MAPS the resources are mobilized offline, which makes the type of resource different from other crisis mapping initiatives.

Analysis of the data above may suggest the identification of three types of resource: analytical skills not requiring any background; resources that can be developed through training, although no prior background is required; and professional resources. In addition, trust and personal relationships that support collaboration can be conceptualized as social resources. Some of the platforms allow the formation of communities relying on groups of people with specific resources (e.g. MAPS) or suggest an opportunity for training that can help to develop these resources (e.g. SBTF). Other platforms suggest a direct opportunity to share resources (e.g. Micromappers).

5.4. Crisis mapping and the object of sourcing

The purpose of this section is to finish exploring crisis mapping as a digitally mediated activity systems through focusing on the object of digitally mediated activity. While in the case of crisis mapping the object is apparently defined by the name given to the practice (mapping the crisis), discussion of the resources described above highlights the variety of forms of sourcing. In addition, there can also be rules about who can decide what is considered as an object requiring activity.

5.4.1 *The notion of crisis and activation criteria in the case of SBTF*

The deployment of Ushahidi in response to the earthquake in Haiti was a bottom-up initiative that tried to convince institutional responders to use the outcomes of crisis mapping. The case of SBTF, however, illustrates how the relationship between crisis mappers and institutional actors evolved into a phase where the majority of deployments take place following a request by responding organizations. SBTF has a special set of rules called “activation criteria” that limit the range of potential objects for resource mobilization. First, the activation criteria seek to ensure that there is a need for participation of crisis mappers:

It’s well defined, it’s demand-based, so we’re not just asking volunteers to do it just for the heck of it; it’s because a humanitarian organization has requested this information to be filtered. (GLOBIND1)

The second issue addresses the type of crisis that justifies the mobilization of digital volunteers. According to GLOBIND2, experience of activations led to a narrowing of the list of crisis situations to be considered as objects for SBTF’s deployment:

At the beginning, we were deployed for whatever crisis, where a responder organisation would have activated us, but after Libya we got a request for deployment in Syria, and in Somalia. That is when we decided that we had to revise the criteria. (GLOBIND2)

Some volunteers also had hesitations with regard to the identity of organizations asking for help. For instance, AUSGOVAF9, who is an SBTF member, raised concerns following the mapping of the war in Libya: “Eventually you get to realize that you are not really being independent, actually being on the NATO side.” (AUSGOVAF9). According to GLOBIND2, the new rules, limited the range of the activations of SBTF:

The criteria now are that we have to be activated by a responder organisation, so someone that has a presence in the field, and can use the data for response. The second one is that it has to be deployment where we are able to assess the risks for the volunteers involved in the deployment. (GLOBIND2)

In 2013 the Advisory Board of SBTF formulated a set of rules. These state that “The SBTF does not communicate with crisis affected communities” and that “The SBTF does not deploy in non-permissive environments”.¹⁶ In some cases, however, there is opposition from within the SBTF to limiting the object of activations. According to GLOBIND2, “some of the volunteers feel that SBTF should deploy no matter what, whenever there is an emergency, even if there is no activating body and even if it’s in a dangerous environment”.

5.4.2 *The notion of crisis and activation criteria in local crisis mapping projects*

In the case of Crisis Mappers UK there was no evidence of a conflict around the purpose of volunteers’ mobilization. MacKinnon suggests that activation relies on the

¹⁶ <http://www.standbytaskforce.org/for-humanitarian-agencies/our-activation-criteria/>

decisions of the networks' leader:

If it's going to be useful, if it's actionable, if people can respond to it, I will pull all the resources out for it. But it doesn't have to be documented because it's me making the decision. (UKIND2)

According to MacKinnon, "Crisis Mappers UK will activate if they can be beneficial in supplying information for the community to respond to." Unlike SBTF, which activates following an external request, Crisis Mappers UK decided to activate itself, though Crisis Mappers UK has some interaction with emergency services. That said, MacKinnon argues that in most cases the local emergency response organizations are not ready to collaborate with independent digital volunteers (UKIND2).

Unlike in the case of Crisis Mappers UK, VOST presents a case where the object of mobilization is defined by institutional actors. UKIND1 points out that VOST's existence depends on the interest of traditional agencies in activating it, while in the UK there is no state's interest. UKIND1 concludes that, as a consequence, in 2013 there were no VOSTs in the UK despite "pockets of interest within the state to set up VOSTs in different areas" (UKIND1). According to Batley (AUSIND8), the MAPS volunteers are deployed solely in the command and control centres of traditional agencies to support their GIS capacities. To sum up, Crisis Mappers UK is a group of volunteers who take an active part in defining the goal of their mobilization, while VOST is activated following requests from the agencies, and MAPS is a group of volunteers that integrates their resources with those of agencies.

5.4.3 DHN: the institutionalization of activation criteria on the global level

The definition of the object of the resource mobilization on the global level can be considered more complex, given the multiple actors who may contribute different resources and be subject to different rules of activation, as well as the variety of actors who may be interested in receiving the assistance of digital volunteers. The foundation of the Digital Humanitarian Network sought to allow better coordination of resource mobilization, as well as offering mediation between those requesting an activation and those who could be activated. Iacucci describes the process of activation by the UN OCHA, where the organization activates the DHN network and then the network asks specific member organizations if they can respond with their resources. In some cases, the chain of activation includes more layers. For instance, in case of the response to Typhoon Yolanda in the Philippines in 2013, SBTF, which was activated by the DHN, in turn activated the resources of Micromappers in order to prepare a map of the crisis (GLOBIND2).

The introduction of DHN into the system of activation of digital volunteers, however,

raised the question of whether the new structure of activation allowed the volunteering groups to control their own terms of activation. On the one hand, Meier underlines that every organization under the “umbrella” of the DHN retains its own activation criteria: “The members are radically independent and they can activate independently from the DHN” (GLOBIND1). On the other hand, there is an argument that the DHN can challenge the independence of digital volunteers. For instance, Iacucci points out that any organization can refuse activation, but expresses concern that “people will feel that they always have to say yes, because it’s UN OCHA activating” (GLOBIND2). Meier suggests that the DHN does avoid becoming a structure for the control of digital volunteers by making the activation criteria objective and neutral (GLOBIND1).

To sum up, the preliminary analysis of the data seems to suggest that on the national level there is evidence of a tension between self-mobilization of volunteers and mobilization by local emergency institutions. On the global level there is a tension between requests that come from a variety of actors and the efforts of volunteers to limit the scope of their mobilization. However, we can also see a shift towards a better collaboration between volunteers and institutional actors, which is evident from the emergence of intermediary actors, suggesting a new framework for the mobilization of volunteers’ resources.

5.5 The development of digital volunteering between crowdsourcing and outsourcing

As discussed above, the participation of digital volunteers in crisis mapping is often considered as crowdsourcing. Apparently, however, the case of SBTF could be described as an institutionalization of the crowd, where an unbounded group of volunteers mobilized as a part of crowdsourcing was gradually transformed into a bounded group with specific knowledge and specific criteria for becoming part of this group. At the same time, we see the development of a differentiation between a bounded group of experts, as in case of SBTF, and unbounded crowds with no specific skills, as in case of Micromappers. Iacucci suggests that the change leads to the emergence of a hierarchy within a crowd: “The transformation that is going on right now is that we redesigned the structure, in order to be more of a tiny crowd on the top of the crowd, like the filter in between the old crowd, processing data and the agencies or organisations that will use that data” (GLOBIND2).

A situation when traditional institutions engage bounded groups of experts in order to achieve a specific goal resonates with a different notion, that of outsourcing. Meier underlines the difference between the engagement of specific groups of experts and the unbounded crowd: “Outsourcing tends to be to a defined group of people, so when I say

outsourcing to GIS, it's a defined group of people; it's not the crowd" (GLOBIND1). In the case of crowdsourcing, both the group of people who can contribute their resources and the way the purpose of sourcing is defined are broader. Relying on the discussion of SBTF and the DHN, it appears possible to suggest that the trajectory of development of the crisis mapping system is situated around the professionalization of groups of crisis mappers as well as an increase in the extent or strictness of the boundaries of the communities of volunteers. It seems that what started closer to the notion of a "crowd" mobilization shifts towards a model of mobilization of experts, which is closer to the notion of "outsourcing".

The differentiation between crowdsourcing and outsourcing assists with analysing the discursive location of digital volunteers as either part of a group of crisis mapping experts or part of the crowd. The relationship between SBTF, DHN and Micromappers can be approached as a new form of collaboration around emergency situations between traditional organizations, bounded communities of digital volunteers, and the unbounded crowd. Applying the notion of activity systems in order to analyse this form of collaboration allows us to conceptualize this development as the emergence of a new type of global activity system around emergency situations. This also suggests, that these systems integrate both outsourcing, which relies on bounded skilled communities of volunteers (e.g. SBTF), and crowdsourcing, relying on the resources of the unbounded crowd (e.g. Micromappers).

It appears that, in cases where the relationship between actors is approached as outsourcing, the definition of the object of activity is linked to institutional actors. In other words, outsourcing seems to suggest a higher degree of institutional control over the boundaries of the mobilized subjects and the definition of the objects of mobilization. In contrast, crowdsourcing suggests greater agency for volunteers, who seem to have more flexibility in defining the object of their activity. The transition from crowdsourcing to outsourcing therefore seems to suggest a higher degree of control over the resources of digital volunteers, although digital volunteers acquire a better capacity to take part in an emergency response activity system managed by institutional actors. In the case of the national crisis mapping projects, these seem to be either incorporated into the traditional systems, as in case of MAPS, or rejected by them, as in the case of VOST UK and Crisis Mappers UK.

The research design suggests that further examination of the relationship between the different actors in emergency situations in the national environment is required. A focus on the national environment should contribute to a better understanding of the role of digital tools in the context of an existing set of relationships between institutional actors and citizens. The next two chapters implement that direction.

6. Digital Tools and the Mediation of Subject-Object Relationships in Russia and Australia

6.1 Introduction.

The first theoretical question suggests focusing the investigation on the role of digital tools for the constitution of a subject (RQ 1). The sub-questions associated with the first question suggest exploring “the modes of subject-to-object relationships that are mediated through digital tools in crisis situations” (RQ 1.1), and looking specifically at whether digital tools contribute to the governance of digital users by other actors or the self-governance of users (RQ 1.2). The purpose of this chapter to explore the role of digital tools in the mediation of the relationship between users and disasters, relying on empirical data concerning the usage of tools in Russia and Australia. The data set presented here relies on data about digital platforms collected online, as well as on interviews with actors connected to these platforms.

In accordance with the research design, the data collected in national environments were focused on specific emergency situations (see Table 4.3) in order to examine the whole set of tools and actors related to a specific situation, as well as to explore the range of mediated activities of users. That said, in some cases the investigation went beyond specific emergencies in order to explore the ongoing long-term usage of tools around wildfires, floods and situations that require search and rescue.

The collection of data was guided by a thematic framework informed by activity theory (see Table 4.5). Relying on the notion of “discourses of activity” (Section 4.4), this chapter examines the role of tools in the construction of the discursive location of users in relation to their environment in situations of crisis. The interviews were particularly focused on exploring contradictions between institutional and independent actors in their approaches to the role of mediating artefacts in situations of emergency response, and the discourses of activity associated with these approaches. Accordingly, the presentation of the data here seeks to allow a two-step analysis as presented in the methodological chapter (see Table 4.7), as well as to situate the role of digital tools in the mediation of activity in the context of relationships between subjects, as proposed by the conceptual framework (see Table 3.4). Section 6.2 presents the investigation of the discourses of tools in Russia. Section 6.3 explores the discourses of tools in Australia. Section 6.4 highlights the differences between Russia and Australia.

6.2 Subject-object relationships and the role of tools in Russia

This section seeks to investigate the digital tools that deal with emergency situations in Russia. Section 6.2.1 investigates the role of digital tools in response to the wildfires in July-August 2010 and the role of those tools in the response to wildfires beyond the specific case of 2010. Section 6.2.2 explores the data collected about the role of social media and other digital platforms in response to the floods in the Krasnodar region in 2012. Section 6.2.3 looks into platforms for search and rescue that have been used on an ongoing basis. While all preceding sections explore digital tools either developed or used by citizens or NGOs, the last section, 6.2.4, explores how state-affiliated actors use and view the role of digital tools in emergency response. Section 6.2.5 compares discourses of activity among citizens and among state-affiliated actors.

6.2.1 *The role of tools in response to wildfires*

The wildfires of 2010 can be considered as the first major case of citizen engagement in emergency response in Russia to be supported by digital technologies. Igor Chersky, a popular blogger, recalls the beginning of the events: “Our official TV was lying as usual, which means that it concealed the significance of the wildfires, since Shoigu (a minister of emergency situations at that time – G.A.) already switched on the regime of information blockade” (RUIND9).



Figure 6.1: Screenshot of the YouTube movie¹⁷

According to Chersky, a movie posted on YouTube by people who found themselves surrounded by a fire was the first thing that challenged the “blockade” and the message that

¹⁷ Выкса.РФ: В лесном пожаре едва не сгорели 4 добровольца, <https://www.youtube.com/watch?v=vOI6OCHerUI>

everything was under the control of the authorities (see Figure 6.1). He pointed out that popular bloggers were playing a role of “aggregators” of user-generated content about the fires, and started to share this information. That said, Chersky says that his engagement was triggered by seeing an independent online satellite map of the fires and realizing that: “half of the country is on fire, but no one tells [us] anything about it” (RUIND9).

Mikhail Shlyapnikov (RUIND10), a blogger living on a farm close to the disaster zone, turned out to be a major source of information about the fires. According to Shlyapnikov, on the morning of July 30th, following a night when a fire destroyed several villages, the local firefighters told him that “something terrible happened” and he took his car to explore the area. “We reached Mohovoe. It looked like apocalypses”, he recalls, “There were no journalists, no TV, only police, who were in a panic, and ambulances that didn’t know what to do” (RUIND10).



Figure 6.2: A blog post about Mohovoe on Shlyapnikov’s blog.

Shlyapnikov posted a few amateur photos on his Livejournal blog, with an appeal for help (see Figure 6.2).¹⁸ According to Shlyapnikov, Internet users started to share his post (RUIND10). The situation attracted the attention of bloggers and journalists, and Shlyapnikov found himself a major source of information and a local coordinator of volunteers (RUIND10). Dr. Elizaveta Glinka, head of a humanitarian NGO, recounted how she studied the scale of the disaster from the blog post about Mohovoe. Then she asked for

¹⁸ <http://michael-077.livejournal.com/116607.html>

help on her blog. “Next morning, when I came back to my office it was full of humanitarian aid”, she recalls (RUORG1). Natalya Voronitzyna, who became an online volunteers’ coordinator, also pointed out that her engagement was triggered by information on LiveJournal (RUIND4).

Chersky describes his role as a blogger: “What I consider as a main thing is that I was able to convince people to think that if we didn’t start doing something, we would all burn out” (RUIND9). Chersky underlines that his journalistic skills allowed him to attract public attention to the fires through his blog. “That’s where the role of the Internet really started,” he says, People realized that they wouldn’t be able to get information from TV, and then even those who didn’t use the Internet went online and started asking what they could do” (RUIND9).

Social media not only informed people about the scale of the emergency, but also offered a detailed account of the needs of victims and responders, including members of the emergency services and volunteers, while, according to Shlyapnikov, members of the emergency services were not allowed to talk about their problems, e.g. old equipment or lack of food (RUIND10).

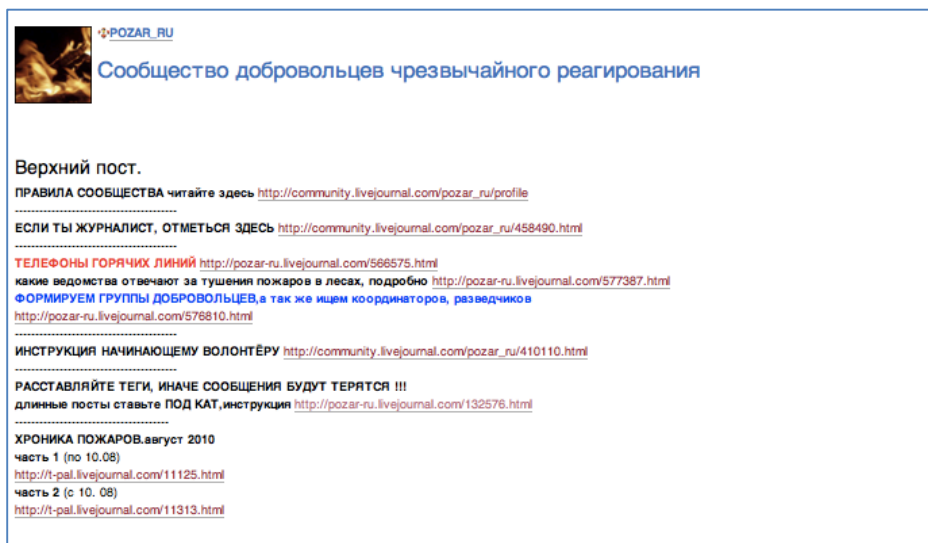


Figure 6.3: Top segment of Pozar_ru community

In addition to personal blogs, the first online platform dedicated to the fires was a LiveJournal-based community, Pozar_ru¹⁹ [fire_ru] (see Figure 6.3). The community was launched on July 30th 2010 by a blogger, “Uturnco”, who stated that the purpose of the community was humanitarian assistance to victims.²⁰ According to Uturnco, the creation of Pozar_ru was triggered by a blog post by a young woman who asked for advice when she

¹⁹ <http://pozar-ru.livejournal.com>

²⁰ <http://uturunco.livejournal.com/45704.html>

was surrounded by fires.²¹ According to Voronitzyna, one of the moderators of Pozar_ru, a particular contribution to the community was made by the blogger Chersky (RUIND9), who visited the disaster zone in the Ryazan region and provided first-hand information about the needs of professional firefighters (RUIND4). Another active participant in the Pozar_ru community, photographer Anna Baskakova (RUIND1), offered her flat as a point for the collection of humanitarian aid and firefighting equipment. Baskakova also played a role as coordinator: “I was getting phone calls all the time: ‘Which fire should I attend?’. I was afraid that I would recommend people to go somewhere and they would die there, but I had to make these decisions” (RUIND1).

Baskakova also succeeded in attracting the attention of the media when she used her blog to publish a letter to a minister of emergency situations, Sergei Shoigu. She recalls: “At some point it was too much for me. It was when we received a message on the Pozar_Ru community from some volunteers who said: “a wall of fire is coming toward us, please help us to find people”. I realized that I couldn’t help in my tiny flat, and then I wrote a very angry letter to Shoigu”. Baskakova sums up the role of the Internet in the response to fires in 2010:

The situation that took place in 2010 would not have been possible without the Internet, since the people that took a part in response to the emergency didn’t know each other. Still today we call each other by [Internet] nicknames, since that was how we met each other, and I don’t remember the real names of many of them... The Internet was essential for all our activities. People were gathering through the Internet. We coordinated the humanitarian aid through the Internet. (RUIND1)

According to Voronitzyna, her role as a moderator of the Pozar_ru community was to make the information specific in order to support the activity of the volunteers:

I was structuring the information. I organized it according to topics, and placed it in the top post: here is information about cars, here volunteers gathering, here aid gathering. These are the things required. A person who visited the community could see what was happening. (RUIND4)

That said, since the structure of a blog community is based on a chronological feed, it was challenging to maintain a database that could support the engagement of Internet users. These challenges triggered the creation of new tools for the aggregation and classification of needs and resources. One of these tools was the Help Map for Victims of Russian Fires (Russian-fires.ru), which was launched by a group of volunteers relying on the crowdsourcing platform Ushahidi. The Help Map suggested submitting information about the needs of victims and volunteers in the area of the disaster, as well as about various forms of help and resources.

A co-founder of the Help Map, Alexey Sidorenko (RUIND7), said that while

²¹ <http://flylady-ru.livejournal.com/1306488.html>

Pozar_Ru was “the leading facilitator of the response to wildfires”, the Help Map tried to address the challenges around how the information was presented on Pozar_Ru:

In light of chaotic overload of news and messages, the Help Map suggested an element of structure in the endless sea of information. The more substantial function was the function of coordination and connection of those who needed help and those who offered help. We could see that it was already happening, but the Help Map was a tool in a right place and in a right time that created a massive effect from a variety of efforts in different places. (RUIND7)

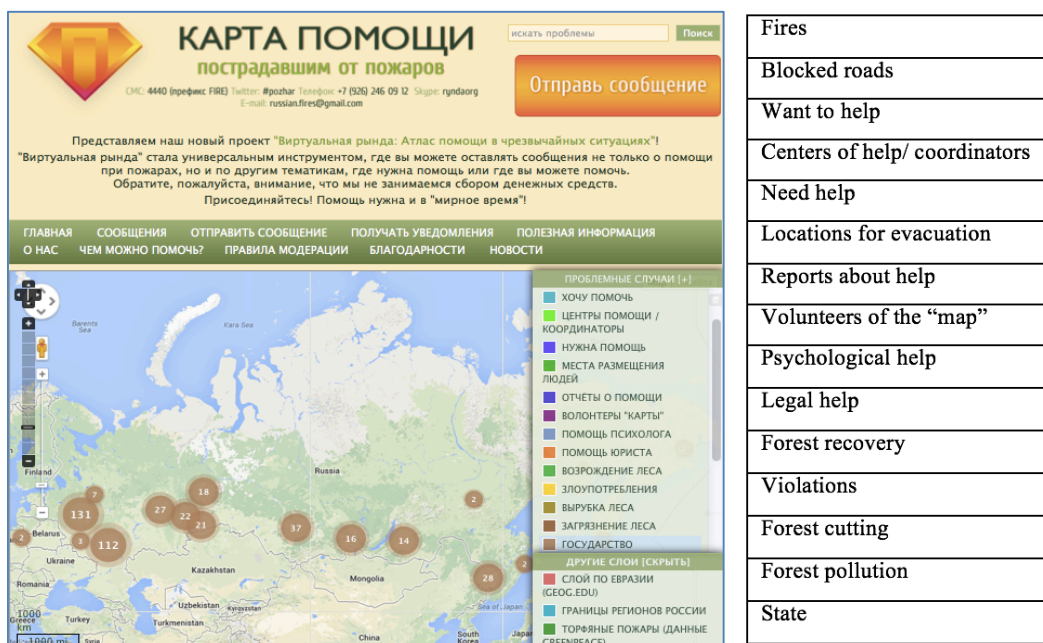


Figure 6.4: Front page of the Help Map with translation of categories

The information was presented according to the categories defined by the administrators of the platform (as indicated on Figure 6.4). Elena Kobyakova, a moderator of the Help Map, recalls that her main duty was media monitoring, aggregation and verification of information about fires, in order to keep the map updated: “The purpose was to gather information in one point in order to make clear what’s happening” (RUIND3). The categories of Help Needed and Help Offered were managed by moderators in an offline situation centre opened in Moscow. The users of the platform could browse the needs or the resources, while moderators facilitated the matching process in order to connect needs with resources. Kobyakova concludes: “What the Ministry of Emergency Situations was telling [people] is a one thing, but we wanted to create a picture that was much closer to reality, in order to allow people to take a part in the response” (RUIND3).

Another platform called SCER (Situation Centre for Response to Emergency Situations) was initiated by Chersky (RUIND9). The platform offered an online database that was filled by administrators of Pozar_ru relying on reports from various sources. According to Sidorenko, unlike the Help Map, which was open to reports from citizens and supported

horizontal communication between users, SCER was a tool that helped Pozar_ru moderators to organize information in the face of information overload (RUIND7).

Sidorenko emphasizes that the Help Map was part of a range of tools and platforms that complemented one another (RUIND7). Dr Glinka, the head of a charity NGO, used different tools for different purposes:

The Help Map assisted us to develop the logistics of how to bring the aid to the destination. From the Map I got information on where the help was needed, and then I used my blog on LiveJournal in order to write what was needed. At the same time, according to the Help Map our girls looked for drivers who could go to the destinations. (RUORG1)

Baskakova says that at the same time it was easier for her to write on her blog, and then other people could repost this on other platforms (RUIND1).

The role of digital tools in fire response is not limited to the case of wildfires in 2010. According to a head of Greenpeace Russia's firefighting department, Grigoriy Kuksin (RUORG6), he uses the digital tools as part of a continuing struggle against "the wall of denial" of state emergency agencies that conceal information about fires. Kuksin labelled ICTs as "tools of civic control" for "providing transparent information in order to ensure state involvement" (RUORG6).

While some observations are based on what activists identify on the ground, the major source of independent information is satellite imagery. According to Kuksin, experts no longer monopolize space-based monitoring systems: "The systems of space monitoring allow us, with no requirement of prior knowledge, to get relatively reliable information on what's happening in a convenient format" (RUORG6). An example of systems which provide independent free information from satellites are the US-based FIRMS (Fire Information for Resource Management System)²² and fires.kosmosnimki.ru, which was created by the Russian company Scanex. In the light of the state's efforts to control the information around fires, open data activists create open data sets. A head of the GIS-Lab, Maxim Dubinin (RUORG5), approaches open data as a "primordial soup", that is not rich enough with data, and his major purpose is "data soup enrichment" in order to diminish the state's capacity to control and allow more actors to use the data and develop new tools to work with it.

The Greenpeace Forest Forum (<http://forestforum.ru>) provides independent information about fires (See Figure 6.5, below).

²² <https://earthdata.nasa.gov/data/near-real-time-data/firms>



Figure 6.5: Front page of Forest Forum

Kuksin argues that the Forest Forum is one of the most influential sources of information about wildfires in Russia. He highlights how it is popular even among state officials: “They tell us ‘We start our working day by opening the Forest Forum, in order to get news, since it will take a while till we get this information from our own sources’” (RUORG6). That said, according to Potapov, a head of the GIS consulting company Kosmosnimki, which offers an open system of satellite-based monitoring, state agencies reject independent platforms and use their own restricted systems (RUORG8). Kuksin underlines that the way Greenpeace uses digital tools is not limited to monitoring, since Greenpeace “either involve the state or take care of fires” (RUORG6). Greenpeace uses social media in order to recruit volunteers who are trained and take a direct part in fire response.

In addition to tools focused on increasing transparency, there are tools that are primarily used to maintain groups of independent volunteers. One of the well-known initiatives is a group of volunteers in Saint Petersburg initiated by Mikhail Levin (RUIND2). This group is focused on fire response in a remote nature reserve on Ladoga Lake known as Ladozhskie Schery. They deploy a camp and live on the islands in order to protect them from fires. The group has a page on the Forest Firefighting Volunteers portal (<http://forestfire.ru/ladozhskie-shkhery>), see Figure 6.6 below.

Добровольные Лесные Пожарные

Ладожские шхеры

Как вы можете участвовать

Новости

Противопожарная работа:

- Ладожские шхеры
- Описание лагерей, правила
- Как добираться
- Что взять с собой
- О Ладоге и шхерах
- Журналиная родня
- Северо-Запад
- Центральная Россия
- Противопожарная экспедиция

Методические материалы:

- Справочник добровольного лесного пожарного
- Оборудование и снаряжение
- Статьи о пожарах

Прочее:

- Школа ЭкоВолонтеров
- Пресса о нас

Ладожские шхеры
(Ленинградская область, Карелия)

На сегодняшний день у государственных структур, отвечающих за тушение пожаров на островах в северной части Ладожского озера, зачастую не хватает сил и средств на работу на островах, особенно при большом количестве пожаров на материке, так как тушение островов считается экономически нецелесообразным. При этом Ладожские шхеры - система островов и проливов между ними - являются уникальным природным объектом. Здесь обитает множество охраняемых видов птиц и животных, есть редкие и исчезающие виды растений. Но экосистема островов очень уязвима и пожар уничтожает не только растения, но и тонкий слой почвы. Поскольку Ладожские шхеры являются местом отдыха тысяч людей оставленные костры слишком часто приводят к пожарам.

Поэтому Общество Добровольных Лесных Пожарных с 2008 года организует пожарную охрану островов. Только за последние 5 лет участниками проекта потушили 39 пожаров на островах и 6 на материке.

Восстановление острова после пожара занимает несколько веков - то есть эти 39 островов и 6 участков береговой линии материка могли бы стать для многих поколений голыми скалами.

В 2014 году планируется дежурство в шхерах со второй половины мая по конец августа, точные сроки будут зависеть от погоды. Как обычно, лагеря на Ладоге будут двух типов: противопожарные и наблюдательные. Из-за экстремально малоснежной зимы в этом году ожидается высокая пожарная опасность в шхерах, как на островах, так и на материке.

Начало пожароопасного периода в Ладожских шхерах
Опубликовано 07.05.2014 01:16

Из-за ранней весны пожароопасный период на юге Карелии в 2014 году начался примерно на месяц раньше нормы. К 1 мая Авиалесоохраной только на территории Сортавальского и Лахденпохского районов было потушено 45 пожаров в лесном фонде.

28 апреля из-за поджога сухой травы на бывшем поле начался пожар на острове Кильпила, угрожавший 3 населенным пунктам. Выгоревшая площадь (со слов местных жителей) превысила 200 гектар.

30 апреля из-за поджога травы начался пожар на острове Тимонсаари. Выехавшая из Петербурга группа добровольных лесных пожарных утром 1 мая обнаружила, что горение на большей части крошки остановилось, на дотушивание прибыла группа Авиалесоохраны. Выгоревшая площадь около 12 гектар.

Figure 6.6: Ladozhskie Schery page on forestfire.ru

According to Levin, the major purpose of the Ladozhskie Schery webpage is to inform about the firefighting activities of the group (RUIND2). The website offers the opportunity to join a group of volunteers – anyone can join and no prior skills are required. The project also uses social networking websites and groups, e.g. V Kontakte, for the same purpose. E-mails are the main tool for coordinating the activities of the volunteers who have already joined the group. Levin is sceptical about the role of the Internet in his organization. He explains that, while his organization needs the Internet in order to find new volunteers, he is concerned about whether volunteers who come through social networks can be reliable. Moreover, according to Levin, the capacity of social networks to engage new people is limited (RUIND2). At the same time, blogs sometimes help with getting in touch with people that already know you:

This year (2013) I wrote on my LiveJournal blog an appeal to people who know me that we have a total disaster. We had only seven people in our camp, and four fires in four days. And then Kuksin [from Greenpeace – G.A.] called for his guys. They came and saved the situation. (RUIND2)

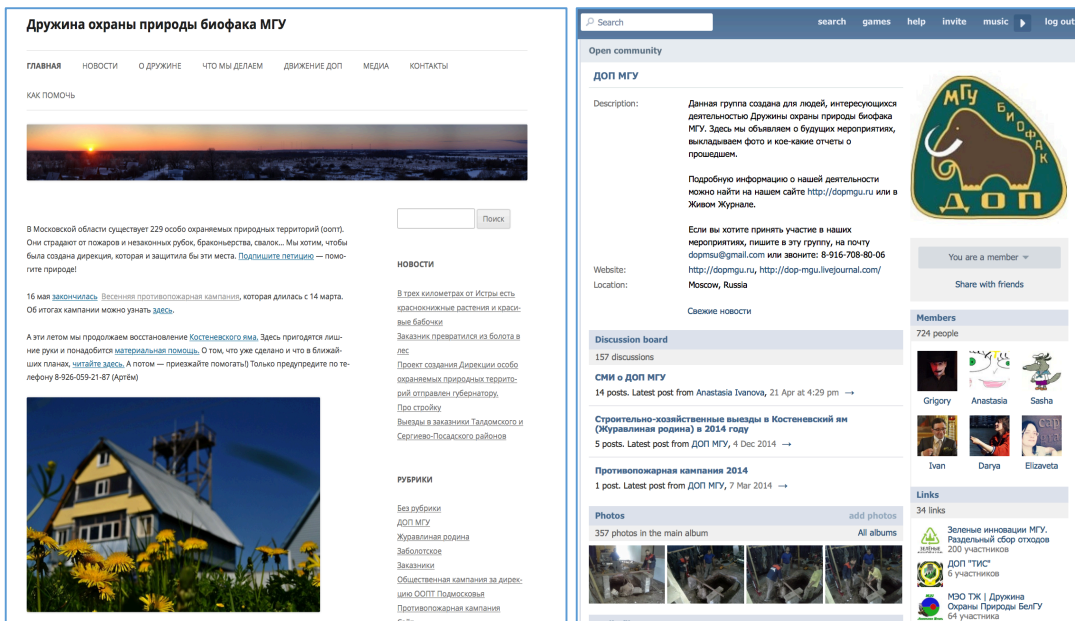


Figure 6.7: Front pages of website and Vkontakte pages of NCS

Another actor in the field of volunteer-based firefighting in Russia is the Nature Conservation Squad (NCS) of the Department of Biology of Moscow State University. This student-based firefighting organization was created in 1960 in order to protect nature reserves. The organization has a website (<http://dopmgu.ru>) and a community page on Vkontakte.

According to one of the coordinators of the Squad, Anastasia Suslina (RUIND8), NCS is a small group, and most of its coordination relies on mobile communication and a mailing list. Suslina describes how the Internet is used by her colleagues:

Unfortunately, we don't have a good communication strategy for the Squad. I don't know any person who actually joined us through the website, Vkontakte or LiveJournal. These platforms are mostly used in order to inform people who were previously affiliated with us about our activities. It's also something that we used in order to summarize and promote our activities. (RUIND8)

To sum up, Ladozhskie Schery and the Nature Conservation Squad present cases where an offline group of volunteers use Internet tools in order to support their organization, but do not use the tools for the coordination of firefighting.

6.2.2. Floods in the Krasnodar region (2012) and the Amur region (2013)

Two years after the wildfires, another disaster hit Russia. Floods in the Krasnodar region in south-west Russia killed 171 people in a number of villages and the city of Krymsk. In response to the emergency, many social networking groups were created by Russian Internet users. Twitter was also actively used, while popular disaster-related hashtags included #krymsk and #pomozhem [meaning: will help]. Most of the hashtags referred to location and type of disaster as well as to a specific form of activity (e.g., an offer of help).

One of the first groups on Facebook was “Collecting goods for the victims of the Kuban floods” (Figure 6.8). It was created by volunteers in Krasnodar, the regional capital.

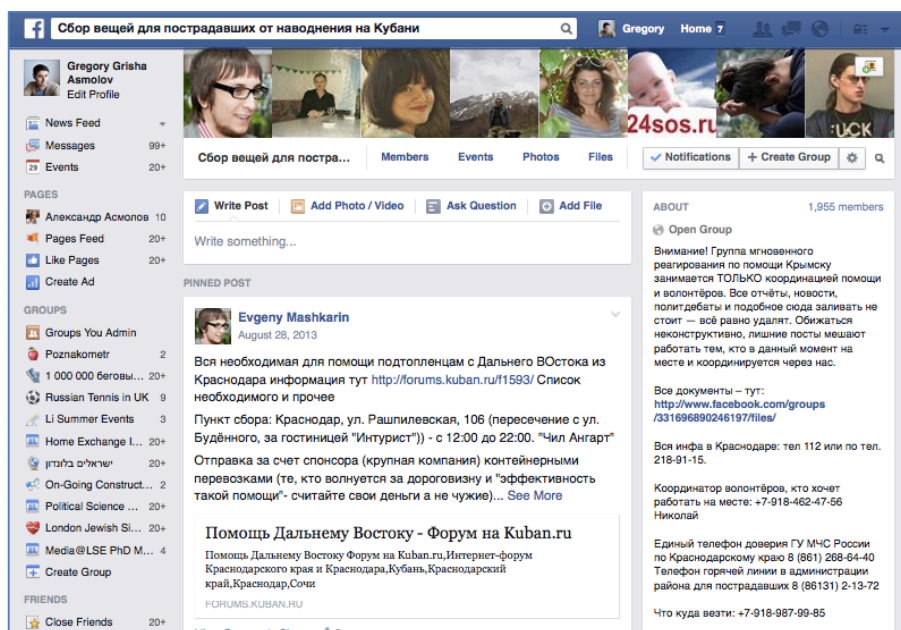


Figure 6.8: Facebook group for collecting goods for victims of the Kuban floods²³

According to Mashkarin, one of the founders of the group, following the first news of what had happened he was unable to find any information online except rumours (RUIND16). Mashkarin approached his colleagues, who mostly worked in social media marketing (SMM), and decided to create a group to address the “information vacuum” (RUIND16). According to Kononovich, the group’s moderator, the purpose of the group was to inform people about needs in the disaster zone: “We told people where they need to bring things, where volunteers should go, and provided contact numbers” (RUIND15).



Figure 6.9: Example of management of engagement on Facebook

Figure 6.9 illustrates how the management of engagement was conducted by moderators. Kononovich says in a Facebook comment shown in Figure 6.9: “People, stop bringing clothes. Krymsk is full of them. What is needed are personal hygiene items, cleaning

²³ <https://www.facebook.com/groups/331696890246197/>

equipment and bed sheets”. Another moderator, Burtzev, said that during the first phase of the emergency the group was focused on the collection of humanitarian aid, and then shifted to the engagement of volunteers in recovery (RUIND14). According to Burtzev, the moderators used Google- and Facebook-based documents to classify the messages and create databases according to different topics:

We had 14 documents. One document for what is needed, second – the addresses of people who collect aid in Krasnodar, third - the contact list for volunteers who want to go to Krymsk, fourth - the list of drivers who can take the goods to Krymsk, etc. (RUIND14)

According to Kononovich, one of the major functions of the group was to be a source of verified information (RUIND15). Kononovich underlines that many social media groups only speeded up rumours, while others were there to commit financial fraud. In addition, Kononovich highlights how many groups were mostly used to criticize the authorities (RUIND15). The description of Kononovich’s group emphasizes that any political discussions are prohibited:

All the reports, news, political debates and things like that shouldn’t be here – they will be deleted anyway... The unnecessary posts are interrupting the work of those who at this moment are in the area of the disaster and use us for coordination. [translation – G.A.]²⁴

According to the members of the team, the major advantage of the group was direct access to first-hand information from the disaster zone. The day after the creation of the Facebook group, Mashkarin and his wife took a car with humanitarian aid and travelled to the area of the disaster. Mashkarin told me that, following distribution of the humanitarian aid, they realized that they could provide more help by collecting and sharing information about what was happening in Krymsk:

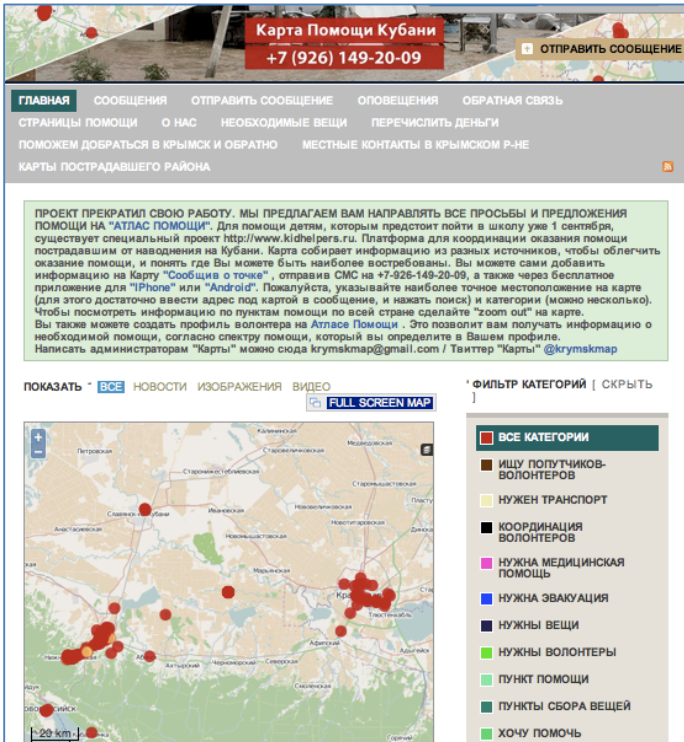
We realized that information is one of the important resources. In an emergency situation it is more important even than water. You can wait and not drink, but it’s a problem when you don’t know when the water will arrive and if it will arrive at all, when the evacuation and if the help are coming. (RUIND16)

According to Mashkarin, he placed a table and chair on a street in the centre of Krymsk and put a map of the city on the table. That turned him and his wife into a first coordination centre for volunteers. Mashkarin says that he was also updating on Twitter from the disaster zone through his mobile phone, while Kononovich was updating on Facebook from Krasnodar: “Our guys actually became the authority”, says Burtzev with reference to what Mashkarin did (RUIND14). Mashkarin points out that having access to first-hand information was particularly important to the success of the Facebook group:

²⁴ <https://www.facebook.com/groups/331696890246197/>

The initial need was to get information from the place of the tragedy and to understand the scale of the disaster. We turned to sources of first-hand information for volunteers. We also suggested information verification. People were calling us and asking “Is everything so bad?”, and when they got a response they started to act. We also became a source for journalists. (RUIND16)

In addition to the team in Krasnodar, social media groups for volunteers and humanitarian aid were opened in other cities. The group in Moscow had its own online presences, including Facebook communities and LiveJournal. Aleshkovskiy (RUIND6), one of the Moscow-based coordinators, says that he was using Twitter in order to update Moscow volunteers about buses going to the disaster zone. In addition, volunteers in Moscow deployed a crowdsourcing platform called “A map of help for Kuban”, relying on the Crowdmap.com template (See Figure 6.10, below). According to the front page of the website, “the platform was created for coordination of assistance to the victims of the floods”. The statement suggests that “the map aggregates information from different sources, in order to simplify provision of help, and help to understand where your efforts would be most required”.



All categories
Looking for volunteers-companions
Transport needed
Coordination of volunteers
Medical assistance needed
Evacuation needed
Goods needed
Volunteers needed
Centers of help
Centers for collection of goods
I want to help

Figure 6.10: A front page of the Map of help for Kuban

The platform was supported by a Russian media website, PublicPost.²⁵ The chief editor of PublicPost, Nargiz Asadova (RUORG2), explained that they decided to support the crowdsourcing deployment in order to be able to aggregate and verify information about the

²⁵ PublicPost was closed in 2014.

emergency from social media. Asadova underlines that her website was not allowed to aggregate social-media-based information because of verification and liability issues:

No legal advisor would allow us to have such a crowdsourcing map on a website of media organizations. Our correspondents joined in creating the Help Map for Krymsk, not only as volunteers, but also as people who gathered information. (RUORG2)

The year after the Krymsk floods, when the Amur region in Russia's Far East was hit by floods, a few Moscow-based volunteers developed a platform, Amur13 (<http://amur13.ru>).

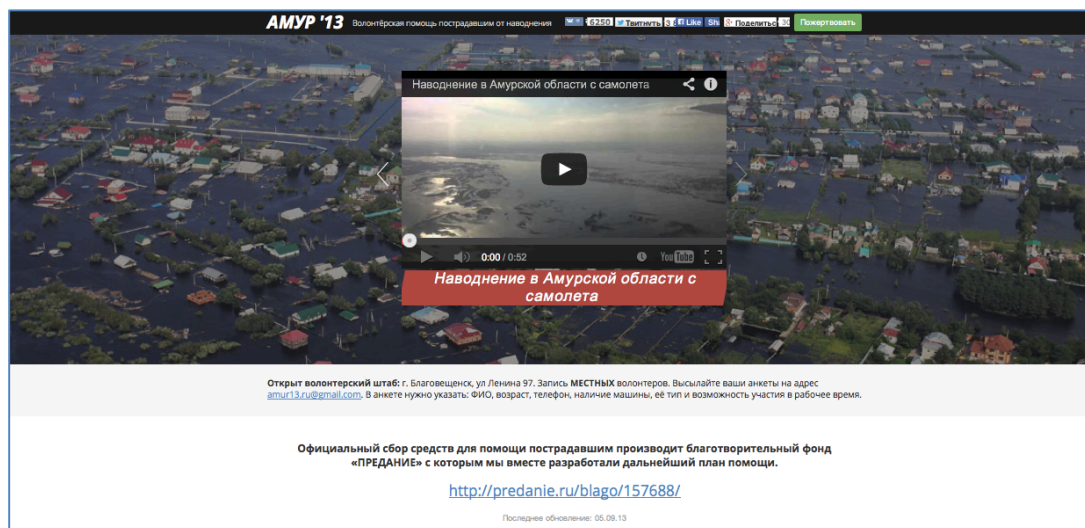


Figure 6.11: A front page of the Amur13 website

The platform (Figure 6.11) appealed for support for a group of volunteers who went from Moscow to the disaster area. The platform gave information about the activities of the volunteers. However, the only form of engagement suggested to Internet users was donation of money to support the existing group of volunteers. According to the founder of the website, he chose this type of platform because of the remoteness of the region of the disaster, which it made difficult to engage volunteers directly:

The purpose of the website was a mobilization of financial help... We were joking that we are the representatives of the Internet money wallets, since actually we came with money and started to spend it. That also gave us flexibility about what to do locally, since it was more challenging to deliver humanitarian goods from central Russia. (RUIND6)

According to Popova (RUIND5), who also took a part in the response to the floods in the Amur area, the Internet allowed a connection to be established between local volunteers in the Far East and volunteers in Moscow. Aleshkovskiy says that the coordination of local volunteers relied on local online forums (RUIND6). Both RUIND6 and RUIND5 underlined that in the case of the Amur floods the challenge was attracting the attention of the public to the disaster:

If in case of Krymsk we used the Internet as a mobilization of resources, in the case of Amur we used

the Internet as an information resource in order to motivate people to take a part in helping the Far East.

Thanks to Amur13, people started writing about the situation, and then the help came. (RUIND5)

RUIND6 pointed out that the website also provided feedback about how the funds were used.

To summarize, in the cases of the Krymsk and Amur floods, we can see the emergence of local online initiatives and initiatives in the central cities (e.g. Moscow). However, in the first case Moscow-based volunteers took a direct part in response and used the Internet for the coordination of engagement, while local volunteers defined needs through the collection of data on the ground, and mobilized the resources required to address those needs by relying on the proliferation of information through social media. The case of Amur13 illustrates how a closed group of volunteers in Moscow used a digital tool to mediate between local volunteers in a remote area and Internet users in central Russia.

6.2.3 Emergency response in everyday life: Search and Rescue volunteers

This section explores tools that deal with search and rescue (SAR) situations. These tools support the ongoing engagement of volunteers on an everyday basis.

Figure 6.12: A front page of the Extremum website

The Extremum group is a Russian volunteer SAR organization from Saint Petersburg. It was founded in 2006. Extremum is an NGO based on the participation of volunteer professional rescuers with appropriate training and also volunteer aids with no professional background. The organization conducts SAR operations in collaboration with official emergency services and also independently (RUIND11). The website of Extremum (extremum.spb.ru, see Figure 6.12, above) has an open section available to any Internet user and a restricted section available only to registered members. According to Boris Leites (RUIND11), the head of Extremum and developer of the platform, the open part of the

website is used to inform the public about recent activities of Extremum and ways to join the organization. Extremum also uses the social network V Kontakte to share news.

The restricted part of the website has a number of segments. First, a database of human resources with personal profiles of members with information about their skills and experience. It also allows a member to define his/her availability. Accordingly, once there is a request for a search, the coordinators are able to conduct a targeted mobilization of members, relying on their profiles, and to distribute SMS messages to specific people. The website also suggests pages on specific SAR incidents, including the names of coordinators and participants, relevant maps, reports, data about the missing person and his/her relatives, etc. The profiles of incidents include both publically available and restricted, members-only segments. Leites says that members can access detailed information on the restricted page which assists with conducting a specific SAR operation, while the open segments are used to provide general information to the public (RUIND11).

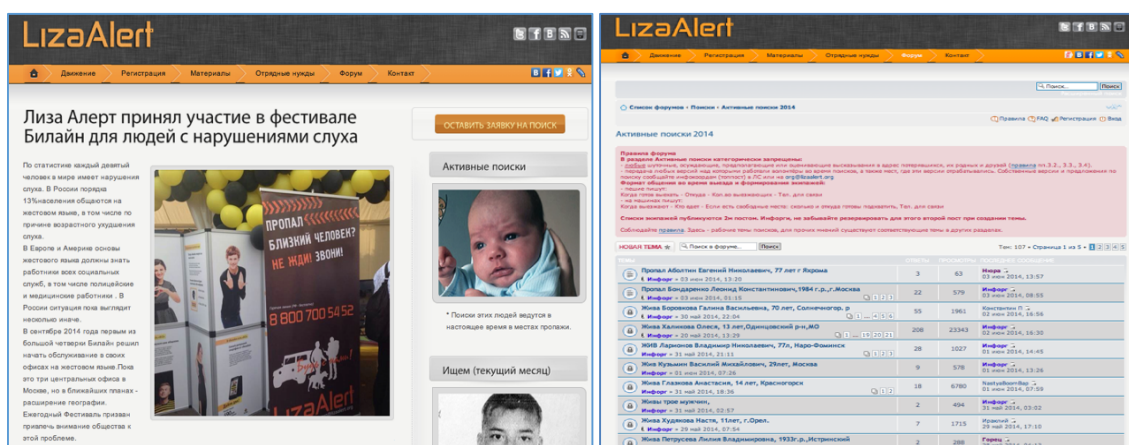


Figure 6.13: A front page and forum page of Liza Alert

The case of Liza Alert (lizaalert.org, see Figure 6.13), a SAR movement founded in Moscow in 2010, presents a different role for digital tools in finding missing people. Liza Alert was initiated after a large-scale search operation where hundreds of volunteers spontaneously took part in efforts to find a girl, Liza Fomkina, and her aunt (they were found dead). Unlike in the case of Extremum, which restricts access to the section of its website that manages search operations, Liza Alert seeks to engage any Internet user, and accordingly anyone can access the information about searchers and join a specific search. According to data that was collected through participatory observation, once Liza Alert receives a call about a missing person, a new forum thread is opened. Information about the missing person, the location of gathering and people joining the search is published online in an unrestricted

form. The online forum is used for the coordination of arrivals and people with cars pick up those without. The coordinator makes an online list of participants in the search.

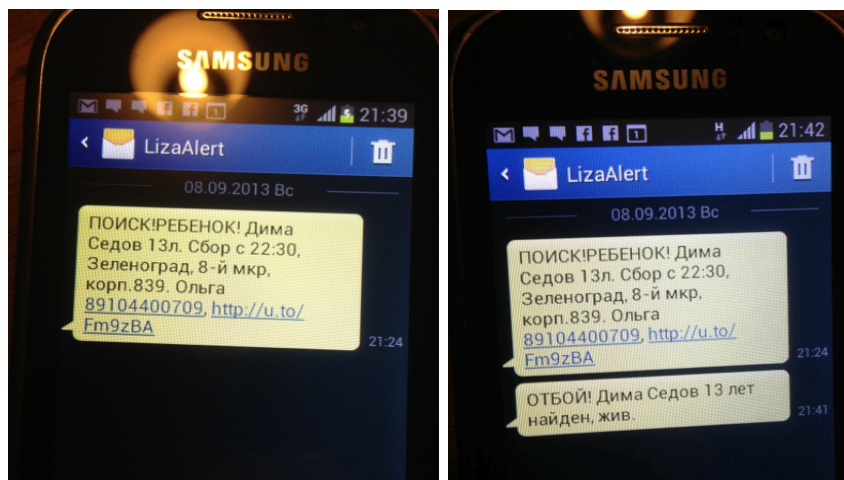


Figure 6.14: SMS call-outs by Liza Alert

Anyone can subscribe in order to get a SMS about a call for searchers (Figure 6.14). The SMS message includes the name of the missing person, his/her age, the time and location of the meeting point, as well as the phone number of the coordinator, with a link to the relevant thread in the online forum. Once the person is found, SMS is also used in order to declare an end to the search (see second screenshot, Figure 6.14, above).



Figure 6.15: Field search volunteers' centre. Photo taken on 14.9.13

That said, some of the coordination and information sharing at the time of the search takes place through tools with restricted access, e.g. Skype chats that include only specific members of the network. As can be seen in Figure 6.15, above, the coordination relies on a

variety of digital tools, including the coordinator using an I-Pad with Skype, inside a car, and a GIS system outside. That said, although some aspects of coordination rely on restricted chats, what distinguishes Liza Alert from Extremum is that it uses the website and mobile phones for the mobilization of Internet users and coordination of searchers, all without restrictions.

All the tools discussed above were developed by independent actors. There are no platforms supported by traditional institutions. The only cases where the platforms specifically address the traditional institutions is where the platforms seek to force them to respond with regard to objects defined by volunteers (e.g., in the case of the Greenpeace Forest Forum). The next section explores how the representatives of traditional responding organizations perceive the role of digital tools in disaster response.

6.2.4. The perception of digital tools among state-affiliated actors in Russia

Due to the hierarchical model of governance (as highlighted in Section 4.2), the Russian Ministry of Emergency Situations (MCHS) plays a major role in all areas of emergency response, including shaping the policy with regard to using ICTs. RUGOV3, a former advisor at MCHS, who was one of the first to establish the social media section in MCHS in 2010-2012, says that initially the leadership of the ministry opposed engagement with social media. A social media expert from MCHS argued that many officials from MCHS do not approach the Internet seriously (RUGOV1). RUGOV1 tells of a person who was criticized by colleagues for being active online: “Why are you writing all the time some ridiculous things on Facebook, don’t bring shame on your uniform”. At the same time, according to RUGOV1, one of the minister’s children started to “feed his father” with information from online about his ministry. Following this, the minister decided to establish a blogosphere department and started providing social media training, although there is still internal opposition to this initiative and “the Internet is considered a toy of the minister” (RUGOV1).

RUGOV5, the social media manager at MCHS, pointed out that the orders of the new minister to inform the population through social media created new challenges: “It’s complicated to understand if social networks are good or evil. We have to work with them, but no one knows how to work with them so far”. She describes how the ministry uses four digital platforms: the web portal, the MCHS of Russia application, which is a mobile version of the website, the Mobile Rescuer application, and social networks. According to RUGOV5, “the official website is used in order to share information with citizens”. The mobile version

of the website allows people to receive “alerts about possible unpleasant events” relevant to the location of the user.

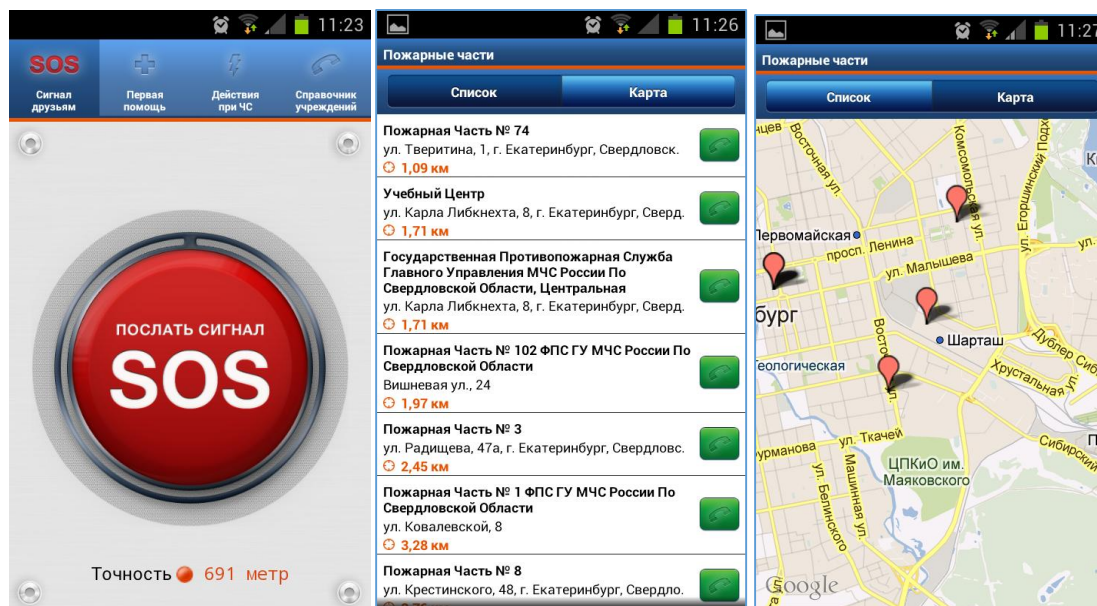


Figure 6.16: Mobile Rescuer app: SOS button and locations list of emergency stations

The Mobile Rescuer app²⁶ (Figure 6.16) is built around a red button that allows the user to send an SOS signal to the emergency services. Once the user clicks the button, he/she should get a call from the emergency services. The app also provides information about first aid, rules of behaviour in emergency situations, and a list of emergency stations in proximity to the user.

RUGOV4, a senior advisor for public affairs at MCHS, says that social media are particularly helpful for the distribution of information and alerts about emergencies, as well as for confronting rumours and preventing panic. According to RUGOV3, the main method of alerting the population about unusual weather conditions relies on SMS. In addition, local representatives of MCHS visit local online forums in order to lessen panic and provide advice in cases of specific threat. RUGOV4 says that the social media groups also let people know “how good MCHS people are and that they do many valuable things”. RUGOV3 pointed out that the official pages of MCHS are not used by citizens to report specific problems: “If they [Internet users] report about something, they ask MCHS to fire someone, but don’t ask for specific help” (RUGOV3).

That said, most of the speakers from MCHS describe the monitoring of social media (including Twitter and blogosphere) as their major Internet-related activity. RUGOV6a, a former spokesperson for MCHS in the Moscow region, explained:

²⁶ <http://spasatel.mchs.ru>

The purpose of online monitoring is identifying negative information that we need to respond to. It's not about people's requests for help and we don't respond to that type of request. We have a monitoring system that follows only positive and negative information. Accordingly, MCHS responds to negative information about the organization. (RUGOV6a)

The monitoring is conducted by the National Crisis Management Centre (NCCMC), which has a number of officers who follow social media, and by the members of the MCHS media department (for a detailed review of the NCCMC, see Roffey, 2016, pp. 30-32).

RUGOV5, from the MCHS press office, describes the processes of monitoring:

The person is just identifying 'negative' [information] and sends it to his boss and says what has been done about it. At the end of his shift he fills a table that says what type of negative information he found and what has been done about it, e.g. 'nothing has been done'; 'we published a positive article and distributed it through our accounts', etc. (RUGOV5)

RUGOV1 says that during the floods in Krymsk the complaints of volunteers on Twitter about lack of cooperation with MCHS, as well as information about the lack of equipment among professional responders, was identified as negative. RUGOV4 pointed out that during the floods in Krymsk the major purpose of the ministry in the field of social media was "to diminish negative information and to support our good image". According to RUGOV6, the success of a response operation is also defined on the basis of image:

We conducted an analysis of the emergency of the floods in the Far East, what people thought and wrote. Following this analysis some people [from the emergency services] will be punished, others will get a medal. (RUGOV6)

RUGOV5 points out that the capacity of MCHS to respond online to negative content is limited by the hierarchical structure of the organization: "We have very strict policies. If I post something on my own, it can raise a negative response within the ministry". One of the ways to address this challenge is by having a blogger who works for MCHS. According to RUGOV5, "RUGOV1 can be described as a loyal blogger who changed the attitude toward the blogosphere among the leadership of the ministry and takes an active part in formation of the information field". RUGOV1 says that she started using her blog for writing about MCHS in an unofficial way in 2005. After a break of a few years, RUGOV1 returned to MCHS in 2011, although she does not disclose on social media that she works for MCHS:

In a peaceful time I monitor social media, follow negative and positive comments, and blog. Sometimes I respond to negative things either through my blog, through virtual blogs, or through social media pages. But once we have an emergency, the situation is totally different. (RUGOV1)

According to RUGOV1, she manages a closed Facebook group for all bloggers who are interested in MCHS in order to engage bloggers in coverage of emergency response.

One of the major issues that can be identified from the interviews conducted is that user-generated content is classified by MCHS officials mostly in terms of positive and negative information, while the structure of classification does not address the scale of an emergency, or the humanitarian needs. Accordingly, information about a fire can be approached as a PR threat to the image of MCHS. The structure of classification for social media monitoring suggests that the information, not the disaster, is a problem. As pointed out by RUGOV3, “we reached a conclusion that whatever happens in social media it has the element of image in it, it always has something either positive or negative that we need to work with” (RUGOV3).

Moreover, according to RUGOV3, the Internet creates a problem since it requires resources in order to address negative information: “Without the Internet, those people who today need to fight against negative information, could deal with more important tasks.” RUGOV3 explains the conflict between operational and image-driven tasks:

If someone [online] blames the minister in some problems, and at the same time there is a fire in a house, you start thinking what you should address first. You can be at least fired because of negative information about the minister, and it will create much more noise than if the fire in the house isn’t taken care of in time. (RUGOV3)

The conflict between PR needs and the need to respond to an incident is also highlighted by another representative of the MCHS (RUGOV5): “We work for the minister. We don’t work for people”. According to RUGOV5, “the field of information should be divided into two parts – the operational information and other type of information that can be related to image”. However, she argues that this division will not be valid since “operational information also has impact on image” (RUGOV5).

This challenge represents broader issue around the role of social media for the Russian government. According to RUGOV2, a social media advisor for a senior Russian official, the authorities have to address a dilemma: on the one hand, there are problems that people face; on the other hand, any situation of this kind is accompanied by a “struggle in the informational field”. In this situation, according to RUGOV2, they have to solve the problem and preserve the state’s image at the same time. RUGOV2 says that her duty is to combat the perception of social media solely as a “space of image”:

The time when you are cool just because you have a blog has passed. In order to be ‘cool’ you need to do something. That’s where we are trying to shift the work in social media towards a service-oriented approach. (RUGOV2)

An additional argument about the role of digital platforms that was introduced by few speakers suggests that not only the content of social media, but the tools themselves, have a

role in the image of emergency-related institutions. RUORG4, one of the developers of mobile applications for MCHS, argues that the motivation for development of new technologies is driven by image considerations:

For instance, when they released the Mobile Rescuer app, it was an opportunity for PR... But when you need to update this app, it's a weak justification for PR. (RUORG4)

According to RUORG4, the new minister did not want to invest in applications developed by his predecessor since this would not bring him PR benefits.

The attitude toward social media can also be associated with the structure of organizations. According to RUGOV5, the media and information department of the MCHS is responsible for any Internet-related issues, including any information that appears online. However, 24/7 monitoring of social media is conducted by the National and regional Crisis Management Centres, and once they identify any issue they report it to the press office. Accordingly, any information from social media is defined as the responsibility of the press office, which is driven by image-related goals. RUGOV5 underlines that the purpose of her department does not include supporting collaboration with citizens: “We are not instructed to support citizen engagement. We are instructed to follow presidential orders about informing the population.”

RUGOV3 says that using digital platforms for the engagement of Internet users in emergency response is not on the agenda, since the emergency services do not need help, and if there is a need for citizens' engagement in crisis response that can be organized on a local level. RUGOV5 says that the capacity to engage people is restricted by bureaucratic issues:

We don't use crowdsourcing. We never use people in order to solve our problems and we unfortunately never tried it... We structurally cannot engage people since we have a military type of ministry. (RUGOV5)

That said, RUGOV4 says that the Internet is used in order to prevent the engagement of over-motivated volunteers:

In case of the floods in the Far East, many volunteers wanted to pack and go there since they decided that it was similar to events in Krymsk. That was totally wrong, and we told them that they should stay and if we needed we would call them. (RUGOV4)

According to RUGOV6a, the only example of public engagement through the Internet is using blogs to call for people's participation in tree planting following fires and collection of garbage in forests. That said, RUGOV5 says that a ministry-affiliated blogger, RUGOV1, helps informally to establish contact with volunteers.

According to RUORG4, MCHS refused to include an option for the engagement of volunteers in the Mobile Rescuer application. There is, however, an initiative which seeks to

engage volunteers and has a close link to MCHS. This is Dobrovoletz.rf, a multi-purpose portal for the management of volunteers in Russia.²⁷ The portal was created by RosSoyuzSpas, an NGO for retired emergency response professionals affiliated with the MCHS. RUGOV4 argues that the portal was created in order to ensure that only volunteers with appropriate training are engaged in the response to emergencies, while people with no skills can be engaged in the provision of humanitarian aid:

They try to gather an unorganized crowd of people and transform it into some kind of group or professional team. The volunteers want to be Supermen that rescue anyone anywhere. But the reality is that in most cases volunteers are needed only if they have appropriate accreditation. (RUGOV4)



Figure 6.17: Front page of Dobrovoletz.rf

The front page of the portal (Figure 6.17) suggests an appeal to “become a volunteer”, with a link for registration, as well as News, Events and Humanitarian Actions. It provides a list of recent emergency events with a general description of what has happened. As a first step, the website suggests completing a survey which asks questions about the skills, physical condition and availability of the volunteer. If the potential volunteer has official certification, he/she receives the status of professional rescuer. In other cases, the volunteer receives the status of general volunteer.²⁸

The community on the platform is divided into three groups: RosSoyuzSpas members, certified rescuers, and general volunteers. An ordinary member can contribute

²⁷ The portal’s domain name uses the Cyrillic alphabet. Dobrovoletz is a Russian word for volunteer, which literally means “an owner of free will”.

²⁸ A preliminary analysis of the Dobrovoletz.rf platform was presented in a paper published in the *Policy & Internet* journal (Asmolov, 2015b), which also included five quotations from interviews used in this thesis.

information about himself/ herself, follow some news and activities, but his/her capacity to engage is reliant on the moderators of the website, who make decisions about whom, where and for what purpose to mobilize. The mobilization of volunteers through the platform takes place by decision of the executive committee of RosSoyuzSpas and the heads of its branches.

According to an interview with RUGOVAF1, from RosSoyuzSpas, the system allows them to reach out to all users who register through the system, relying on SMS, e-mail and Skype, with any type of information or requests for engagement. That said, the representative of RosSoyuzSpas argues that the additional purpose of Dobrovoletz.rf is the monitoring and controlling of an individual volunteer's activity:

Sooner or later the 'Law on Volunteering' will be approved, and then we will have to register all volunteering activities. Accordingly, we thought, how should we do this? Eventually we decided to go with the idea of the platform. (RUGOVAF1)

According to a senior developer who participated in the development of Dobrovoletz.rf, the platform is primarily used for the coordination of activities of members of RosSoyuzSpas (RUORG3). RUGOVAF1 said that during the floods in the Amur area in 2013 the platform was used as an internal system for the exchange of messages and sharing of photos, summary reports and people's contact details.

Interviews with people associated with the development of the platform revealed internal debates about its purpose (RUORG3, RUORG7, RUGOVAF1, RUIND13). Some of the developers argue that what initially was designed as a transparent platform to support horizontal collaboration between different independent groups of volunteers was eventually transformed into a closed, hierarchical system of command and control that seeks primarily to develop a register of volunteers (RUORG7). According to the author of the concept (RUIND13), the involvement of RosSoyuzSpas led to the "detachment of horizontal connections between the groups". According to RUORG7, one of the developers of the platform, "what RosSoyuzSpas created is not volunteering, but their own small military". An MCHS-affiliated blogger, RUGOV1, argues that Dobrovoletz.rf was created as a semblance of volunteering. A senior developer of the platform summarized it by stating that while its initial purpose was the integration of professional and spontaneous volunteers, its real purpose was creating a system for the regulation of unaffiliated volunteers (RUORG3).

6.2.5. Discourses of activity in citizen's and state-affiliated tools

A preliminary analysis of the data collected in Russia allows us to identify two issues concerning the role of digital tools in the mediation of an object of activity. First is the scale

of the disaster and the degree of control over the disaster by institutional actors. Second is the needs that can be associated with the disaster, including the needs of the victims, the needs of responders and the needs around direct response to the disaster. The lack of information about a disaster as a potential object of activity can be linked either to communication failures or to the state's policy of concealing information. In the latter case, the object of the tools developed by independent actors is not only data collection, but also increasing transparency about the real scale of the disaster and real needs.

In cases where the object is contesting the state's definition of the emergency, the tools are used by one group of subjects (citizens) to force another group of subjects (the authorities) to address the object as constructed by the tools. This type of discourses around the purpose of the tools can be described as a discourse of transparency and accountability, where the authorities turn out to be to the object of activity by citizens. The additional purpose of the tools is the definition of the resources required from the subject in its relationship to the object. Accordingly, the third set of objects deals with the direct engagement of users in disaster response.

The preliminary analysis of how the tools are used by the emergency response institutions presents a different approach to the role of digital tools. The first object is informing the population about general emergency-related issues. The second object is alerting a specific group of people about a threat and combating rumours. That said, social media are not approached as a source of user-generated content that can provide information about emergencies. The system of monitoring social media suggests that user-generated content is perceived as a threat to the image of MCHS. Accordingly, the major purpose of the ministry's social media activity is confronting negative information and supporting a positive image of MCHS. In this case, image protection can be associated with approaching Internet users as potential sources of negative content which needs to be contained and controlled.

6.3 Digital tools and the mediation of subject-object relationships in Australia

The structure of this section is different from that of the section dedicated to Russia, as a result of a number of factors. First, unlike in Russia, the emergency services in Australia rely heavily on institutional volunteers. The organizational structure of emergency services is more complicated and includes a variety of emergency response agencies in different states. This provides more opportunities for a comparative analysis between the states and the agencies within Australia. Second, the emergency response system in Australia was significantly influenced by the tragic events of the Black Saturday fires in 2009, when 173

people lost their lives, and by the results of the Royal Commission investigation, which identified a failure to provide proper alerts about the emergency. One of the outcomes of this investigation was increasing innovation in the systems of alert.

Therefore, this section starts with data about the role of mobile applications and the constitution of a subject in a situation of disaster (Section 6.3.1). Section 6.3.2 is focused on investigation of the role of digital tools for traditional responders and professional volunteers, and specifically the boundaries of subjects' inclusion in response to emergency situations. Section 6.3.3 explores the role of tools in the context of a specific disaster – the floods in Queensland in winter 2010-2011, and compares state-affiliated tools, tools supported by external organizations, and tools driven by unaffiliated citizens.

6.3.1 The role of mobile applications: digital tools in the wake of Black Saturday²⁹.

Some interviewees link the role of social media in emergency response to the outcomes of the investigation of the events of Black Saturday in Victoria. A senior official from the Government of Victoria (AUSGOV1) says that, in the case of the events in 2009, there was a contradiction between the information coming from the emergency agencies and coming from social media, and in some cases social media saved peoples' lives. He tells the story of a person who alerted his parents on the basis of information from Twitter:

He has phoned up mum and dad: you'd better get out of there, and they said they've just spoken to the CFA [Country Fire Authority], they said everything's fine, the fire's hours away, it's not in the right direction. He said, I'm watching on Twitter, I can see the photos, get out of there, and they got out and those people survived. (AUSGOV1)

The development of mobile applications by Australian emergency services (in New South Wales, Victoria and South Australia) started in 2010. The mobile apps have some distinctive features. First, most of the apps are working on an everyday basis. Second, unlike websites, mobile apps rely on geolocation features that allow them to link the location of the user and some of the functions of the app. The purpose of this section is to examine how the applications mediate relationships between users and an emergency. The data was collected in October 2013 at the time of significant bushfires in the Sydney area. While travelling from Canberra to Sydney, I could see the bushfires, not only through the bus window but also on the screen of my iPhone.

²⁹ A preliminary analysis of some segments of the data set concerning the mobile applications and crowdsourcing platforms was first presented in the *Interactions: Studies in Communication & Culture* (Asmolov, 2015a). This relied on a conceptual framework exploring a structure of classification building on the notion of a "folksonomy" and also included two quotations from interviews used in this thesis.

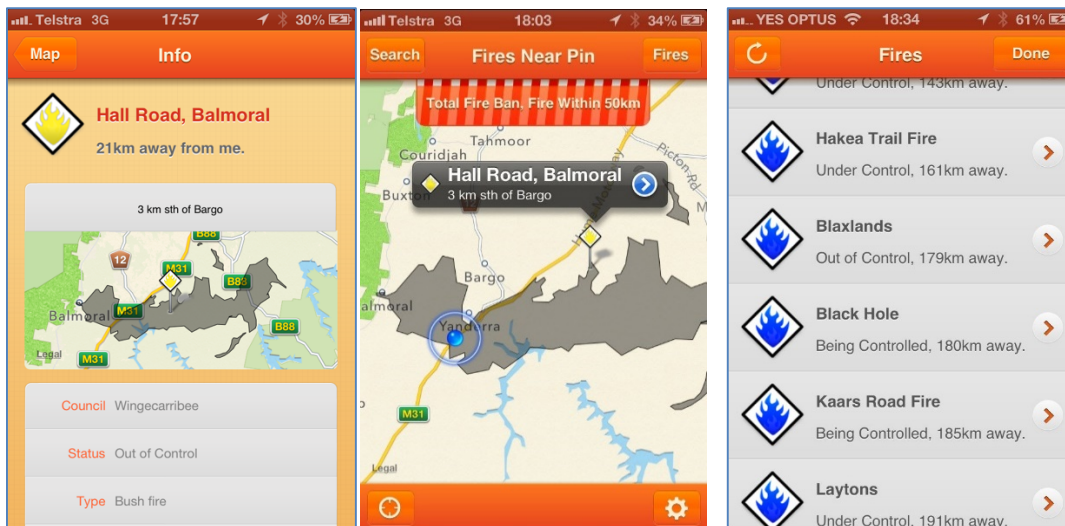


Figure 6.18: Going through burned area as shown on the Fires Near Me app

I was following the Fires Near Me app, developed by New South Wales Rural Fire Service (Figure 6.18, above). Relying on the app, I could see how far the fires had moved, and what degree of control the emergency services had over the incident. The developers of the app were not available for interview because of the emergency. However, I met the developer of an app for the Country Fire Authority (CFA), the fire agency in the state of Victoria.

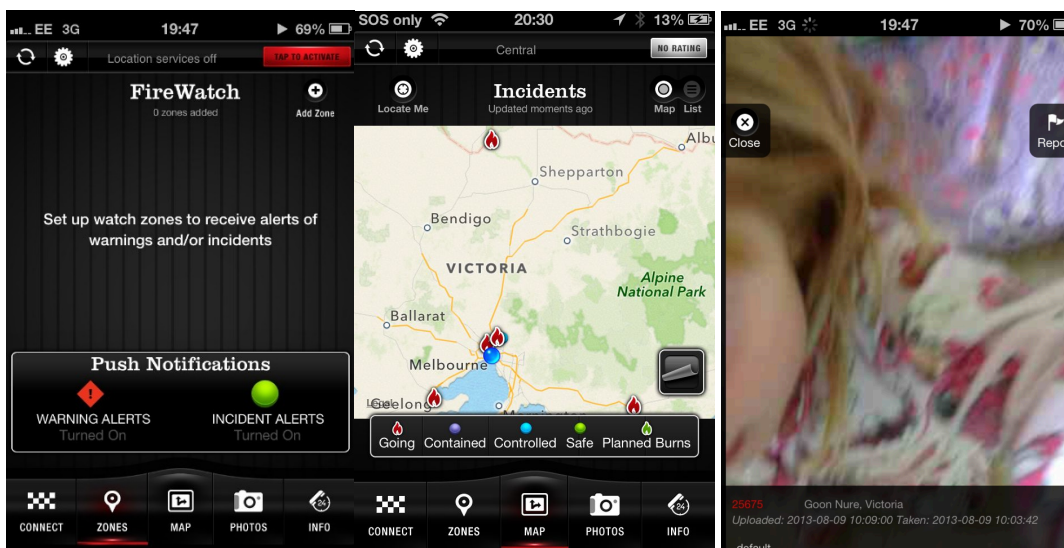


Figure 6.19: FireReady App (old version) and user-generated image on the app.

AUSGOVAF1, social media manager at CFA, underlines that FireReady was the first government emergency application in Australia. According to AUSGOVAF1, the purpose of the FireReady app “was about getting the information out there to the community”. He explained that the development of the application was part of the new approach of CFA to the role of ICTs:

Even our name, the Country Fire Authority, sets us up as the authority figure, and we've always expected people to come to us to get information. And if they don't, that's their fault... The core change in thinking that social media's brought on in the fire services and CFA and around Victoria is the idea that we need to go to where people are with our information. (AUSGOVAF1)

AUSGOVAF1 underlines that one of the most popular functions of the app is the push notifications, which provide warnings about incidents in proximity to a user: "What the mobile app does is alert people to the fact that it's going to be a really bad fire day tomorrow, so it should trigger some of those decisions that we need people to make" (AUSGOVAF1). A report about an incident is classified according to the degree of control over the fire by the agency: going, contained, controlled, safe, planned burns (see Figure 6.19, above).

An ICT manager from the Department of Environment and Primary Industries (DEPI), which supervises the activities of the fire agencies in Victoria, highlights the advantage of mobile apps in comparison to alerts provided by map-based websites:

Smart phones know where you are, so it puts the incidents that are close to you in comparison, whereas, our webpages are showing, like, a Google Map Interface, you see what's happening, and you zoom in to your area of interest; the smart phone does that automatically. (AUSGOV2)

That said, Anthony Baxter, a head of the Google Crisis Group (AUSORG5), underlines the advantages of Google's Public Alert tool. In the case of fires in New South Wales in October 2013 it distributed information about the fires relying on a feed from the Rural Fire Service (RFS). According to Baxter, the major purpose of collaboration between Google and RFS is "to get the data out in a massive way" (AUSORG5). Baxter explains that the Public Alert service means that "anyone who's got an Android or iOS with the Google app on it will get an alert pushed to their phone if they're in danger" (AUSORG5).

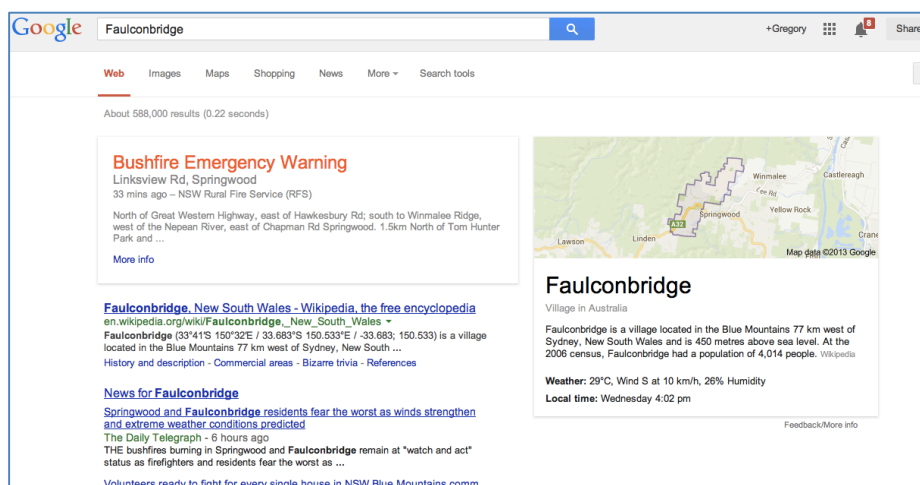


Figure 6.20: Integration of Public Alert in Google's search engine

In addition, once someone searches on Google for a location in the area of a disaster, he/she automatically receives alerts about this area (Figure 6.20).

The first version of FireReady also allowed users to submit reports and photos of the fires. A senior official from DEPI in Victoria argues that user-generated content contributes to situational awareness:

If we're at the incident, they might be able to take a photo and put it into the FireReady app, so the people that are close to it can make a decision on whether they move closer or stay away. It's just all information that builds situational awareness of what's happening. (AUSGOV2)

AUSGOVAF1 underlines that “the photos that are coming in from the app are a layer on our operational mapping system”, while “social media streams up on one of the screens at the state control centre” (AUSGOVAF1). That said, the new version of FireReady released in 2013 did not allow submission of users' reports. According to AUSGOV1, the decision to remove this function was made because of problems with verification and legal challenges (See Figure 6.19, above, as an example of a selfie submitted by a child).

AUSGOV1 argues that, while the crowdsourcing function has been removed, the development of the apps is “moving towards this ‘all hazards, all agencies’” approach, meaning that the app covers all types of emergency addressed by a variety of agencies. The efforts to follow this course were introduced by the Australian Emergency Management Institute (AEMI) in the development of the DisasterWatch application (see Figure 6.21, below). According to the official description, “The DisasterWatch phone app provides publicly available news and information about disaster events in Australia via direct feeds from a range of authoritative sources in the States and Territories and nationally”.³⁰



Figure 6.21: DisasterWatch app

According to AUSGOVAF2b, from AEMI, the purpose of the application is “to make it easier for people to get information, not only about where they live, but about other places,

³⁰ <http://www.em.gov.au/Resources/Pages/DisasterWatchPhoneApp.aspx>

because they may want to assess a situation in a different part of the country”.

AUSGOVAF2a explains that the major function of the app is information aggregation: “DisasterWatch only aggregates existing information through RSS feeds, and brings it together to make it easy for the user to go to one app, have a look, be able to see the whole nation” (AUSGOVAF2a). That said, the holistic nature of the application due to its “all hazards, all regions” focus limited its functionalities. The developers had to stay away from the idea that the application could send alerts about disasters, while the team tried “to steer a path towards news and information rather than emergency alerts” (AUSGOVAF2b). The reason for avoiding warnings was related to the structure of the Australian emergency services:

It comes down to the political arrangements in Australia; and we have the state governments and territory governments – they carry the responsibility for protection of life and responding to major events. The Commonwealth Government plays a role in that it supports the state’s activities, but we don’t have a direct response role. (AUSGOVAF2b)

An additional reason for the lack of alerts is different standards for warnings:

We had to make it an all-hazard information source so that it covers everything from bushfires, earthquakes, floods, storms, and it’d also have to cover every state... We’ve just released a standardization of warnings and information; the formatting’s very inconsistent between the agencies and between states. So it was lowest common denominator design. (AUSGOVAF2b)

Interviewees from the AEMI point out that the focus on informing led to their running into contradictions with the expectations of users about the purpose of the app: “They [users] still just want the alert – I don’t want to go and actually find the information and actually analyse it and prepare myself”. (AUSGOVAF2a)

The comparison between FireReady and DisasterWatch suggests two different purposes of the apps. FireReady is managed by a specific response agency, relies on first-hand information, and alerts people to threats to their lives. DisasterWatch is an aggregation tool that provides general information about a variety of emergencies in different locations. It seems that in the case of FireReady the target user is mostly the potential victim. Apparently in the case of DisasterWatch the user is a general audience. Both apps, however (except the old version of FireReady) avoid engagement of users. There is, however, a case of an app that tried to be holistic, without limiting its functions.

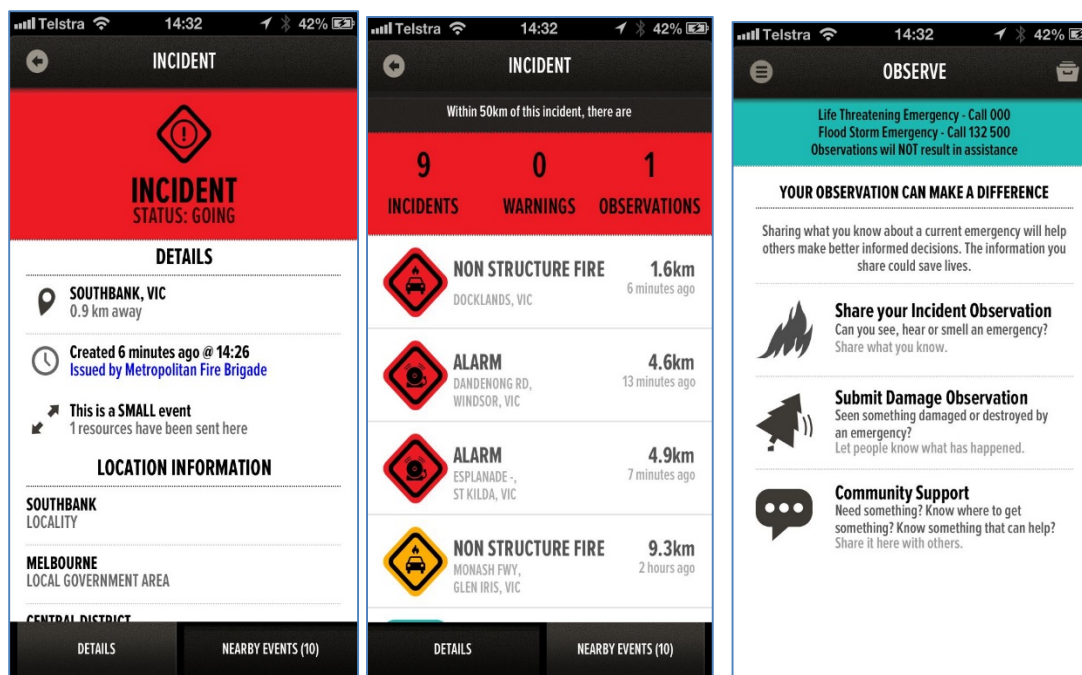


Figure 6.22: EmergencyAus app – incident and observation screens

EmergencyAus has been developed as a start-up by independent developers, although the development of EmergencyAus and of the CFA’s FireReady was supported by the same mobile application development company, Gridstone. Moreover, some of the developers are former CFA employees. The description of the application’s purpose is focused on the aggregation of warnings and on alerts:

Your safety is your responsibility, but if you are not aware of what is happening around you, it is hard to keep you and your family safe. The EmergencyAus app brings together official emergency information from hundreds of sources, empowering its users to make better-informed decisions during emergencies. (Mobileawards, 2013)

One of the developers, Luke Corbett (AUSORG2), explains that the aggregation was possible because of developments in the structure of classification that allow the aggregating of information about incidents and alerts from a variety of official sources (see Figure 6.22, above):

Currently in Australia there are over 700 different types of incident reported by agencies. We’ve condensed those into 30, and we use those same 30 right across the nation, all hazards, all agencies. (AUSORG2)

Jonathan Grant (AUSORG3), a chief technology officer at Gridstone, underlines the differences in the classification structures in EmergencyAus and FireReady:

EmergencyAus basically just says you need to get out of there, or you need to be aware of this, or FYI there’s something occurring. Whereas FireReady will go, the fire condition is this, you need to do this and that, oh, it’s extreme, here’s a whole checklist of things to do. (AUSORG3)

Grant also underlines that, unlike FireReady, EmergencyAus is an all-country and all-hazards

app: “The difference between EmergencyAus and FireReady is we’re incident agnostic. We don’t care if it’s a fire, a flood, a terrorist activity or whatever it happens to be” (AUSORG3). Finally, Grant highlights the difference between the one-way and two-way communication models of the apps:

[with a] product like FireReady, which is information one way, you are putting all this content into this nebulous zone, but you’re not getting any response, whereas we’ve taken a completely different angle where we put in an observation, tell everybody about what you see and what you know. (AUSORG3)

In addition to incident alerts from different agencies, EmergencyAus allows the submission of user-generated observations. Grant argues that observations allow person-to-person warnings in cases where alerts have not been provided by the agencies: “For example, in Western Australia, where we don’t have any real official emergency reporting, there was a National Park here that was on fire, no official alerts. What we had is, we had eight observations showing the National Park is on fire” (AUSORG3). In order to support user-generated observation, the app suggests a sensor-based classification: “So we grab that information and restructure it by sensory observations” (AUSORG2).

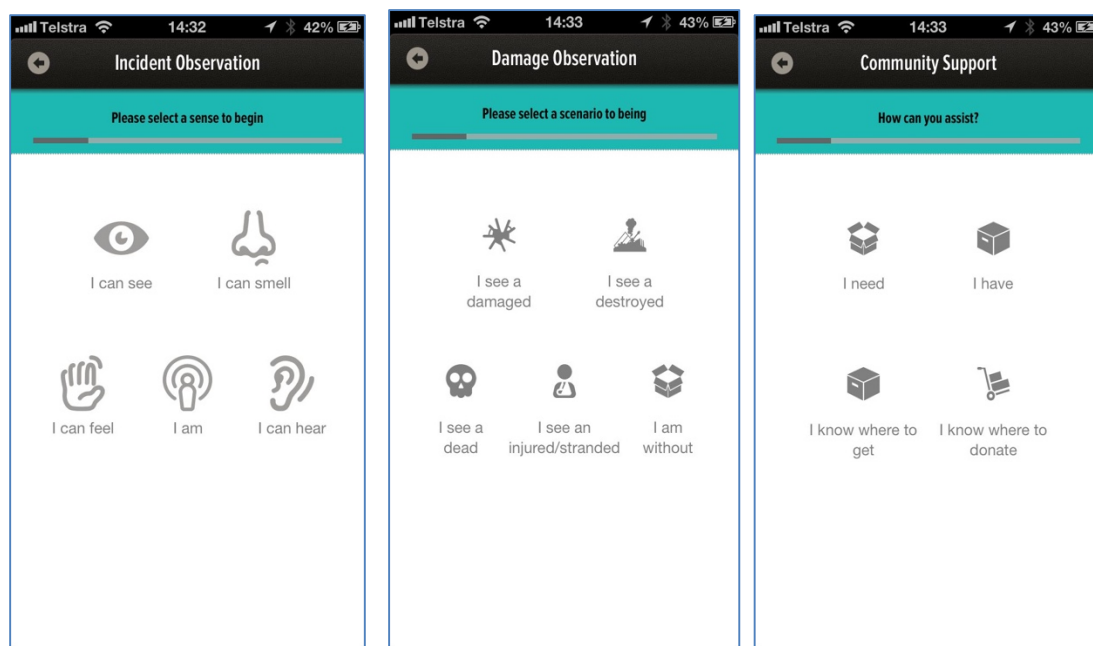


Figure 6.23: EmergencyAus classification of user-generated reports

The first layer of classification relies on human senses: seeing, smelling, hearing and feeling. The user is asked to describe what a particular sense indicates (e.g., I smell a fire), as well as to describe his/her condition. In addition to “incident observation” and “damage observation”, the application provides “community support” categories, which suggest various forms of involvement in emergency response. It includes the categories of “I need”, “I have”, “I know where to get”, “I know where to donate” (See Figure 6.23, above).

Grant says that the purpose of developers is “to build that post-incident response capability in the application” (AUSORG3). Corbett defines this type of engagement as “community-to-community crowdsourcing”:

There’s two sides, there’s community and there’s emergency services to community. So all that stuff about, I need help, that’s community to community... The idea of the app is about the public helping the public. (AUSORG2)

Corbett uses the fires in Tasmania (2012-2013) as an illustration: “Within our app, if someone’s in Tasmania, their house has been burnt down and they need transport... then someone would ring them and organize to pick them up” (AUSORG2). He concludes that EmergencyAus seeks to develop people’s independent capacity to respond to an emergency: “What this is doing is opening up those tools and functions that there typically only done by the agencies, thereby enabling the public to look after themselves, protect each other, share information without relying on the agencies” (AUSORG2).

To summarize, EmergencyAus seeks to break the boundaries of agency, location and hazards that can be seen in the case of FireReady, as well as the limits of informing as compared to alerting. It also seeks to enable two-way communication, which transforms the user from a consumer of information and a potential victim into an active participant, where participation includes content-generation and response to emergency.

6.3.2 Digital tools for traditional volunteers: from internal to external subjects

The mobile applications discussed above primarily address citizens. According to AUSGOVAF3, an officer of the CFA Merbein Brigade, professional volunteers do not find FireReady relevant to firefighting on the brigade level (AUSGOVAF3). That said, the members of the Merbein Brigade use digital tools for other purposes. The brigade uses an open Facebook page to communicate with the local community and a closed Facebook group page for communication between the members of the brigade. While Facebook pages are often used by agency-affiliated volunteers as a local initiative, some agencies decided also to develop a dedicated tool for the management of the volunteer community. For instance, the State Emergency Service (SES) in Queensland has an internal volunteer portal that relies on the SharePoint platform. That said, according to AUSGOVAF4 from SES, the portal has had limited success due to low participation of volunteers.

Digital tools also play an increasing role in call-out of volunteers around a specific incident. So far, the major fire agencies in Australia use pagers as the major means of mobilization of volunteers (AUSGOVAF6b, AUSGOVAF8).



Figure 6.24: Call-out message on a pager at the Merbein Brigade. Taken on 11.10.13

According to AUSGOVAF3 from the Merbein Brigade, the brigade is still activated by pagers connected to the 000 emergency call service (Figure 6.24). However, the brigade has installed a system that integrates pager alerts with Facebook and distributes the message through the Facebook mobile application (AUSGOVAF3).

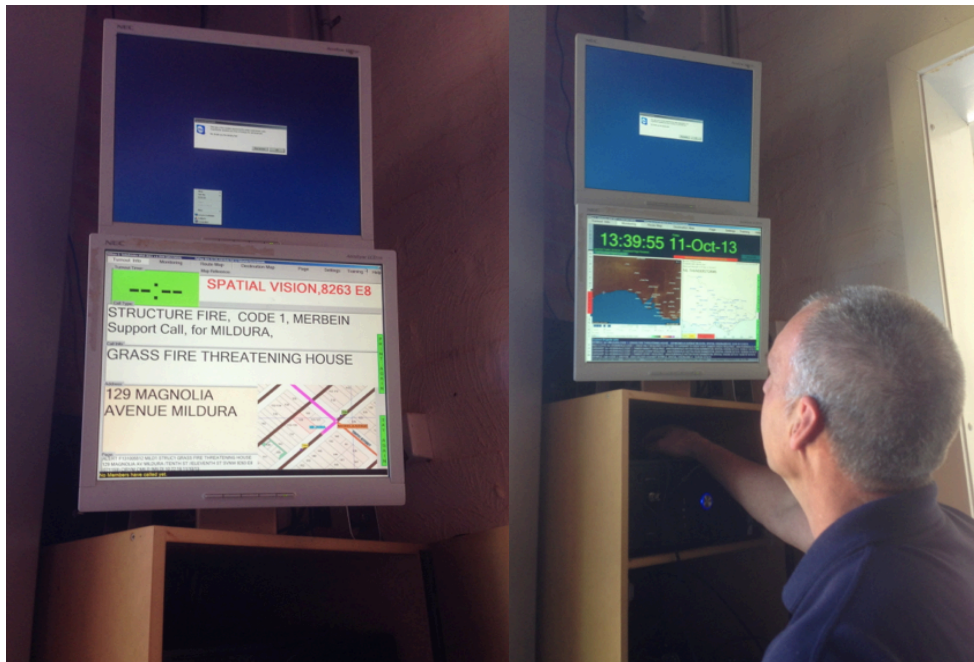


Figure 6.25: Call-out system used by the Merbein brigade. Taken on 11.10.13

The volunteers who arrive at the brigade station can also see the message on the screen, alongside a map with the location of the fire. This shows the incident's location, relying on Google Maps, and allows them to plan the best route to get there: "You get to start seeing the type of job that you're going to" (AUSGOVAF3). AUSGOVAF3 also suggests that the system makes the volunteers more independent:

It's designed to impart more information to people, to give them more situational awareness of the job they're going to, instead of relying on the crew leader or the incident controller... What we're doing as a brigade is up-skilling our brigade members to enable them to think more for themselves. (AUSGOVAF3)

Brian Quinn (AUSGOVAF9), from CFA Newham Rural Fire Brigade, told me that his brigade uses a different adjunct to the pager system, Broadcast Alert Response Technology (BART), which was developed for CFA and SES in Victoria.³¹ The application forwards pager messages via SMS and e-mail. BART allows more people, including retired members and young trainees, to get the messages, without increasing the number of pager devices.

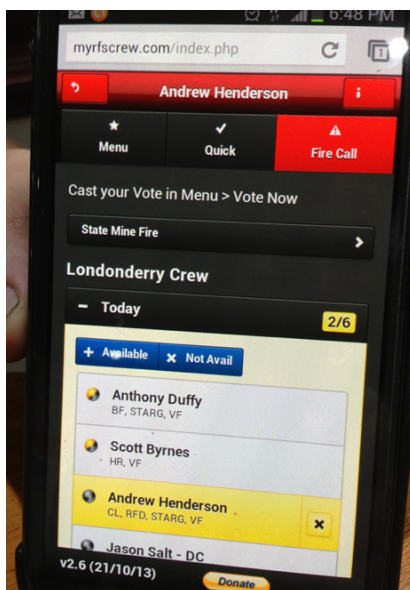


Figure 6.26: My RFS Crew application. Taken on 21/10/13

According to Henderson (AUSGOVAF8), a volunteer from the Londonderry brigade in New South Wales, the pagers suggest one-way communication and therefore it is difficult to know how many volunteers respond to a particular incident. In order to address this challenge, his brigade uses the My RFS Crew app, which was developed for volunteers in the Rural Fire Service.³² Henderson describes how the application functions: “You put your availability, so that the duty officer has an idea of what’s going on, and you can also put your skills in there” (AUSGOVAF8). Henderson also points out that there is a range of apps that support call-out (e.g. Active911)³³ and on-the-ground activity, including providing maps and helping to collect data about incidents (AUSGOVAF8). These apps are developed mostly by external developers, while the brigades have the freedom to adopt a particular set of digital tools to support their everyday practices.

The apps discussed above mostly support bounded groups of volunteers on the local level. As part of an examination of tools on the agency level, I visited a CFA control centre in

³¹ <http://www.bart.emerg.com.au>

³² <http://myrfscrew.com>

³³ <https://www.active911.com>

Mildura (Victoria). Most of the tools used in the centre seek to support the situational awareness of the responders. The mapping platform used by the centre allows them to map the fires and the deployment of firefighting teams. One of the major tools used there is an E-Map. A senior official from the Department of Environment and Primary Industries (DEPI) in Victoria argues that the new system integrates tools for the mapping of different disasters and resource management into one system as a part of the all-hazards, all-agency approach: “We had a strategy to fully integrate all of those systems, or the functionality of those systems, within a single web environment so that we are able to put things on the web, for ease of access and stuff” (AUSGOV2). According to AUSGOV2, the purpose of the tool is to overcome institutional barriers and improve interoperability between the agencies. An interagency initiative called Victorian Information Network for Emergencies (VINE) is focused on the development of interoperability between the agencies.³⁴

E-Map has publicly available segments that allow people to follow emergencies (<http://www.emergencyvic.info>), although most of the system is available only for members of emergency agencies. While E-Map is an internal system that supports interoperability, according to a Senior Consultant at ESRI, AUSORG4, in some cases external systems not bounded by institutional restraints have a better capacity to aggregate information from different agencies and to contribute to inter-agency interoperability:

We think our online [tool] is a great opportunity to do that because you can start to share groups and in an emergency situation there’s no proprietary rules. Actually we will waive those and we will say use collaboration groups to start sharing it. (AUSORG4)

The notion of interoperability can be associated with the boundaries of inclusion in a common activity system around emergency situations. The discussion above suggests that the purpose of the digital tools is to support interoperability between agencies. Corbett suggests that the future purpose of ICTs is to support interoperability between agencies and citizens, including the integration of citizen-based information into the systems of agencies (AUSORG2). The questions of whether citizens are included or excluded as a part of an expansion of the actors using the same digital platforms, and of what the boundaries of interoperability relying on new digital platforms should be, require further examination.

The case of Bush Search and Rescue Victoria (BSAR) provides an illustration of the role of digital tools in collaboration between agencies and external groups of volunteers. According to the convener of BSAR, Peter Campbell (AUSIND3), his organization is mobilized solely by the police through a liaison officer: “The police, when they want help for

³⁴ <https://emv.vic.gov.au/our-work/current-projects/information-interoperability/>

a remote area or they need more people, they call us”. BSAR search activities rely on the information systems of the agencies. The call-out is based on the state Emergency Management System, which uses SMS, e-mail and automated phone dial (AUSIND3). Once BSAR members are mobilized, all their activity is coordinated by relying on police systems.

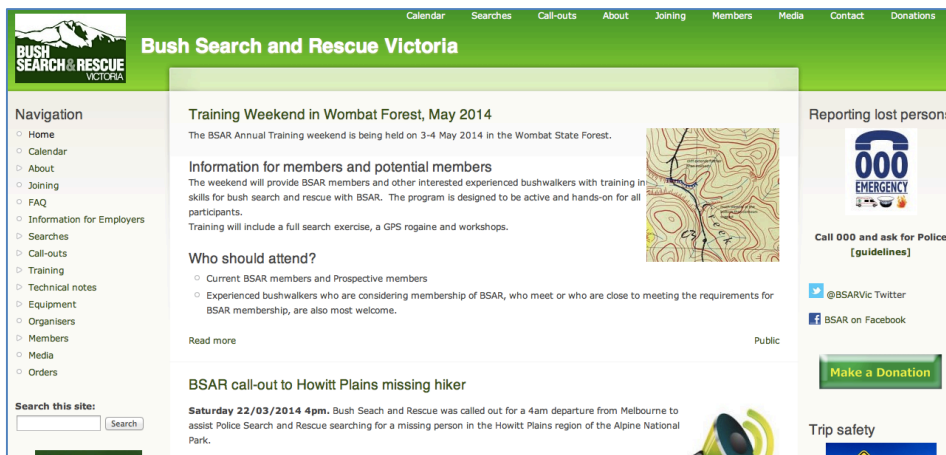


Figure 6.27: Bsar.org front page

BSAR has a website (Figure 6.27, bsar.org), but this is not used for the coordination of searchers. The website provides information about the organization, a brief overview of activities, and registration forms for joining BSAR.

According to a social media manager of the New South Wales (NSW) police, AUSGOVAF7, the police share data about missing people on social media in order to spread the message, but they do not use social media to engage people in searches. That said, AUSGOVAF7 says that NSW police used Facebook to develop a network of 80 community-based “I-watch” groups that can collaborate with the police and communicate their messages:

In the old form of Neighbourhood Watch that tended to be a town hall meeting, those members of the public who wanted to come along would come along. Now we use Facebook to hold that meeting. (AUSGOVAF7)

The data above illustrates how digital tools can be used by agencies to support collaboration with citizens, including groups of trained volunteers and a general audience, around different objects, e.g. participation in searches, data collection and data proliferation. There are also examples of tools developed by volunteers that seek to facilitate institution-to-citizen collaboration

Bushfire Connect was launched by Maurits van der Vlugt (AUSIND1) and Keren Flavell (AUSIND2) in May 2010, relying on the Ushahidi platform, which was also used for the Help Map in Russia. Van der Vlugt explains that the idea of the platform “germinated as a result of the 2009 fires, where people, affected areas, communities didn’t have access to information, and didn’t have an alternative method for the communities to communicate with

each other” (AUSIND1). The platform sought to provide a tool for the monitoring of bushfires in any area in Australia and data aggregation relying on official and citizen-based reports.

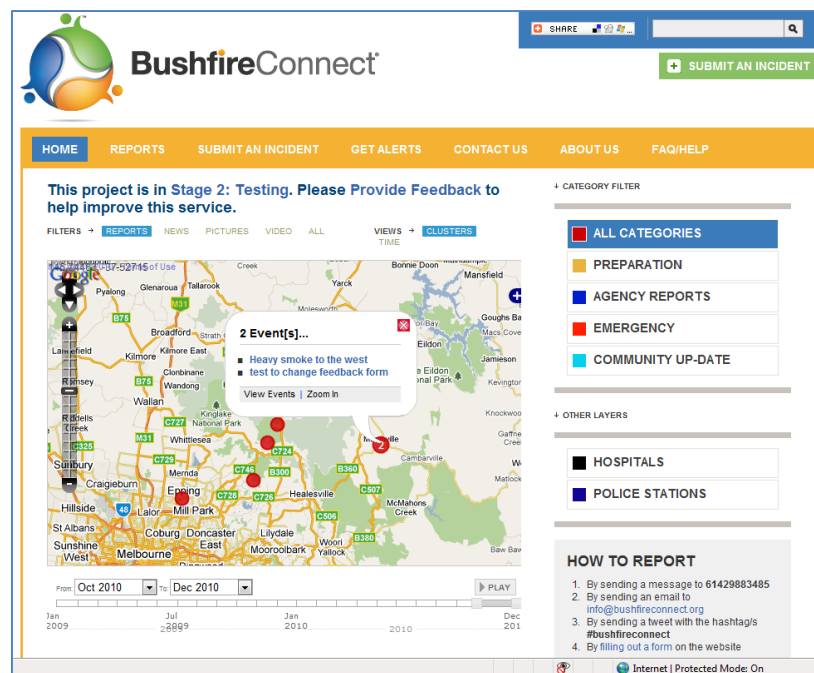


Figure 6.28: Front page of Bushfire Connect

According to Van der Vlugt, since the platform was independent, it had a better capacity to collect citizen reports than official agencies that were bound by strict rules around information-sharing. It also offered categories that could aggregate data from different sources (see Figure 6.28, above). Van der Vlugt points out that he hoped Bushfire Connect would be used by agencies as a source of user-generated information about fires. That said, the platform was mostly communicating agencies’ information to citizens:

Bushfire Connect was primarily C to C, citizen to citizen, and C to A, citizen to agencies. That was our ambition. It worked out to be primarily A to C, so what we did was get information from agencies, report it, moderate it, put it on, so that there would be localised alerts, and try and use that as a catalyst to get some community reporting happening. (AUSIND1)

Co-founder of Bushfire Connect Keren Flavell underlined that the project allowed the distribution of alerts relying on mobile phones prior to the development of mobile apps by agencies: “What we tried to do with Bushfire Connect is make that SMS alert just like a group SMS alert, but to the group who had signed up and said, show me stuff that’s relevant to there” (AUSIND2). While Bushfire Connect was not successful in incorporating citizen-based reports into the emergency response system and experienced problems with the scale of citizen engagement, Van der Vlugt believes that it triggered innovation among the agencies (AUSIND1). The platform was closed in 2012.

The collection of citizen-based information and the integration of this information into the general mapping of fires can be approached as the inclusion of citizens in the range of actors contributing to emergency response. The inclusion, in this case, relies on approaching citizens as sources of information and not as direct participants in emergency response as in the case of the Help Map (Bushfire Connect did have an Assistance category, but, according to interviewees, this played a marginal role). Neil Varcoe (AUSORG1b), social media lead at ABC Innovation, which took part in developing a number of crowdsourcing platforms for emergency response, says that the idea of direct submission of messages by citizens, as in the case of Bushfire Connect, should be replaced by tools for the collection and analysis of big data through social media. According to Varcoe, ABC is developing an Emergency Situation Awareness tool able to detect an emergency by relying on an automatic analysis of social media data and metadata (AUSORG1b).

Unlike in the case of Russia, those interviewed in Australia scarcely mentioned the role of user-generated content in the image of agencies. On the question of whether this should be approached as an image threat, AUSGOVAF1, from CFA, is clear:

There's an acceptance now that, in this modern world where there is social media, either... we need to be open and transparent and accept that criticism and address it... The argument is that we can't just bury our heads in the sand, we need to accept that's going to happen whatever, so we may as well be in the arena dealing with it. (AUSGOVAF1)

The CFA social media manager says that social media is an important source of feedback for his organization: "I think that openness and transparency and the acceptance that we have to address criticisms benefits the organisation in the longer term" (AUSGOVAF1).

To summarize, this section has divided the discussion of the purpose of digital tools into three layers. First, in the case of professional volunteers, digital tools primarily support the existing practices of volunteers, improving their efficiency and enhancing their independence within the existent boundaries of a professional community. The second layer is located in the domain of relationships between traditional emergency agencies, where digital tools contribute to supporting interoperability between agencies and expanding the boundaries of communities within the same system. The third layer suggests a focus on the role of digital tools in the relationship between agencies and citizens. The exploration of digital tools developed by agencies demonstrates that traditional institutions limit the inclusion of external subjects, while independent tools present more flexibility with regard to the boundaries of subjects and the nature of objects. The removal of the crowdsourcing function from FireReady and a shift toward data mining tools may suggest more exclusion of

citizens as active content-generators, while citizens remain as passive sources of data.

6.3.3. *Floods in Queensland: 2010-2012.*

In December 2010 Queensland experienced floods that left 38 people dead and led to massive evacuations. A focus on this specific emergency allows us to explore the role of digital tools in subject-object relationships within a context of other tools, including those supported by traditional institutions and citizen-driven initiatives. This section covers a range of tools, including social media platforms, crowdsourcing platforms and dedicated platforms that have been deployed by emergency agencies, NGOs and unaffiliated volunteers.

According to AUSGOVAF4, from the Service for Emergency Situations (SES) in Queensland, while SMS messages were used to alert the general population, most communication with SES-affiliated volunteers relied on phone calls (AUSGOVAF4). A number of interviewees (AUSGOV3, AUSGOVAF4, AUSIND1) referred to the QLD police as the most successful case of using social media in a case of emergency, which triggered innovation among other agencies in Australia. A social media manager for QLD police (AUSGOVAF5) argued that the police media department had a low level of restriction by bureaucratic rules, more freedom to innovate in real time, and was free to share information immediately: “We applied open data model to information and just pushed it all out, good or bad, whatever it was” (AUSGOVAF5). Police Facebook and Twitter accounts were used for live-streaming from remote locations and sharing recordings of speakers from police stations, relying on Sound Cloud. According to AUSGOVAF5, the main purpose of the Facebook and Twitter accounts was sharing information with “different audiences at once”, including citizens, media and other emergency services. AUSGOVAF5 provided an illustration of the complexity of information streams around social media accounts:

My favourite story is a tiny human story, and it's the little old lady who lived in central Queensland and was cut off from everything except for her home landline phone. And she would ring her daughter, and her daughter lived in Brussels. Her daughter would look at our Facebook page and tell her what was going on. (AUSGOVAF5)

According to AUSGOVAF5, some members of the police were also receiving information from social media: “The police were out in the field during the floods. The communications were breaking down. They were told to look on the Facebook page to get their information”. AUSGOVAF5 also pointed out that people used the police Facebook account to report problems, e.g. no water in a town or “people getting stuck in houses”. AUSGOVAF5 highlights how, while the Queensland Police had a bad reputation because of

corruption issues, the openness of the QLD police on social media during the floods improved the image of his organization.

The Facebook was also actively used by Brisbane City Council. According to a social media manager at Brisbane council (AUSGOV3), their Facebook account was created in 2009. In January 2011, at the time of the floods, the main council website went down, and Facebook turned out to be the major channel for the proliferation of messages. That said, AUSGOV3 underlines that Facebook was used for two-way communication: “We use it as a situational awareness tool, so although we are sharing information with residents and media, it’s equally as important the information we get back” (AUSGOV3). According to AUSGOV3, the role of Facebook differs depending on the phase of the emergency:

In the early phases of a disaster we might be pushing out information. The public, however, often move really quickly to a recovery phase and they want to offer services and help, and so social media allows us to have that connection back and forward, in conversation, and move through each of the stages and back to a previous stage, and forward. (AUSGOV3)

Facebook was also used as a channel for submitting specific requests about people in the disaster zone, including concerns about relatives: “We would put that out through our channels to the police and SES, and they would come back and say, yes, she’s on the evacuation list, you can let the person know, and we could go back through Facebook” (AUSGOV3). AUSGOV3 underlines that information from social media was sent to the Local Disaster Coordination Centre: “Every hour we will send back what we call a hot topics list, saying, these are the top five or the top ten issues on social media for the last hour” (AUSGOV3).

In addition to the official Facebook page of Brisbane City Council, the social media manager also created a Brisbane Floods Volunteer Community:

We created a Brisbane Volunteering Group on Facebook. We actually promoted the group from our main Facebook page, and they self-managed a lot of the organization, around who they would help and where they would go, so that’s how we managed it... This group was kind of a side group, to let people chat amongst themselves. (AUSGOV3)

AUSGOV3 underlined that, while the group was initiated by the council, the council removed itself from the group “once it started to have a life of its own”. She describes how the group was used for offering food, clothing, beds for people and shelter for animals when citizen-to-citizen aid could not be facilitated by the council:

As a council we could not endorse that because it then becomes our liability, so what we did was we shared the information, but we needed to have that separation from... we needed to make sure that we weren’t seen to be endorsing. (AUSGOV3)

That said, the council engaged people in recovery efforts through Twitter:

We were also getting all of this traffic from people who want to help, so the first thing we did was we created a hashtag called BNCleanup. Anything that went out from us about any kind of volunteering or helping with anything that was going on, the hashtag would be #BNCleanup. (AUSGOV3)

AUSGOV3 highlights how “people who were speaking to each other were using that hashtag and making their own connections and their own groups”. According to AUSGOV3, by using the social media channel for volunteers’ engagement in recovery they were able to mobilize many citizens, as can be seen in the case of the so-called “Mud Army” – the name given to the volunteers who took a part in cleaning the streets following a request from local authorities (AUSGOV3).

According to a social media manager at Brisbane City Council, “the Queensland Floods really started out as the hashtag that we were using” (AUSGOV3). At the time of the floods the hashtags #qldfloodsmap and #qldfloods became a frequent element in disaster-related tweets (for more details, see Bruns et al., 2012). Queensland Police used a #mythbuster hashtag in order to reject misleading information and stop rumours. According to a senior official in the Victoria Government, the #mythbaser hashtag “got retweeted really far and wide, because the citizens are taking it on themselves to amplify that message to bust the myth and share the right thing” (AUSGOV1). A social media manager for QLD Police argues that Twitter also contributed to interoperability and “interagency communication was happening on Twitter” (AUSGOVAF5).

In addition, both QLD police and the City Council made efforts to develop a social media aggregation tool. AUSGOVAF5 says that, while the QLD police Facebook account was a “big megaphone” for sharing information from all the emergency agencies following the floods, QLD police launched a QLD Alert Page website, which aggregated information from all the agencies in Queensland. AUSGOV3 says that the council developed a Social Hub tool, which was pre-programmed with key hash tags, key terms and key accounts in order to aggregate different content in one place.

That said, some of the interviewees argued that the use of social media by the official agencies had a limited capacity to address needs in an emergency situation because of organizational issues and because of the limitations of the platforms (AUSIND2). One of the organizations that tried to address the challenge of integrating information from different sources was the Australian Broadcasting Corporation (ABC). ABC Radio, which is responsible for emergency coverage in Australia, launched a crowdsourcing platform, the QLD Flood Crisis Map, on January 7th 2011 (Potts et al., 2011).

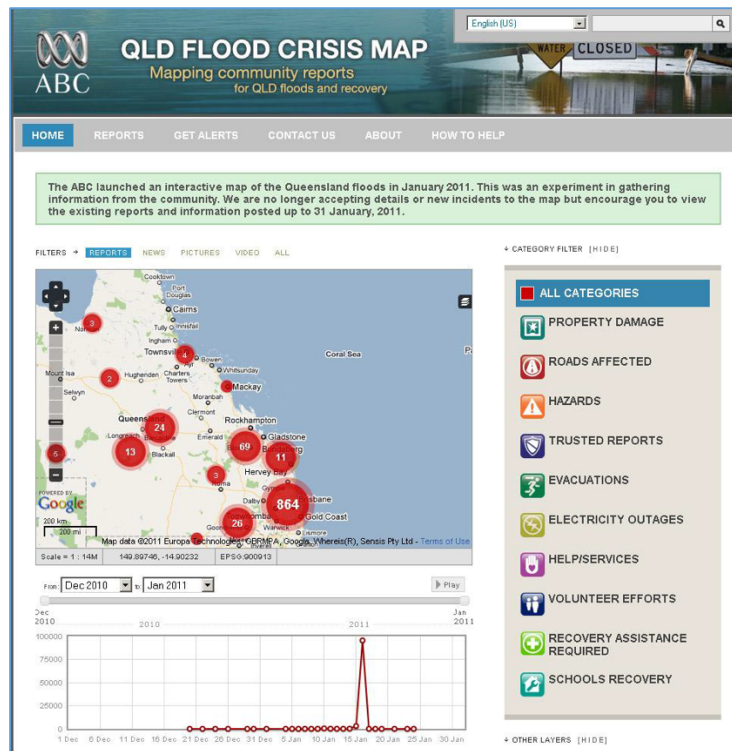


Figure 6.29: Front page of QLD Flood Crisis Map

The Map (Figure 6.29) emphasized that its information should not be approached as alerts:

The map includes both verified and unverified reports. Please note, this is an experiment in gathering information from the community. Do not base your travel or safety decisions solely on information from this map and note the time sensitivity of the information provided.³⁵

According to Ping Lo (AUSORG1a), a coordinator of the map from ABC, the purpose of engaging the public in the collection of information was the integration of user-generated reports with the official feeds from emergency agencies: “We wanted it to be a meeting place for all of that information, essentially be convening one online hub of information, but to give people an avenue to do things with” (AUSORG1a). Lo underlines that, unlike traditional broadcasting that provides general information, the map offered more specific information about locations for people who were concerned about their families and friends. As an illustration, Lo describes the following case:

Somebody used the map in exactly the sense in which it had been set up. They had been stuck in their home and then they had managed to get out. They wanted to let people know that this stretch of half a street wasn't accessible, but there were also some people stuck inside and that no one was talking about it. (AUSORG1a)

According to Lo, while social media allow a “different depth and breadth of prospects and possibilities”, that also requires reconsideration of the duties of ABC: “I just feel like the possibilities are suddenly so much broader, that maybe the definition of what a

³⁵ <http://www.abc.net.au/technology/articles/2011/01/13/3112261.htm>

broadcaster should do on air needs to be reworked for online” (AUSORG1a). That said, Lo underlines that the challenge of user-generated content is verification: “people have potentially the most up-to-date information, but without a safety net” (AUSORG1a).

An effort to address the limitations of the agencies was also made by the Volunteering Queensland NGO, which created Emergency Volunteering, an online platform for the management of volunteers (see Figure 6.30, below; <http://www.emergencyvolunteering.com.au>).³⁶

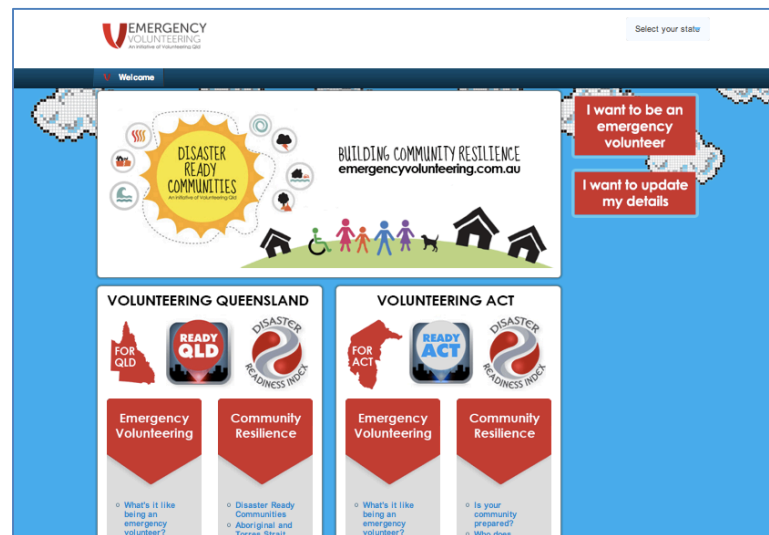


Figure 6.30: Front page of Emergency Volunteering portal

In order to join a community of volunteers, users need to fill in an online survey. The statement on the website says:

We operate year-round, taking offers of volunteer assistance from everyday Queenslanders, registering and linking them to natural disaster response agencies when help is needed... When you register for EV CREW, you will enter information which determines what kind of volunteer role you are linked to.³⁷

According to the website, “When disaster strikes, the EV CREW admin team moves into action, registering spontaneous offers of assistance and taking requests for help from organizations and disaster response agencies”.³⁸ In this case the purpose and opportunities for engagement are defined by “disaster response agencies”, while the portal is a mediator between potential volunteers and the needs of traditional responders. There is no transparency around when or for what purpose volunteers are mobilized. A social media manager for Brisbane City council pointed out that Emergency Volunteering platforms provided an outsourcing service for the management of volunteers:

³⁶ The managers of the platform refused to be interviewed for this research.

³⁷ <http://www.emergencyvolunteering.com.au>

³⁸ Ibid.

If we have an overflow of people asking to volunteer, we can't manage that resource... We can't really coordinate that, because we're focused on coordinating getting the city back up and running, and so we would actually refer them to some of these other organizations. (AUSGOV3)

That said, the platform was criticized for its top-down management of volunteers. One of the activists during the floods criticized Emergency Volunteering for being a hierarchical organization that used volunteers according to their own agenda:

Log on to this place and they'll send you somewhere. That's what it's designed to do. It's designed to allow people to register their interests, to be able to be crowdsourced as necessary to whatever they're running or managing. It doesn't allow for a volunteer group over there who have seen a need and who have gone... let's fill this need right now. (AUSIND4)

According to some of the interviews, the Emergency Volunteering portal was overloaded with requests from volunteers at the time of the floods:

They [Volunteering Queensland] were inundated also, so they couldn't manage the amount of people that were coming through... Their system went down and people couldn't upload their details. (AUSGOV3)

So far, the data around the role of digital tools in response to the floods in Brisbane highlights two particular challenges: information aggregation and the management of unaffiliated volunteers. In the case of ABC, while as an external organization it was able to overcome some organizational barriers to the integration of information from agencies and from citizens, as a traditional broadcaster it was still restricted by some boundaries. In the case of Emergency Volunteering, the platform was overloaded with volunteers who wanted to take a part in emergency response. The platforms that are not restricted either by institutional boundaries or by the limitations of the existing social media platforms are those developed by citizens. The floods in Queensland in 2010-2011 are associated with two citizen-driven independent platforms: QLDfloods and FloodAid.

QLDfloods.org was initiated in January 2011 by a programmer, Tim Miller (AUSIND4), and a group of Drupal developers. Miller argues that the need for a platform was triggered by the lack of capacity of traditional organizations to suggest appropriate digital solutions that met the needs of Internet users:

What we've seen is a massive community outpouring and uprising. We want to be involved, we want to help, we want to be part of this, because it's our community. And there's no fire station, there's no SES, there's no place for them to actually... there's no platform that's flexible and desirable enough to be modified to suit the scenario to enable it. (AUSIND4)

The first purpose of QLDfloods was to create a hub of information:

Initially the website was there to be a central hub for anybody to be able to locate the information they needed across all of the different scenarios, whether it was power, telephone, Internet, emergency access, roads being cut, flood levels, warnings, news briefs... All other sites had information, but no one ever

pointed to anybody else, or if they did it was hard to find. (AUSIND4)

In addition, the website presented a tool for finding places to stay for people who were displaced by the disaster. According to Miller the idea of developing an Open Beds tool (see Figure 6.31, below) was a response to efforts on Facebook: “Facebook is just the wrong place to try and do a bed-matching service, because it’s all just kind of scroll, without a site. There’s no matching capability, no database” (AUSIND4).

Figure 6.31: Page of Open Beds tool

Miller concludes: “The primary function then became the open bed matching service. That was what got us in the news, simply because no one else was doing that” (AUSIND4).

The second platform, FloodAid, was developed by volunteers and launched on January 13th 2011. Adam Penberthy (AUSIND5), one of the founders of the platform, describes the challenges that have driven the development of the website:

It was a whole heap of different things. People needing beds. People needing to remove furniture, water-damaged furniture from their houses. People needing to get someone like an electrician to come around and check the power points because there were houses where the water was up to the roof and so forth... (AUSIND5)

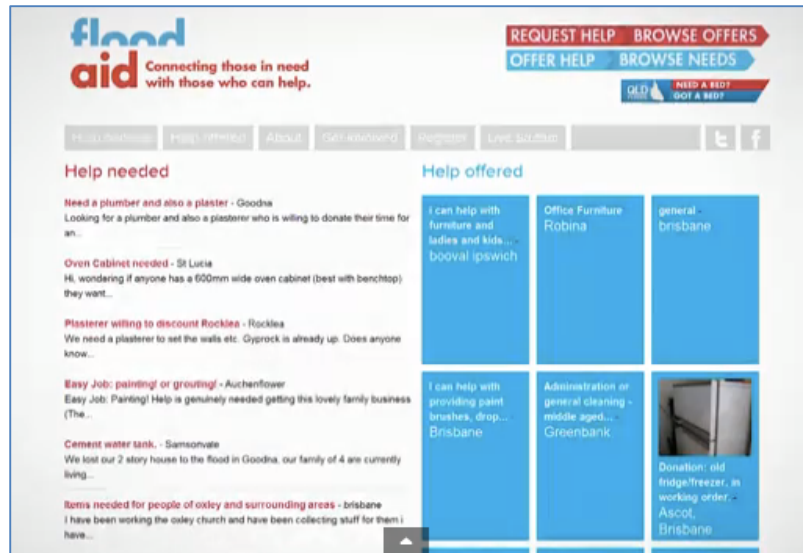


Figure 6.32: Front page of FloodAid

The platform declared its purpose as “Connecting those in need with those who can help” (Figure 6.32). It classified all information according to the categories of Help Needed and Help Offered. Penberthy describes the platform as a search engine for the efficient allocation of citizens’ resources:

If I could help, I could register and add in what skills I had. If I was a builder, if I was an electrician, if I had a trailer, if I had shovels and so forth... So then you would narrow down the search kind of parameters... if your house was affected by the water, people that had a skillset that you were looking for would see your job, essentially. (AUSIND5)

In addition, according to Kaplen, FloodAid sought to solve a problem of unequal distribution of resources and over-attention to specific problem resulting from a focus on a specific location: “The other big thing was traffic management because the Mayor at the time of the floods would direct people and at press conferences he would say, we are doing sandbagging at this suburb...” (AUSIND6). Kaplen argues that the coordination tool sought to be a link between the problem and the proximal resources able to resolve it (AUSIND6).

The platform allowed the mobilization of people with particular skills and the sharing of goods needed by people in the zone of the emergency. The platform established a direct channel of communication between those wanting to help and those needing help. The requests and offers on FloodAid were visible to anyone. According to Miller from QLD Floods, FloodAid, as a part of the collaboration with the QLD Floods Open Beds tool, did not deal directly with finding locations for evacuation:

We talked to them [FloodAid]: you guys manage the volunteers, we’ll manage the bed management. And so we split, we didn’t need to duplicate that effort. (AUSIND4)

At the same time, according to a co-founder of FloodAid, Volunteering Queensland refused

an offer of help from his project: “They were taking requests, offers for help, down using pen and paper, and we had an online facility which could simply bring this together and we could help matching up” (AUSIND7). While QLDfloods and FloodAid developed a mode of collaboration, according to Kaplen, the two projects had conceptual differences:

We had the same goals of connecting people that needed things with people that had things... We're a little bit more social and we just provided a platform for people to do what they wanted, where I think QLDfloods was, like, getting people in and then actually working with them. (AUSIND6)

In other words, while QLDfloods was focused on the facilitation of resource allocation, relying on the creation of a database of citizens' resources, FloodAid was more open about the purpose of aid and focused on supporting horizontal communication. A co-founder of FloodAid suggested that it should become a long-term system for mapping citizen's resources and should be “lying dormant” and ready for activation (AUSIND6). The platform, however, was closed a few months after the floods.

6.4 Conclusion

The last three sections were dedicated to the investigation of the role of digital tools in Australia, allowing us to see that different digital tools construct the subject as a recipient of information, or as a sensor that can provide information, or as a partner that can take a part in response to an emergency. The tools support existing groups of responders, contribute to collaboration between various traditional responders, suggest various modes of relationship between traditional responders and volunteers, as well as giving rise to independent initiatives. The preliminary analysis of Australian data seems to suggest that the development of new platforms is associated with organizational limitations. While forms of engagement by institutional actors tend to be strictly limited in nature, external actors seek to overcome the limitations. That said, any organization is limited by institutional boundaries and hierarchical modes of management. Citizen-driven initiatives seem to present a broader range of objects, and apparently are more open to different constructions of subjects.

The comparison of the Russian and Australian cases allows us to identify both differences and similarities. In the case of Australia we can find diversity tools and an active process of innovation among state-affiliated agencies. Unlike in the case of Russia, where apparently state-affiliated actors are primarily focused on monitoring user-generated content and assessing of image risks, the Australian interviews introduce a variety of objects of activity associated with digital tools, including informing, alerting and engagement. Some observations from Australia may also suggest that the tools play a role in changing the

structure of emergency-related activity systems and specifically in expanding the boundaries of a community, including the engagement of Internet users. That said, the concerns about control over independent users can be seen in both national cases.

The conceptual framework (see Table 3.4, Chapter 3) highlights how understanding the differences in the role of tools in situations of emergency in Russia and Australia requires an exploration of the relationships and mutual perceptions between actors. The next chapter presents data concerning subject-to-subject relationships in Russia and Australia.

7. Disaster Response and Subject-to-Subject Relationships in Russia and Australia

7.1 Introduction

The second research question (RQ 2) is concerned with factors that can explain the difference in the role of digital tools for the constitution of the subject in different socio-political environments. RQ 2.1 suggests a specific focus on the factors that can contribute understanding the role of digital tools in the governance of others and in self-governance. The conceptual framework (see Figure 3.5) suggests that in order to respond to these questions, the discursive location offered to the subject through digital mediation needs to be analysed within the context of the relationships between different actors. These relationships are conceptualised as subject-to-subject relationships, which is reflected in RQ 2.2.

The theoretical chapter (Chapter 3) proposes that the analysis of subject-to-subject relationships needs to address three key Foucauldian concepts: objectification, division practices and games of truth. The notion of dividing practice highlights how not only the mutual perception of actors, but also the set of actors can differ in the light of difference in discursive boundaries between groups of subjects. The notion of governmentality suggests that the analysis needs to be focused on the relationship between state-affiliated responders and the digital crowd in context of an emergency situation, although other actors should be taken into consideration.

Accordingly, this chapter explores the mutual perception of actors and the discursive boundaries between actors, when the set of actors can differ in different cases. Section 7.2 presents data collected in Russia concerning the relationships between actors. In the light of dividing practices, the participation of the digital crowd in emergency response is primarily addressed as an independent form of volunteering. Section 7.3 presents the data collected in Australia. In the light of the existence of a strong institution of state-affiliated volunteering in Australia, the notion of volunteers is more linked to the state, while the role of the crowd is discussed separately. Section 7.4 compares subject-to subject relationships in Russia and in Australia.

7.2 Mapping the actors: the discursive boundaries between subjects

Prior to exploring how different subjects view one another, there is a need to explore who these subjects are. According to the conceptual framework, the dividing practices constitute the discursive boundaries of actors, which, relying on the activity model, can also be considered as various communities with different roles within emergency-related activity

systems (the association between groups of subjects and communities is discussed in Section 3.4). In other words, the discursive construction constitutes not only the relationships between groups of subjects, but also the range of such groups to be found in a specific context within a specific socio-political environment. Mapping of discursive boundaries is required in order to explain the difference in presentation of data from Russia and Australia, as well to as to develop a structure for this chapter.

A number of interviewees highlighted the fact that the Russian words *dobrovoletz/zy* (a word with Russian origins which means “having a free will”) and *volontyor(y)* (a word with Latin origins) are used to refer to two different types of group, although these words are generally considered as synonyms and often used interchangeably. For instance, a former spokesperson for the Ministry of Emergency Situations in the Moscow region said:

Dobrovoletz is a person who is taken into account. He is registered according to the law. Volontyor... it's like, I will go and be a volunteer. The person can be whoever he is – a doctor, a policeman. But dobrovoletz is not like that – he will do it only following orders. (RUGOV6a)

The social media manager at MCHS also distinguishes between volunteers and dobrovoletzy, according to the degree of control of the emergency organizations over the group of responders:

Dobrovoltzy are certified people with a small degree of authority to fight the fires and conduct some rescue works. We can see the register of dobrovoltzy. We can give them equipment. In the case of volunteers, we are not responsible for them. But as a private person I don't mind the difference between volunteers and dobrovoltzy. (RUGOV5)

That said, some of the emergency professionals describe volontyory and dobrovoltzy as two competing groups. For instance, RUGOV5 describes the emergency response to floods in Krymsk as a failure of a “dobrovoltzy-based system” where the emergency response was dominated by the “colossal movement of volunteers” (RUGOV5):

We could mobilize our dobrovoltzy in Krymsk in order to use them for management of volunteers. However, there were no dobrovoltzy in Krymsk. No one knows where they were. (RUGOV5)

Relying on the data from interviews, one can see the discursive boundaries between a group of *volontyory* (a group with no affiliation with an official emergency organization) and *dobrovoltzy* (a state-backed group) as one between “them” and “us”.

An additional aspect of boundaries is highlighted by RUIND13, a member of a firefighter brigade and emergency-related activist, who differentiates between the “system volunteers” affiliated with traditional emergency response institutions, and “non-system volunteers”, groups of citizens who self-organize to respond to emergencies. According to RUIND13, the division between system and non-system volunteers exists only in Russia,

while in other countries volunteers who arrive in a zone of emergency, whether independently or as part of any group, then act in accordance with the guidance of local authorities. RUIND13 suggests that the Dobrovoletz.rf project was triggered by a fear of non-system volunteers as actor who could not be controlled, as well as by concerns that non-system volunteers might be more efficient than traditional organizations.

The analysis of data also seems to suggest some degree of opposition between communities affected by an emergency and volunteers. The affected communities are considered as more local and passive actors, while volunteers are approached as an external, active force coming from outside. This division is significant specifically when a disaster happens in a rural area and volunteers come from big cities. However, there are also examples of collaboration between external volunteers and local communities. Accordingly, we can differentiate between the general crowd, and volunteers as an active group coming from outside. Volunteers are also more associated with online technologies, while local communities and the general crowd are approached more as offline entities.

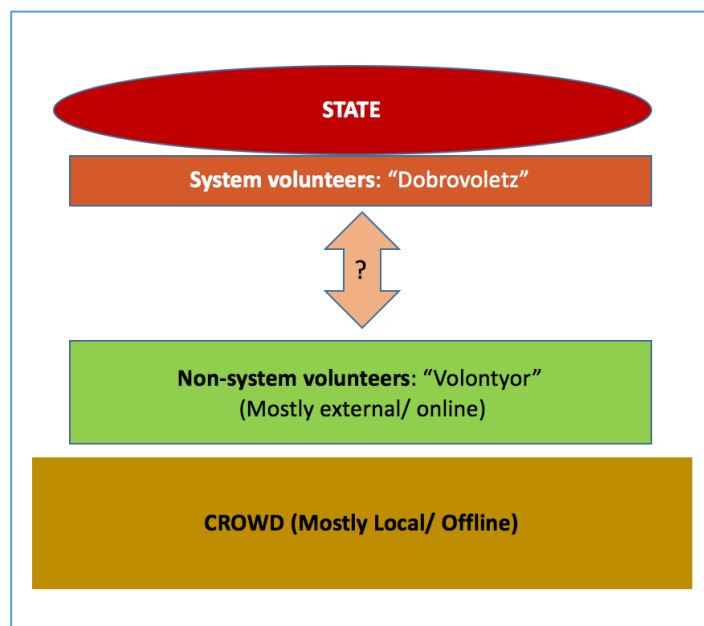


Figure 7.1: Mapping of actors in Russian emergency response system

The division between “system” and “non-system” volunteers, as well as between “local crowd” and “external volunteers”, is a form of generalization that seeks to establish the dividing lines between subjects in order to explore the relationships between them. Figure 7.1, above, illustrates the major actors to be found in the Russian case on the basis of the preliminary analysis of discursive boundaries. The figure also highlights the apparent degree of polarization between “system” and “non-system” actors.

The role of intermediaries seeking to enhance collaboration between different actors

also highlights the boundaries between groups of subjects, while the need for mediation suggests the existence of different groups. Mediators may come from groups on both sides to be addressed by the mediation (e.g. system-affiliated or non-system mediators), or from a third body. In the case of Russia, some of the interviewees referred to their role as mediators between formal institutions and volunteers. According to RUGOV1, an “official blogger” for MCHS, she often gets calls from organizations like Liza Alert with a request for help to find a missing person. RUGOV1 makes an effort to convince her colleagues at MCHS that the requests are reliable. According to RUGOV1, she has a dual role. She is an “MCHS ambassador to the Internet”, and the representative of volunteers in MCHS. Kuksin, from Greenpeace, points out that his organization also plays the role of an intermediary, since formal state-affiliated organizations do not know how to manage a dialogue with informal structures like volunteer groups. According to Kuksin, his organization is located “in between civic society, which needs to be told about what’s happening, and the state, which needs to see that the society knows about what’s happening, and that it’s ready to help” (RUORG6).

The boundaries between groups of subjects in the case of Australia are different as a result of a number of factors, including the structure of the emergency response system, as well as a tradition of volunteering. The major types of actor include state-affiliated bodies (agencies and local authorities), traditional volunteers’ organizations (including those affiliated with agencies, independent groups and community-based groups), local communities linked to a specific geographical location, and the general crowd, including potential spontaneous volunteers.

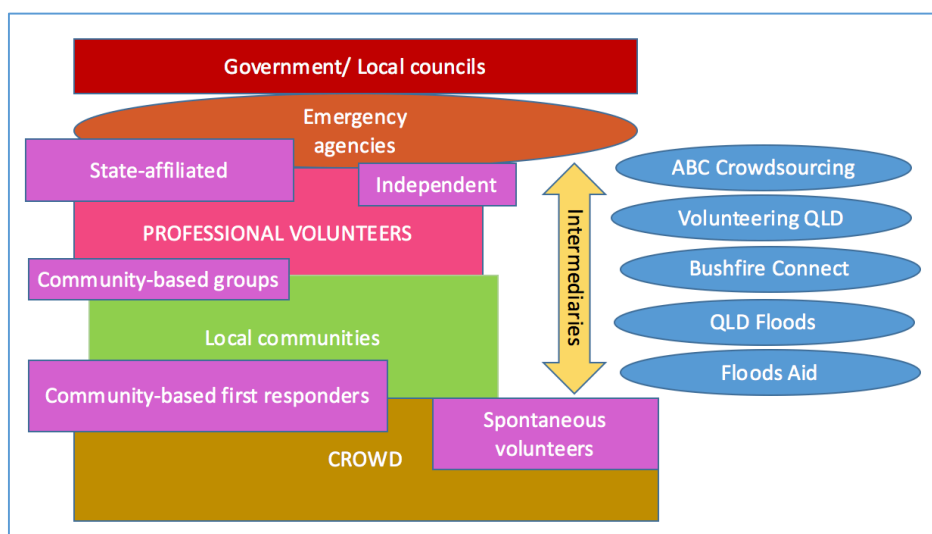


Figure 7.2: Mapping of actors in the Australian emergency response system

While in the case of Russia the boundaries rely on classifying subjects as either “system” or “non-system”, in the case of Australia the discursive boundaries rely mostly on

differentiating between permanent volunteering (those linked to an organizational structure or/and specific location) and spontaneous volunteering (with no clear organizational or geographical affiliation). In the case of Australia, the discursive boundaries are not binary in nature, focused on affiliation or non-affiliation with the state. As indicated by Figure 7.2, above, groups of subjects in Australia are apparently more interrelated than in the Russian case, with professional volunteers having links to both agencies and communities

The position of intermediaries in the case of Australia also highlights the difference in discursive boundaries between subjects. Most of the intermediaries are located between agencies/ local authorities and general crowd/ spontaneous volunteers. Institutional intermediaries can be seen in cases where an agency or authority has a dedicated social media manager (e.g. in the case of the CFA, the QLD police, the NSW police or Brisbane City Council). That said, according to AUSGOV3, the management of spontaneous volunteers can be outsourced to external organizations: “We would normally refer people to a volunteering organization that can manage that kind of swell of support from the public... because the council on its own can’t possibly do everything” (AUSGOV3). In the case of the floods in Queensland the role of intermediary was played by an NGO, Volunteering Queensland. A senior manager from SES Queensland says: “Volunteering Queensland, we've got an agreement with them that sort of says, well, if there's a large number of spontaneous volunteers, you will co-ordinate, grab them, and merge that” (AUSGOVAF4).

The role of intermediary can also be played by the digital platforms associated with different actors. For instance, crowdsourcing deployments relying on Ushahidi and providing data to a broad audience were launched both by organizational actors (ABC Floods Map) and by an independent group of volunteers (Bushfire Connect). QLD Floods and FloodAid addressed mostly spontaneous volunteers, although they also looked to contribute to collaboration between agencies and spontaneous responders. In some cases, the role of intermediary between agencies and the crowd can be played by community leaders. For instance, the Police of New South Wales supports the development of a Local Area Command (LAC) relying on trusted members of local communities. Every command has its own Facebook group. In this case the existence of intermediaries highlights the existence of both “agencies” and “communities”. There are also liaison officers in the police who connect with organizations of volunteers, e.g. SAR organizations.

The preliminary analysis seems to suggest that intermediaries may be both top-down (intermediaries linked to institutions and permanent organizations) and bottom-up in nature (spontaneous intermediaries). That said, the discussion below explores whether an

intermediary emerging as part of a spontaneous response can be considered as a distinguished actor.

7.3 Subject-to-subject relationships in Russia

7.3.1. The discourse of the crowd in Russia

According to RUORG4, developer of a mobile application for the Russian MCHS, he offered to make the MCHS app address two different audiences: “The general population should receive a message: ‘Take your valuable belongings and run!’. The volunteers: ‘let’s go and save people’s lives’” (RUORG4). The final version of the app addressed only the general population. That said, the concept of the general crowd as a distinguished actor can be seen in the analysis of the interviews with Russian state officials and with volunteers.

According to Baskakova, a coordinator of volunteers, the rural population does not understand that you “cannot just lie and drink your tea, but you should resolve your own problems” (RUIND1). According to RUIND1, the situation where people wait for someone to solve their problems is a “remainder of the socialist heritage, when every bottom-up initiative was strangled and killed”. In addition, according to RUIND1, in a rural area there is a high degree of conformism and people are condemned for doing anything different, while those in urban areas feel less social pressure and have more freedom to be active.

Burtzev also highlights the passivity of local people. He says that while volunteers were conducting recovery works following floods in Krymsk, the “local guys” continued with their everyday lives, while observing the activity of volunteers (RUIND14). Baskakova, however, highlights that in some cases of real danger local citizens in villages defended their homes from fires and were open to collaborating with volunteers who came from outside (RUIND1). That said, the volunteers emphasize that local people in rural areas have an ambivalent approach to volunteers who come to help, seeing them not only as a source of help, but also as “aliens” coming from outside.

The interviewees highlight the passivity not only of the local population in the areas of disasters, but also of the general population. RUIND2, head of a group of firefighting volunteers, says that people tend to follow emergency situations, but not to engage in response, since they do not believe in the ability of ordinary people to effect change (RUIND2). According to Voronitzyna (RUIND4), people tend to remain passive, particularly when an emergency situation is far away from them. She argues that the reason why people responded to the floods in Krymsk was political: “In the case of Krymsk, people suspected

that the flow of water was caused by the decision to open the dam. That made people angry and triggered them to act” (RUIND4).

This sceptical view of the general population is shared by members of the authorities. RUGOV4, from MCHS, says: “Our people are like a wood. They are not interested in anything. They only want to find someone to blame”. She highlights as the major challenge not how to engage the crowd, but how to educate the crowd to behave properly in emergency situations (RUGOV4). RUGOV2 also highlights the ways in which Russian people, as members of a traditional society, constantly show suspicion and lack of satisfaction, while at the same time trying to use emergencies for their own financial benefit (RUGOV2).

RUGOV3, a former social media manager in MCHS, highlights the main problem as the fact that “in crisis situations people don’t report problems that require a solution.” According to RUGOV3, most of the requests from citizens are of a general nature, like “everything has to be changed” or “someone needs to be fired”. According to RUGOV4, the problem with the general public is a lack of patriotism, which makes Russian citizens different from people in other countries who “love their firefighters for what they do” (RUGOV4). To sum up, both the state-affiliated interviewees and those associated with volunteers highlight the general passivity of people in the disaster zones, as well as of citizens in general.

7.3.2 *The discourse of volunteers in Russia*

This section presents how volunteers with no institutional affiliation view themselves in a context of emergency, and how they are viewed by other actors. One of the coordinators of the volunteer-based response to the wildfires in 2010, blogger Igor Chersky, describes the community of his blog-readers as being typical of a community of volunteers: “These are active members of society, clever, with humour and cars, who said: let’s help” (RUIND9). According to Chersky, volunteers are prosperous and responsible members of society belonging primarily to the middle class (RUIND9).

RUGOV4, from MCHS, highlights the ambivalent nature of independent volunteers: “It’s good that the volunteers came to help, but it was an unorganized crowd”. In her view it would be better if volunteers registered with state-affiliated organizations. RUGOVAF2, a member of an official state-affiliated SAR team from the Moscow region who also took part in the response to the floods in Krymsk, describes the volunteers as “people who can abandon their mission at any minute, and lack discipline” (RUGOVAF2). A representative of the MCHS (RUGOV4) argues that in the case of the response to the Krymsk floods only ten

percent of independent volunteers were able to work, while the rest were “either shocked emotionally by what they saw and became sick, or got drunk”. According to her, eventually professional rescuers had to rescue the unofficial volunteers.

RUGOVAF2 criticized volunteers’ participation in searches for missing people: “They [volunteers] might have a lot of technologies, but they don’t know how to use them effectively”. Moreover, according to RUGOVAF2, the presence of volunteers creates an additional burden for professional rescuers: “They arrive at the coordination centre and say ‘give me food five times per day, give me clothes, and then tell me what should I do’. In the end, they complain that they haven’t received food.” RUGOVAF2 underlines the need for an organization to coordinate non-professional human forces: “Let them be, but they need to be organized and supervised”. He also argues that volunteers are not required in his work:

We have enough resources to do our job. If someone thinks that we don’t do our job, let them call on volunteers. But then they should not ask us to supervise them in a time of emergency, when we don’t have time to look after these people. (RUGOVAF2)

RUGOV3, from MCHS, also stresses that there is no need for volunteers.

The head of an official Russian volunteer organization criticized the Russian online volunteer SAR initiative Liza Alert for lack of professionalism:

So ten to 15 volunteers will arrive and go to a forest. Then the professional rescuers with dogs will say that the dog is not able to work because the volunteers have been conducting the search in an unprofessional way. (RUGOVAF1)

RUGOVAF1 concludes: “I don’t want to offend these people and hurt their feelings, but a yard-keeper cannot work in an operating room and carry out surgery even if he wants to”.

RUIND13, a professional firefighter and activist, argues that volunteers often tend to ignore common rules of behaviour in disaster zones. In addition, RUIND13 suggests that the involvement of volunteers could lead to a wrong allocation of humanitarian aid:

They take selfies and shout about how everything around them is bad and they need help, without understanding the general picture. That might lead to resources being sent to their area, while this help is more needed in other places. (RUIND13)

Some of the interviewees argue that volunteers can be engaged only around limited tasks that do not require training and skills: “They can manage information support, giving out leaflets, talking to people” (RUGOVAF1). RUGOVAF2 highlights the fact that volunteers are particularly useful for performing simple tasks that do not require prior knowledge (e.g. moving sandbags) under the supervision of professionals. However, a coordinator of volunteers during the wildfires in 2010, Baskakova (RUIND1), argues that traditional responders misuse volunteers’ resources. Baskakova tells a story about volunteers

being given cleaning jobs inside the official responders' camp. Baskakova concludes that "the state needs 'comfortable volunteers' who can be put in uniform and given a task to distribute leaflets, but not volunteers who want to do some specific things and don't want to do other things" (RUIND1). In contrast, volunteers describe themselves as a group with better equipment, higher motivation and a learning curve that allows a rapid increase in their degree of professionalism (RUIND12a). Non-state volunteers tend to emphasize their advantages compared with the lack of professionalism of state agencies, and the way they surprise traditional responders with their skills.

A topic also raised by interviewees was the nature of volunteers' motivation to take part in emergency response. According to Leites from Extremum, volunteers are often viewed as people looking for profit: "The favourite question of all official rescuers is why we do it if we don't earn money" (RUIND11). Some of the interviewees argue that volunteers are driven by boredom. For instance, RUGOVAF2 says that some people come to be volunteers just because they want to make new friends: "They just have nothing to do, so they go back and forth". RUGOVAF1 suggests the term "PR-volunteer" to describe people who are willing to use emergency situations to promote themselves. According to RUGOVAF1, "People love to be involved in an emergency situation" because they get a lot of positive feedback on social networks for what they do. He argues that this image-driven motivation can also be associated with political goals:

Once something happens, some kinds of civic activists come to the area, start posting photos on Facebook: 'we are in the ruins, we are with an old lady, we are there'... They collect political points from this. They get more followers and use the emergency to expand their audience. (RUGOVAF1)

A number of the interviewees from state-affiliated organizations describe volunteers as uncontrolled, alien and hostile. According to RUGOV5, a representative of MCHS, "some of our [MCHS] people are afraid of volunteers". She argues that this feeling is particularly strong in the light of the fact that most MCHS staff are "military people that do things strictly according to the rules" within a system of hierarchy and orders. The hostility to volunteers is linked to their role as generators of content on social media that criticizes the emergency services and specifically MCHS. A former representative of MCHS says:

In 2011 we haven't had fires, but we had a lot of negative information on the Internet... Perhaps it was retaliation, but they didn't give MCHS a rest, at least in the Moscow region. (RUGOV6a)

RUGOV6a argues that volunteers associated with Greenpeace are driven by an ideology which requires them to attack the authorities: "They find fires somewhere and then they argue that MCHS is failing". RUGOV6a says that the firefighting activity of Greenpeace

is a fake in order to send a message that the emergency services does not do enough. RUGOV3 accused the Greenpeace Forest Forum of intentionally proliferating false information: “We understand that they publish negative information about us because they have been paid for it and in order to demonstrate that they are doing something”. RUGOV3 underlines that some bloggers are also driven by financial motives and MCHS had to pay them if they wanted them to raise specific issue.

RUGOV6a, from MCHS, discusses the relationship between volunteers and traditional organizations at the time of the floods in south Russia in 2012 in terms of a struggle that was lost by emergency services: “In Krymsk volunteers won, from the informational point of view.” RUGOV6a argues that the emergency services have “casualties” in the information conflict with volunteers. For instance, one official lost his job as a result of the activity of the Liza Alert SAR group: “If volunteers found missing people, that means that MCHS was useless. Someone had to pay a price for this” (RUGOV6a). RUGOVAF2 complains that the media tend to favour unofficial volunteers. RUGOV1 underlines how approaching volunteers as an image threat can be associated with the institutional structure of the emergency services, where any Internet-related issues are considered the responsibility of the media department. She points out that social media monitoring is focused on identifying either positive or negative content, and accordingly any issue that comes from social media, including reports about volunteers, is approached as a PR problem, not an operational issue.

Some of the interviewees went beyond portraying volunteers as producers of negative information. RUGOV6a argues that volunteers set fires in order to claim that the emergency services were not doing enough and to attract media attention. RUGOVAF1 blames volunteers for a lack of collaboration with official responders: “It is their life position – to deny everyone and everything. According to their view, any state system, any official institution is bad by definition.” A similar point is raised by a senior advisor from MCHS: “We are happy for volunteers who are not interested in blaming us, but open for collaboration, but there are no people like that” (RUGOV4). At the same time. RUGOV4 admits that opportunities for collaboration are limited because of the bureaucratic structure of the ministry.

A social media advisor for a high-ranking Russian official (RUGOV2) points out that one of the challenges to collaboration is that NGOs and volunteers’ organizations define as their initial goal “to demonstrate that the state doesn’t do anything, and we [volunteers/ NGOs] are the only ones who can save the country”. However, RUGOV2 argues that she

explains to high-ranking officials that “all these Internet-based structures and organizations are not necessary enemies looking only to blacken their reputation”. According to RUGOV2, “there are people [volunteers/NGOs] who understand that they are doing something to help people, and not in order to look cool”, which can potentially allow collaboration.

7.3.3 *The perception of the state by volunteers*

This section discusses the discourse around state-affiliated responders. According to blogger Chersky (RUIND9), at the time of the wildfires he was surprised by the lack of equipment among professional responders, while not the victims of fires but the firefighters needed urgent help. Chersky describes the emergency services as a failing institution that does not have the required resources to fulfil its purpose. He also links the lack of equipment to corruption within the emergency services. According to Chersky, high-ranking officials concealed the problem with the equipment: “As the state’s people, they are afraid of publicity, which can lead to unpredictable consequences” (RUIND9). Shlyapnikov argues that state responders were also not able to understand the real needs of victims, and were giving TVs and refrigerators, while victims needed underwear and toilet paper (RUIND10).

According to Chersky the collapse of the state’s emergency response system is illustrated by the fact that one of the sources of information about the wildfires in 2010 was church clerics surveying the forest from the tops of belfries: “That’s a total nonsense if we get information from bell-ringers and not from MCHS” (RUIND9). According to Kuksin from Greenpeace, the emergency services do not have enough people and technology to identify and respond to peat fires on a big territory (RUORG6). According to Levin, nature reserves are beyond the state’s control: “Whatever happens in the area of Ladoga Lake is addressed only by volunteers” (RUIND2). Levin argues that state responders also lack professional skills:

If we allow MCHS people to take a part in our response to fires, we give them some simple tasks, since they don’t know how to do anything... I am not speaking about a problem with their motivation, but we also had to teach them everything from zero. (RUIND2)

According to Levin, since the state firefighting system was moved under the organizational responsibility of MCHS “everything was stolen and all the professional people were fired” (RUIND2). He argues that since “the state’s structures are absolutely helpless, it is more important that volunteers are not used as a workforce, but direct the process” (RUIND2). Volunteers from Liza Alert underline that often traditional responders do not have enough resources, skills or technology to find people (RUIND12a).

According to Kuksin, the state is mostly interested in concealing information about fires in order to avoid dealing with the problem, while Greenpeace challenges the capacity of the authorities to conceal information: “If they lie, they know, that we know that they lie”, says Kuksin (RUORG6). According to him, once the authorities starting lying about the real scale of fires, it is “very painful from them to stop lying”. At the same time, Kuksin says that the relationship of MCHS and Greenpeace has shifted the scale of misleading: “They know that we control them, and we know as a result that they don’t lie too much” (RUORG6).

According to Levin the major motivation of state officials is protecting their jobs, and in some cases volunteers are asked to present their activity as an activity of the emergency services (RUIND2). Levin argues that the emergency services are an example of the unaccountability of Russian state institutions:

In our country state officials are never responsible for whatever they do. They are only responsible for how they speak. Accordingly, even if this governor lost half of his region in a fire... So what! The most important thing is that he has beautiful reports. He will start having problems if he admits that he has a problem. Therefore, when cities are burning, local governors say that it’s a small fire, there is no need for help and evacuation, and everything is good. (RUIND2)

According to Levin, in this light collaboration with volunteers is dangerous since volunteers are “potential eye-witnesses” who can provide first-hand information about the real scale of a disaster (RUIND2). According to Baskakova, a volunteer coordinator, state-affiliated officials create a network of “fake bloggers” in order to glorify official responders and proliferate negative information about independent volunteers (RUIND1).

Some interviewees argued that state-affiliated actors made special efforts to restrict volunteers and prevent their participation in response to emergencies. According to Shlyapnikov, after a few days of volunteers providing help to traditional responders and victims, the state officials ordered any help from volunteers to be blocked (RUIND10). According to Kuksin, in order to prevent local collaboration with volunteers, MCHS told the regional authorities about malicious “foreign agents” who were sent to carry out arson in their region, and demanded that Greenpeace cars be stopped (RUORG6). Popova argues that during the floods in Krymsk in 2012 there was no coordination between officials and volunteers, and the situation worsened in the next emergency, the floods in the Dagestan region in October 2012:

In Derbent the local authorities told us that we needed to walk carefully on the streets since something could happen and we might not reach our destination. That happened after Krymsk volunteers started fulfilling a new function – control over how emergency response operation is managed. (RUIND5)

That said, according to Popova, in some cases the authorities first “didn’t like volunteers”, but then once they “realized that they cannot solve problems” engaged with them. (RUIND5)

A number of interviewees suggest that, while the official attitude of emergency response organization is hostile toward volunteers, there is more openness toward volunteers on the local level. According to Kuksin, the top-ranking officials never ask for help from volunteers, but requests can come from the local level: “We have never had a case when MCHS called us and asked for help. But we get requests from nature reserves that say they don’t know how to deal with a fire” (RUORG6). Levin tells a story about a forester who denied that there was a fire despite the smoke coming from his area, and rejected offers of help. However, a few days later, the same forester asked for help:

The forester didn’t want to make this information public, but once the fire was 300 metres from the houses, he called and urged us to help. That is a standard pattern for cooperation... They feel free to ask us, since they know that we won’t write anything to the general prosecution, and that we will try to protect them in case of investigation. (RUIND2)

Despite these specific experiences of cooperation, Levin is pessimistic about the abilities of the official emergency services to collaborate with volunteers:

There would be no integration; they don’t need it. Integration means noise, and more witnesses on the ground. On the state’s side no one will give real information to volunteers, because this information means that all these officials have to be sent to Siberia. (RUIND2)

Shlyapnikov (RUIND10), a leading coordinator of volunteers in response to the wildfires in 2010, argues that “local collaboration relied on mutual interest, despite the general policy that prohibited collaboration” (RUIND10). However, the collaboration could happen only if the high-ranking commanders did not know about it and information about collaboration was not leaked to the media. According to Shlyapnikov, in order to protect their image high-ranking officials from MCHS argued that everything was under control and there was no need for volunteers (RUIND10). At the same time, on the ground, responders from the emergency services leaked information about the scale of fires to volunteers: “We were able to establish contact and collaborate with those people who were in forests, but not with those who sat in offices” (RUIND10). All collaboration relied on personal offline interaction, with no use of the Internet, which was considered as a public platform. Aleshkovskiy, who took a part in response to the floods in the Amur area, also underlines that he had good cooperation with the local authorities: “We met the local Mayor and he could see that we were not dangerous” (RUIND6).

A group of activists from Krasnodar who took part in the response to the floods in Krymsk present a different view with regard to the role of state actors. The members of this

group say that their action was triggered by a member of the Russian Duma, Robert Shlegel, although they argue that this initiative had no political context. According to Burtzev, while the volunteers were able to respond immediately and realize the scale of what was happening in just a few hours, the state institutions were slow and it took them three or four days to respond (RUIND14). Some interviewees suggest that what happened when Mashkarin, a volunteer who came to Krymsk the day after the floods, created a coordination centre by placing a table on the street illustrates the absence of timely response from the authorities. Kononovich argues that the volunteers quickly “seized power” in the city (RUIND15). Mashkarin underlines that the advantage of volunteers was the speed of their response:

It was just a situation that no one was taking care of it. Once you have no one, you just do it. When later some experts told us ‘You did everything wrong’, we replied: ‘Yes, we do it wrong, but fast’.
(RUIND16)

Mashkarin suggests that his activities provided a timely solution to the lack of response by the emergency services: “I don’t think we did something in order to replace the state. We just filled small gaps, which the state wasn’t able to get into” (RUIND16).

Kononovich underlines that their activities were not in opposition to the state, but just an activity in order “to bridge the gap between the moment of the disaster and the moment when the administration took power back into its hands” (RUIND15).

Mashkarin explained that, while the provision of humanitarian aid by official responders is restricted by bureaucratic procedures, volunteers have more flexibility in the way they can help: “the state’s machine works according to norms of the food and medicine that need to be provided”, while the volunteers offered a personalized approach and focused on direct help to specific people (RUIND16). According to Mashkarin, the role of volunteers was supplementary to the role of the emergency organizations. The volunteers filled the delay in the first days of the disaster and supplemented the top-down approach to the fulfilment of humanitarian needs with direct assistance to the victims (RUIND16). All the members of the group from Krasnodar argued that the state-affiliated actors were open to cooperation. Burtzev highlights that the local authorities provided buses to take volunteers to the disaster zone (RUIND14). Mashkarin suggests that the absence of the state in the first days was not a failure, since the slow response was natural (RUIND16).

A head of the Extremum SAR group, Leites, who manages a unit of volunteer firefighters, also highlights that the state’s actors are not necessarily hostile towards volunteers:

The state is not a monolith; they understand that we help them and therefore they support us and don't try to put a spoke in our wheel. The regional officials think it's good that we help, but the structures on the level of the ministry and even the city's government have recently had a mania – they want to embed everyone into their system, to register everyone and put coordinators, although there is no need for this. (RUIND11)

Extremum makes efforts to send the message that volunteers have no intention of intervening in the area of responsibility of the official agencies: “We have to explain very carefully that we don't aim to replace them. Actually, often we indeed do replace them, but for them we need to frame it in the right way” (RUIND11).

A number of interviewees addressed the institutional properties of the emergency response services as a factor that prevents collaboration. RUIND5 and RUGOV5 highlight how collaboration with citizens is restricted because MCHS is a “military-based ministry”. RUIND5 also argues that the press office of MCHS refused to collaborate with her because that she said “bad things about MCHS” in the media (RUIND5). Potapov (RUORG8), CEO of Kosmosnimki.ru, a GIS satellite imagery company, points out the problem in a situation where the MCHS press office is responsible for all Internet-related projects:

I realized that there was no one there to collaborate with when we tried to integrate into their portal a map of fires. We didn't want anything from them, just to develop a new space to share this information. But the contact was managed solely via the press office and everything got stuck. (RUORG8)

RUGOV6a explains that the purpose of the media department is not collaboration with volunteers, but promotion of the ministry:

I work for the state, for the ministry. I don't care what they [volunteers/ bloggers] do, but it would be better if they wrote good things about us. It's not my problem if the volunteers are cleaning something up of fighting the fires. I just care what they write. (RUGOV6a)

RUGOV6a argues that collaboration with volunteers can lead to negative consequences, since the volunteers would not be satisfied with their role, and this would also lead to negative coverage of official responders (RUGOV6a). The preliminary analysis of these observations seems to suggest that there is a contradiction when the same officials are responsible for the ministry's image and for collaboration with volunteers through digital platforms.

A number of interviewees suggest that the challenge of collaboration between formal structures and informal volunteers is related to the general nature of governance in Russia. According to Voronitzyna, the state is not interested in volunteers' help, since its only interest is corruption: “The communication between volunteers and state will be possible only when a different type of people come to power” (RUIND4). According to RUIND3, a Help Map

moderator, lack of cooperation with volunteers is associated with the hierarchical and bureaucratic nature of the state system:

Relying on my experience as a public servant, I can say that you will need to get ten permissions before you do something. I don't think that the current state machine is capable of developing a mode of cooperation, though perhaps there are some opportunities on a local level. (RUIND3)

A co-founder of the Help Map, Sidorenko, suggests that the hierarchical approach is an intentional policy: “They [the state] try to fill up new spaces that were opened by the Internet and can be used for civic activity” (RUIND7)

7.3.4 State-affiliated volunteers

This section presents data about the attitude of independent volunteers to state-affiliated volunteers. Kuksin, from Greenpeace, describes the state-affiliated volunteers as a “non-working mechanism” and argues that he has never met state-affiliated volunteer firefighters on sites of real fires. He points out that the rules for the creation of state-affiliated volunteer firefighting brigades are so complicated that these are a “dead mechanism” that does not allow bottom-up self-organization (RUORG6). According to RUIND1, “Volunteers are a part of a general MCHS plan for firefighting”, but she suspects that “99% of these people exist only on paper”. RUIND1 describes a practice of massive fake registration in order to fill the minister’s requirement to have one million volunteers. An official representative of MCHS (RUGOV5) said she heard rumours that the many thousands of registered “official volunteers” were actually “dead souls”. The former spokesperson for MCHS in the Moscow region also admits that “according to the MCHS register there are 51,000 volunteers in the Moscow region, but no one has ever seen them”. (RUGOV6a).

According to Leites, collaboration with the authorities often means allowing Extremum to be used in order to create a facade of an active community of volunteers:

Thanks to us they can put “V” and say that they have volunteers. They are crazy about statistics and we give them good statistics about engagement of volunteers. If someone asks them “Where are your volunteers” they point to us.” (RUIND11)

Leites says that according to official documents there are thousands of volunteer firefighters in Saint Petersburg, although the real number is 27 Extremum members (RUIND11).

The most noteworthy organization of state-affiliated volunteers is RosSoyuzSpas, which was founded by former employees of the emergency services. RUGOV4, from MCHS, sees members of RosSoyuzSpas, a state-affiliated emergency response NGO, as also able to coordinate a general volunteering community and “transform an unorganized crowd of people that don’t understand important things into a professional community”. A senior

member of RosSoyuzSpas argued that what makes the difference between professional responders at RosSoyuzSpas and independent volunteers is the distance from politics:

We don't have any interest in politics. Those people who are involved in politics can do whatever they want, and do their political stuff while collecting points among the ruins, but that is not our story. We act according to the law. (RUGOVAF1)

RosSoyuzSpas took an active part in the response to the floods in the Amur region. The organization is also responsible for the management of the Dobrovoletz.rf platform. That said, independent volunteers expressed a sceptical attitude toward RosSoyuzSpas because of its affiliation with MCHS. Leites, a head of Extremum, told me that his organization had refused to join RosSoyuzSpas: “We said we have nothing against it, but we want to know what we need it for” (RUIND11). Some of the official interviewees share this scepticism about RosSoyuzSpas. RUGOV1 says that people who really want to become volunteers would not join RosSoyuzSpas, since “it is window-dressing”. Some of the interviewees argue that state-affiliated volunteering organizations are driven by interests in financial profit and provide paid security services.

Some of the interviewees view official volunteering and, in particular, the participation of Kremlin-sponsored youth movements in response to emergencies, as a performance for political purposes. According to Aleshkovskiy, the meaning of state-affiliated volunteering is that “people get money from the state to fulfil the state’s function [emergency response] with official flags and T-shirts” (RUIND6). He criticized in particular the head of the Union of Russian Volunteers for advancing the interests of the ruling party. Aleshkovskiy describes the role of the Union in response to the floods in Amur area in 2013: “Those are politicized activists that came there in order to glorify Putin” (RUIND6).

According to Sidorenko, the political “performance of volunteering” by Kremlin-backed youth movements in response to the wildfires in 2010 was followed by the development of “pseudo-volunteering movements” under the supervision of the authorities. He points out that that these movements seek “to fill the spaces that were opened by the Internet and could be used for self-organization” (RUIND7). Voronitzyna links the state-affiliated volunteers to the Law of Volunteers project, which includes legal requirements for being a volunteer.³⁹ She says that the law is a nonsense: “Volunteers is all about freedom. Volunteers follow their hearts. It can be based only on self-organization” (RUIND4).

At the same time, RUGOVAF2, a member of a state-affiliated SAR team, argues that at the time of the fires in 2010 most of the work was conducted by pro-government youth

³⁹ The law was still under consideration in 2016.

movements: “Volunteers haven’t participated in firefighting. The guys from the Young Guards (Molodaya Gvardiya) saved a village.” Glinka (RUORG1) stresses that volunteers should not be classified on the basis of their political affiliation. According to Glinka, “placing volunteering within a framework of the ruling party is a cynical act” (RUORG1).

Most of the independent volunteers refuse to become state-affiliated. Baskakova, a coordinator of volunteer firefighters, explained that her fellows hesitated to engage with state-affiliated volunteers and become a part of the official register, since on the one hand the official volunteers are not professional enough, and on the other hand they limit the range of participation of volunteers without official certificates. Some interviewees underline that official volunteering is a form of control: “Once you are on the register, you have been counted, you feel committed. But those volunteers that I have been in touch with give a very high value to their freedom: I want – I go, I want – I won’t go” (RUIND1).

7.4 Subject-to-subject relationships in Australia

Unlike in the case of Russia, the Australian system of emergency response relies on volunteers trained and supported by the state. Major firefighting services like the Country Fire Authority in Victoria or the Rural Fire Service in New South Wales rely on volunteer brigades managed by a headquarters with a small full-time staff (McLennan & Birch, 2005). A similar situation can be found in the field of response to floods and rescue operations, where the State Emergency Services (SES) also relies on volunteers. In addition, every state has a variety of dedicated agencies for different types of disaster and different areas of responsibility, which makes the emergency response system less centralized in comparison to the Russian system, which is managed by MCHS.

7.4.1. The discourse of state institutions in Australia

This section explores the discourses around the role of state institutions in Australia. “If the problem in Russia is that people don’t trust emergency services and the government, the problem in Australia is that people trust them too much”, said of one of the participants at a seminar at RMIT in Melbourne.⁴⁰ The tragic events of Black Saturday in 2009 underlined the problem of over-trust. According to the investigation of the Victorian Bushfire Royal Commission (2009), one of the reasons for the loss of life was people’s decision to stay at home, expecting that they would be rescued by the emergency agencies.

⁴⁰ A seminar for comparative analysis of the role of ICTs in emergency response was organized at the Royal Melbourne Institute of Technology (RMIT) as part of my fieldwork.

AUSGOVAF2b, from the Emergency Management Institute, pointed out that there is no contradiction between public solidarity around the emergency services and a situation when the agencies continue to be an object of criticism:

There's a good level of trust in the community for the agencies. But when you get a major event, there will always be criticism because a major event overwhelms any resources the state has, so that's the nature of a disaster. (AUSGOVAF2b)

Kaplen, a co-founder of the FloodAid platform created in response to the floods in Queensland, provides an illustration of the critical approach towards the role of the local authorities in Queensland: "They were up on TV, saying we'll get through this, and the pre-written speeches that they'll save the world and be the best Premier the world ever had or the best Mayor, but there was no substance to what they said" (AUSIND6).

A number of interviewees argue that the Australian emergency services have limited resources in the case of any disaster. According to Corbett, emergencies tend to get bigger and therefore agencies "need to continually increase resourcing of emergency management, which will eventually become untenable" (AUSORG2). AUSGOV1, from the Government of Victoria, suggests that the limitations can also be associated with the speed of response:

Governments by their nature are slower to react than what citizens are, and where the problem emerges action will happen to fill that gap... If government's too slow, the citizens will step in there. (AUSGOV1)

According to Corbett, the issue of the limited resources of emergency agencies should be addressed through a partnership between traditional responders and the public:

If emergency services continue to view their role as push only, then it will fail. They need to understand the partnership. The community has a responsibility to give information and receive information and act. (AUSORG2)

A co-founder of the FloodAid platform (AUSIND7) also believes that it is the government's responsibility to engage additional actors, including the public, in emergency response:

I think in the event that you realize that you cannot deliver on those promises, that this is actually way too big for us to act on our own, then we should be able to say, look, it's a state of emergency. Can we open this up and invite other people to come and help out? Let's operate together. (AUSIND7)

A number of interviewees, however, underline that the emergency agencies and local authorities are not open to collaboration with citizens, although there is evidence of that type of collaboration, e.g. the in case of the so-called Mud Army, when Brisbane City Council engaged people in recovery efforts. Few interviewees highlighted the challenges around collaboration with local authorities and emergency agencies associated with limitations imposed by their institutional structure. Miller, the founder of the QLDFloods project, says

“We all know that government is never going to produce in any response to an emergency a fast government-level response, because it’s held [back] by red tape” (AUSIND4). A former social media manager from ABC Innovation underlines the complexity of the institutional structure as a constraint on collaboration with the Australian emergency services:

Emergency services themselves are so fragmented in Australia. So they're state-based, they're regionally-based, they use different systems and so they themselves are having some real issues with coordinating their own efforts. Unlike emergencies, they are bound by state borders. Then when it crosses the border it's really a different feed of information that's being served. (AUSORG1a)

A developer of EmergencyAus underlines that the institutional boundaries also limit innovation: “They’re one-dimensional in their jurisdiction, so they’ve got a set geographical area, they don’t care about what happens outside that. I’m only responsible for fires. I don’t care about rescues or earthquakes” (AUSORG2). A developer of QLD Floods suggests that the lack of one address for the public was one of the reasons for a lack of collaboration in the case of the floods in Queensland (2011):

There is no cross-government platform or hub that allows easy access for community groups to go ‘I need to respond to this disaster, here’s our response. Can you make sure that this happens across police, across communities, across housing, across SES? We don’t want to know the red tape; we just want to do what we want to do to help’. (AUSIND4)

According to the CTO of mobile apps development company, the emergency agencies are driven by internal politics: “We created EmergencyAus because our government wasn’t going to do it and also because we know that the institutions or the agencies won’t do it either because they’re still too busy trying to fight over ‘that’s my space here’” (AUSORG3).

According to a senior consultant for ESRI in Australia, some of the restrictions on collaboration are related to legal concerns (AUSORG4). According to Corbett, he had to leave the agencies after 17 years of work in order to break the institutional boundaries:

I was frustrated that we couldn’t achieve it internally, that agencies are very one-dimensional in their thinking and jurisdictions... We’ve taken the gamble and given up a cushy funding and tried to do it ourselves. (AUSORG2)

Some of the interviewees suggest that emergency response agencies are not capable of admitting their limits. Corbett argues that, while “between the lines” the agencies can send a message that people should take care of their own security in emergencies, officially “Government could never say, you need to take responsibility for your actions” (AUSORG2). According to Miller, recognition of their limits is essential in order to support citizen-based initiatives: “What we need is government that says ‘we recognise that, we give you the platform to make that available to the people who are affected by this scenario’. And that’s

what we don't have" (AUSIND4).

A senior official from the Government of Victoria (AUSGOV1) admits that the government struggles with "where the government's responsibility starts and ends". A social media manager from CFA agrees that there are challenges for the implementation of a "collaborative approach to emergency management":

In the past, some of our people were reluctant to admit that they don't know something. It's like we feel the need to create the impression that we know everything, we're under control and there's nothing to worry about. (AUSGOVAF1)

That said, according to AUSGOVAF1, social media allow them to admit their limits: "We try to be open and honest on social media. If we don't know something, we say it" (AUSGOVAF1).

The interviews seem to reveal a contradiction between the aspiration of the emergency agencies to have a high degree of control over the situation and the recognition that their capacity to control is limited. According to AUSGOV1, from the Victorian government, the agencies lose control over the message due to the proliferation of social media and "the dilemma faced by emergency agencies and policymakers [is] that sometimes the risk is too high to not be in control of that". A co-founder of Bushfire Connect argues that although the agencies are becoming more open, this openness is still limited by the traditional mind-set:

In a John Le Carré story, one of the MI5 people said: Look, why do you have spies, a half decent journalist can get the same information as your spies, and the response was, governments don't trust information they don't pay for. That holds true today. The agencies built a system like that, they control it. (AUSIND1)

AUSIND1 concludes that the command-and-control, military style of management is "in their [agencies] DNA" (AUSIND1). A developer of EmergencyAus also suggests that the thinking of the agencies is still dominated by one-way communication: "Agencies are still in the mind-set... aside from Martin at CFA, they're all about pushing that information out. We're now saying no, it's a 50/50, two-way, it's not 99% push and 1% pull". (AUSORG2) A co-founder of FloodAid concludes that at the time of the floods in Queensland the state failed to use the resources of citizens: "The most critical part of where the system failed is that we couldn't capitalize on all these people who wanted to offer something in the time they were able to offer it" (AUSIND7).

7.4.2. *Traditional volunteers in Australia as a subject of emergency response*

This section explores the discourses around traditional, state-affiliated “permanent” volunteers. There are a few types of volunteering associated with traditional institutions. First, there are a number of agencies (e.g. CFA in Victoria) that rely primarily on volunteers, while the volunteers are recruited and managed by the agency. Second, there are independent volunteering organizations, e.g. Bush Search or Rescue Victoria (BSAR), that are activated by the agencies. Third, there are community-based local groups.

The representatives of traditional agencies set a number of criteria for being “official volunteers”. According to AUSGOV2, a senior official from DEPI Victoria, the criteria include: formal training requirements; medical requirements; and fitness requirements: “The combination of those three things will determine whether you can take a role [in emergency response]” (AUSGOV2). While professional background is essential to the definition of traditional volunteers, there is a tension around what differentiates full-time responders and state-affiliated volunteers. The volunteers underline that there is no difference in skills between full-time responders and volunteers affiliated with emergency agencies. A volunteer from the CFA Merbein Brigade illustrates this issue:

It’s a touchy, touchy point, so we never separate the words. A professional firefighter is not a paid firefighter. A professional firefighter is a professional firefighter. So, there are paid staff and there are volunteer staff. We are all professional. (AUSGOVAF3)

Accordingly, the core difference between traditional responders and state-affiliated volunteers is whether the responder gets paid for their job. One can also suggest that the difference is the degree of commitment, although AUSGOVAF3 underlines that people in rural areas are expected to volunteer for the emergency services as a part of their community responsibilities. A member of the Londonderry Fire Brigade says: “That’s our game, people protecting their own community” (AUSGOVAF8). According to AUSGOVAF8, the structure of the fire services in rural parts of Australia has a bottom-up nature:

I think our fire services came from local people, but they’re all fire services, bush fire brigades. That was just communities who’d just put a trailer together. It didn’t start from councils or anything, it just started from communities coming together and just saying, well, we’re going to do this. (AUSGOVAF8)

According to AUSGOVAF1, from CFA, in some cases community-based self-organization does not require the involvement of the agencies:

If the community dealing with it, we don't want to have an official agency coming in and trying to manage it. So unless it was an issue or a concern for us, let the community do it. (AUSGOVAF1)

At the same time, AUSGOV1, from the Victoria Government, argues that volunteering groups are becoming less stable and less connected to specific locations:

“People are moving from one place to another, so volunteering is less community-based” (AUSGOV1). According to AUSGOVAF2b, from the Emergency Management Institute, “the professional volunteer systems struggle to attract younger people”, while the young crowd tend to engage in spontaneous activities: “Previously professional volunteering was part of a lifestyle that’s maybe broken down a bit, especially in smaller communities (AUSGOVAF2b). AUSGOVAF4 says that an additional challenge for traditional volunteering organizations is ageing. AUSGOVAF4 concludes: “The way society communicates, it's in the process of change, and if we don't embrace that, then we may end up in a rather small organisation that is not that capable and not that valid to the people of Queensland” (AUSGOVAF4).

The discussion presented in this section locates the traditional volunteers between the state-affiliated emergency services and communities. The most important characteristic of traditional volunteers is their permanent affiliation with either a specific organization or/and a specific location, as well as their ongoing commitment to taking a part in emergency response. That said, as pointed out by some of the interviewees, the institution of traditional volunteers is challenged by a number of social and demographic factors. The discussion of traditional volunteers also helps to establish the boundaries of the crowd as an actor having no permanent affiliation with an organizational structure and no ongoing commitment related to emergency situations.

7.4.3. *The discourse of crowds in Australia*

Section 7.4.3 explores the discourses around the role of the crowd in emergency situations. Unlike the case of traditional volunteers, a crowd is a general population that has no affiliation with any organizational framework for emergency-related activity. Most of the interviewees from emergency agencies viewed the crowd primarily as recipients of information about disasters. According to AUSGOVAF1, the investigation of Black Saturday concluded that one of the reasons for the tragedy was that people did not receive information in time:

The big issue that came out of the Royal Commission was the warning situation... our systems weren't able to cope with getting that information out efficiently to the community. Since 2009, there's been a big focus on improving how we share our information with the community. (AUSGOVAF1)

AUSGOVAF1 concludes that alerts should decrease the degree of threat to people in a disaster zone: “All you can do to protect the community is to make sure you're communicating well with them and encourage them to make the right decisions based on that

information” (AUSGOVAF1). That said, a number of interviewees highlight how people in a disaster zone often remain at home despite alerts. AUSGOV1, from the Government of Victoria, says that in some cases social media is used to justify ignoring evacuation requests:

Colleague of mine told me this: one of the emergency agencies went door-knocking and said, you have to get out now because the thing's coming, and they said, ‘oh, no, we haven’t got our SMS yet’ – there's flames out the window, you know? (AUSGOV1)

AUSGOVAF2a, from the Emergency Management Institute, provides an opposite illustration from the Queensland floods, where people ignored digital alerts:

A lot of people have their emergency alert, they’ve got their applications, they listen to the radio, but yet they would not leave their homes till the people with uniforms came knocking on the door and said, you need to leave, the water’s rising. (AUSGOVAF2a)

The approach to a population in a disaster zone is dominated by the notion that people are potential victims who need to be alerted and evacuated in order to protect their lives. Only traditional volunteers recognized by the agencies as actors that take a part in emergency response are excluded from this. At the same time, the potentially problematic behaviour of people in a disaster zone can include not only refusing to evacuate, but also people’s interest in taking a part in a response. For instance, a founder of QLD Floods says “We were told to evacuate; we never did” (AUSIND4). AUSGOVAF1, from CFA in Victoria, addresses the tension between the instruction to leave their homes and people’s interest in staying and responding in cases of fire: “Our message is very much to leave early rather than to stay and defend their homes. But if people are determined to stay, we do provide help with that” (AUSGOVAF1). That tension, however, concerns people who are directly affected by an emergency.

The state-affiliated and independent interviewees in Australia presented different views about the potential role of the general crowd in a case of emergency, not only as a potential victim who will either escape or remain to protect their own home. Most of the interviewees in Australia, either from the side of agencies, or from the side of citizens, addressed the active participation of the crowd in emergency response as “spontaneous volunteering”. A senior official from SES Queensland said that spontaneous volunteers play an increasing role in emergency response and suggest new challenges:

One of the issues that's become, you can probably say worldwide, is this notion of spontaneous volunteers, and so there's an event, it's catastrophic, and the community want to help their fellow members of the community, and so how do you harness that capability? (AUSGOVAF4)

A co-founder of FloodAid underlined that their project was created for spontaneous volunteers:

The majority of the people we engaged with were spontaneous volunteers... They didn't have the appropriate training, they didn't have the affiliations with any of these existing organisations and as such, they were seeking an alternative channel of volunteering. (AUSIND7)

AUSGOVAF4 underlines the difference between traditional and spontaneous volunteers: "For us our emergency volunteers are prepared, trained, and equipped, so there are certain tasks that the SES can do that the spontaneous volunteers can't do" (AUSGOVAF4). AUSGOVAF4 also distinguishes between community-based response and spontaneous volunteers:

One of those natures of remote communities is that people know who's in the community, and so it's a different spontaneous volunteer to 20,000 people in the Mud Army. You're now talking about ten or 15 people who may know each other through a Lions club or, one of community organisations. (AUSGOVAF4)

That said, it is challenging to draw the boundaries of an emergency zone in urban areas, as in the case of the floods in Brisbane.

Some of the representatives of official emergency agencies highlight the importance of spontaneous volunteers. According to AUSGOVAF1, opening a channel for two-way communication allows you to make people more active: "If you do that [one-way communication], then you create that sort of passive community that just waits to be told what to do by the experts, and that's not a situation that we want to encourage" (AUSGOVAF1). AUSGOVAF4, from the State Emergency Service (SES) in Queensland, also argues that the development of a "hybrid model" allowing the incorporation of volunteers under the leadership of agencies is essential in the light of the limited resources of institutional responders (AUSGOVAF4).

That said, there is some degree of disagreement about the purpose of mobilizing spontaneous volunteers. According to a senior official from DEPI (AUSGOV2), citizens can be used as sensors to report information at the time of an emergency: "If it's a community that's being enacted, then they can tell you straight away what's happening and where the fire is" (AUSGOV2). A social media manager from the NSW police distinguishes between approaching the public as sensors and public mobilization:

We want the public to be our eyes and ears; we want the public to help us solve and prevent crime. So, whether it's a missing person or a bank robbery or an assault... we're not asking them to mobilise like an army; we're simply asking them to watch out for this person. (AUSGOVAF7)

AUSGOVAF1 suggests that disaster mapping should be similar to the mapping of traffic relying on information about movement of drivers (AUSGOVAF1). In this case the crowd is approached as a network of sensors that support situational awareness in real time. That said,

while some crowdsourcing projects ask people to contribute information about an emergency, a different approach suggests developing tools that can aggregate data from social media and analyse it without direct interaction with content generators (AUSORG1b).

A Volunteering Manager from Rural Fire Queensland underlines that the engagement of spontaneous volunteers should be limited:

I think there's probably ways they could be used, but it hasn't been tied into the system. But it certainly couldn't be for firefighting... volunteering in terms of support, food delivery, that sort of thing.

(AUSGOVAF6a)

AUSGOVAF4, from SES, differentiates between precise tasks that can be accomplished by professional volunteers and “blunt tasks” for spontaneous volunteers:

The euphemism that was used for them [spontaneous volunteers] in Brisbane was the Mud Army, where large groups were sent to areas and they would assist with washing out, or taking rubbish out of houses, and clean-up. So they're a rather large blunt instrument, rather than being a precise instrument. Our organisation tended to be more precise where we worked. (AUSGOVAF4)

AUSGOVAF4 argues that spontaneous volunteers should be engaged around tasks that do not require specific skills, since there is no time to map and analyse their skills: “One would assume that we've got the full spectrum of society in those spontaneous volunteers, so they're primarily used in unskilled areas.” (AUSGOVAF4)

A number of interviewees from traditional institutions suggest that there is an association between the phase of the disaster and the role of spontaneous volunteers. A social media manager for Brisbane City Council says: “If it's a bushfire, we definitely don't want people getting involved until recovery” (AUSGOV3). According to AUSGOV3, the Mud Army was engaged as part of recovery efforts. A manager for Volunteering and Support at the Rural Fire Service in Queensland also points out that the “whole concept of spontaneous volunteering [is] you can go and help out after an event” (AUSGOVAF6a). That said, as pointed out by AUSGOVAF4, drawing boundaries between response and recovery is challenging: “Trying to put a line, which day you stop doing responding and which day you start a recovery, is quite difficult. In fact, you could still be responding at one end of the street, and recovering at the other end” (AUSGOVAF4).

Unlike institutional interviewees, the independent interviewees preferred to avoid limiting and defining a specific purpose for the engagement of spontaneous volunteers. A developer of EmergencyAus argues that technology should focus on supporting horizontal, community-to-community interaction:

After emergencies, there's a lot of people who are just setting up a Facebook page saying, post if you need something, and someone will get back to you saying, how can I help, so the idea of the app is, at

this very first stage, it's about the public helping the public. (AUSORG2)

There are also interviewees who highlight the negative side of the spontaneous volunteers. A head of the Google Crisis team (AUSORG5) explained his hesitations with regard to volunteers with no organizational affiliation:

You want to be working with the people who know what they're doing and, to be brutally honest, people who have liability protection if it screws up. If we're working with volunteers and we put some fire information up and it's wrong and someone dies, we can get sued. (AUSORG5)

A social media manager from the NSW police (AUSGOVAF7) suggests that goods collected through social media “can cause more headaches than benefit”. AUSGOVAF7 suggests that Internet users should focus on the collection of money: “The most useful thing that people can donate is cash because it's liquid and it can be used anywhere” (AUSGOVAF7).

A social media manager from Brisbane City Council highlights the challenges of managing spontaneous volunteers. AUSGOV3 describes the lack of capacity to control the scale of public engagement in the case of the “Mud Army”:

One time we asked for 75 and we had 700 people show up... If we have an overflow of people asking to volunteer, we can't manage that resource. (AUSGOV3)

That said, AUSGOVAF1 from CFA warns against blocking spontaneous volunteers:

What we need to understand is that no matter what, there are going to be groups of people in an emergency who start doing this sort of stuff... Are we going to try and shut them down? Are we going to try and assist them? I would argue we should be trying to advise them and help them, as opposed to trying to take that sort of authoritarian stamp where you're trying to shut them down. (AUSGOVAF1)

The need to manage spontaneous volunteers suggests that attention needs to be focused on the actors coordinating the participation of spontaneous volunteers around emergency response.

7.4.4. The difference between spontaneous volunteers and spontaneous intermediaries

The interviewees from emergency agencies highlight the challenge presented by the management of spontaneous volunteers. The attitude towards the management of volunteers addresses two issues. On the one hand, the discussion around the need for control illustrates the relationship between institutional actors and spontaneous volunteers. On the other hand, it suggests which actors can manage spontaneous volunteers.

According to AUSGOVAF4 from SES, in the case of the floods in Queensland the major role in managing spontaneous volunteers was played by the local government: “so the Mud Army of Brisbane, the spontaneous volunteers, they were co-ordinated by the Brisbane City Council” (AUSGOVAF4). AUSGOVAF4 points out that harnessing the resources of

spontaneous volunteers is a problem of leadership for the emergency agencies:

There's still a big issue in achieving some model of leadership to co-ordinate the spontaneous volunteers. That's another one of those tensions, of how much structure do you put into something like that before it ceases to be spontaneous, and are you looking to build this organisation, or are you looking to utilise the spontaneity of people to come and assist. (AUSGOVAF4)

AUSGOVAF4 says that the purpose of management is the integration of skilled and unskilled resources:

Maybe there's a hybrid model that we need to examine, where we determine what is our core skill, and that may emphasise leadership. We have a core group of leaders who are skilled, in a way that they can take these spontaneous volunteers, use them for a limited time, and thank them for what they do. (AUSGOVAF4)

A senior manager from SES suggests that the management of spontaneous volunteers requires better leadership skills: “We need to be able to be very confident that our leaders are capable of leading our organisation before we look to take on spontaneous volunteers who are 15 times the number of our own organization” (AUSGOVAF4).

Some state-affiliated interviewees argued that in some cases there is no need for the state’s involvement in managing spontaneous volunteers. For instance, AUSGOV1, from the Government of Victoria, tells a story of recovery by community members in Flowerdale

After Black Saturday, the Flowerdale community created a website which was matching people with rooms with people who had been left homeless by the fire. Government didn't need to step into that space, the community just did it. (AUSGOV1)

A social media manager for Queensland Police also supports non-involvement, although he argues that in some cases the police can support spontaneous volunteers:

We're the police, and they [volunteers] tend to spring up during events. We won't discourage them, but whether it's appropriate for police... sometimes, you just need to make that call and say, this is going really well. We'll post a link up too or something like that. (AUSGOVAF5)

The coordination of spontaneous volunteers is addressed by a variety of organizations relying on digital platforms, and can be approached as a form of outsourcing (Section 6.3.2). This includes the crowdsourcing platforms developed by ABC to aggregate data from the crowd, and the Emergency Volunteering portal launched by Volunteering QLD. Both platforms faced some challenges. The Emergency Volunteering portal was overwhelmed by the number of requests at the time of the floods. ABC also faced challenges in the management of crowd participation at the time of the emergency. According to AUSORG1a from ABC, the coordination of the crowd’s engagement required from ABC a reconsideration of its traditional “broadcast mentality”, and created a contradiction between the hierarchical nature of the organization and the horizontal architecture of the crowdsourcing platform:

If we're going to be able to do the Ushahidi and bring the organisation along on that journey, we're going to have a degree of control that would mean that we would drive it. Then the question is, how can we open this up? So have volunteers, but you train them, give them limited powers. (AUSORG1a)

There are also some commercial actors that took part in the coordination of spontaneous volunteers, and that were less bounded by institutional restrictions. For instance, the EmergencyAus app sought to present a tool that supported various forms of relationship between different actors: “We do crowd-to-crowd, crowd-to-emergency-services, emergency-services-to-emergency-services and emergency-services-to-crowd” (AUSORG2).

The data, however, includes a number of cases where volunteers themselves have sought to play the role of coordinators of spontaneous volunteering. This includes ongoing volunteering initiatives (e.g. Bushfire Connect) and spontaneous volunteering initiatives that emerged in the context of specific disaster (e.g. FloodAid, QLDfloods and social media groups). Miller, a co-founder of the QLDfloods platform, differentiates between volunteers who “build stuff”, which means they develop digital tools in order to simplify participation in emergency response, and other forms of volunteer engagement in emergency response (AUSIND4).

The type of volunteering highlighted by Miller is distinct from “spontaneous volunteering”, with volunteers in this case not only participating in emergency response, but also coordinating the spontaneous participation of crowds and playing the role of intermediaries between agencies and spontaneous volunteers. The latter can be linked to both phenomena – intermediaries and spontaneous volunteering, and accordingly I would suggest viewing them as “*spontaneous intermediaries*” relying on digital tools.

The case of Bushfire Connect allows us to observe the relationship between traditional agencies and an ongoing volunteer-based initiative. According to a co-founder of the platform, the traditional agencies rejected offers of collaboration from Bushfire Connect:

What we tried to sell to them [agencies] was, we can provide you with an arm's-length relationship, where we can engage with the community, the community will trust us, but we can still be independent, plus the information that we collect will be more nimble and flexible because they're not state government employees that are at risk of being sued any time they put a potentially wrong message through. (AUSIND1)

According to AUSGOVAF1 from CFA, Bushfire Connect was rejected because it tried to play a role which apparently was considered to be part of the responsibilities of the agencies: “There was some concern in operational circles that this was seen as, like, unofficial people setting up a map” (AUSGOVAF1). A partnership with Bushfire Connect was also rejected by ABC:

If by collaboration we mean openly endorsing something that we have no real control of, we just probably couldn't do that... I remember having really positive conversations with the Bushfire Connect people. They have really noble aims and they wanted to collaborate, but we would have our hands tied because of structural and editorial stuff constraining that. (AUSORG1a)

At the same time, Miller, a founder of QLDFloods and the Bed Matching tool, argues that traditional institutions have failed to coordinate spontaneous volunteers:

“By the time the government can respond, because governments don't respond quickly, peoples' emotions have gone and the inclination is less... If you don't have a platform to deliver it, once the emotional response is gone, you've lost the opportunity. (AUSIND4)

The FloodAid platform was also created as a spontaneous response to a need for a tool to coordinate the engagement of spontaneous volunteers and allow horizontal connections between people needing help and those who can help. According to the founder of QLDFloods, grassroots initiatives seeking to facilitate the participation of spontaneous volunteers need recognition from the authorities in order to get things done more efficiently:

Communities and citizens who do build stuff on a volunteer basis can respond far quicker, they just need an authorised, sanctioned process to make sure that what the government can't do can be done by other people, and quickly. (AUSIND4)

That said, while the agencies and the local council appeared to be open to engaging with spontaneous volunteers, the independent developers of the platforms for coordinating spontaneous volunteering reported that their efforts to collaborate with traditional institutions were not successful. A co-founder of FloodAid argues that the authorities created obstacles for his project: “I know there were things said about FloodAid hindering the progress of what the Queensland government or the council were trying to do” (AUSIND6).

AUSGOV1, a senior official from the Government of Victoria, argues that the “government should get out of the business of developing applications, it's the government's job to make the data available and the market will make the applications better”. That said, he says that this policy should not be applied to disaster-related tools:

If a community-built emergency response tool falls over, people die. So I think that's the dilemma faced by emergency agencies and policy-makers, that sometimes the risk is too high to not be in control of that. (AUSGOV1)

The social media manager from Brisbane Council (AUSGOV3) suggests that the emergence of independent actors who coordinate spontaneous volunteering may create confusion with existing organizations:

Does it then take away from official organizations that offer something similar, like Volunteering Queensland? It starts to confuse a little who is the lead agency in the volunteering space? (AUSGOV3)

Apparently, the analysis of the data indicates that authorities' approaches to spontaneous

volunteers and to spontaneous intermediaries were substantially different. The response to the floods in Queensland in 2010-2011 provides an illustration of that duality. On the one hand, Kaplen, a co-founder of the FloodAid project, argues that Brisbane City Council and local agencies engaged people in recovery efforts: “They did a lot in coordinating clean-ups and there was sandbagging and there were heaps of emergency services and stuff like that” (AUSIND6). On the other hand, Kaplen says that Brisbane City Council rejected collaboration with FloodAid: “The governor didn’t want to talk to us at all; they wouldn’t talk to us purely from risk and litigation – you’ve got the Craig’s List killer or something like that” (AUSIND6). A co-founder of FloodAid suggests, however, that the authorities were threatened by the success of independent, citizen-driven projects:

The fact that we could deliver a platform in a matter of 48 hours, from idea to actual delivery... I guess from an ego or from a job security point of view it makes you look bad when a bunch of kids come together effectively and deliver a more efficient system that’s going to be adopted by the crowd as well as by other stakeholders involved and get the outcome you’re looking for in an extremely short time period. (AUSIND7)

This section has highlighted the fact that apparently there is a place for distinguishing between spontaneous volunteers, as members of the general public that might be interested in taking a part in an emergency response, and actors seeking to coordinate the engagement of spontaneous volunteers. The coordinators’ group includes different actors, e.g. emergency response agencies, local authorities, independent organizations and spontaneous digital initiatives by volunteers. This section has proposed that in the Australian case we may need to distinguish between the relationship of state institutions with spontaneous volunteers, and the relationship of state institutions with independent “spontaneous intermediaries” using digital tools to coordinate the activity of spontaneous volunteers. One can argue that control over spontaneous intermediaries presents a greater challenge for traditional institutions than control over spontaneous volunteers. Moreover, spontaneous intermediaries are approached as competitors, since they seek to play a leadership role in emergency response.

7.5 Conclusion

This chapter has examined the discursive boundaries between actors, and the set of relationships between actors established as part of dividing practices. It has explored how different subjects objectify the discursive location of other subjects in emergency situations, and what have been conceptualized as discourses of activity (Section 4.4). This chapter highlights the difference in types of discursive boundaries between actors, and the different

types of relationship between subjects in the Russian and in the Australian cases.

In the case of Russia, as articulated by the interviewees, the discussion is focused mostly on the relationship between state-affiliated institutions and independent volunteers as system and non-system actors. The discursive boundaries in the case of Australia rely mostly on a differentiation between permanent and spontaneous actors. In comparison to Russia, the Australian case also indicates a greater diversity of actors, and suggests a more complicated set of relationships. These relationships include both an openness to cooperation between traditional actors and unaffiliated volunteers and also the intention of agencies to control volunteers and their scope of engagement. This view from institutional actors that independent volunteers need to be controlled can be found in Australia as well as in Russia.

That said, the cases present more differences than similarities. The relationship between volunteers and authorities in Russia appears to show a certain degree of mutual hostility. The role of traditional volunteers in Australia is particularly significant by comparison with the case of Russia, where the role of state-affiliated volunteers is questioned by most of the actors. The traditional Australian institutions seem to be open to the participation of spontaneous volunteers in emergency response, although the data seems to suggest that there is a need to distinguish between attitudes towards a general group of spontaneous volunteers and towards volunteers seeking to take an active part in coordinating the engagement of other volunteers.

The conceptual framework suggests that the differences identified in this chapter in subject-to-subject relationships can assist us in explaining the differences in the role of digital tools in the mediation of subject-object relationships. It also highlights that the structure of subject-subject relationships can be associated with the structure of activity systems to be seen in the context of emergency situations. Accordingly, in order to discuss the factors associated with the role of digital tools in the constitution of the subject in emergency situations, the findings of this chapter need to be analysed in the context of those presented in the previous chapter, and this analysis needs to be situated in the context of data about crisis mapping practice. The analytical chapter that follows seeks to develop the association between these data sets in order to respond to the research questions of this thesis.

Chapter 8. Analysis: the Role of Digital Tools in the Governance of Activity

8.1 Introduction

This research was triggered by my interest in and uncertainty about the role of digital platforms in emergency situations as indicated in the introductory chapter. The background chapter (Chapter 2) suggests that exploring the role of ICTs should take account of the context of social and political processes that are present in emergency situations (Sections 2.4, 2.5), and of different approaches to the role of the crowd (Section 2.3). In terms of theory the thesis focuses on the role of digital tools in the constitution of a subject's position in relation to his/her environment, in the context of the relationship between institutional actors and digital users in the socio-political setting of a crisis. The conceptual framework (Chapter 3) juxtaposes the role of digital tools in the genesis of the subject - in line with a concept of digitally mediated, object-oriented activity - with the genesis of the subject in the context of relationships between actors drawing on a concept of governance. The first overall research question was therefore: "What is the role of digital tools (mediating artefacts) in the constitution (governance) of the subject?" (RQ 1). The second overall question (RQ 2) was: "What factors are associated with the constitution of the subject through the digital mediation of activity?" (See Chapter 3, Table 3.1, for a summary of the overall research questions and sub-questions).

The analysis of examples of the use of digital tools in response to crises in Australia and Russia and of crisis mapping highlights many aspects of the role of digital tools in the mediation of subject-object relationships and in the governance of object-related activity. It should be noted that the analysis in this chapter in response to RQ 1 is not a formal comparison, but an exploration of the diverse potential subject-object relationships that are mediated by digital tools. The analysis in response to RQ 2 involves an element of comparison insofar as the consideration of subject-to-subject relationships and discursive boundaries in one case is used to inform the analysis of other cases.

This analytical chapter considers the empirical evidence in the light of the conceptual framework and the empirical material in Chapters 5, 6 and 7 informs the development of the models presented in this chapter, the aim being to conceptualize the association between the potential roles of digital tools in the mediation of subject-object relationships and the relationships between actors. The specific actions I examine do not rely on a single tool and the analysis is developed in order to identify 'ideal type' models (Ilyenkov, 2012), so as to

contribute to the development of an improved theoretical understanding of the role of digital tools in the constitution of a subject.

Section 8.2 investigates the discursive character of various modes of digitally mediated subject-object relationships in response to questions RQ 1.1 and RQ 1.2 (see Chapter 3, Table 3.1). It highlights contradictions around the objects of activity and explores whether digital tools contribute predominantly to self-governance by users or to governance by others. Section 8.3 turns to the second overall question (RQ 2) and a comparative analysis of contradictions in subject-to-subject relationships in response to sub-question RQ 2.2 (see Chapter 3, Table 3.1). Section 8.4 considers the findings in the light of the notions of discursive location and discourses of activity, set out in the methodology chapter (Chapter 4). It discusses how the subject-to-subject relationship appears to be associated with the structure of activity systems and with the role of digital tools within these systems. It suggests that discursive locations can be understood as instances of “discursive mirroring” or of “discursive opportunity”. Section 8.5 is concerned with RQ 1.2 and RQ 2.1 (see Chapter 3, Table 3.1) and explores the role of digital tools in the governance of a subject’s activity. It differentiates between governance through inclusion in an activity system and governance through exclusion, and explores how subject-to-subject relationships are associated with the role of digital tools in the mediation of self-governance.

Section 8.6 analyses crowdsourcing as an instance of digitally mediated practice. This allows an examination of the role of digital tools in the governance of crowds, in response to RQ 1.3 and RQ 2.3. Section 8.7 discusses the findings in response to the second overall question concerning the factors associated with the role of digital tools in the governance of activity informed by the insights arising from the empirical questions (EQ 2.2, EQ 2.3), comparing the domain of activity and the political space of activity (see Chapter 4, Table 4.8 for a summary of the overall empirical questions and sub-questions). Section 8.8 addresses the need to follow the transformation of activity systems in its global and local dimensions.

8.2 Modes of digitally mediated activity: the role of digital tools in subject-object relations

This section starts with an analysis of insights concerning the role of digital tools in Australia, followed by those from Russia. The examination of Australian mobile applications (see Section 6.3.1) provides a basis for identifying three major modes of subject-object relationship that appear in various ways throughout this study.

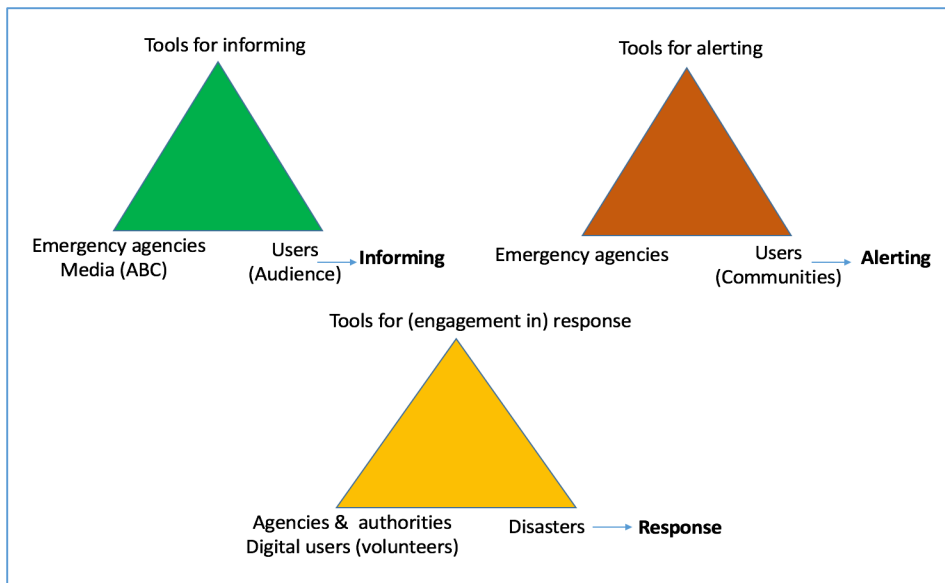


Figure 8.1 Mapping the role of tools in subject-object relationships in emergency situations

Figure 8.1 presents the mobile applications, using the “subject-mediating-artefact-object” triangle of activity theory (see Section 3.3.1). In the first mode, users are spectators and constitute a general audience. One illustration of this mode of relationships is DisasterWatch (see Section 6.3.1). In this case the digital tools offer no form of potential activity with regard to the disaster and the users remain passive. This can be conceptualized as *tools for informing*. The second mode of subject-object relationship is when the object of the tool is to alert the user about a threat (e.g., in the case of the FiresNearMe app, see Section 6.3.1). The users are approached in the context of a potential threat and constituted as potential victims of the disaster, while the app is proposed in order to conduct activity required to protect users’ lives. This can be understood as *tools for alerting*. The third mode offers various forms of engagement of users around disaster-related objects. This can be seen in the EmergencyAus app, which includes all three modes of relationship (see Section 6.3.1). This can be seen as *tools for engagement*.

The majority of the tools examined in the cases of Russia and Australia belong to one, and sometimes several, of the modes described above. The tools for informing and alerting tend to be linked to traditional institutions or to media organizations. The tools for engagement, including social media pages, crowdsourcing platforms and dedicated websites, tend to be associated with independent actors. However, in the case of many platforms (e.g. Bushfire Connect), there is an integration of the elements of several modes: the platforms are used to engage users, to collect information, and to inform/alert users relying on information that has been collected and aggregated. The crisis mapping tools can be considered as “tools for engagement”, since they enable users to engage in emergency-related activity. It should

be noted that digital tools for professional volunteers (e.g. MyRFSTeam) support an existing structure of activity around emergency response and therefore constitute a separate group of tools.

Understanding the role of the tools for the mediation of subject-object relationships (RQ 2.1) requires an analysis specifically of who is considered a subject and what is considered an object of mediated activity. Table 8.1 identifies substantial differences among the modes:

Type of tool	Mediated activity	Subject	Object
Tools for informing	Informing	Media/ agencies	Users
Tools for alerting	Alerting	Agencies	Users
Tools for engagement	Engagement	Users	Disaster
Tools for professional volunteers	Supporting existing activities	Professional volunteers	Disaster

Table 8.1: Analysis of subject-object relationships

An important observation is that in different cases the digital mediation yields different positions of users within an activity system. In the first two rows, citizens, including users of digital tools, are treated as objects of the activity of institutional actors. In the third row, users are subjects engaged in responses to a disaster as an object. The users can be either subjects or objects, suggesting a contradiction in the role of the users.

As with the data on Australia, the data on Russia include cases that suggest the first three types of tool shown in Table 8.1. However, the analysis of the Russian data suggests two additional features of the roles of digital tools in the mediation of subject-object relationships which give rise to contradictions. The Russian independent interviewees reported that, in addition to monitoring the fires and engaging users in disaster response, the purpose of the digital tools was to expose the real scale of a disaster and to hold traditional institutions to account. This happened in times of disaster, e.g., in the role of social media described by Chersky (RUIND9) and Shlyapnikov (RUIND10), and on an ongoing basis as indicated in the case of the Greenpeace Forest Forum (Section 6.2.1). In these cases, the subject-object relationship can be conceptualized as shown in Figure 8.2, below.

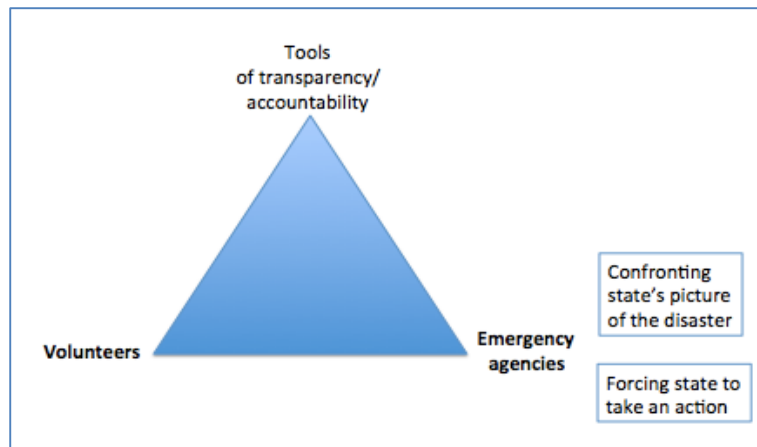


Figure 8.2: Volunteer-driven activity systems with state institutions as objects of activity

Figure 8.2 shows that where tools are used for increasing transparency and accountability the volunteers who use the digital tools are best considered as the subject, while the emergency services are best seen as the objects of the digitally mediated activity. At the same time, Russian state-affiliated interviewees argued that they use social media mostly to find negative user-generated content; the purpose of the activity online is to protect the image of MCHS and confront negative information. This object is also institutionalized, since the MCHS press office has a general responsibility for social media, as well as being embedded in the structure of monitoring systems focused on the classification of content as positive/negative or neutral for MCHS (see Section 7.3.2).

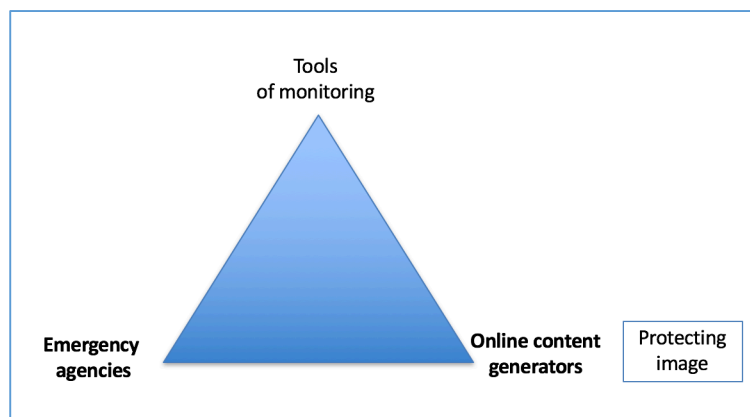


Figure 8.3: State-affiliated activity systems for image management

Figure 8.3 illustrates the case of how digital tools are used by MCHS, where the subject is a traditional institution and the object of activity is the generators of online content, and specifically volunteers who rely on digital mediation. In this context, digital users are seen as potential generators of negative information about official responders. According to interviewees from MCHS, any online reflection of independent volunteering activity is considered a public relations threat, and accordingly any independent digital tools that

mediate volunteer engagement are seen as potentially generating content with negative consequences for the image of MCHS.

Comparing Figures 8.2 and 8.3 yields an additional type of contradiction, which is summarized in Table 8.2.

Type of tool	Mediated activity	Subject	Object
Tools for transparency/ accountability	Control	Users	Institutional actors
Tools for protecting image	Protecting image	Institutional actors	Users

Table 8.2: Contradiction in structure of subject-object relationship

Table 8.2 highlights how some emergency-related digital tools are used by volunteers as subjects and this mediates the activity directed toward state responders as objects. At the same time, some of the digital tools used by institutional actors as subjects mediate the activity focused on content generators, and specifically on digital volunteers as objects of their activity. This suggests that this contradiction arises in a situation where institutional and independent actors approach each other as objects of activity in the context of an emergency situation.

The analysis of the Russian experience seems to highlight an additional contradiction around the role of digital tools. The analysis of the Dobrovoletz.rf platform suggests the duality of the object of mediated activity (Section 6.2.4).

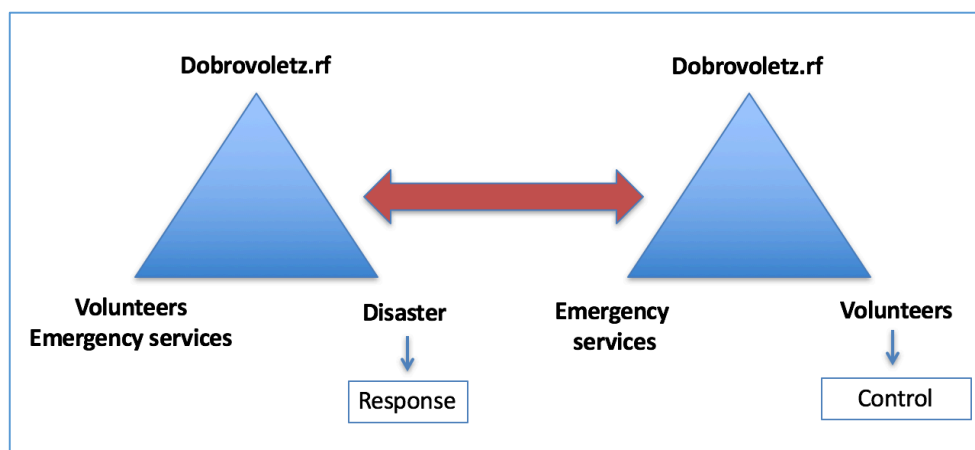


Figure 8.4: Contradiction in subject-object relationship with tools for engagement.

Figure 8.4 suggests, on the one hand, that the purpose of the platforms is the engagement of volunteers to respond to a disaster. On the other hand, as highlighted by a number of interviewees, the purpose of the platform is seen as controlling the volunteers (RUORG3, RUORG4, RUIND13). This is also seen in the case of Emergency Volunteering

(Section 6.3.3), although this observation is weaker, due to the absence of interview data on this platform.

Type of tool	Mediated activity	Subject	Object
Tools for engagement	Engagement	Users	Disaster
Tools for engagement	Control	Institutional actors	Users

Table 8.3: Contradiction in structure of subject-object relationship in tools for engagement

The situation where the same tools are used to approach volunteers at the same time as subjects and objects of activity, as indicated in Table 8.3, suggests yet another type of contradiction in digitally mediated subject-object relationships. This is related to the group of tools for engagement, where the digital users seem to be addressed as subjects of activity in the context of a disaster. Although the visible role of users appears to be closer to the notion of subjects for engagement, the actual mediated role of the users is as objects of control.

So far, this analysis has presented modes of digitally mediated subject-object relationship that can be observed in the context of a disaster in response to RQ 1.1. Question RQ 1.2 proposes addressing the role of digital tools and this requires incorporating the notion of governance and examining where digital tools contribute to self-governance or to governance by others. This requires consideration of whether subjects are able to take part in defining the structure of an activity system, including the object of activity and the terms of their participation in the activity.

The analysis above, distinguishing between tools that constitute users as subjects and tools that constitute users as objects, suggests that any type of tool that constitutes users as objects is likely to contribute to the governance of users by others, while tools that constitute users as subjects may contribute to users' self-governance. However, the digitally mediated constitution of users' position as subjects does not necessarily mean that these users have a greater capacity for self-governance. Perhaps a more nuanced response to RQ 1.2 is required.

As explored above, tools associated with emergency institutions tend to focus more on informing and alerting than on engagement. This can be seen in the case of Australia in the discussion of mobile applications associated with institutional actors, and in the case of Russia where, as articulated by the interviewees, digital tools are used to alert the population and to combat rumours (see Sections 6.2.4, 6.3.1). That said, institutional actors also support the development of tools for user engagement both in Australia (e.g., Emergency Volunteering, a crowdsourcing map launched by ABC, social media, and the case of the Mud Army) and in Russia (Dobrovoletz.rf). The independent tools for engagement highlighted by the Australian data include Bushfire Connect, QLD Floods, EmergencyAus, FloodAid, and

social media platforms. The Russian illustrations include the Pozar_Ru community, the Help Map for Russia Fires, Amur13, social media pages, and Liza Alert.

This analysis seems to suggest that, in the case of platforms affiliated with institutional actors, the object of engagement of users is relatively limited and specific. For instance, in the case of the Mud Army, the object was focused on cleaning the streets. In the case of the crowdsourcing deployment by ABC, the engagement was focused on data collection, although a similar type of object is also offered by Bushfire Connect. State-affiliated platforms also have a stricter division of labour between users, as illustrated by the case of Dobrovoletz.rf. The division of labour takes place within the platform (e.g., between volunteers with professional certificates and volunteers without certified skills) and between the users and other actors, e.g. in the case of the Mud Army, where simple tasks were given to users and more complicated tasks were performed by professional responders.

The boundaries of the community also seem to be stricter in the structure of tools for engagement that are affiliated with institutions. In the cases of Emergency Volunteering or Dobrovoletz.rf, one needs to register and receive authorization to become a community member, although in the case of engagements relying on social media (e.g., the Mud Army) there is no restriction. The independent platforms, e.g., Help Map or FloodAid, or social media based groups do not limit engagement to simple tasks or data collection, but offer a broader range of objects that address humanitarian needs and respond to an emergency. The object is also not limited to a specific phase of a disaster. Help Map and FloodAid also allow anyone join the community around a platform.

The comparison between state-affiliated and independent platforms seems useful for addressing, in response to RQ 1.2, which platforms contribute to governance by others and which to self-governance. The analysis helps to distinguish between tools for engagement that refer to narrower objects, a stricter division of labour and stricter inflexible boundaries of communities, and tools that refer to a broader range of potential objects of activity, since the boundaries of community and the division of labour tend to be more open and flexible.

The methodology chapter (Chapter 4) suggests a comparison of stricter and more open structures of activity systems, and an examination of the idea that self-governance is the capacity of a subject to take part in defining his/her object of activity (see Section 4.4). Responding to RQ 1.2 requires an explanation of when subjects are able to participate in defining their relationships with objects and when a relationship is imposed on the user as a subject. My analysis suggests two additional concepts which are helpful in responding to this question. The first is the *flexibility* of subject-object relationships. The second is the

transparency of subject-object relationships within a context of the structure of an activity system.

In the cases of platforms like FloodAid, Help Map, the mobile application EmergencyAus, the use of Facebook pages and the LiveJournal community, we can see that these digital tools do not offer specific objects of activity (narrow or broad), but allow users to suggest specific objects of activity. For instance, requests for help published by users on the Help Map or on FloodAid can be regarded as specific objects of activity. In the case of EmergencyAus, the app uses geolocation to identify objects in the proximity of the user, but it does not limit the type of the object.

Two features create a framework for the definition of the object in these platforms: the structure of classification and the administration of the platforms by moderators. The structure of classification as found in EmergencyAus, and in the cases of the Help Map and of Flood Aid, or the lack of structure in the case of Facebook pages for the Krymsk floods or Queensland Floods, appears to provide a high degree of flexibility around the definition of the object. This flexibility means that users can both take part in defining an object for activity and select an object for the activity. To some extent, the digital tools that allow a flexible framework for the subject-object relationship, with the possibility for the subject to define/choose his/her object, evoke the notion of a “runaway object” (Engeström, 2008a), which constantly changes through people’s activity and may have a “strong emancipatory potential” (See 3.3.2).

The capacity of the subject to take part in the definition of the object of activity is associated with another observation. A common denominator of platforms like Dobrovoletz.rf and Emergency Volunteering is that users are offered an opportunity to engage in emergency response, although they are not able to see the specific objects of their potential activity as proposed by the platform. In the case of these platforms, users can register to become part of a bounded community, but the process of mediation of activity does not take place in an open mode. Platforms like Help Map and FloodAid keep all the data and metadata open so that users are able to see the range of potential objects that require activity and to select objects for engagement. Therefore, enabling the participation of the subject in the selection of the object of his/her activity seems to require not only a flexibility of platforms with regard to the definition of subject-object relationships, but also a *transparency* of objects.

The roles of flexibility and transparency can also be seen in the case of crisis mapping platforms. A comparison of SBTF and Crisis Mapping UK (see Sections 5.2, 5.4) provides an

illustration of the contribution of tools to governance by others and self-governance by users. It seems that SBTF relies mostly on a dedicated digital platform with a specific structure of activity systems, including rules that regulate the nature of the objects and the structure of membership/teams that define specific boundaries of community and a division of labour. Crisis mappers UK does not have a platform and relies mostly on a mailing list. Apparently this offers more flexibility, while the framework of activity is shaped by the members of the community and moderators supervise the mailing list. That said, the degree of transparency around the structure of activity seems higher in the case of SBTF, where the structure of the platform is visible to all members of the community. In the case of the mailing lists and in the light of the significance of the role of the moderators, there is less transparency around the process of selection of the objects.

To sum up, this seems to suggest that strict definitions of the elements of an activity system, and specifically of the objects of activity, a lack of flexibility around an object, and a lack of transparency are associated more closely with digital tools that contribute to the governance of subjects by others. It also appears that a high degree of flexibility around the definition of the object of activity and transparency around the structure of activity are more likely to be associated with tools that contribute to the self-governance of users. At the same time, a low degree of transparency and flexibility is likely to be associated with the contradiction discussed above in relation to the tools for engagement, where the same platform constitutes users both as subjects for engagement and as objects for control (Table 8.3). A lack of transparency and a lack of flexibility may enable the constitution of users as objects of control even when the stated purpose of the tools is user engagement.

This analysis is developed drawing mainly on my thematic framework which was informed by the structure of activity systems. The methodology for this study also emphasises that the subject-object relationship is situated in the context of a discourse of activity (see Section 4.4). The position of users, either as subjects or as objects, can also be explored by examining the role of digital tools in the construction of the discursive location of the subject. Digital tools that offer to inform, to alert or to engage the subject offer a “possible way of being” (Willig, 2001) and a “field of possible actions” (Foucault, 1981) in situations of emergency. My analysis highlights the extent to which the subject is able to take part in defining his/her own discursive location in a context of emergency through digital mediation as subject or as object.

This section has suggested that digital tools with institutional affiliation tend to be less transparent, less flexible, and to constitute relatively stricter and narrower activity systems

which have been shown to contribute more to the governance of others. This may be associated with institutional limitations (Section 6.3.1), as for instance in the case of EmergencyAus, where the developers had to leave an emergency agency in order to develop a tool to integrate alerting and engagement and to introduce a classification system with a high degree of transparency and flexibility around the mediation of activity (Section 7.3.1). That said, focusing only on the affiliation of platforms does not provide a satisfactory explanation for the observed differences in the roles of tools.

This section has focused on an analysis of the role of tools for the governance of activity, but not on the factors that shape the roles of the tools. It identifies how platforms can interchangeably constitute users as subject and as object, and structure relationships between different actors as subjects and objects. It also discusses the properties of platforms that may contribute to their role in the governance of users by others or in self-governance. The conceptual framework emphasises that the factors shaping the role of digital tools in the governance of activity include not only the affiliation of the tools, but the relationships among the actors. The next section considers subject-to-subject relationships in order to address this aspect of the second theoretical question in this study (RQ2).

8.3 Subject-to-subject relationships and the digitally mediated constitution of the subject

This section reconsiders the interview data in order to explore the factors associated with the role of digital tools in the governance of user activity in emergency situations (RQ 2), and specifically: *What is the role of subject-to-subject relationships in the digitally mediated constitution of the subject?* (RQ 2.2). Responding to this question requires a consideration of how actors view each other in the context of emergency situations (see Section 3.5). The analysis in this section explores how specific actors influence the discursive location of other subjects, drawing on an analysis of the discourse of activity (see Section 4.4). As suggested by the juxtaposition of the model of activity systems with the notion of governmentality (see Section 4.4), an analysis of discursive location can help to assess whether actors see each other as part of the same activity system and, if yes, what the perception is of the role of other actors within the system. As indicated in the discussion of governmentality (see Section 3.2.4), the analysis is primarily concerned with the relationship of state-affiliated traditional actors who deal with emergency response and independent actors who are not affiliated with state institutions.

The analysis of the interviews with most of the Australian interviewees who have an

affiliation with traditional institutions suggests an appreciation of the role of citizen participation as spontaneous volunteers in emergency response (see Section 7.4.3). The major concern of state-affiliated interviewees was related to citizens as potential victims. The interviewees described situations where people were not ready to leave their homes and highlighted the fact that evacuation is more important than citizen participation in response (Section 7.4.3). When it came to the participation of citizens in emergency response, the interviewees from traditional agencies were more likely to underline the importance of skills and organizational affiliation (Sections 7.3.2, 7.4.3).

The discursive boundaries discussed in Section 7.2 suggest that traditional actors distinguish between the participation of citizens with skills and permanent affiliations with organizations or/and communities and spontaneous volunteers with no affiliation and no specific verified skills. At the same time, digital volunteers presented themselves as a dynamic and efficient solution to the immediate needs of emergency response. For instance, FloodAid founders highlighted the advantages of spontaneous volunteers because their project enabled them to find citizens with the most relevant skills in the closest proximity to an incident (Section 6.3.3).

The analysis presented in Section 7.4.3 of the role of the public according to the reported perceptions of institutional actors in emergency situations seems to indicate a tension with their view of the role of the general population in disaster response. On the one hand, the population needs to be controlled and kept out of the disaster area and, on the other hand, they need to be engaged. As indicated by AUSGOVAF4 and others, however, the emergence of spontaneous volunteers relying on digital platforms was recognized as a process to be addressed through new institutional practices for engagement and coordination (Section 7.4.3). At the same time, the increasing role of digitally mediated volunteers creates a new challenge for traditional actors. This is indicated in the analysis of actors whom I conceptualize as spontaneous intermediaries (Section 7.4.4). Here the intermediaries present themselves as proposing an effective mechanism for the allocation of citizen's resources in order to address gaps in traditional response. However, most of the spontaneous intermediaries expressed frustration about a lack of capacity to develop cooperation with state-affiliated actors. Tensions between institutional actors and independent intermediaries seeking to coordinate spontaneous volunteers were a dominant theme in the interviews with independent actors in Australia (Section 7.4.4).

To summarize, the institutional actors in Australia highlighted the importance of volunteers. Apparently, independent volunteers are seen mostly as amateurs who can help

with a limited range of simple tasks and need to be controlled. At the same time, independent digital intermediaries underlined their advantages as compared with traditional responders and highlighted the limited capacity of the state to innovate and factors that limit the capacity of traditional responders to respond efficiently (Section 7.4.1). Despite their mutually critical views, both volunteers and state-affiliated agencies maintain a dialogue and seek opportunities for collaboration.

Similarly to the Australian case, Russian interviewees with an affiliation to state institutions expressed concern about the professionalism of independent volunteers who are interested in participating in emergency response. The lack of professionalism was highlighted in the case of organizations such as Liza Alert, or in describing the participation of volunteers in response to the floods in Krymsk. Nevertheless, it was also suggested that, in the division of labour with traditional responders, volunteers can fulfil only simple tasks (Section 7.3.2). That said, the Russian situation suggests a number of perceptions of volunteers by state-affiliated actors that were not observed in the Australian case.

According to state-affiliated interviewees in Russia (See Section 7.3.2), volunteers are motivated by boredom, a desire for good public relations and political interests. Moreover, some state-affiliated interviewees argued that volunteers are intentionally hostile towards traditional responders and MCHS (e.g., RUGOV6a in Section 7.3.2): they seemed to approach the relationship between volunteers and traditional responders as a struggle. Volunteers were also seen as generators of negative content in social media that was considered a threat to the image of MCHS. The latter was also reflected in the structure of monitoring of social media, which is concerned with finding negative content (see e.g., Section 6.2.4, and as discussed by RUGOV1 in Section 7.3.2). The attitude towards volunteers as negative content generators also seemed to be associated with a situation where social media are considered as an additional burden that complicates emergency response by traditional responders (as highlighted by RUGOV3 in Section 6.2.4). It seems that the attitude toward volunteers was institutionalized in the structure of the Russian emergency response system, while social media and the interaction with Internet users was located under the responsibility of the MCHS press and public affairs department, which was reported as being driven mostly by goals related to improving the image of the institution (as highlighted by RUGOV5 in Section 6.2.4).

Unlike in the case of Australia, where the discursive boundaries differed between spontaneous volunteers without organizational affiliation and permanent volunteers who are linked to an institutional framework or community (Section 7.2), in the case of Russia the

major differentiation was in the affiliation of volunteers with the state system, and specifically in the divide between “system” and “non-system” volunteers (Section 7.2). The discursive boundaries in the Russian case seem to highlight a lack of capacity by the institutional actors to control volunteers

At the same time, Russian independent interviewees, in their depiction of traditional state-affiliated responders, highlighted the lack of professionalism or skills for emergency response, e.g., in the case of responses to fires in the Ladoga area or search and rescue operations in forests (as argued by RUIND2 in Section 7.3.3). The interviewees also highlighted the lack of professional equipment or appropriate human resources in response to wildfires among emergency institutions (as highlighted by RUIND9 in Section 7.3.3). Moreover, in some cases the traditional responders and the state institutions were described as absent (in particular in remote areas, e.g., the Ladoga lake, as highlighted by RUIND2 in Section 7.3.3). In the case of the response to the floods in Krymsk, however, the local volunteers emphasized that the presence of the state was limited only to the first phase of the disaster (as discussed by RUIND 14, RUIND15, RUIND16 in Section 7.3.3).

State-affiliated volunteers were also characterized as a “fake structure” relying on “dead souls” (Section 7.3.4). In addition, volunteers described traditional and state-affiliated responders as actors driven by political interests (Sections 7.3.3, 7.3.4). The emergency services were portrayed by independent interviewees as suggesting that “everything is under control” and as concealing information about disasters so as to avoid making an effort and in order to avoid the potential negative consequences associated with publicity around an emergency. The volunteers and NGO activists described this as “a wall of denial” around the emergency that needed to be broken (Section 6.2.1).

The conceptual framework (Section 3.5) suggests the benefit of examining subject-to-subject relationships through the notion of objectification (Section 3.2.2). The discussion above illustrates “strategic games of truth” (as discussed in Section 3.2.2), where different subjects seek to propose their own role and the roles of other subjects in a context of emergency response. This analysis therefore focuses on discursive practices, including the practices of division that establish boundaries between different subjects and the objectification of the subject established within particular boundaries. The constitution of the role of unaffiliated members of the public in the context of a disaster is particularly interesting in the light of the tendency to identify the crowd as a source of disorder (as discussed in Section 2.3). Mutual practices of objectification among actors in the context of a

disaster response in both Russia and Australia can be examined as “games of truth”. Table 8.4 suggests a simplified summary of these “games”:

	State-affiliated	Independent actors
Russia	Volunteers are not professional, driven by selfish and political factors. They create an image threat and are often hostile to traditional responders.	The state seeks to conceal information about the real scale of disasters. It is not professional, not accountable, driven by political motivation and hostile toward volunteers.
Australia	Spontaneous volunteers can contribute to emergency response, but they need to be coordinated and can perform only limited tasks.	State actors are more open to collaboration, although they are not open enough and restrained by institutional and political factors.

Table 8.4: Key elements in modes of objectification in Russia and Australia

A reading of Table 8.4 suggests a main theme around the objectification of digital users as members of the public and as potential actors for engagement in emergency. The public⁴¹ was seen either as a potential source of disorder that needs to be controlled or as a potential partner that can be engaged in a response. In the cases of Russia and of Australia, both elements are present in the relationships between the actors. That said, it seems that the objectification of citizen participation in emergency response in Australia offered more space for approaching volunteers as partners, although it also suggests that spontaneous volunteers have to be controlled. In the Russian case, the objectification of volunteers by the institutional actors emphasizes not only that they need to be coordinated, but also the hostile nature of volunteers in relation to the institutional actors. Based on the analysis of the Russian state-affiliated interviewees, the volunteers were seen mainly as part of the problem, not as part of a solution that will assist in addressing a disaster. Another feature of the games of truth is the objectification of institutional actors by volunteers. Here we can also see that, while in both countries there is a critical approach by volunteers towards the role of traditional responders, unlike in the case of Australia, in Russia the institutional actors are approached as hostile.

⁴¹ The public and the crowd are used interchangeably here, although later the notion of the crowd is discussed specifically in a context of crowdsourcing.

The conceptual framework highlights an association between modes of objectification and the role of digital tools in the mediation of subject-object relationships (Section 3.5). Table 8.5 depicts the associations between the modes of objectification discussed in this section and the role of digital tools in the mediation of subject-object relationships, as discussed in Section 8.2. The modes of objectification are presented here with a degree of simplification. “A problem” characterizes the arguments about the need to control the users/institutions and “a partner” characterizes views that acknowledge the potential contributions of other actors to emergency response. Both types of views were found in the data in both cases, albeit with different emphases.

Mode of objectification	Discursive location of objectified actor activity system	Discursive location of source of objectification within activity system	Location of disaster
Users as a “problem”	Object	Subject	Object in a separate activity system
Users as a “partner”	Subject	Subject	Object
Institutions as a “problem”	Object	Subject	Object in a separate activity system
Institutions as a “partner”	Subject	Subject	Object

Table 8.5: Association between mode of objectification and location within activity system

Table 8.5 indicates that when the objectification of volunteers by state actors is dominated by regarding volunteers as a problem, e.g., as non-system, uncontrolled or hostile actors, this seems to be associated with the constitution of volunteers as an object of activity, and accordingly state-sponsored digital tools mediate the relationship between state-affiliated actors as subjects and users as objects. In this case, the disaster is an object in a separate activity system which relies on other tools. In those cases where the objectification of the other actors is dominated by the notion of the actor as a potential partner, this seems to be associated with the inclusion of this actor within the digitally mediated activity system as a subject, while the disaster serves as a common object of activity.

The objectification of the state as a problem in the context of natural disasters seems to be particularly significant for the Russian independent interviewees, who constituted themselves as an alternative to an ineffective traditional emergency response system. It seems that objectification of the state as a problem and as a missing actor may be associated with the self-constitution of volunteers as an alternative actor providing a substitute for state actors. In this case, the volunteers can be considered as a subject, while the disaster is an object. This seems to be best conceptualized as the digital mediation of an independent, volunteer-led emergency response system. The constitution of the state as absent in a disaster zone might be associated with the notion of limited statehood (Livingston & Walter-Drop, 2014; see also Section 4.3). In cases where volunteers argue that the limited presence of the state is temporary, the objectification of the role of the state is more likely to be associated with the role of digital tools in a temporary, independent, volunteer-led activity system where volunteers are the subject and the disaster is an object. Once the state appears, the volunteer-led activity system is replaced or co-opted by the state actors, as it was in the case of Krymsk, where most of the response relied initially on volunteers. After the arrival of the traditional responders, some volunteers started to view their role as that of supplementary actors.

The modes of objectification of crisis mappers represent a distinctive case, and the focus in Chapter 5 was not a comparison of the views of institutional actors and crisis mappers. Nevertheless, Chapter 5 (Section 5.2.3) offers an indication of three types of objectification of crisis mappers as an online professional group of experts (e.g., as a volunteer and technical community), as a normative actor (e.g., the notion of “global goodwill”), and as trusted agents (as illustrated by the case of VOST). Various modes of objectification and self-presentation of crisis mappers seem to be associated with the role of digital tools and the constitution of crisis mappers within an activity system. This requires further investigation through assessment of the views of global institutional actors (e.g. UN OCHA).

The relationship between the mode of objectification and the structure of digitally mediated relationships, as presented in Table 8.5, has analytical value in this study, but it was clear that the objectification of other actors included a mix of views and had a dynamic nature. That discussion, however, provides a basis for a more nuanced analysis of the differences in subject-to-subject relationships in the cases of Russia and Australia, the association between these differences, and the structure of activity systems. Providing a more complete response to QT 2.2 requires a focus on the properties of the structure of the relationships between the different modes of objectification.

8.4 The structure of modes of objectification and the discursive location of the subject

The analysis of the Russian and Australian contexts indicates differences in the structure of the subject-to-subject relationships. As indicated in Section 7.2, the Australian system has more layers and complexity, with multiple actors. The indications of objectification are different and this highlights issues that go beyond the observation that the subject-to-subject relationships were mutually critical (e.g., volunteers talk about a lack of openness of institutional actors and institutional actors highlight a lack of professionalism among spontaneous volunteers). In other words, even when the discursive accounts of each group about other actors are critical, they are *asymmetric*. In the case of Russia, the structure of the discursive boundaries of subjects, which seems to rely on a division between system-affiliated and non-system actors (Section 7.2) and on various modes of objectification of subjects, seemed more *symmetric* and binary, so that each group applied similar discursive arguments to the other side. This is illustrated in Table 8.6

Themes	Objectification of volunteers by state actors	Objectification of the state by volunteers
Professional capabilities	Unprofessional Irresponsible Uncontrolled and uncoordinated Burden	Unprofessional Unaccountable Failing/ limited resources State-sponsored volunteers as a fake
Motivation	Boredom driven PR driven Politically driven Financial	Avoiding work by misinformation PR driven Politically driven Financial
Attitude towards other actors	Generators of negative PR Rivals/Adversaries	Interested in controlling volunteers Misuse of volunteers' resources Hostile to volunteers Authoritarian/ unwilling to collaborate

Table 8.6: Symmetric modes of mutual objectification discourse in the Russian case

What can be seen in Table 8.6 is that in the Russian case each group applies a similar type of discursive argument to the other side. The professional capabilities, motivations and attitudes ascribed by each group to the other suggest a high degree of *symmetry* in the mutual modes of objectification. This insight has theoretical value beyond the Russian case if it is analysed in relation to digitally mediated subject-object relationships as a manifestation of

the discursive location of the subject in a context of activity, as proposed in the conceptual framework (Section 3.5).

I suggest that this high degree of symmetry in mutual objectification is best conceptualized as *discursive mirroring*. Discursive mirroring is a situation where each side assigns the same properties, negative or positive, to the other within a subject-to-subject relationship. In the case of Russia, all the discursive reflections appear to have a negative connotation. Both sides portrayed the other as non-professional, politically and public relations-driven, and generally hostile. This discursive mirroring is present not only in the discursive relationship between traditional institutions and volunteers, but also in the relationship between state-sponsored and non-system volunteers. The official volunteers were described as “dead souls”, politically motivated, public relations-driven and lacking the necessary level of professionalism (Section 7.3.4). In the case of negative discursive mirroring, the relationship between the two sides tends to be antagonistic. Discursive mirroring can also be associated with a polarization between groups of system and non-system responders to emergency situations. My analysis suggests that both sides tended to be more concerned with other actors than with the disaster situation.

This suggests that, in the case of discursive mirroring in the context of a specific situation (e.g., a disaster), the mutual relationship between subjects tends to focus on each other and not on a common object (the disaster). The discursive mirroring has two apparent consequences for the discursive location of the subject and the structure of the subject-to-object relationships that constitute the activity system for emergency response. The actors mutually exclude each other as subjects within the activity system for emergency response, where the disaster is defined as an object. Discursive mirroring is also associated with the mutual perception of actors as “objects” of activity that need to be contained and controlled. Thus, in addition to two separate activity systems for emergency response, one state-driven and one driven by “non-system” actors with the disaster as an object of activity, we can see two additional activity systems with different types of object. The first is a system driven by the state as a subject, with volunteers as an object activity. The second is a system that driven by independent actors, with the state as an object of activity.

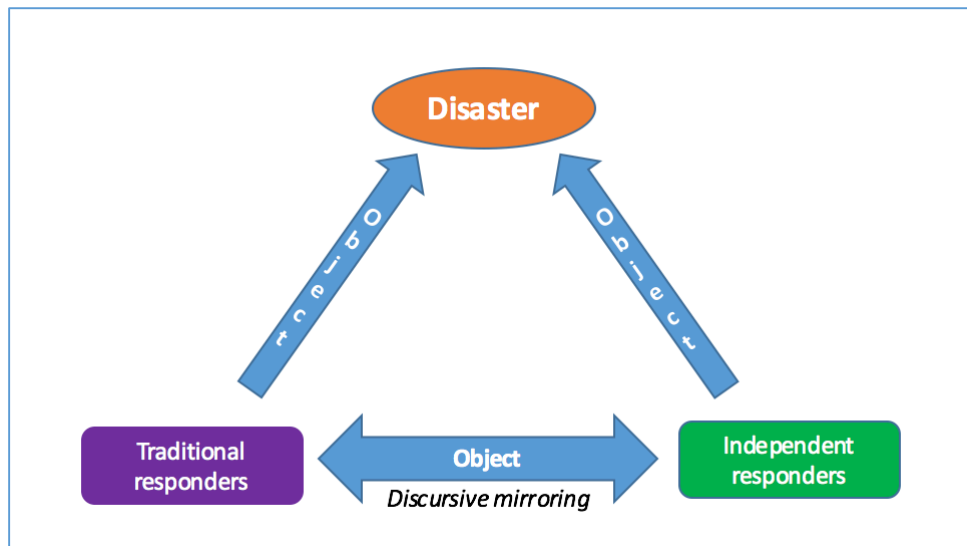


Figure 8.5: Four types of subject-object relationship in cases of discursive mirroring

Figure 8.5 maps the four types of subject-object relationship associated with discursive mirroring. Each arrow suggests a separate activity system, as described above. The actors focus on each other as objects, while the disaster is not a common but a separate object of activity for each type of actor. Discursive mirroring may also be associated with a contradiction among the objects of activity in relation to image protection and disaster response. As indicated in Section 7.3.3 by RUIND2 and RUIND10, state-affiliated actors were open to collaboration with the condition that it would be solely offline in nature and would not be leaked to the media. My analysis suggests that maintaining a positive image and at the same time collaborating with volunteers is unlikely because volunteers are considered an image threat and collaboration presents risks to the image.

This contradiction did not seem present in the Australian case. While in the Russian case the dominant object of activity of the institutional actors was conveying through the symbolic dimension that the emergency was under control (including concealing the real scale of the emergency), the Australian traditional responders did not appear to see a contradiction between the object of their activity and admitting that the emergency was not under their full control. As pointed out by AUSGOV2, “the emphasis became, if you’re not sure you’re going to be able to control it then you need to warn people”. The FiresNearMe app proposed an option to classify a fire incident as “out of control” (see Figure 6.19), which in the Russian case would be likely to produce a contradiction.

In summary, I suggest that *discursive mirroring* is associated with the mutual construction of subjects as objects of activity for each other, and with a discursive location of the subject that relies on the mutual exclusion of actors from each other’s activity systems.

Theoretically, this notion of discursive mirroring suggests that there is little or no space for approaching other actors as subjects within a common activity system. According to the conceptual framework, this can be associated with a situation where digital tools do not support collaboration between actors involved in disaster response, but instead mediate activity that constitutes the other actor as an object (as illustrated by Figure 8.5).

Conceptualizing discursive mirroring as a condition of mutual exclusion of subjects from a common activity system around a shared object suggests, in addition, an insight into the discursive location of subjects that potentially allows them to constitute each other as partners in collaboration, which gives rise to the possibility of a common, object-oriented, digitally mediated activity system. I suggest that we call this mode of objectification a **discursive opportunity**.

Discursive opportunities are present in a mode of objectification that enables actors to treat each other as potential subjects within the same activity system. This notion highlights the extent to which mutual modes of objectification allow actors to approach each other as subjects in an activity system around a common object. This notion differs from the notion of a discursive opportunity structure described in the literature (McCammon et al., 2007), which treats the discursive context as a “terrain for movement activism” and as “opportunities for successful movement framing” (2007, pp. 731-732). In contrast, my notion of discursive opportunities only addresses the discursive location of the subject within the context of an activity system, and the extent to which a specific subject is approached by other subjects as a potential partner around a shared object.

In the case of asymmetric modes of objectification, which are apparent in the case of Australia, there would seem to be more discursive opportunities because the modes of objectification provide more space for actors to approach each other as potential collaborators around emergency response. This was also illustrated in the Russian case when volunteers from Krymsk regarded the role of the state as temporarily missing and recognized the possibility of collaboration with traditional responders.

In some cases in Russia, the discursive location of volunteers was associated with whether these volunteers used digital tools. When volunteers and traditional responders did not engage in digital mediation accessible to a broad audience, the volunteers were seen by responders as potential partners. However, if the collaboration relied on digital mediation (e.g., through social networks or crowdsourcing platforms), this made the volunteers a potential threat to the image of the traditional responders and these volunteers were seen as an object that needed to be contained. This observation suggests that volunteers may change

their discursive location within a state-led activity system, depending on whether they use digital tools: in the Russian case avoiding using digital tools provided more discursive opportunities. This change in the discursive location of a single subject in the context of an activity system can be seen as a **discursive transition**.

This section has built on the analysis of the Australian and Russian cases in order to explore the role of subject-to-subject relationships in the digitally-mediated constitution of a subject (in response to RQ 2.2). This section has shown how the constitution of the discursive location of a subject may be associated with the role of digital tools in the constitution of digital users as a subject or as an object of activity. The analysis has identified modes of objectification and how these are associated with the structure of digitally mediated activity systems. The discussion yields a model of the association between modes and structures of activity systems. This is summarized in Table 8.7.

Mode of objectification	Discursive location of a subject in a context of activity	Structure of activity systems
Discursive mirroring	Actors approach each other as objects relying on symmetric modes of objectification	Independent digital mediated activity systems and systems oriented towards another subject as object (as illustrated by Figure 8.5)
Discursive opportunity	Mode of objectification that allows different actors to approach each other as subjects	Common activity system around shared object
Discursive transition	Change in “games of truth” and in practice of division that can be associated with a transition of the discursive location of the digital user from subject to object and vice versa	Change from independent activity systems to common activity systems and vice versa

Table 8.7: Modes of objectification and discursive location of subject

Still to be considered is the role of subject-to-subject relationships in the digitally mediated constitution of a subject through the lens of Foucault’s understanding of governmentality (Section 3.2.5). This is needed in order to consider the factors that contribute to the governance of subjects by others or to self-governance (RQ 2.1).

8.5 Digital tools: governance through inclusion vs. governance through exclusion

The conceptual framework of this thesis (Section 3.4) juxtaposes activity theory and a Foucauldian notion of governance in order to explore the role of digital mediation in the governance of activity and the administration of individuals and populations (Section 3.2.5). The framework emphasizes the association between digital mediation, the conduct of conduct, and the structuring of the possible field of actions of others (Section 3.2.4). An examination of governmentality suggests that the role of digital tools needs to be situated in the context of the relationship between the general population and the state, acknowledging that the capacity for governance is what constitutes that state. The theoretical chapter also highlights the potential emancipatory role of digital tools as a mechanism of resistance and self-governance (Section 3.2.3).

This section responds to RQ 2.1: *What factors are associated with the role of traditional institutions in the governance of the subject through digital mediation?* and *What factors contribute to the role of digital tools as a form of self-governance of the subject?* It considers the association between the role of digital tools in the constitution of users as subjects or objects and modes of governance, specifically when the user is constituted as a subject and associated with self-governance. It also considers instances where the user is constituted as an object and associated with governance by others, and whether discursive mirroring (see Section 8.4) is more closely associated with the governance of others. This may be the case because it is primarily associated with the constitution of digital users as objects. In contrast, discursive opportunities may provide more space for self-governance, since this allows more space for the digital constitution of users as subjects.

A first intuitive observation is that digital tools associated with approaching digital users as an object and discursive mirroring are likely to be more closely associated with the governance of users by others, while tools associated with the constitution of a user as a subject and discursive opportunities are more likely to be closely associated with self-governance. However, this intuition is misleading insofar as it does not take into account the possibility of multiple activity systems where actors may be simultaneously constituted as objects and subjects in different activity systems.

The discussion in Section 8.2 (Table 8.5) and in Section 8.3 distinguishes between two types of activity system mediated by digital tools. The first type is a system where institutional actors and independent users take part in activity around emergency situations as a shared object (different subjects may have different tasks due to the division of labour). The second type of activity system is where institutions and users constitute each other as objects.

Every subject can potentially belong to a separate activity system with a disaster as an object. This suggests the four activity systems depicted in Figure 8.5, above.

Based on the analysis in Section 8.3 of the structure of subject-to-subject relationships in Russia and Australia, it seems that, in the case of Australia, there were more discursive opportunities for the integration of institutional responders and digital users within the same system of activity (e.g., in the case of the Mud Army). In the case of Russia, due to the antagonism between institutional actors and volunteers, the situation was closer to the four activity systems (although there were examples of shared activity systems in the case of the response to the floods in Krymsk, and in cases of offline cooperation that did not involve digital mediation).

Application of the conceptual framework in this analysis of the data would suggest that the response to RQ 2.1 may be different from the intuition that linked the Australian digital tools more closely to self-governance of users, while arguing that the Russian tools were more associated with governance by others. My analysis leads interestingly to the opposite conclusion, that is, that in the case of discursive mirroring, we are more likely see tools that are associated with self-governance, while in the case of discursive opportunities, we are more likely to see digital tools that support the governance of others by relying on digital mediation.

In response to RQ 2.1, and drawing on my conceptual framework, I am able to identify two different modes of governance of others. In the case of Australia, once the users are constituted as subjects by institutional actors and allowed to take part in activity systems that are driven by institutional actors, they also need to accept the framework imposed by the digitally mediated activity system, including the rules and the structure of the division of labour. For instance, in the case of the Mud Army, the users followed specific objects proposed by Brisbane City council. In the case of BSAR, the search and rescue activity relies on police systems and the volunteers are activated by a police officer. The same situation can apparently be seen in the activities of MAPS, where volunteers are activated relying on the objects defined by traditional organizations and the digital systems used by these organizations. The Emergency Volunteering portal also proposes to mobilize volunteers around the objects defined by traditional actors (although in this case, as indicated in Section 8.2, there is no transparency around these objects). I propose to conceptualize this type of situation, where users are offered the opportunity to take a part in emergency response relying on a structure proposed by institutional actors, as **governance through inclusion** in state-sponsored activity systems. The state-sponsored digital tools in this case support a

structure of a possible field of action developed by the institutional actors, and this constrains the activity of volunteers within the framework suggested by the institutions.

The analysis of the data from Russia on the role of digital tools seems to present a different situation. As highlighted in Section 8.3, the users of digital tools are mostly approached by traditional actors as an object that needs to be controlled and contained, while social media are monitored in order to identify user-generated content that can potentially threaten the image of institutional actors. My analysis indicates that in the Russian data set there are no state-affiliated tools for the engagement of volunteers that approach users as a subject (except the case of Dobrovoletz.rf, which, as indicated by Figure 8.4, also constitutes the location of users as subjects and objects at the same time). I suggest that this situation, where independent users are not allowed to take part in a state-led emergency response relying on digital mediation, is a form of **governance through exclusion** from state-sponsored activity systems. At the same time, in the case of Russia, most of the digital tools for the engagement of users in response to emergency seem to be linked to independent actors (e.g., Help Map or Pozar_Ru).

My analysis suggests that the governance of others may rely either on digitally mediated inclusion within a state-sponsored activity system or on exclusion from participation in a state-led activity system. Table 8.8 suggests how the types of governance are associated with the discursive location of the subject as it is constituted by the mode of objectification.

Type of governance	Approach of state-actors to individual actors	Dominant mode of subject-to-subject	Associated case study	Structure of users' activity systems
Inclusion within activity system	Subject	Discursive opportunities	Australia	Strict
Exclusion from activity system	Object	Discursive mirroring	Russia	Flexible Transparent

Table 8.8 Modes of digitally mediated governance

In the case of Australia, the discursive opportunities for partnership between traditional responders and digital users seem to be associated with governance through inclusion, within state-sponsored activity systems with a relatively strict framework for subject-object relationships where users are mobilized around a limited object and activity relies on a strict division of labour and on strict rules. An interest in including volunteers was

also expressed by state-affiliated interviewees, who highlighted the importance of developing new institutional practices to manage spontaneous volunteers (Section 7.4.4).

In contrast, discursive mirroring in the Russian case seemed to be more closely associated with governance through exclusion. Here the structuring of possible fields of action for the volunteers by state actors actually means preventing access to the possible field of action and not allowing them to take part in emergency response within the state-sponsored activity system. Moreover, some of the digital tools sponsored by the state which focused on volunteers as an object of activity sought to prevent their participation in emergency response. This was seen in the case of Dobrovoletz.rf, an instance of a mechanism that created a semblance of opportunity for participation without any real activation of the volunteers, or in the case of monitoring social media with a view to identifying volunteer activity in order to put restrictions on it. Exclusion can also be seen in cases where the volunteers were given an option of inclusion that relied on a very limited set of tasks (e.g., distributing leaflets or cleaning a camp), which was considered a meaningless form of engagement by the volunteers. Volunteers who were excluded from participating in state-affiliated activity systems developed their own digitally mediated activity systems that relied on independent digital tools, e.g., Help Map or Pozar_Ru. These tools had a relatively high degree of transparency and flexibility with regard to the structure of digitally mediated activity systems, and accordingly seemed to be more closely associated with the notion of self-governance, where users were able to take part in the definition of their objects of activity (as indicated in Section 8.2).

These types of independent digital tool were also present in the Australian case. For instance, Flood Aid presented a case of a platform with a high degree of transparency and flexibility which could be associated with self-governance. This suggests that governance through inclusion does not necessarily mean the elimination of opportunities for the use of digital tools that support the self-governance of digital users. However, as highlighted in the discussion in Section 7.4.4, the spontaneous intermediaries associated with independent platforms with a flexible and transparent structure of activity system were often rejected by traditional actors. This observation suggests that both types of governance – “governance through inclusion” and “governance through exclusion” – can exist alongside each other in the same emergency situation. However, different modes of governance can address different communities. In the case of Australia it seems that governance through inclusion addresses the general community of Internet users, while governance through exclusion is directed towards developers of independent platforms, conceptualized in Section 7.4.4 as spontaneous

intermediaries. This rejection may be associated with an ambivalent discursive location of the intermediaries as part of the crowd and, at the same time, as actors taking part in the governance of the activity of the crowd through the development and administration of digital tools.

Contrary to my initial intuition, there are likely to be more digital platforms that support self-governance when traditional actors regard the users as objects and reject their participation in state-led activity systems. In other words, exclusion seems to be associated with the development of independent, digitally mediated activity systems that allow the subject more opportunities to define their own relationship with the objects of activity. At the same time, when volunteers are seen as subjects and potential partners in cases of governance through inclusion, this may be associated with a stricter structure of activity for the participation of digital users. The strict structure of participation imposed by the institutional actors seems to be closer to the notion of governance by others and likely to offer less space for self-governance. While both types of governance are present in Russia and Australia, this distinction has analytical value. The discursive construction of the subject-to-subject relationship in the case of Russia may be associated with governance through exclusion and with the emergence of the four types of activity system suggested in the previous section (Figure 8.5). The Australian case provides more evidence of discursive opportunities for governance through inclusion. It should be pointed out, however, that independent digital platforms can yield a stricter structure for an activity system and more limited opportunities for self-governance (e.g., in the case of Extremum).

The notion of governance of the structure of activity offers considerable insight into the role of digital tools in the relationships between institutional and independent actors. In both cases, volunteers were treated as a challenge to the state's governmentality capabilities, and in both cases the institutional actors approached volunteers as an object of control. But this challenge was addressed differently, relying on digital tools for either governance through inclusion or governance through exclusion. The next section considers crowdsourcing as an instance of digitally mediated governance of the resources of the crowd.

8.6 Crowdsourcing as governance of the resources of the crowd

Crowdsourcing is considered one of the most notable digital phenomena in relation to digitally mediated crisis response (Section 2.2). The background chapter points out that examination of the objectification of the crowd in the context of digital sourcing needs to take into account the diversity of psychological and sociological approaches to the notion of the

crowd (Section 2.3). In Chapter 3 it is suggested that crowdsourcing in this context may be better understood by juxtaposing activity theory with a notion of governance (see Section 3.6). Crowdsourcing as a practice of mediation of subject-object relationships can be understood as being associated with a digitally mediated activity system. At the same time, applying the Foucauldian framework enables me to approach crowdsourcing as a form of “governance of crowds” (Section 3.6). This section addresses the theoretical questions:

- *What is the role of crowdsourcing platforms in the mediation of subject-to-object relationships and the constitution (governance) of users (as subjects)? (RQ 1.3)*

and

- *How is the discursive construction of the “crowd” associated with the digitally mediated governance of the crowd, and specifically with governance by others and self-governance? (RQ 2.3)*

The conceptual framework highlights how the constitution of the role of the crowd relying on digital mediation may be associated with the type of resources mobilized. In the case of crisis mapping, most of the resources are related to the capacity of the user to collect or analyse data. Data collection can take place both online, relying on social media sources, and offline, relying on observation by users (e.g., in the cases of Australian crowdsourcing projects Bushfire Connect and the ABC-sponsored map of foods, or in the case of the EmergencyAus app). Data analysis is conducted mostly online, e.g., in the case of SBTF or Micromappers. The Australian and Russian cases discussed in Chapter 6 also included examples of digital sourcing that required offline mobilization and the provision of humanitarian aid and responses to fires (e.g., in the case of Help Map or FloodAid). These cases also highlight the importance of distinguishing between the mobilization of user resources requiring prior skills and knowledge (e.g., in the case of MAPS or BSAR) and of a general crowd with no specific skills required. The collection of money in the case of Amur13 illustrates the mobilization of financial resources, which is often regarded as crowdfunding. In all these cases, the role of the crowd in relation to the emergency was constituted by the types of resource mobilized through digital mediation.

The discussion in Section 8.2 highlights two aspects of crowdsourcing. First, the digital mediation of sourcing may rely on a strict activity system or on digital tools that allow for a relatively high degree of flexibility around the object of sourcing. Crisis mapping platforms seem to offer a strict case of sourcing since the mobilization of resources is focused solely on data collection/aggregation and data analysis. Platforms like Help Map or Flood

Aid are cases where the mobilization of the resources of the crowd relies on a flexible structure of activity which is less restrictive with regard to the object of mobilization and the types of resources required. This type of flexibility may offer more space for the constitution of diverse roles for users as subjects in the context of emergencies as objects of activity.

Another issue highlighted in Section 8.2 is transparency around the structure of digitally mediated subject-object relationships. The degree of transparency around digital sourcing of a crowd's resources suggests a focus on whether users can see what types of resource are mobilized and for what purpose. Lack of transparency around resource mobilization is illustrated by the case of Dobrovoletz.rf, where people join a community of online volunteers without being able to follow the object of sourcing or the resources required. It seems that non-transparent crowdsourcing platforms may allow a situation where users are asked to contribute their resources, but their resources are not then mobilized. This situation results in an ambivalent position for users as both subjects and objects (as indicated in Table 8.3). This indicates that the purpose of the platform is not only the mobilization of the resources of users in an emergency situation, but also control of the resources of users.

The conceptualization of crowdsourcing (Section 3.6) emphasizes that the types of sourcing, and particularly the types of resource, may be associated with how the crowd is constituted through objectification. In relation to discursive boundaries and what can be considered to be a crowd in the context of crowdsourcing (Section 7.2), Russian interviewees distinguished between the general population and local communities in affected areas, who were considered to be passive (7.3.1), and volunteers, who were seen as active participants and apparently tended to be associated with the use of digital platforms by users mostly from an urban environment (7.3.2). Section 8.2 highlights three modes of digitally mediated subject-object relationship: informing, alerting and engagement. Based on the analysis of my data, there appear to be three types of digital crowd associated with three modes of digital mediation, as set out in Table 8.1. First is a general audience of digital users associated with informing. Second is a crowd that relies on digital users in a disaster zone who are potentially affected by the disaster. Third is a community of general users who are potentially interested in engaging in response to a crisis situation.

The conceptualization of crowdsourcing in Section 3.6 highlights how engagement relies on the digital mobilization of resources. An understanding of the objectification of the crowd in the context of sourcing can benefit from a focus on communities associated with the digital mediation of engagement. From this perspective, there are substantial differences between the traditional notion of a crowd as a collective actor associated with social disorder

and the digital crowd as an actor able to engage in productive activity by offering resources to achieve a goal. In addition, my analysis of the objectification of digital users in Australia, and particularly in Russia, highlights how the digital crowd may also be seen by institutional actors as a potentially problematic actor. In both cases, the objectification of the crowd can be considered as part of the strategic games of truth around the crowd.

In the case of Australia, the engagement of the crowd as a “spontaneous” volunteer gave rise to concern about the lack of appropriate skills among members of the public and to a potential conflict between the need to leave dangerous areas following alerts by emergency agencies and people’s determination to engage in a response. A specific concern of institutional actors was with actors, conceptualized in Section 7.4.4 as spontaneous intermediaries, who sought to coordinate the participation of spontaneous volunteers. In the context of crowdsourcing, spontaneous intermediaries are actors using digital tools to coordinate the allocation of resources of Internet users. One of the co-founders of FloodAid criticized traditional responders for their lack of an efficient mechanism for the allocation of the resources of spontaneous volunteers (Section 6.3.3). The problem of allocating resources was also highlighted by Barton (1969) and is treated as a central issue in the emergency management literature (Alexander, 2008).

In the case of Russia, the objectification of the digital crowd was different. According to state-affiliated interviewees, volunteers who relied on digital tools were associated with boredom, hostility towards the state and political interests (Section 7.3.2). In the Russian case we can see how the emergence of the digital crowd was addressed as a potential source of threat and as a non-system actor located beyond the scope of institutional control. To some extent, recalling Foucauldian studies of objectification, it seems that volunteering by Internet users was seen as a type of “social madness”. In this light, the discursive construction of the digital crowd, seems to involve the governance of volunteers in a similar way to the governance of the sick or the mad.

Different objectifications of the digitally mediated crowd in the context of sourcing may be associated with different discursive locations of the crowd in the context of an activity system. A digital crowd can be included in a state-led activity system relying on objects and in a division of labour introduced by the state, or excluded from state-led emergency response. In a case of inclusion the resources of the crowd are controlled by the state through digital mediation. This may be associated with a notion of governance by others. In a case of exclusion, traditional institutions seem to make an effort to block resources (Section 7.3.3), which (according to the discussion in Section 8.4) may also be

associated with the emergence of independent, volunteer-led activity systems. In the latter case, crowdsourcing platforms may approximate the notion of self-governance, since it is more likely that in independent systems with a higher degree of flexibility and transparency the members of a crowd will decide what resources they are ready to contribute and around what goals.

While independent actors highlight the flexible nature of resources and the skilled nature of the crowd, institutional actors may argue that the crowd offers limited resources around specific objects. The digital tools offered by institutional actors suggest a **vertical model** that specifies what resources can be mobilized and for what purpose, without leaving a space for the members of a digital crowd to participate in deciding what resources they can offer and for what. The digital tools developed by independent actors, e.g. Help Map or FloodAid, suggest a **horizontal structure** of resource mobilization as a relationship between the subject and the object, where the subject takes part in defining what resources he/she can offer and for what purpose. To some extent, resource mobilization mediated by relying on digital tools without institutional affiliation is more likely to manifest what Engeström (2007; 2008 b) describes as “knotworking” (see Section 3.3.3) and to support the spontaneous, dynamic and horizontal collaboration of different actors around a shared object.

This association between the objectification of the crowd and modes of governance – inclusion or exclusion – in state-led activity systems suggests a response to RQ 2.3. The analysis highlights the value of distinguishing between the traditional notion of the crowd as a general population and the crowd as a digitally mediated actor in the context of digitally mediated engagement to mobilize resources. The modes of objectification by state actors in both the Russian and the Australian cases address the digital crowd as an actor that needs to be controlled, but differences in objectification are associated with variations in the discursive location of the crowd in the context of a potential activity. Thus, control is manifested through governance of the crowd either through inclusion or through exclusion.

Unlike the cases in Russia and Australia, crisis mapping seems to involve a different constitution of the crowd. In this case the objects are limited to online mapping of the crisis and the range of resources that can be mobilized is also limited. Second, due to the nature of the object, the engagement is mostly online. For instance, one of the rules of SBTF is that members cannot have direct contact with the affected populations when they work only with responding organizations. Thus, the activity of crisis mappers is contained online, unlike the activity of the crowd in the cases in Russia and Australia, where the crowd can potentially engage in offline activity through digital mediation.

As highlighted in Section 5.2.3, crisis mappers are also likely to be objectified as a group of online experts, as a group sharing humanitarian norms, or as group to be trusted by traditional responders. None of these objectifications seem to pose a threat to institutional actors. Crisis mapping therefore suggests a limited object of activity supporting existing institutional-led activity systems. Moreover, in most of the cases to date, crisis mappers have discursively constructed themselves as supplementary to traditional responders. Accordingly, the majority of crisis mapping projects, particularly VOST, SBTF and MAPS, are cases where the projects were created to support existing activity systems facilitated by traditional actors. These can be regarded as cases of *self-inclusion*. For instance, to support inclusion based on a more efficient division of labour, the Digital Humanitarian Network was a mechanism for the facilitation of inclusion as part of emergency response by international organizations. Thus, in the case of crisis mapping there appear to be more instances of governance through inclusion. In some cases, however, where the inclusion of crisis mappers was rejected, there was self-activation of independent crisis mapping projects, e.g., Crisis Mappers UK. The next two sections present a more detailed discussion of crisis mapping as a specific case of crowdsourcing.

8.7 The role of domain and space in the governance of activity

The discussion so far has suggested that activity that occurs online is less associated with the objectification of a crowd as a threat than is the digital mediation of an activity that occurs offline. This section proposes a more nuanced examination of the factors associated with objectification and the constitution of the digitally mediated subjects/crowd either as a threat or as a potential collaborator, and addresses issues highlighted by several of the empirical questions in this study (EQ 2.2, EQ 2.3; see Table 4.8). One factor may be the *space of activity*, which distinguishes between the global (international) and local (national) environments. The national environment can be conceptualized as a space with a degree of sovereignty, while the global space has a higher degree of anarchy (Section 4.2). Another factor may be the domain of activity, which includes online and offline domains. The conceptual framework (Section 3.5) suggests addressing how the structure of subject-to-object relationships and the mode of governance of the digital crowd are associated with the space and the domain of activity, and specifically how the domain and the space are associated with governance by others and self-governance, and with governance through inclusion and governance through exclusion.

The comparison of the domain of activity in cases of national spaces suggests some substantial differences between Russia and Australia. The interviews with Russian volunteers suggest that they have better opportunities for offline cooperation on the local level with the representatives of local official emergency services than for collaboration with MCHS on a federal level. Collaboration was represented as being possible once the volunteers had promised that this would not be publicized online (Section 7.3.3). At the same time, any type of collaboration that might be manifested online was considered a public relations threat by the institutional actors. My analysis suggests that in the Russian case there is more space for the inclusion of volunteers offline (although these volunteers may have online origins), while in the online domain inclusion is rejected. In the case of Australia, the role of social media in the creation of the Mud Army, facilitated by Brisbane City Council, seems to illustrate that, unlike in Russia, there is more space for inclusion of volunteers in state-led activity, although the objects of activity were defined by institutional actors and the structure of activity was quite strict. These observations seem to suggest that the institutional actors were concerned with the governance of digitally mediated activity in the offline dimension, although this can occur either through the exclusion of a volunteer or through inclusion under relatively strict terms dictated by institutional actors.

The crisis mapping projects (Chapter 5) present a basis for a comparative examination of the role of space and the domain of activity, since these include local (VOST, Crisis Mappers UK) and global (SBTF, micromappers, DHN) projects, as well as projects that are related to offline (MAPS) and online (the rest of the cases) domains of activity. Despite the expectation that state actors would be more open to collaboration with crisis mappers because their activity is contained online and does not interfere in the offline space, the two cases of crisis mapping initiatives in the UK illustrate the opposite. The analysis of the interview data from the founders of VOST UK and Crisis Mappers UK suggests that both initiatives were rejected by local authorities and emergency agencies (Section 5.4.2). This was despite the fact that projects like VOST seek to be trusted agents for institutional actors (Section 5.2.2).

The only case of an independent, local crisis mapping project that can be associated with inclusion is that of MAPS in Australia. MAPS is substantially different from other cases because it relies solely on professional experts and the activity takes place offline within the coordination centres of emergency agencies (Section 5.4.2). Although MAPS is a crisis mapping initiative, the structure of the project is similar to projects like BSAR, where a bounded group of certified volunteers is activated offline by traditional actors as part of their activity and relying on their digital tools. It should also be noted that the crisis mapping

project for mapping floods in Brisbane was affiliated with ABC, which is a state-sponsored company, and therefore it cannot be considered an independent crisis mapping initiative.

The case studies associated with the global dimension suggest a different picture. Offline activity on the global level is almost impossible due to the remoteness of potential responders from the area of disaster.⁴² Thus, my analysis focuses on the global online activity associated with various types of crisis mapping project. Here the analysis seems to suggest a higher degree of collaboration between international institutional actors (e.g. UN OCHA) and digital projects, including bounded groups of volunteers (SBTF) and unbounded groups of volunteers (micromappers). Moreover, the bounded groups of volunteers play the role of intermediary and coordinate the activity of unbounded volunteers to support the objects of the institutional actors. An additional example of the development of a mode of collaboration in the global space is the Digital Humanitarian Network (DHN), which coordinates the engagement of bounded groups of digital volunteers. My analysis suggests that the global online case of crisis mapping is an example of a common activity system which allows the inclusion of various digital actors around objects related to crisis mapping.

A comparison of local and global crisis mapping initiatives seems to suggest that there is more governance through exclusion of crisis mappers on the national level, while there is more inclusion of volunteers on a global level. One of the possible explanations for this is that when the space is global, the digital actors are contained by their remoteness and cannot interfere in the offline zone of activity of institutional actors. Accordingly, global institutional actors are likely to be less concerned with digital volunteers as objects of control than they are in the national space. In addition, unlike some local institutional actors that want control over crisis mapping in order to manage the symbolic representation of a disaster (as in the case of Russia), global institutional actors do not express this concern, since crisis mappers are less associated with political threats to their interests.

The analysis seems also to suggest that while traditional national institutions are more open to the inclusion of the general population of volunteers, e.g. in the case of the Mud Army, the attitude towards digital actors proposing to play the role of intermediary and relying on a dedicated platform and a specific online group may give rise to more concern from the point of view of traditional responders. On the national level, the objectification of crisis mapping initiatives seems to be closer to the notion of an intermediary than to a general spontaneous crowd. State institutions appear to be more open to the participation of a crowd

⁴² Unless it relies on an NGO, e.g. Maps Action, which is beyond the scope of this study.

when it is directed by them, but less open to online initiatives and organizations that offer their services as intermediaries. The objectification that distinguishes crisis mappers from a general crowd of volunteers on the national level may therefore be associated with different approaches to governance, as proposed in Section 8.5. The exclusion of a local crisis mapping initiative can also be seen in the case of the Bushfire Connect project, which was also rejected (Section 6.3.2), although it was focused solely on the collection of data with no intent to facilitate offline activities.

At the same time, the rules of activation of SBTF underline that the purpose of crisis mappers is to support either local or international responders. Global crisis mappers define their role as support to existing institutional actors and their activity systems, which differs from local crisis mappers, where mapping can support independent volunteers (e.g., in the case of the Help Map in Russia). In other words, global crisis mapping does not appear to seek to establish independent activity systems, but only to support existing institutional-led activity systems. That said, although the local UK VOST also sought to support traditional institutions, it was rejected by local authorities and agencies.

Table 8.9 summarizes observations about the association between the form of governance of digital users in emergency situations and the domain/space of activity.

	National (Local)	International (Global)
Online	Governance through exclusion of subjects relying on digital mediation	Governance through inclusion within institution-led activity systems
Offline	Governance through inclusion as part of state-led activity system relying on offline mediation	None

Table 8.9: Governance of activity and dimensions of activity

Table 8.9 suggests that in the national space digitally mediated initiatives are either excluded from activity systems or incorporated within activity systems that rely on offline mediation, while in the global cases there is more space for the inclusion of digital users as part of emergency-related activity systems.

This finding suggests a higher degree of collaboration and harmony among actors on the global level, and seems to contradict the argument in the international relations literature, where the global space is typically seen as a space of anarchy (as indicated in Section 4.2). However, the Foucauldian notion of governmentality, as discussed in Section 3.2.5, seems to

explain the findings in this study. In my conceptual framework, states are particularly concerned with the governance of actors in national spaces. The analysis of the governance of the crowd highlights how the digital crowd presents a new challenge for national actors, especially when this actor is solely active in the online dimension, beyond the reach of the state's traditional technologies of governance. For this reason, the activity of digital actors in the online space is seen by national institutional actors as a challenge for governance, in contrast to offline activity taking place in a physical space which is the traditional space for the manifestation of governance and the administration of people's lives.

Arguably, global space as a "space of anarchy" without central sovereign control is less concerned with issues of governmentality. The distance from the offline dimension of a disaster also renders the global crisis mappers of less concern from the point of view of control. The global space seems to provide more space for approaching digital volunteers as subjects and potential collaborators. From the point of view of international institutional actors, collaboration seems to rely on the capacity to define the object of the activity of digital crowd. Thus, we are more likely to see global online initiatives by crisis mappers addressed through governance by inclusion within institution-led activity systems.

In summary, the analysis of crisis mappers suggests that national sovereign spaces are more rigid with respect to new forms of participation by digital users in disaster response and more likely to address local online initiatives relying on exclusion strategies. At the same time, global institutional actors are more likely to be flexible in their approach to crisis mappers as subjects and to develop new forms of partnership relying on governance through inclusion. The next section considers the transformation of crisis mapping as a digitally mediated activity system associated with governance through inclusion by global institutional actors, in order to provide a more nuanced response to EQ 2.2 and EQ 2.3.

8.8 Governance through inclusion and the transformation of crowdsourcing into outsourcing

Section 5.5 explores the transition of the global crisis mapping movement in the light of increasing collaboration with institutional actors, and specifically with UN OCHA. As indicated in Section 5.2.1, SBTF started as an independent group of volunteers carrying out various types of task including the aggregation, analysis and verification of data, with different teams with their own specializations. Although SBTF relied on a membership form, anyone could join without prior requirements. The protocols of activation underlined that SBTF should only support responding organizations (Section 5.4.1). As pointed out in

Section 5.5, offering a broad range of tasks, relying on a relatively open structure of participation and independent decision making seem closer to the conventional notion of crowdsourcing.

Some interviewees with key positions in SBTF emphasized that the development of collaboration with institutional actors, primarily UN OCHA, was associated with a change in the structure and rules of activation of SBTF. The analysis in Section 5.5 suggests that, as part of ongoing changes, SBTF was gradually transformed into a more bounded group with a more limited number of teams and a narrower range of objects of activity, and with a focus on more specific types of resources that could be mobilized. The SBTF activation protocols adjusted to the existence of other volunteer groups offering other skilled services, and of the Digital Humanitarian Network (DHN) as a network of networks. The unbounded community of digital crisis mappers was offered an opportunity to participate in activity using the Micromappers platform, which did not require any commitment, skill or membership. Although one interviewee emphasized that the emergence of DHN did not impact on the independence of SBTF's decision making, another interviewee pointed out that it had created a situation where SBTF could not refuse requests from UN OCHA (Section 5.4.3).

On the one hand, SBTF seems to have become more included in a general activity system led by institutional actors, with better collaboration with dominant institutions in the field of global emergency response such as UN OCHA. On the other hand, the changes suggest a gradual transition from a more open and flexible model of crowdsourcing and self-governance by crisis mappers towards a more restricted and rigid model as an organization that provides outsourcing services relying on a bounded structure with specific skills. Crowdsourcing and outsourcing represent different types of activity system. In the case of outsourcing, the object of activity is defined by a specific organization for a bounded community with specific areas of expertise. In the case of crowdsourcing, the boundaries of the community are more open and the purpose of an activity may also be defined by the members of the community themselves.

This division helps us to understand how governance through inclusion can be associated with a transition of the role of digital tools from self-governance to governance by others. Inclusion in a global activity system manifested in a shift from crowdsourcing to outsourcing suggests that institutional actors have greater control over the object of activity and the boundaries of communities of volunteers, the division of labour and the rules of activation. The transformation of crisis mapping as a global activity system suggests increasing integration with institutional actors, and the consequence of this transformation is

an increasing capacity of institutional actors to govern subject-object relationships of crisis mappers.

While the crisis mapping initiatives discussed here were rejected by institutional actors on the local level, the implication of their exclusion from state-led activity system was that volunteers preserved their capacity to control the object of activity. That said, in the case of VOST, whose object is solely to provide assistance to traditional responders, this resulted in failure since their object relied on inclusion in the institutional-led activity systems. Unlike VOST, Crisis Mappers UK defined their purpose as serving the community and there was no contradiction between the exclusion of Crisis Mappers UK from state-led activity systems and the continuation of their activity.

In response to RQ 2, and specifically to EQ 2.2, which identifies space as one of the potential factors associated with the role of digital tools in the governance of a subject, contrary to expectations, we see more significant manifestations of the governance of digital users through inclusion by institutions on the global level. While it could be argued that the consequence of anarchy in the global space is less governance of subjects, the transformation of crisis mappers on a global level suggests the opposite conclusion. The transformation of crowdsourcing projects into outsourcing projects suggests an increasing role for institutional actors in the structuring of the possible fields of action of global crisis mappers. At the same time, the rejection of crisis mappers on the national level seems to suggest that national online projects which are excluded from state-affiliated activity systems can provide more space for self-governance by digital users.

8.9 Conclusion

This chapter presented an analysis of the empirical data structured around the research questions of this study. The analysis has highlighted the role of the users as a subject and as an object, notions of discursive mirroring and discursive opportunities, and differentiations between governance through inclusion and governance through exclusion. It also has drawn attention to associations between the structure of digitally mediated activity systems that can be seen in emergency situations and modes of governance. The next chapter concludes the study, including providing a summary of the key insights and addressing the limitations of the analysis.

9. Conclusion

9.1 Introduction

This chapter summarizes the overall contributions arising from this study. Section 9.2 reviews the key findings in the context of the theoretical and empirical questions presented at the beginning of the thesis. Section 9.3 considers the contribution of the findings in the light of the existing literature. Section 9.4 offers reflections on the limitations and weaknesses of the conceptual framework and methodology. Section 9.5 discusses alternative ways of examining the research questions that might have been considered and offers potential directions for future research. Section 9.6 outlines some policy implications of this study for the fields of emergency response, ICT4D and media development.

9.2 Key insights in response to Research Questions

The overall question posed by this thesis concerns the role of digital platforms in emergency response (RQ1). The examination of the empirical data was guided by the conceptual framework, which suggests that a key process related to the role of digital platforms is the constitution of the user either as a *subject* or as an *object* of activity in the context of a specific situation (e.g., an emergency). It explains why the role of digital tools in the constitution of the subject cannot be fully examined without a consideration of the specific context of an activity, and the way the same tools can play substantially different roles and mediate different positions of the subject with regard to his/her environment. My analysis in the preceding chapter highlights how the *contradictions* around the position of the user as either subject or object of digitally mediated activity are associated with the development of new forms of activity and new digital tools as a means of resolving these contradictions (see empirical focus in EQ 1.1). Thus, this study has confirmed that the development of digital tools can be very productively approached as a dynamic process driven by emerging contradictions around the position of the user within a context of existing activity systems.

The analysis also allowed me to conceptualize the role of tools in the context of the notion of governance and, specifically, to explore whether and how digital tools contribute to governance by others or to self-governance by users (RQ 1.2). The analysis yielded insight into the *flexibility* and *transparency* of the structure of activity systems associated with digital tools, indicating that these are key properties that contribute to the capacity of users to take a part in the definition of their relationships with an environment by relying on digital

mediation. Strict boundaries to an activity system and a lack of flexibility and transparency were more likely to be associated with governance by others (a notion specifically responsive to the empirical focus of EQ 1.2). Building on this insight, the analysis suggests that the governance of users relying on digital tools can be conceptualized either as *governance through inclusion* or as *governance through exclusion*. In the case of governance through inclusion, users are able to take part in state-led activity systems, although their relationship with the object of activity is defined by the relatively strict properties of the activity systems. In the case of governance through exclusion, users are not allowed to take part in emergency response as part of state-led activity system and are often approached as objects of activity.

That said, the analysis suggests that governance through exclusion seems to be associated with the development by users of independent activity systems. In this context, digital tools have been shown to contribute to self-governance by users, by offering an opportunity to develop activity systems that are not bounded by institutional restrictions and by giving the user an opportunity to take part in the definition of the relationship with the environment (particularly in relation to the empirical focus of EQ 1.3). Accordingly, self-governance can be understood as manifested through the user's choice to use independent tools that provide alternative fields of possible action with regard to a disaster, as well as through the capacity of these tools to provide a flexible and transparent structure that supports the user in deciding what type of relationship he/she wants to have with a specific situation (e.g., a disaster). The analysis also indicates that in some cases tools that seem to suggest governance through inclusion actually contribute principally to governance through the exclusion which is associated with ambivalent positions of users as subjects and objects at the same time (see Table 8.3).

That said, as indicated in the Introduction (Section 1.2), there is a need to understand the role of digital platforms in emergency response in the context of a socio-political environment and, specifically, the socio-political transformation that may occur in the case of emergency situations. In other words, the object of this research was not only to explain how digital tools play distinctive roles in the governance of subject activity and the constitution of a subject relying on the digital mediation of subject-object relationships, but also to explore why these roles differ in different circumstances (RQ 2). In addressing this, the conceptual framework was developed in order to indicate how the structure of the subject's relationships with the object of activity, and, accordingly, the role of digital tools in the mediation of activity and governance, are associated with the structure of relationships among actors. The

latter was conceptualized in reference to the Foucauldian notions of objectification, division practices and games of truth (see Figure 3.5).

The analysis of subject-to-subject relationships has illustrated how different modes of objectification can constitute the role of the subject in the context of specific situations (in response to RQ 2.2). In order to conceptualize objectification in the context of potential activity, the framework includes the notions of *discourses of activity* and the *discursive location* of the subject. The analysis of subject-to-subject relationships is specifically concerned with whether actors constitute each other either as potential partners (and potential subjects within shared activity systems with a focus on common objects e.g. disaster response) or objects (those addressed – informed, alerted, controlled – by a particular type of activity). The analysis explores how differences in the roles of tools have been associated with the discursive location of a subject in the context of a specific situation.

Drawing on the analysis of the empirical data from interviews conducted in Russia and Australia, an analytical distinction between two modes of subject-to-subject relationship is suggested. The first mode, conceptualized as *discursive mirroring*, suggests that different actors are likely to objectify each other by relying on the same discursive arguments. In a case where both sides apply similar negative arguments to each other, the discursive mirroring is associated with subjects approaching other subjects as objects, which seems to be associated with a high degree of polarization between institutional and independent actors. It has been suggested that this type of discursive mirroring can result in the development of four types of activity system, and accordingly of four types of mediating digital tool (see Figure 8.5). These types of subject-to-subject relationship were mostly evident in the case of Russia. At the same time, the discursive relationships between actors that provide a space for approaching each other as subjects within the context of a common activity system, with a disaster as a shared object of activity, is conceptualized as a *discursive opportunity*. This type of subject-to-subject relationships was mostly apparent in the case of Australia. This analysis also suggests that the discursive location of a particular actor in the context of an activity system can change, and this is conceptualized as a *discursive transition*. Accordingly, a change in the role of digital tools in the mediation of activity seems to be associated with a discursive transition.

That said, the analysis in Chapter 8 also highlights the ways in which mutual objectification should also be considered in the light of the discursive boundaries between different groups of actors. For instance, in the case of Australia, a distinction is drawn between spontaneous volunteers and spontaneous intermediates, and the structure of

relationships between institutional actors and these two groups seemed to differ. While there was some evidence that spontaneous volunteers were approached in terms of governance through inclusion, the spontaneous intermediaries seemed to be approached more by governance through exclusion.

The analysis of the factors associated with the role of digital tools, and particularly whether these tools contribute to governance by others or to self-governance (RQ 2.1), reveals interesting insights. It is suggested that the intuitive expectation is that the countries more associated with democracy (e.g. Australia, according to the Economist Democracy Index, as indicated in Section 4.2) will be associated with more opportunities for self-governance by users, while more authoritarian countries (e.g. Russia, according to the Economist Democracy Index, see Section 4.2) will be more closely associated with efforts to govern users and limit their freedoms. This intuition is not confirmed by my analysis. Paradoxically, and in response to empirical question EQ 2.1, the analysis seems to suggest that a less democratic environment can increase the likelihood that digital tools will contribute to self-governance by users insofar as discursive mirroring can lead to the rejection of independent users and encourage them to develop independent activity systems. At the same time, more democratic societies, where the discursive relationships between actors are closer to the notion of discursive opportunities, are more likely to be associated with the role of digital tools in the governance of activity, conceptualized in this study as governance through inclusion.

The analysis also highlights the dichotomy which is present in some of the literature between control over users and collaboration with users as a misleading one. The notion of governance through inclusion highlights how users may be approached both as potential partners and as actors who need to be contained through inclusion within the strict framework of an activity system that imposes a mode of action on users. Both types of objectification of users in a context of activity, as subjects and as objects, have been found in this study to be associated with governance, although with different types of governance. Moreover, as highlighted by the analysis, the exclusion of users that occurs as a result of institutional actors approaching them as objects of activity has been shown to be more likely to be associated with the emergence of independent digitally mediated activity systems providing more space for self-governance and more flexible possible fields of action.

This study has used an examination of crowdsourcing to provide a detailed analysis in response to the overall research questions and specific sub-questions RQ 1.3 and RQ 2.3, as well as to empirical question EQ 1.4. First (in response to RQ 1.3; see Tables 3.1 and 4.8 for

questions), the examination of crowdsourcing enabled me to illustrate the duality of users' positions as subjects and objects at the same time. This suggests that users can be constituted either as subjects whose resources can be mobilized in order to address an object of activity, and/or as objects whose resources need to be contained and controlled. Crowdsourcing has been shown to play a role both in governance through inclusion and in governance through exclusion, contributing either to governance of the resources of crowds by institutional actors or to self-governance of resources by their owners. Second (in response to RQ 2.3), the analysis of crowdsourcing makes it possible to illustrate how the discursive construction of the crowd is associated with the role of sourcing as a form of digitally mediated activity connecting the subject and the object of activity. The analysis indicates the types of discursive constructions of the crowd that contribute to different modes of governance by others (through inclusion or exclusion) and to self-governance.

Finally, the consideration of the factors contributing to a particular role of digital tools (in response to RQ 2) has included an analysis of the role of the domain of activity and the geographical dimension of activity (as suggested in EQ 2.2 and EQ 2.3). Drawing upon the notion of governmentality and an examination of crisis mapper initiatives, the analysis indicates why we might expect to find more instances of governance through inclusion in the global space as compared to national spaces which seemed to be associated with fewer discursive opportunities for collaboration and more often with governance through exclusion. The analysis suggests that institutional actors on a national level are likely to manifest less discursive capacity to recognize the role of a digital crowd as a potential partner. In other words, the global online dimension is likely to be more open to the development of new types of activity system, and to the inclusion of independent subjects within institution-led activity systems. National spaces are shown to be more rigid and more likely to be associated with governance through exclusion. In addition, the analysis in this thesis shows that on the national level offline activity is more likely to be associated with governance through inclusion, while online activity is more likely to be addressed by governance through exclusion.

Lastly, the analysis explores the development of global crisis mapping systems and suggests that governance through inclusion is associated with changes in the structure of an activity system. This is conceptualized as a transition from crowdsourcing to outsourcing, and as a change in the role of digital tools in the constitution of the role of the subject in a situation of crisis.

9.3 Theoretical and methodological contributions

This research was triggered by my desire to develop a better understanding of why similar digital platforms seem to play different roles in different socio-political environments. The conceptual framework proved to be robust and enabled me to investigate the interrelationship between the role of the tools and the structure of the relationships between different actors in the context of specific situations. The analytical insights that emerged contribute to our understanding of the role of digital tools in constituting the relationship between users and institutional actors, both generally, and in emergency situations, in particular. Insights emerging from the analysis that were particularly surprising in the light of my initial expectations are considered next.

The first surprise that emerged from the analysis is that there was no clear association between the type of political system and the degree of freedom of users associated with the use of digital tools, or with the relative amount of control over users associated with these tools. The analysis demonstrates that in democratic systems the tools were not necessarily less related to control and did not necessarily provide more space for freedom, as compared with the role of tools in an authoritarian regime, which was not necessarily more likely to be associated with control or with less space for self-governance by users. Surprisingly, the application of the notion of governance in my examination of the role of digital tools seems to suggest that digital tools played a more significant role in the self-governance of users in Russia, while in the case of Australia, the tools seemed to be associated more closely with control of institutional actors over users. The second surprise was that the role of digital tools on the global level was not necessarily associated with a greater likelihood of a lack of collaboration. In fact, the global space was depicted as suggesting greater institutional flexibility that appeared to support opportunities for collaboration between institutional and independent actors. At the same time, some of the observations suggest that national spaces are generally less open to the development of new modes of activity as a result of institutional concerns about control.

These insights offer an interesting contribution to the literature on the role of ICTs in the political empowerment of users, to critiques of the “democratic potentialities of the internet” (Breindl, 2010), and, specifically, to the literature on e-democracy, user participation and the structure of opportunities to participate in political and social processes that have been associated with the role of digital platforms. My findings also suggest a critique of the view of the role of digital tools as conceptualized using the notion of affordance which is associated with Gibson’s (1977) work. The findings highlight the

importance of looking beyond a focus on the external factors that shape the possibilities of action. Hutchby (2001) highlights how affordances are associated with the social construction of technology, but my findings emphasise that the role of the tools examined in this study was better explained by considering the discursive construction of users specifically in relation to a particular structure of subject-object relationships.

The results of this study give rise to insights relevant to the discussion of the literature reviewed in the background chapter (Chapter 2), where the role of digital technologies in crises response was considered. My research highlights how, in addition to an instrumental focus on the role of digital platforms in emergency response, it is very useful to investigate the relationships among actors in the case of an emergency in their particular socio-political environment. The observations highlight how the role of digital platforms is shaped by the often contradictory relationships among the actors, and that, therefore, the same tools can play substantially different roles in different contexts. The results of this study also emphasize that exploring the role of digital platforms in the context of emergency response benefits considerably from focusing on how digital tools are perceived to resolve tensions between intentions to control users and to engage them. The findings also contribute to the field of sociology of disasters by identifying the role of ICTs in the emergence of new actors, e.g., spontaneous intermediaries, the coordination of independent collective action, and the role of ICTs in the context of the convergence problem (Barton, 1969), where the concern is the allocation of resources in emergency situations. The discussion of alternative, volunteer-led activity systems and the role of digital tools in self-governance, provides considerable insight into the nature of socio-political transformations that may occur in the context of emergency situations.

More generally, this research contributes to ongoing discussion about the nature of crisis situations (Quarantelli, 1998; Guggenheim, 2014). The introductory chapter (Chapter 1) highlights the fact that my interest was not specifically in the representation of crisis in the media or in crisis response *per se*, but in the nature of a crisis as a situation that may give rise to the potential for socio-political transformation. The analysis in this study provides confirmation that the nature of a crisis situation can be studied most effectively by paying close attention to the context of activity around the crisis. The notion of a crisis developed in my study goes beyond the discursive construction and symbolic representation of a crisis as is often discussed in the media and communication field (see Section 2.6). My study proposes that a crisis is most productively examined as an object within a context of activity systems. The contradictions around the objects in emergency situations, as demonstrated in my

analysis, suggest that a crisis is likely to be associated with a variety of objects of activity that deal not only with the sources of the crisis (e.g., a disaster), but also with different types of actors. In this light, digital tools, as one of the means that mediate the relationships between people and their environment, can be understood to play a substantial role in constituting both the subject and the crisis situation. A crisis is therefore best regarded as a complex set of objects of activity relying digital mediation.

The theoretical framework introduced in this study addresses a lacuna in the crisis communication literature that concerns the need to understand the association between the role of digital tools in emergency response and the complex set of power relationships in specific socio-political contexts. The findings presented here contribute in several ways to the literature in the field of crisis communication, including situational crisis communication theory, risk communication, theories concerning the organizational structure of emergency response, and specifically people-centered approaches which explore the role of digital platforms in the relationships between traditional responders and the public.

This thesis seeks to expand the scope of issues that can be addressed as a part of crisis communication. It highlights how crisis communication may deal principally with informing affected populations, emergency management or the social construction of the crisis, but also with the constitution of the position of actors and, particularly, the users of digital tools, with regard to a crisis. The latter can be addressed through the investigation of discursive relationships between different actors and the structure of digitally mediated emergency-related activity systems. The study also contributes to discussion around ways of conceptualizing the notion of crisis. It highlights how a crisis can be addressed in the context of the mediated relationships between the crisis as an object of activity and the subjects.

This study also offers a contribution to the literature concerning situational crisis communication theory (SCCT) (Coombs & Holladay, 2004). Here the attribution of blame for the consequences of a disaster is explored as a part of the discursive relationships between different actors. This suggests that there is a possible association between the attribution of blame and the structure of digitally mediated forms of crisis-related activity systems. The attribution of blame and, specifically, the reputation of emergency services and the approach to the role of citizens in a context of an emergency situation are shown in my study to play an important role in the constitution of the position of a subject with regard to a crisis and in shaping the role of digital tools in emergency response. In other words, the study suggests that there is an association between the role of ICTs in emergency response and the type of attribution which is manifested in the discourses of activity. The study confirms that the

notion of mediated artefacts is helpful in examining the forms of attribution that can be embedded in digital tools (e.g. citizen-based tools that seek transparency and accountability of institutional actors, while tools associated with institutional actors focus on monitoring user-generated content as a potential reputational threat).

The mapping of activity systems is particularly fruitful for the conceptualization of the dual crisis faced by emergency organizations especially insofar as the crisis communication literature identifies a tension between the need to respond to a disaster and the need to protect organizational reputation in light of public dissatisfaction and, specifically, with the increasing role of social media as a source of criticism. Resolving the tension between the needs to respond to a disaster and to protect an image is highlighted in the literature as one of the core challenges for traditional institutions dealing with emergency response in the US, Australia, Russia and other countries. On the basis of my study, this tension is helpfully conceptualized as a contradiction manifested through the structure of activity systems focused either on the emergency or on other actors.

The attribution of blame for a natural disaster may also be associated with different modes of digitally mediated governance, e.g. governance through inclusion/ exclusion, as illustrated in my study. The analysis of both governance through exclusion and governance through inclusion helps us to understand the various strategies used to deal with image threats and the “blame game” associated with citizens’ dissatisfaction in the crisis communication literature. This study highlights “antagonistic forms of disaster and crisis response” (Adkins, 2010, p, 113), which work as forms of discursive mirroring and illustrates how this may be associated with the role of digital tools in emergency response. The study shows how discursive relationships and digital mediation continuously reinforce each other, while antagonistic discourses contribute to the development of particular types of digital tools, and how these digital tools, in turn, embed these discourses and play a role in the constitution of activity systems that approach other actors not as partners, but as sources of threat and as objects that have to be controlled. The analysis in this study also contributes to the literature on crisis communication by providing insight into the factors that can potentially contribute to breakdowns in communication between public and institutional actors and shows how such breakdowns can be addressed through the design of digital platforms that help to resolve reputational concerns and antagonisms.

The outcomes of this study also contribute to the literature on the factors shaping risk communication and, in particular, whether risk communication triggers a response to crisis or is associated with the denial of crisis, as discussed in the EPPM model. It highlights how risk

communication not only differs with respect to informing, alerting and engagement, but also constitutes the subject either as passive or as active in his/her relationship to the crisis. This suggests that it is helpful to view risk communication in the context of the digital mediation of activity since this provides a focus, not only on using messaging to achieve a desired behaviour among members of the target audiences, but also on the role of digital artefacts in the constitution of the user's position in the context of an emergency-related activity system.

The conceptualization of the role of digital platforms in the context of activity systems additionally contributes insight for the field of disaster communication and, in particular, to the debates with respect to the application of complexity and chaos theory. The dynamics of self-organization and adaptivity of citizen-based structures are examined in this study in the context of the development of digitally mediated activity systems and by focusing on the association between contradictions as a driving force for the development of citizen-based emergency-related activity systems and the attractors that shape the forms of self-organization. The generativity and flexibility of digital tools are treated as enablers of adaptivity and self-organization of citizen-based activity systems, while activity systems formed by institutional structures are shown to be more rigid in nature and, accordingly, less open to adaptive behaviour and self-organization. This suggests that it is fruitful to examine the tension between citizen-based and institutionally driven activity systems as a tension between open/adaptive systems and closed activity systems that work to restrict self-organization in the face of a crisis.

The analysis of the role of digital platforms in the development of new forms of disaster-related activity, specifically in this study, in the context of the relationship between citizens and institutions, also contributes to the scholarship on the diffusion of technological innovations in the crisis communication field. The application of activity theory provides a conceptual link between the technological and organizational aspects of innovation, such that the organizational structure and the perception of activity by institutional actors are understood to be embedded in mediating artefacts. This study helps us to understand what factors shape a particular structure of organizational response in a context of discursive relationships between actors and how this is manifested through digital platforms.

For instance, if the taxonomy of different types of organizational structure of emergency response (Tierny, 2005), including the bureaucratic, the structural and the networked perspectives, is conceptualized in terms of activity systems and of the discourses of activity that rely on the mutual perception of different actors, then a cluster of digital artefacts can be associated with each type of organizational structure. This study shows that a

particular type of structure and, accordingly, a particular type of tool, may be associated with the discursive relationship between actors and manifested in the relationship of power between state-affiliated institutions and the public. In this sense, the challenges to the implementation of a net-centric approach (Boersma et al., 2012) can also be understood as a tension between the digitally mediated activity systems that support networked modes and the bureaucratic organizational structures which represent different “discourses of activity” in a context of emergency response. In the light of the “dialectic logic” (Ilyenkov, 2008), the contradiction between institutional structures and the type of mediation offered by digital platforms, particularly social media, can be regarded not only as an obstacle to, but also as a driving force of innovation.

That said, even when the discourses of activity acknowledge the role of the public in emergency response, this study pinpoints the possibility of a contradiction between the discourse that celebrates participation and the role of digital artefacts which are intended to support and facilitate citizens’ engagement. The juxtaposition of CHAT with the Foucauldian notion of governance highlights how digitally mediated activity systems developed to support public participation can also be understood as new forms of institutional control over the public. The notions of “governance through inclusion” and “governance through exclusion” may be particularly fruitful in the critical assessment of people-centred approaches to crisis communication (Scolobig et al., 2015). While such approaches emphasize the involvement of people in emergency response and the sharing of responsibility, the analysis of data in this thesis highlights how the inclusion of the public in emergency response research does not necessarily mean sharing the responsibility for the response with the public.

In this study the analysis of *governance through inclusion* suggests that people-centred approaches may present an “advanced”, concealed version of traditional top-down approaches. In other words, what is symbolically constructed as participation by the public may actually serve as a novel form of control of the resources of the public as a part of the traditional top-down hierarchical set-up. By investigating the role of digital tools in the mediation of emergency-related activity systems, it is possible to differentiate between people-centred approaches that offer new forms of control and those approaches that allow the public to control (govern) their own forms of participation and take part in defining their relationships with emergency situations. This also helps to highlight how the differences in the implementation of people-centred approaches are associated with the discourses around public participation shared by institutional actors.

With respect to “designing effective institutional frameworks that suit people-centred approaches” (Scolobig et al., 2015, p. 206), this study addresses the core dilemma for people-centred approaches as to whether the engagement of the public has a formal or an emergent adaptive nature (Schmidt et al., 2016). Addressing this dilemma by designing new institutional frameworks and the development of digital platforms benefits from a discursive analysis of the relationship between actors and an investigation of the structure of activity systems developed for the facilitation of public participation on both the institutional and technological levels. This approach to a critical assessment of people-centred approaches is also helpful in elaborating on issues such as the development of community resilience, providing insight into processes of self-organization, adaptivity and digitally mediated self-governance. This may help to illustrate why resilience may be strengthened by developing transparent activity systems that allow for generativity and adaptivity and that support the manifestation of people’s agency over their own forms of engagement in emergency response.

The examination of the structure of digitally mediated activity systems in emergency response can also contribute to the discussion of cross-boundary coordination in emergency situations and, particularly, to the role of fragmentation as a coordination strategy (Wolbers, 2015). The analytical focus on “drawing the lines” (Wolbers, 2015) between different emergency response organizations can also be applied to the discussion of the boundaries between emergency response institutions and the public. In this case, the insights provided by Wolbers into the productive role of fragmentation suggest that there is a middle path between the inclusion of citizens in state-led activity systems and their exclusion. Applying the notion of fragmentation in a context of discussion concerning people-centred approaches may suggest that digital platforms can support a productive fragmentation between citizens and institutional responders by drawing the lines of activity through digital mediation in such a way that, while not necessarily including citizens in a state-led activity system, their total exclusion from the scope of potential cooperation is also avoided. In this case, digitally mediated fragmentation is an essential condition for sharing responsibility between the public and traditional responders to allow them to work together, but without necessarily being integrated within the same activity system.

In addition, the thesis offers insight into the role of culture in risk and crisis communication contexts by extending the theoretical framing of this issue beyond cultural theory. The CHAT framework introduces a cultural aspect into the discussion of the role of ICTs in emergency response. CHAT highlights the cultural-historical aspect of the formation

of activity, situates our understanding of the role of digital tools in crisis communication within the historical process of cultural development and illustrates how the tools embed and reproduce meanings and worldviews. In addition, this study illustrates some of the ways in which activity theory can be helpfully applied in cross-cultural and cross-national investigations of emergency response, an important area of study highlighted by Schwartz et al. (2016a).

The results of this study also contribute to the literature on crowdsourcing. Theoretically, my contribution is to provide a definition of crowdsourcing and a conceptual framework that highlights the association between the discursive construction of the crowd and the nature of sourcing. Methodologically, this study introduces a framework for investigating crowdsourcing as a digitally mediated activity system. The findings highlight how crowdsourcing can be understood to represent either a form of mobilization of resources or a form of control of resources, and how crowdsourcing may be associated either with the governance of the crowd's resources by institutional actors or with self-governance of those resources by the members of a digital crowd. It also situates the discussion of crowdsourcing within debates about the sociological nature of a crowd. The conceptualization of the crowd in this way helps to bridge the gap between definitions that highlight the negative aspects of the crowd and the optimistic notions of the crowd by emphasising that a crowd needs to be approached as an actor within a context of potential activities. It also demonstrates how a crowd can be examined as a discursive construction that assigns particular discourses of activity to specific types of crowd in specific contexts.

Finally, by developing and applying a conceptual framework that juxtaposes the approach of CHAT to the role of mediation in the development of the subject and the Foucauldian heritage dealing with the constitution of subject, I have illustrated the potential value of this approach. This has broader theoretical and methodological implications insofar as the study suggests a theoretical framework and methodological tools that can be used by future scholars to better understand the role of digital mediation in the context of specific relationships of power, and, in particular, how notions of the discourse of activity and of discursive location can be used to explore the role of digital tools in the constitution of users.

9.4 Limitations of study

This section discusses the limitations of this study. One limitation is the focus on the possibilities for actions (such as various form of activity in emergency situations, including humanitarian assistance, direct response to disaster, evacuation, lack of any activity, etc.), but

not on the actions themselves. As indicated in Chapter 4 (Methodology), investigating the actions would have required a different methodology, such as Mediated Discourse Analysis (Scollon, 1999; 2001). My analysis also focuses mostly on single tools and not on the interrelations between tools. Actual activity rarely relies on a single tool, but is a complex phenomenon relying on diverse mediating artefacts. In addition, my focus on the structure of the tools for the mediation of activity put the actual usage of the tools by users beyond the scope of my investigation. One way of addressing these complex dimensions might have been to apply a more advanced activity system model, as developed by Engeström (2008), which proposes the investigation of contradictions between different activity systems, but this was deemed to be too ambitious for my study and therefore the questions informing the research did not ask about this aspect.

My focus on digital tools as key elements in shaping the structure of an emergency response activity system might be considered to give too much emphasis to the technology, and therefore to suggest an element of “technological determinism”. However, my conceptual framework and the analysis in this study are not intended to suggest that the structure of an emergency response activity system is exclusively reliant on digital tools. The principal ambition was to examine the role of tools in the specific context of the constitution of subject-subject and subject-object relationships, with the digital tools providing a focusing device that proved to be very fruitful.

The development of my conceptual framework drew selectively on the theoretical framework offered by CHAT (See Section 3.7). In addition, my inclusion of governmentality does not address the importance of historical change emphasized by Foucault or the notion of pastoral power in the analysis of the relationship between institutional actors and the crowd. Although these aspects were beyond the scope of this study, they may provide fruitful areas for exploration in future research. Selectivity and some simplification of the principal theories incorporated in my conceptual framework was arguably justified in view of the value of bringing the various traditions together in a way that has yielded considerable insight

This study is also somewhat limited with regard to its methodology, specifically the data collection phase. As highlighted in the methodology chapter, the data on crisis mapping projects does not include the views of institutional actors. In case of Russia, the institutional actors were disproportionately represented by former and current employees of MCHS, and only limited data was collected on the positions of traditional responders on the local level. These limitations were due to constraints of time and resources, and in the case of Russia, as discussed in Chapter 4, there were political sensitivities. This study sheds light on how

different actors articulate their views of emergency response, rather than on the “objective reality” which might have been studied using other methods. However, the emphasis in this study was on revealing the complexity of the discursive relationships between the actors and the role of digital tools in this context and these have been brought to light.

The ambition set out in the research design of covering a number of countries and emergency situations, and diverse platforms, limited how much data could be collected about specific situations. However, the interviews were designed to elicit discursive constructions; detailed information about a specific event was not as important as it might have been if the aim had been to examine how the processes had a bearing on the event responses themselves. Despite this limitation, an effort was made to gather a range of views of institutional and independent actors on the same situation (e.g., the wildfires in Russia and the floods in Queensland).

The limited size of the sample and the focus on specific countries and types of disaster means that generalisations as set out in the preceding section need to be treated with care. A consideration of more cases might suggest somewhat different emphases, for instance on the likelihood of governance by inclusion or exclusion or on the ways in which subject-object relationships are likely to be constituted. The research design offered only a static snapshot, although the discussion of crisis mapping (in Chapter 5, Section 5.5) followed the development of digital tools over time. The notion of contradiction is a dynamic one which highlights how activity systems can be expected to change through time and, resources permitting, a longitudinal study would help to explore this. In future work, greater elaboration of the Foucauldian perspective may also suggest focusing on the genealogy of activity to examine change in the discursive location of the subject within a context of potential activity around specific situations. This aspect was touched upon using the notion of discursive transition to highlight changes in the discursive location of the subject, but it is acknowledged that further work would bring the determinants of constraints and opportunities for change to light.

9.5 Alternative pathways and directions for further research

The conceptual framework in this study was developed in order to examine the association between digitally mediated activity and the discursive relationships between actors and other theoretical pathways might have been used, albeit leading to somewhat different research questions.

In this research the notion of the network as a unit of analysis, as proposed by Castells (2007, 2011), was not used. This would have situated the role of the subject and the crowd within an analysis of the role of networked structures and drawn attention more directly to the relationship between networked and institutional actors. His framework proposes a notion of power (e.g., programming and switching power), which would have drawn greater attention to the structure of the networks of digital responders and, specifically, to modes of leadership within these networks.

The institutional analysis of the structure of emergency response systems in different countries is also a potentially interesting future avenue of research. Institutional differences were highlighted in some sections of my study, but an in-depth analysis would be required in order to examine the institutional structure of emergency response and the institutional arrangements that give rise to a potential for collaboration among citizens and for social media policy and management. The potential sustainability of the alternative activity systems that can be introduced by users relying on digital tools could be examined through the lens of Castells's work. In *Communication Power* (2009), Castells notes that digital networks can give rise to "relatively stable configurations" which can "redefine a new society" (p. 19). Research could explore the institutionalization of various forms of digitally mediated collaboration between users and traditional institutional actors. Focusing on an investigation of the role of digital tools in a context of limited statehood (Risse, 2011; Livingston & Walter-Drop, 2014) could also assist in exploring whether independent activity systems can be transformed into sustainable structures.

The notion of connective action (Bennett & Segerberg, 2012) offers a way of examining how digital tools are associated with producing new forms of collective action in emergency situations in specific socio-political contexts. This notion is concerned more specifically with the emergence of social movements and various forms of collective action. Similarly, there is a substantial literature in the field of behavioural economics and game theory that might provide insight into the distribution of resources. For example, Sugden's work might support an analysis of the role of digital tools in the spontaneous redistribution of public goods and help to shed light on the normative aspects of digitally mediated cooperation (Sugden, 1986). The motivations for governing common resources have been examined in the literature (Ostrom, 1990), and some attention has been paid to the role of ICTs in this context (Hess, 2012; Mansell, 2013). This work could be developed further to focus on the role of digital tools in collective self-governance in the face, for instance, of exogenous threats.

Questions about the role of digital tools in a context of social transformation in emergency situations might benefit from a study drawing upon complexity theory. The focus of complexity theory on autopoietic systems (Maturana & Varela, 1980, 1992; Mingers, 1996) that maintain stability or a temporary equilibrium even in otherwise “far-from-equilibrium” situations (Urry, 2005) might be developed so as to support an analysis of the role of digital platforms where there is either an actual or a symbolic or discursive absence of institutional actors, as proposed by the notion of limited statehood (Risse, 2011; Livingston & Walter-Drop, 2014).

Research could be undertaken to examine the role of digital mediation in supporting mechanisms of autopoiesis and in defining the boundaries of autopoietic systems. If this theoretical perspective were to be integrated with CHAT, it might be feasible to incorporate a notion of far-from-equilibrium situations as a means of understanding the contradictions that occur during the development of activity systems and objects of activity. According to Mitchell (2009, p. 13), a complex system is “a system in which a large network of components with no central control and simple rules of operation gives rise to complex collective behaviour, sophisticated information processing and adaptation via learning or evolution”. If activity systems were to be conceptualized as autopoietic and complex systems, this might in the future provide insight into the role of digital tools as mechanisms of governance of crowd and its resources.

Finally, examining the role of digital tools in the constitution of relationships between a subject and his/her environment in situations of crisis is an approach that can be applied in the future to focus not only on natural disasters, but also on such human-made crisis situations as international conflicts.

9.6 Policy implications

The insights in this study suggest responses to the challenge of democratizing emergency response systems, as conceptualized by Alexander (2008), and the need for “a paradigm shift” (Allen et al., 2014) in the design of emergency response systems. These challenges were raised by some of the interviewees with regard to the management of spontaneous volunteers and in relation to support for collaboration between citizens and institutional actors in emergency situations (Section 7.4.4). The analysis in this thesis specifically highlights issues such as how situations where digital tools are used mostly to control users and not for engagement might be avoided, and how to increase collaboration

between users and institutional actors without limiting the freedom of users. There are hints in this study of ways of thinking about the development of new modes of leadership by traditional actors in the information environment that could diffuse vertical modes of control. The analysis also facilitates thinking around the role of digital tools in the development of interoperability, in overcoming institutional barriers and in expanding the boundaries of collaboration between different actors, including NGOs and the crowd (see Section 6.3.2).

This study also offers insights that may assist with developing crowdsourcing projects in other fields of citizen engagement around social issues that call for collaboration between citizens and institutional actors. My analysis emphasizes the importance of discussing the discursive location of users and modes of digitally mediated governance as key factors in the design of such projects. These could be applied in the fields of ICT for Development (ICT4D) and media development, or in relation to the challenges of e-governance and citizen participation.

By juxtaposing a theoretical tradition that deals with human development of activity systems with a critical perspective on relationships of power in the constitution of the subject, this study has underlined the value of integrating developmental and critical perspectives on the design of digital platforms with the systems of relationships in which they are used. This study suggests that the design of digital projects in situations of disaster response, or indeed in a range of other situations, is best informed by a vision of the contribution of the technology to the development of the subject and his/ her relationship to the environment, not by a narrow vision of the technology and its use.

Finally, as highlighted in the introductory chapter, my general interest in this research topic was stimulated by my commitment to approaching disasters as a laboratory for human behaviour and a stress test for the resilience of society. Rodin (2014, p. 316) suggests that “resilience pays dividend in many ways and situations” by introducing new opportunities, new initiatives and new forms of relationship following emergency situations. This study proposes that addressing resilience requires us to focus on the level of individual actors, the subjects. The results of this research emphasize that policy making that seeks to support the resilience of society through the development of ICTs should be driven by a vision of the role of subjects in the context of their environments. My hope is that this study will provide lessons for future research and practice that may help to ensure that policies addressing the role of ICTs in disaster response embrace a focus not only on addressing damage, providing humanitarian assistance and recovery, but also on the position of individual users as the driving force of social and political transformation.

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Appendix I: Codes List of Interviewees and Fieldwork Visits

The table below presents the coding scheme for interviewees used for the purpose of anonymization as part of data presentation:

LOCATION	AUS	RU	UK	GLOB
	Australia	Russia	United Kingdom	Global
AFFILIATION	GOV	GOVAF	ORG	IND
	Ministries Departments Local authorities	Response agencies Affiliated volunteer organizations	Media Technology Consultancies	Volunteers Developers Bloggers

The first element of the code is the geographical location of the interviewee. The second element of the code is the institutional affiliation of the interviewee.

The table below lists all the specific codes for interviewees used in the thesis

Code: location+affiliation+number	Meaning
RUIND1	Russian Independent
RUGOVAF1	Russian Government-affiliated
RUORG1	Russian Organization
RUGOV1	Russian Government
AUSIND1	Australia Independent
AUSORG1	Australia Organization
AUSGOVAF1	Australia Government-affiliated
AUSGOV1	Australia Government
UKIND1	UK independent
GLOBIND1	Global independent

In some cases, when an interviewee has a double affiliation, e.g., affiliated with official organization and independent volunteer (as in the cases of UKIND1 and RUIND13), the code denotes the primary affiliation as addressed in the topic of the interview and the structure of the questions.

Interviews in Russia

Code	Name	Role	Date
(RUIND1)	1. Anna Baskakova (Moscow)	Volunteer, coordinator of response during wildfires in 2010. Currently works for air wildfires protection service	30.8.2013
(RUIND2)	2. Michael Levin (Saint-Petersburg)	Founder of volunteer fire fighting brigade Ladozhskie Shery	19.9.2013
(RUGOVAF1)	3. NN (Moscow)	Head of state-affiliated emergency response volunteer organization RosSoyuzSpas. Founder of Dobrovoletz.rf (emergency volunteers portal)	12.9.2013
(RUORG1)	4. Elizaveta Glinka (Moscow)	Member of presidential committee for human rights, head of a charity foundation, blogger. Glinka's blog was one of the major hubs for coordination of assistance for victims of wildfires in 2010	9.9.2013
(RUIND3)	5. Elena Kobyakova (Saint Petersburg)	Coordinator of Help Map for victims of wildfires (2010), a crowdsourcing project, and head of Rynda.org online mutual aid platform (St. Petersburg)	19.9.2013
(RUORG2)	6. Nargiz Asadova (Moscow)	Former chief editor of PublicPost, online media outlet that supported crowdsourcing deployment during floods in South Russia (2012)	3.9.2013
(RUORG3)	7. GG (Moscow)	Head of department in software development group that developed a portal for mobilization of	31.8.2013

		volunteers (Dobrovoletz.rf)	
(RUIND4)	8. Natalya Voronitzyna (Pushkino)	A leading online coordinator of response to wildfires in 2010	7.9.2013
(RUIND5)	9. Alena Popova (Moscow)	Politician and activist, founder of The Civic Corp, coordinator of emergency response during floods in 2012 in Krymsk, coordinator of response to floods in Russian Far East in 2013	11.9.2013
(RUGOVAF2)	10. RR (Egor'evsk)	Member of search and rescue team	8.9.2013
(RUIND6)	11. Mitya Aleshkovskiy (Moscow)	Journalist, coordinator of emergency response to floods in Krymsk in 2012, creator of Amur2013 portal (assistance to victims of floods in 2013)	13.9.2013
(RUGOV1)	12. OO (Moscow)	Official blogger for Russian Ministry of Emergency Situations	17.9.2013
(RUORG4)	13. GG (Moscow)	Developer of mobile applications for Russian Ministry of Emergency Situations	13.9.2013
(RUGOV2)	14. PP (Moscow)	Advisor on social media to high-ranking official in Russian Government	6.9.2013
(RUIND7)	15. Alexey Sidorenko (Moscow)	Co-founder of Help Map for response to wildfires	30.8.2013
(RUIND8)	16. Anastasiya Suslina (Moscow)	Coordinator of firefighting brigade of Department of Biology, Moscow State University	11.9.2013
(RUGOV3)	17. AS (Moscow)	Former advisor on public affairs at Ministry of Emergency Situations	4.9.2013

(RUGOV4)	18. KK (Moscow)	Senior advisor on public affairs at Russian Ministry of Emergency situations (responsible for social media management)	3.9.2013
(RUIND9)	19. Igor Cherskiy (Moscow)	Journalist and blogger, key coordinator of response to wildfires in 2010	29.8.2013
(RUGOV5)	20. NN (Moscow)	Social media manager at Ministry of Emergency Situations	9.9.2013
(RUORG5)	21. Maksim Dubinin (Moscow)	Director of GIS lab, expert on GIS and developer of mobile application for monitoring wildfires	30.8.2013
(RUORG6)	22. Grigory Kuksin (Moscow)	Head of firefighting department at Greenpeace, Russia	29.8.2013
(RUGOV6a) (RUGOV6b)	23. NN; MM (Moscow)	Former head and deputy head of Moscow region spokesperson unit of Ministry of Emergency Situations, currently spokesperson and vice spokesperson of Rosselhoz (Russian forest authority) in Moscow Region	2.9.2013
(RUORG7)	24. DD (Moscow)	Developer of Dobrovoletz.rf (portal for mobilization of volunteers)	3.9.2013
(RUIND10)	25. Michael Shlyapnikov (Kolionovo)	Blogger and land owner, took active part in response to wildfires	8.9.2013
(RUIND11)	26. Boris Leites (Saint Petersburg)	Head of Extremum search and rescue team (Saint Petersburg), developer of platform for mobilization of volunteers	18.9.2013
(RUORG8)	27. Georgy Potapov	CEO of kosmosnimki.ru (GIS	5.9.2013

	(Moscow)	project that monitors wildfires)	
(RUIND12a) (RUIND12b)	28. Irina Vorobieva; Grigory Sergeev (Moscow region)	Liza Alert, Search and Rescue online volunteer group (participatory observation and on-site interview)	14- 15.9.2013
(RUIND13)	29. MS (Moscow, via Skype)	Professional firefighter, author of the concept of Dobrovoletz.rf	11.12.2013
(RUIND14)	30. Sergey Burtsev (Krasnodar, via Skype)	Moderator of a Facebook group for emergency response to Kuban floods	23.12.2013
(RUIND15)	31. Ulyana Kononovich (Krasnodar, via Skype)	Moderator of a Facebook group for emergency response to Kuban floods	23.13.2013
(RUIND16)	32. Evgeny Mashkarin (Krasnodar, via Skype)	Moderator of a Facebook group for emergency response to Kuban floods	28.12.2013

Interviews in Australia

	Name	Role	Date
(AUSIND1)	1. Maurits van der Vlugt (Sydney)	Co-founder of Bushfire Connect	1.10.2013
AUSORG1a AUSORG1b	2. PP; VV (Sydney)	Social Media Lead, ABC International, Social Media Lead, ABC Australia Innovation	2.10.2013
(AUSGOVAF1)	3. AA (Melbourne)	Social media manager, Country Fire Authority, Victoria	4.10.2013
(AUSGOVAF2a) AUSGOVAF2b	4. SM; JH (Mount Macedon)	Australian Emergency Management Institute (AEMI),	7.10.2013

		developers of DisasterWatch mobile application	
(AUSIND2)	5. Keren Flavell (Melbourne)	Co-founder of Bushfire Connect	8.10.2013
(AUSGOV1)	6. DW (Melbourne)	Assistant Director at Department of Premier and Cabinet (Victoria), investigated role of ICTs in “Black Saturday” and introduced first mobile application for CFA	8.10.2013
(AUSORG2)	7. Luke Corbett (Melbourne)	Ripe Intel, developer of EmergencyAUS mobile application, former CFA employee	8.10.2013
(AUSORG3)	8. Jonathan Grant (Melbourne)	Co-founder and chief technology officer, Gridstone. Developer of mobile applications for emergency agencies	9.10.2013
(AUSGOV2)	9. AA (Melbourne)	Manager, Information & Communications Technology Unit, Operational Support and Capability Branch, Fire Division, Department of Environment and Primary Industries (DEPI)	10.10.2013
(AUSIND3)	10. Peter Campbell (Melbourne)	Convener, Bush Search and Rescue, Victoria (http://bsar.org)	10.10.2013
(AUSGOVAF3)	11. RR (Mildura)	Lieutenant in CFA Merbein Brigade	11.10.2013
(AUSGOVAF4)	12. PP (Brisbane)	Director of Management and Support Services Unit, State Emergency Service (SES) Queensland	11.10.2013

(AUSIND4)	13. Tim Miller (Morayfield)	Founder of QLDfloods website, citizen-based project that coordinated assistance during Queensland floods 2011	16.10.2013
(AUSGOV3)	14. WW (Brisbane)	Senior Social Media Manager, City Council Brisbane, facilitator of “Mud Army”	16.10.2013
(AUSGOVAF5)	15. JJ, (Brisbane)	Senior Digital Media Officer, Media and Public Affairs Command, Queensland Police Service	17.10.2013
(AUSORG4)	16. OO (Brisbane)	Senior Consultant, Professional Services, ESRI	17.10.2013
(AUSIND5)	17. Adam Penberthy (Brisbane)	Co-founder of Floodaid (platform for facilitation of citizen-to-citizen help during floods in 2011 in Queensland)	17.10.2013
(AUSGOVAF6a) (AUSGOVAF6b)	18. JJ; GG (Brisbane)	Regional Manager and Volunteer Recruitment and Marketing Manager, Volunteering and Support, Rural Fire Service Queensland	18.10.2013
(AUSIND6)	19. Graeme Kaplen (Brisbane)	Co-founder of Floodaid	18.10.2013
(AUSIND7)	20. Adrian Prang Larsen (Brisbane)	Co-founder of Floodaid	18.10.2013
(AUSIND8)	21. Ian Batley (Canberra)	Co-founder of MAPS (Mapping and Planning Support), volunteer GIS organization	20.10.2013
(AUSGOVAF7)	22. TT (Sydney)	Social media manager, NSW Police Force	21.10.2013

(AUSGOVAF8)	23. Andrew Henderson (Penrith)	Londonderry Fire Brigade, Rural Fire Service, NSW	22.10.2013
(AUSORG5)	24. Anthony Baxter (Sydney)	Crisis Group, Google	23.10.2013
(AUSGOVAF9)	25. Brian Quinn (London)	Volunteer Fire Mapper at CFA, ICC and Fire Behaviour Analyst, Newham Rural Fire Brigade	28.10.2013
	Site visits:		
	Menai Rural Fire Service Station, New South Wales	As part of open day of Rural Fire Service, NSW	28.9.2013
	Mildura DEPI Fire Coordination Centre	Organized by Victor Hurley , Senior Biodiversity Officer, Strategic Fire Planning Environment and Water Team, Loddon Mallee Region, DEPI	11.10.2013
	Merbein Brigade	Accompanied by SR	11.10.2013
	ACT (Canberra) fire service open day	Accompanied by Ian Bentley	20.10.2013
	Fire Response Coordination Centre, NSW	Organized by Ian Bentley	20.10.2013
	Other Interviews		
(UKIND1)	1. BD, UK	Head of Communication, Local Council, UK; convener of UK Virtual Operations and Support Team (VOST)	20.8.2013
(GLOBIND1)	3. Patrick Meier, Nairobi	Co-founder, Standby Task Force (SBTF)	20.11.2013

(GLOBIND2)	4. Anahi Iacucci, Nairobi	Co-founder, SBTF	21.11.2013
(UKIND2)	5. Justine MacKinnon, London	Founder of Crisis Mappers UK, core team member of SBTF	10.12.2013

Appendix II: Consent Form

Consent Form

Crowdsourcing and ICT-mediated mobilization of volunteers in emergency situations: The construction of activity systems and socio-political environment.

*Gregory Asmolov, PhD candidate, Media and Communications Department
London School of Economics (LSE)*

I am a PhD candidate in the Department of Media and Communications at the London School of Economics (LSE). As part of my PhD programme, I am conducting research under the supervision of Professor Robin Mansell. I am inviting you to participate in my study. The purpose of the study is to examine the role of ICTs in mobilization of volunteers in different socio-political environments. As part of the project I am analysing the role of ICT applications in emergency response in Australia, Russia and the UK.

All information obtained in this study will be kept confidential and anonymous unless permission is given by the interviewee to the interviewer.

Acknowledgement of Study, Consent and Agreement to be Recorded

- I have been informed of and understand the purpose and procedures of this study and the purpose and procedures of this interview. Any questions that I asked about the purpose and nature of the interview and assignment have been answered to my satisfaction.
- I understand that I am free to withdraw my consent and discontinue my participation in this interview or study at any time. I understand that I can choose to answer only the questions that I wish to answer.
- I understand and agree that the interview will be digitally recorded and then transcribed.
- I have read and understand the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study.

Permission to Quote

I may wish to quote your words directly in reports and publications resulting from this. With regard to being quoted, please check yes or no for each of the following statements:

I agree that researchers may publish documents that contain quotations by me under the following conditions:	
<input type="checkbox"/> Yes <input type="checkbox"/> No	I agree to be quoted directly (my name is used).
<input type="checkbox"/> Yes <input type="checkbox"/> No	I agree to be quoted directly if my name is not published (I remain anonymous).

By signing this consent form, you are indicating that you fully understand the above information and agree to participate in this study.

Participant's signature _____

Date:

Appendix III: Interview Topic Guide

As described in the Methodology chapter (Chapter 4, Section 4.3), data collection relied on semi-structured interviews. Therefore, the topic guide was developed mostly in order to facilitate thinking in preparation for each interview. The interviews differed depending on the location, the type of actor and the nature of the project associated with the interviewee. In addition, since data collection relied on the concept of “active interviewing” (see Section 4.3), interviews were dynamic and flexible in nature in order to support the process of the production of knowledge.

Introduction:

- Self-presentation
- Explanation of the research topic
- Discussion of confidentiality and consent
- Request for permission to use a voice recorder
- Discussion of the status of citation

General Questions

Main Questions	Additional questions	Probing question
What is your experience in emergency response? Tell me about your experience/ your project	What was the project? When it was created? Who were the major partners? Can you provide some examples of how the project worked?	Can you provide some examples?
What were your relationships with other actors that took part in emergency response?	Who were the leading actors? Can you recall any specific situations? Were institutional actors open to collaboration? Can volunteers contribute to emergency response?	

How would you define the role of the Internet/ Internet users in emergency response?	Social media? Social networks? Crowdsourcing platforms? Mobile applications?	
What is your background? What motivated you to take a part in this?		

Subject/ Mapping the Actors in an emergency response system

Main Questions	Additional questions	Probing question
Who are the major actors that participate in disaster response? In time of disaster?	What are the major official organizations? What are the major volunteer groups? Who are the potential volunteers for engagement during emergency? What is the role of general groups of citizens?	Can you provide some examples? Can you expand a little on this? Can you tell me anything else?
Who are the major actors in emergency response system in everyday life?		
Who are the most significant members of emergency response system?	Can you describe the degree of importance? How do you define importance?	
What are the relationships between the actors?	What are the most problematic situations around specific actors in emergency response?	

What is the role of volunteers?		
What is the role of Internet users?		

Tools/ mediating artefacts

Main Questions	Additional questions	Probing question
What are the major ICT tools used within emergency response?	Can you give more names? What is the function of these tools? (more related to object cluster) Why are these tools in particular successful?	
Are you using existing platforms or developing new tools?		
What tools/ projects were rejected? How is the process of decision-making about what tools should be used conducted?	Why do some emergency response projects/tools fail and others succeed?	
What is the role of the tools in mobilization?		
What is your evaluation of the importance of the tools for emergency response?	Your estimation of the role of the project within general emergency response – scale of role/ degree of success?	In general? Specific tools?

Who created the tools (state sponsored or bottom- up)?	What projects are supported with funding? How does decision-making about what project to collaborate with work?	

Objects

Main Questions	Additional questions	Probing question
What is the purpose of tools that are used as part of emergency response?	How is the purpose of the project defined? Mapping? Mobilization? What for? Purpose: tools only in emergency situation? Purpose: tools also used in everyday life?	
What resources are mobilized through these tools?	<ul style="list-style-type: none"> • Sensor? • Physical? • Analytical? • Intellectual? • Financial? 	
How are functions developed/ crystallized?	Is the function of the tools changing? Who changes the purpose of a tool? Why is the tool focused on these particular functions?	

Communities

Main Questions	Additional questions	Probing question
Who are the members of communities that use the tools?	<ul style="list-style-type: none"> • Professionals? • Local/ potentially affected communities? • Country level activists? • Hi-tech people? • “Responsible citizens”? 	
Do the volunteers belong to a specific organizational structure?	<p>Is it formal or informal?</p> <p>Does it rely on a traditional volunteer organization or is it networked/Internet based?</p> <p>Are there any new organizations linked to the specific online platform?</p>	
How are communities sustained at non-emergency times?	<p>Local communities?</p> <p>State/global: people outside region of disaster?</p>	
Who are the people mobilized?		

Division of labour

Main Questions	Additional questions	Probing question
How is the labour divided?	<p>Within the volunteer community?</p> <p>Between volunteers and formal</p>	

	organizations? Why is labour divided in that way?	
What is the role of collaboration?		
How does the synergy between institutions and volunteers work?		
Are there any conflicts about division of labour/ functions?	Between institutions and volunteers? Conflicts around particular functions? Number of actors that fulfil the same function or/ and compete against each other?	
What is the degree of significance of volunteers?	How do you define significance?	

Rules/ Norms

Main Questions	Additional questions	Probing question
What are the rules for engagement?		
Who defines the rules?		
What are the sanctions for breaking the rules?		
How are the rules learned/ proliferated?		

Focus on specific case studies

Analysis of a specific disaster

Main Questions	Additional questions	Probing question
Latest emergency situation – can you recall what was the role of the tools?	<p>Can you provide a specific example?</p> <p>Give examples of role of tools in latest disaster</p> <p>Estimation of role of online project/tool within general emergency response–degree of role/ degree of success?</p> <p>What projects are supported with funding?</p> <p>How does decision-making work with regard to what project to collaborate with?</p>	
How does division of labour work?		
Victoria as reference: what was the role of the tools in 2009?		

Questions focused on specific platform

Main Questions	Additional questions	Probing question
Are you familiar with Bushfire Connect? Can you evaluate them?	<p>What do you think about the project?</p> <p>Why was it closed?</p> <p>What were the failures?</p>	
Are you familiar with VOST?	What are their functions?	

	How would you define their role/ evaluate their efficiency?	
Are you familiar with Ushahidi?	Is the platform useful for emergency response? What for? What functions it can fulfil?	
Estimation of the role of the project within general emergency response – extent of role/ degree of success?		

Appendix IV: Coding Manual (initial version, March 2013)

The table is organized according to Boyatzis's (1998) framework for coding, which includes label of code, definition and indicators.

Label of code	Definition	Indicators
<p>Cause of mobilization</p> <p>What is defined as emergency/daily and how are the boundaries mediated?</p>	<ol style="list-style-type: none"> 1. Types of event that require mobilization? 2. When (in what situations) are people mobilized? 3. What is defined as a crisis? How does platform mediate notion of crisis? 4. How does platform mediate transition from daily to emergency for particular group of people? 5. How does the platform mediate situational awareness around the topic of mobilization? 	<ul style="list-style-type: none"> • Natural disaster/ daily problems • Request for assistance by authorities/ users/ managers of platforms
<p>Purpose of mobilization/ scope of functions</p>	<ol style="list-style-type: none"> 1. What is the purpose of mobilization? 2. What functions should be performed by those mobilized? 3. Who defines the purpose (institutions/ 	<ul style="list-style-type: none"> • Data collection/ monitoring • Mapping • Analysis of data/ curation • Humanitarian assistance • Coordination of offline action

	<p>platforms/ managers/ users)</p> <p>4. What is the general desired future vision embedded in the platform's goals?</p>	<ul style="list-style-type: none"> • Active response to the disaster (e.g. firefighting)/ rescue mission) • Fundraising • Offline/ online • Professional functions – psychological/ legal/ satellite/ geographical
Resources mobilized	<ol style="list-style-type: none"> 1. What are the resources mobilized through the platform in order to respond? 2. What types of resources are available to particular network? 3. Amount of resources (including time) that the volunteers spend on mobilizations? 	<p>Types of resources:</p> <ul style="list-style-type: none"> • Symbolic • Physical • Sensor • Financial • Intellectual
Identity of those mobilized Member of online community Platform's users	<ol style="list-style-type: none"> 1. Who is mobilized? (professional background/ social/ gender, etc.) 2. Professional identity of participants (skilled/ unskilled)? 3. Socio-political background of participants 4. Bounded/ unbounded: Is the platform appealing to a specific 	<ul style="list-style-type: none"> • experts/ volunteers • Bounded audience or open audience • Skilled/ unskilled • Professional/ personal backgrounds • Community level: local/ countrywide/ global

	bounded audience or open audience?	
Geographical range: 1. Scope/ range of mobilization 2. Range of response	<ol style="list-style-type: none"> Where are the volunteers who are mobilized via platform? Is platform focused on specific region (in terms of audience and response)? What is the range of mobilization? 	<ol style="list-style-type: none"> Specific/ flexible Geographical Professional Bounded/ unlimited City/ country/ global Local/ global National/ international
Identity of mobilizer	<ol style="list-style-type: none"> Who mobilizes people? Who is initiator of mobilization? Who makes decisions about when to mobilize? 	<ul style="list-style-type: none"> Officials (emergency response, local authority, etc.) Developers/moderators of platform Users of platform
Method of mobilization? What is procedure of transition from everyday life to crisis?	<ol style="list-style-type: none"> How are volunteers mobilized? What channels/ tools are used for mobilization? 	<ul style="list-style-type: none"> E-mail distribution SMS Using social media Using crowdsourcing platform Mass media Addressing existing network/ wide audience
Rules of mobilization	<ol style="list-style-type: none"> Who develops the rules? To what extent are they formal/ informal? How are the rules mediated? 	<ul style="list-style-type: none"> Who has the right to activate? When can activation take place/ should network be mobilized? What is the purpose of

	<ol style="list-style-type: none"> 4. How are the rules embedded within the structure of the platform? 5. How is the definition of emergency embedded within the algorithm? 6. When should the network be mobilized? 	activation?
<p>Division of labour/ functions within community of volunteers/ users of platform?</p> <p>Relationship between role of volunteers in everyday life and in emergency?</p> <p>Process of role assignments for volunteers?</p> <p>Team division on platform?</p>	<ol style="list-style-type: none"> 1. How clear is the differentiation of roles? 2. How is the division of labour defined/ organized/ mediated through the platform? 3. What is the set of roles coordinated through the platform? 4. What is the set of missions coordinated through the platform? 5. Does division of labour rely on professional capacities of users/ their will/ their resources/ decision by moderator/ their location/ their education/ any other 	

	<p>principle for division of labour, etc.?</p> <ol style="list-style-type: none"> 6. Is division of labour flexible or constant? 7. Is any examination required in order to get specific job/ function/ role? 8. What are the conflicts between the daily role and emergency roles? 9. What kinds of team exist within the platform? 10. Is mobilization of different teams separate/ differentiated? 	
<p><u>Community structure</u> If platform/ website is constructor of social network for mobilization, what does this network looks like?</p>	<ol style="list-style-type: none"> 1. What community/ public does the platform constitute? 2. How is community designed through platform? 3. Structure of membership? 4. What is proportion of active/passive members of community (e.g. long tail)? 	<ol style="list-style-type: none"> 1. Inclusion/ exclusion 2. Membership structure 3. Boundaries between members/ non-members 4. Leadership/ management/ hierarchy within community 5. Various forms of activation 6. Division of roles as part of community definition. 7. Degree of activity in participation 8. Legitimacy/ decision-

		making
<u>Motivation structure</u>	1. What is motivation of those mobilized?	
<u>Formal-informal synergy</u>	<ol style="list-style-type: none"> 1. What is degree of synergy with formal systems (differentiation of roles/ responsibilities)? 2. Relationship/ degree of synergy between formal and informal institutions/ other forms of collaboration outside network 3. How do platform's managers/ users perceive role of formal system? 	
<u>Role of technology</u> What is the role of technology for mobilization? To what extent is role of technology significant within emergency response?	<ol style="list-style-type: none"> 1. To what extent do tools/platforms used to manage network technology define the shape of the network? Do they create/enable the network or just support it? 2. Dominance of specific platform for emergency response activity system: to what extent is the platform 	<ul style="list-style-type: none"> • One platform/ many • Major/ minor • Constituted through ICT/ initiated with no ICT when ICT only supported it • Platform focused on online activity/ offline activity

	<p>mainly/solely for mobilization/ is mobilization conducted through other channels?</p> <p>3. Does mobilization rely on one platform or variety of platforms/ means?</p>	
Challenges	<p>1. What are the major challenges for mobilization?</p> <p>2. What are the major challenges for managing post-ad-hoc networks (crisis-related platforms in post-crisis periods?)</p>	<ul style="list-style-type: none"> • Requests overload • Liability • Legal status issues • Organizational problems • Lack of resources • Lack of participation • Community passivity • Lack of collaboration with formal structures/ other actors
Type of emergency related network/ community	<p>1. Does community exist only in emergency or is it a post-emergency community?</p> <p>2. To what extent does the platform rely on ad-hoc community (spontaneous mobilization of unspecified members) or does it develop post-ad-hoc community with permanent</p>	<ul style="list-style-type: none"> • Ad hoc/ post-ad-hoc • Situational/permanent • History of mobilizations of digital ad-hoc networks – networks that emerge in response to risk to human life • Permanent or not permanent community: proportion of core active members and people who join occasionally/ only in case of disaster

	<p>membership?</p> <p>3. Does community rely primarily on latent emergency-related network that can be mobilized in case of disaster?</p>	
Type of participation	<p>1. Structure of participation (if there is a power law, when majority of actions are supported by a core that relies on minority of members)</p>	<ul style="list-style-type: none"> • Paid/ unpaid (volunteer) • Sporadic/ permanent • Active/ passive • Offline/online
Dominant space of activity	<p>1. Whether platform seeks to mobilize people in order to perform activities online or offline</p>	<ul style="list-style-type: none"> • Online/ offline
Membership structure	<p>1. Who can join the network and how?</p> <p>2. How one can join a specific team?</p> <p>3. Recruitment/ membership strategies</p> <p>4. Forms of identity/professional validation</p>	<ul style="list-style-type: none"> • Open/ bounded/ closed • Open registration/ other
<p>Online platforms</p> <ul style="list-style-type: none"> • Flexibility of platform/ tool • Nature of tool • Development of 	<p>Different types of platform allow different degrees of freedom for users/ moderators/admins and suggest various forms of</p>	<ul style="list-style-type: none"> • Dedicated platform/ using existing platform (e.g. Ning/ Ushahidi) • Developed from scratch/ special, but relies on

<p>tool</p> <ul style="list-style-type: none"> • <p>Specific type of platform</p> <p>Platform's flexibility</p> <p>Space for customization: using existing platforms with/without changing their structure.</p>	<p>power relationship between platform and subject.</p> <ol style="list-style-type: none"> 1. What are the affordances of the platform? 2. What is the degree of flexibility in customization of platform by admin/moderator/user? 3. To what degree do platforms allow customization? Degree of freedom allowing interpretation by users within the platform. 4. To what extent is structure of platform flexible and allowing customization by admin/moderator/user (e.g. customization of categories/ privacy/ design/ interaction within website etc.) 	<p>platform</p> <ul style="list-style-type: none"> • One platforms/ many platforms and applications • Leading/ additional • Types: Crowdsourcing/ social networks/ Platform developed especially for community <p>Specific types of platform:</p> <ul style="list-style-type: none"> • Social networks: using existing social networking platforms (Facebook groups/ Twitter / blog community/ Ning) • Websites • Blogosphere • Crowdsourcing platforms • Mobile applications • Other
<p>Language</p> <p>Cross-cultural mediation</p>	<ol style="list-style-type: none"> 1. What language is used? 2. How many languages? 3. Is there translation as part of the system? 	<ul style="list-style-type: none"> • One language/ few • Translation: yes/no • Local/ international

Identity management of members	1. How are people mobilized around emergency situation are identified?	<ul style="list-style-type: none"> • Anonymous • Names • Nicks • Full profile • Relying on identity system within the platform/ on other platforms (e.g. SN/ blogosphere/ open ID).
Organizational structure/ leadership	<ol style="list-style-type: none"> 1. How is the platform managed? 2. Is there any leader's role associated with people from other structures (e.g. official emergency response)? 3. Is leadership associated with professional capacity/ technical capacity/ history of platform's development? 4. Who defines the boundaries of the network? 5. Who can make decisions about mobilization? 6. Who are decision-makers/ shape the rules? 7. Who develops protocols of community/ has 	<ul style="list-style-type: none"> • Leaders • Decision-makers • Senior moderators etc. • Hierarchical/ horizontal • One leader/ many leaders • Join chats/ conference

	capacity to change it?	
Set or rules	<ol style="list-style-type: none"> 1. What are the boundaries of activity? 2. What are the norms/rules for engagement/ non-engagement? 3. How are the norms different in everyday life and in emergency situations? 	<ul style="list-style-type: none"> • In emergency/ non-emergency • Formal/ informal • Sanctions/ no sanctions
Initiator	<ol style="list-style-type: none"> 1. Who initiated development/ deployment of the platform? 	<ul style="list-style-type: none"> • Formal/ informal • Individual/ group • State/ NGO/ international organization
Types of emergency situation that have been addressed	<ol style="list-style-type: none"> 1. Does the platform address specific type of disaster or variety of types? 2. What type of disaster? 	<ul style="list-style-type: none"> • Disaster/ daily/ routine • Wildfire/ earthquake/ tsunami/ floods • Human/ non-human • Specific/ multiple
Scale of disaster that has been addressed	<ol style="list-style-type: none"> 1. How many victims (dead/injured)? 2. Degree of damage? 	<ul style="list-style-type: none"> • Less than 50 • More than 50
State's role	<ol style="list-style-type: none"> 1. What is the role of the state with regard to the project/ platform? 	<ul style="list-style-type: none"> • Partner/ synergy • Ignore/ alternative • Oppose/ restrict - adversary

Partners	<ol style="list-style-type: none"> 1. Who are partners/ collaborators? 2. Are they represented within the platform? 3. What does the structure of coalition around emergency response look like? 	<ul style="list-style-type: none"> • Emergency services (police, firefighters, medical) • local governor/authorities • state authorities/ • NGOs • local community
Main type of communication:	<ol style="list-style-type: none"> 1. How are real-time communication, collection and distribution of information conducted? 	<ul style="list-style-type: none"> • Online • Skype • Platform based • SMS • Mobile phones • Mobile applications
Online/ offline structure	<ol style="list-style-type: none"> 1. Does the platform rely only on virtual network, or also have an offline situational room? 	<ul style="list-style-type: none"> • Yes/ no
Decision-making process	<ol style="list-style-type: none"> 1. How is decision-making managed/ conducted? 	<ul style="list-style-type: none"> • Individual • Chat • Conference • Skype-calls
Learning by new members	<ol style="list-style-type: none"> 1. What is the role of training for division of labour? 2. How is learning conducted? 3. How do new members learn the rules? 	<ul style="list-style-type: none"> • Documents • Training • Initiation • Learning • Simulations • Documents • Guides
Information architecture	<ol style="list-style-type: none"> 1. Relationship between subject and tool. 	<p>Information architect:</p> <ul style="list-style-type: none"> • Programmer/Web designer

	<p>2. Who develops architecture of tool and degree of tool's flexibility/ freedom of customization from user's point of view?</p> <p>3. To what extent is the platform open to customization by user?</p>	<ul style="list-style-type: none"> • Administrator • Moderator • User •
Legal/ liability	<p>1. What is the legal status of the network?</p>	<ul style="list-style-type: none"> • Official/ non official (NGO/ online group)
Financial	<p>1. Does the network have any funding/ financial support?</p>	<ul style="list-style-type: none"> • Yes/no
Outreach	<p>1. What are the outreach strategies?</p> <p>2. How is the platform integrated with traditional media?</p> <p>3. Is there any collaboration with traditional media?</p>	<ul style="list-style-type: none"> • Banner • Feeds • List of friendly resources
Target audience	<p>1. What is the attitude toward subject embedded within the platform?</p> <p>2. What is the notion of the role of subject within the platform? Active or passive user?</p>	<ul style="list-style-type: none"> • Passive/ active user • Skilled/ unskilled
Structure of	<p>1. How does the</p>	<ul style="list-style-type: none"> • Map

situational awareness	platform mediate situational awareness around the topic of mobilization?	<ul style="list-style-type: none"> • Feed • Active/passive notifications • RSS • News
Meta Data structure	<ol style="list-style-type: none"> 1. What is the structure of meta data/ the role of meta data? 2. Who defines the structure of meta data? 	<ul style="list-style-type: none"> • Categories • Visualization • Mapping

Appendix V: Coding Manual (revised version, December 2013)

Thematic network informed by activity theory and used for mapping digitally mediated subject-object relationships and forms of objectification as part of subject-to-subject relationships (See Chapter 4, section 4.4).

Organizing theme	Basic themes (codes)	Relevant questions
Subject	<p>Skills of subject (professional skills/ obtained through training/ no skills requirement)</p> <p>Capabilities of subject in emergency response (broad/ limited/ lacking/ supplementary (to other actors)/ independent (from other actors)</p> <p>Role of subject in emergency (passive/ active; associated with object of activity)</p> <p>Relationship of subject to tool (subject is programmer/ admin/ moderator/ user)</p>	<ul style="list-style-type: none"> • Who is mobilized? (Is the platform appealing to a specific bounded audience or an open audience? What are the professional/ personal backgrounds of those mobilized?) • What is the attitude towards a subject embedded within the platform? What is the notion of the role of the subject within the platform? Active or passive user? • Does subject have capacity to influence structure of platform?
Tool/ mediating artefact	<p>Developers of tool</p> <p>Structure of categories</p> <p>Visibility of segments of platform</p> <p>Degree of flexibility/</p>	<ul style="list-style-type: none"> • Platform's flexibility: to what extent platform allows customization/ degree of freedom allowing interpretation by users within the platform? • To what extent is platform mainly/solely for mobilization/ or is mobilization conducted through

	<p>customization of platform</p> <p>Change in structure of platform (according to community/ rules/ objects/ division of labour)</p> <p>Tools supplementary to offline activity/ direct mediation of activity relying on the tool</p>	<p>other channels?</p> <ul style="list-style-type: none"> • Structure of meta data/ role of meta data? • To what extent is the platform is open to customization by the user? • How platform has changed over time and who played a dominant role in change of structure of platform?
<p>Object/ outcome</p>	<p>Purpose of tool:</p> <ul style="list-style-type: none"> • object of activity (emergency/ other actors) • outcome of activity (response/ recovery/ transparency/ accountability/ management of teams/ mutual aid/ data collection) <p>Specific objects (humanitarian assistance/ control over institutional actors/ control over volunteers/ mobilization of volunteers/ data collection)</p> <p>Type of resources mobilized through tool (financial/ material/ analytical/ professional/ physical/ symbolic)</p> <p>Actor that defines purpose</p>	<ul style="list-style-type: none"> • What are the subject-to-object relationships? • What is defined as a crisis? How does platform mediate notion of crisis? • What is the purpose of activity system? • What types of resources are mobilized? What is sourcing for? • How does the platform mediate situational awareness around topic of mobilization? Does achievement of purpose rely on collaboration or solely on action mediated through platform?

	(individuals/agency or a system/ authorities)	
Rules	Actors that define how platform is used Criteria for membership Criteria for mobilization (protocols of activation) of users	<ul style="list-style-type: none"> • What are the rules? • Decision about mobilization? • Who are decision-makers/ shape the rules? Who develops protocols of community/ has capacity to change it?
Community	Boundaries of community (bounded/ unbounded) Members of community (independent/ institutional/ state-affiliated) Type of community mediation (online/ offline) Degree of flexibility in structure of community Structure of leadership within community Geographical boundaries: role of geolocation in boundaries of community Community and time (permanent/ spontaneous)	<ul style="list-style-type: none"> • What public/community does the platform constitutes? How is the community designed through platform? • What is the structure of membership? How can people join the community? Is it open or closed? • Where mobilized (geographical range of audience and of mobilization)? • Are institutions/ state-related actors part of community/ activity system? • Does community exist only in emergency or is it post-emergency community, meaning activity system works not only in time of disaster??

Division of labour	<p>Structure of division of labour (association between types of object and types of subject/member of community)</p> <p>Exclusion/ inclusion around specific type of activity around specific object</p> <p>Strict/ flexible division of labour</p> <p>Actors who decide on division of labour (developers/ institutional actors/ users)</p> <p>Transparency of division of labour (visible/invisible)</p>	<ul style="list-style-type: none"> • What is division of labour? • Set of roles/ differentiation of roles of those mobilized in response to emergency? • Does division of labour rely on professional capacities of users/ their will/ their resources/ decision by moderator/ their location/ their education/ any other principle for division of labour, etc. • Is division of labour flexible or constant? • What is role of training in division of labour? • Is any examination required in order to get specific job?
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Additional segment of coding manual in accordance with research design (Section 4.2) and methodological choices (Section 4.4)

Type of category	Codes	Associated concepts
Type of actor	<p>Crowd</p> <p>General population</p> <p>NGOs</p> <p>Emergency response agencies</p> <p>Independent volunteers</p> <p>State-affiliated volunteers</p> <p>State actors</p>	<p>Division practices</p> <p>Boundaries of communities</p> <p>Subject-to-subject relationships</p>
Type of platform	<p>Specific projects</p> <p>Crowdsourcing</p> <p>Social networks</p> <p>Blogs</p> <p>Mobile applications</p>	<p>See research design (Section 4.2)</p>

	Websites	
Type of emergency	Floods Wildfires Bushfires SAR	See research design (Section 4.2)
Type of relationship between actors	Collaboration Disregard Hostile Complaints about other actors (lack of professionalism/ bureaucracy/ hostility/ lack of openness/ lack of innovation) Appreciation of other actors (type of contribution)	Modes of objectification Subject-to-subject relationships
Type of motivation of actors	Normative/ Political/ PR/ hostility towards other actors	Modes of objectification
Major challenges	Role of state actors Role of volunteers Relationship between different institutions Liability Information overload Other actors Lack of professionalism Lack of collaboration with other actors Bureaucracy Lack of innovation Lack of transparency Lack of accountability	General category that assists with analysing data
Specific examples	In relation to specific category	Assistance with prioritization of data
Salience of evidence	In relation to specific category (Important/ notable)	Assistance with prioritization of data

Appendix VI: Fieldwork Support Letter

22 August 2013

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To Whom It May Concern:

Grigori Asmolov is a PhD candidate supervised by Professor Robin Mansell in the Department of Media and Communications at the London School of Economics and Political Science.

His PhD research investigates the role of Information communication technologies and crowdsourcing platforms for the response to natural disaster. As part of his research he conducts comparative analysis of the role of Internet applications in emergency response in a number of countries, including Australia, Russia and the UK.

As one of his case studies, Grigori analyses the role of the Internet platforms in the response to natural disasters in Russia. In order to collect data for his research project Grigori conducts interviews with stakeholders that deal with emergency response.

We would like to ask you to assist Grigori in his research and data collection as a part of his PhD project.

Please do not hesitate to contact me if you require any further information.

Yours faithfully

A handwritten signature in blue ink, appearing to read 'Cath'.

Catherine Bennett

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