Chapter 7
Sociotechnical Uses of Social Web Tools During Disasters

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ABSTRACT

Social web tools are being leveraged by participants to communicate throughout their workday as well as during times of crisis. Using the London Bombings of 7 July 2005 as a case study, this chapter illustrates the need for sociotechnical interventions in systems design. By employing Actor Network Theory the author makes visible the active participants and technologies within the ecosystems of social media tools. Such visibility provides insight to the designer seeking to optimize communication systems in the wake of disaster, as well as providing further generalization to everyday use. Guidelines for improving systems and user interfaces based on disaster scenarios are described.

INTRODUCTION

Mobile technologies and social networking systems have not only developed alongside each other, but have also influenced each other’s evolution due to the demands of people who use both platforms. Participants merge the functionality of their cell phones, smart phones, digital cameras, tablet devices, and laptop computers with a rapidly increasing array of software on the social web—Facebook, Twitter, Wikipedia, Flickr, and blogs, to name only a few. In doing so, they create a massive number of endlessly shifting connections among information, people, and cultures. The spaces that people and technology create are immensely dynamic, forcing researchers to pay attention to what goes on within the social web.

One of the reasons software designers and academic scholars should find this merger of people and technologies so important is their use during natural disasters, terrorist events, or other catastrophic events. During these crises, millions of people turn to the social web for information, and through mobile technologies they can do so instantly. Groups of people (often strangers) quickly assemble online to gather information,
determine its validity as much as possible, and
distribute it as effectively as they can. Looking
at the ways people use Information and Commu-
nication Technologies (ICTs) in these situations
indicates that we, as researchers and designers,
can learn more about the activities that occur in
these systems if we become active participants
in the situations and spaces where these tools are
used. Once we position ourselves and our research
firmly within the spaces we seek to understand
and design for, we can then develop better meth-
ods for tracing such networks and identifying the
people and technologies that form those networks.
Working in these participatory cultures during
times of disaster becomes even more crucial to
our research because so many social media and
news sites that become spaces of information and
communication are not captured by current web
archiving efforts. The history of how ICTs and
people respond to crises is lost in a matter of days,
or even hours, as pages update with new informa-
tion and old information is purged or lost. Thus,
we cannot rely on looking solely backward in our
research toward well-documented moments. We
must become involved in those moments as they
happen in order to capture the full picture of what
happens and why, and how our expertise can help.

I have elsewhere documented a sociotechnical
approach to the research and design of ICTs using
ANT, or Actor Network Theory (Potts, 2008a,
2008b, 2009a, 2009b, 2009c). ANT originates
that any participant—human and non-human—in
a network is an actor who has equal agency to af-
flect that network. Actors are then brought together
into assemblages, or a series of connections used
to complete specific tasks or work in response to
some broader event. As a result, these assemblages
are quite often tactical. The relations among ac-
tors can be quick and utilitarian, formed only as
long as is needed to complete the task at hand.
Other assemblages may take on much larger tasks
that require longer and more durable connections
among actors.

This adaptability makes ANT an extremely
useful method for tracing what happens in the
social web, whether we are studying a specific
moment of crisis or a broader range of activities
in other situations. ANT provides a method for
making those connections and their function vis-
ible to study. Researchers can parse the relations-
ships among people and technologies that allow
participants to find, validate, and distribute infor-
mation. ANT is not “the answer,” or a universal
cure for better web design. However, it does offer
a methodology to researchers so that we can learn
from these networks while we work within them.
We can trace “the social and technical elements”
networks that are always “ephemeral, shifting,
and expanding” (Potts 2009a, p. 34).

BACKGROUND

As stated earlier, Actor Network Theory posits that
all actors in a network are equal agents. Agency is
distributed across the network so that we can re-
conceptualize the binary frameworks with which
we often think of ourselves and the things, places,
and events around us. As Callon (1986) suggests,
understanding the function of agency in ANT asks
us to adopt three principles: symmetry among
actors, an agnosticism toward their roles, and the
assumption that actors can freely associate with
one another. Making people active agents frees
them from the totalitarianism of technological
determinism. But there are prescriptions (Akrich
& Latour, 1992) within the network that enable
and constrain what actors can and cannot do.
Recognizing non-human actors as agents means
we see that they impact what people do and how.
ANT refuses an “essentialist position” in which
we “attribute specific properties” to certain actors
and only those actors (Tatnall & Gilding, 1999, p.
957). In other words, networks are co-constituted
systems in which actors facilitate each other’s ac-
tivities. More to the point, they do so by opening
possibilities for altering the means and purposes
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