

CRISIS RESPONSE

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JOURNAL

PROTECTION | PREVENTION | PREPAREDNESS | RESPONSE | RESILIENCE | RECOVERY



TIME	DESTINATION	✈ STATUS
12:00	HOMICIDE	DELAYED
12:00	ABDUCTION	ON TIME
12:35	HEART ATTACK	ON TIME
1:00	ROAD ACCIDENT	ON TIME
1:20	DISEASE	CANCELLED
2:35	DRUGS	ON TIME
3:00	DISASTER	ON TIME
4:15	KIDNAPPING	ON TIME

TRAVEL SAFETY

RECOGNISING RISKS & HOSTILE SITUATIONS

Humanitarian cargo logistics; Interviews with Waze & DJI; Social media & resilient communities; Data breaches & reporting dilemmas; Modelling critical infrastructure interdependencies; Maritime future of urban disaster response; Situational prevention & terrorism; Urban resilience in Skopje; Fake alarms & mass alerts; Hybrid attacks

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Cover image: Nick Lowndes

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The UK's Digital, Culture, Media and Sport Committee has published



its first interim report on its *Disinformation and Fake News Inquiry*, with its findings confirming the creeping, yet acute malaise that so many have been feeling for so long. Damian Collins, MP, Chair of the Committee, noted: "We are facing nothing less than a crisis in our democracy – based on the systemic manipulation of data to support the relentless targeting of citizens, without their consent, by campaigns of disinformation and messages of hate."

We all know rumours and fake news are easily spread and rapidly amplified online, and they can have appalling consequences – on p3 you can read how false allegations spread on a social messaging app, have contributed to mob attacks and murders in India.

The interim report notes that murky forces have attempted to influence many elections around the world. Indeed, disinformation has been called an "active threat" and is a tactic of unconventional warfare in its use of technology to disrupt, magnify and distort our views of the truth. On p43 Ørjan Karlsson discusses such hybrid warfare and attacks.

There are even more disturbing implications to this manipulation and malign influence, as Lina Kolesnikova notes on p46. She reveals how false alarms in mass warning systems could create panic, mistrust or even galvanise specific groups into acts of civil unrest or revolution. Whether accidental or deliberate, the consequences could be dire.

Along with the documented human tragedies of this pernicious trend, the values of trust and truth are also significant casualties.

So, what can be done to counter this tsunami of disinformation and misinformation? As a start, we *all* need to rediscover our natural scepticism. We need to question, check facts and overcome our ingrained biases to believe what we want to believe. The Committee report is correct to say that digital literacy should become the "fourth pillar of education" alongside reading, writing and maths.

No single body can reclaim the narrative of truth and transparency alone. It behoves us all – governments, organisations, institutions, service providers, the media and, critically, individuals – to work together. Or else we risk entering an age of denialism, characterised by sociologist Keith Kahn-Harris as: "A dystopian vision of a world unmoored, in which nothing can be taken for granted and no one can be trusted." And this truly would be a global crisis of epic magnitude.

Maritime & urban response p32



Kaitlyn E Eads | US Navy

Humanitarian logistics p58



Team Rubicon

Social ties are the 'engine' of resilience

Danaë Metaxa, Paige Maas and **Daniel P Aldrich** describe how they worked with Facebook, using geolocation data to understand evacuation, based on the structure of people's social networks before, during and after hurricanes

In early November 2017, Brooks Fisher's neighbour in Sonoma, California, pounded on his door at 02:00hrs, rang the doorbell and shouted: "There's a fire coming and you need to get out now! I can hear trees exploding!"

The sky was orange and the smell of smoke was strong. Fisher and his wife jumped in their car and drove out as flames engulfed houses on both sides of the road. Brooks called 911; the dispatcher told him she already had reports of fires on Rollo Road, but he and his wife saw no official responders. The only people trying to help evacuate the area were their neighbours, going door to door.

When Brooks and his wife finally returned to their home, all they found were ashes. But they were safe.

Brooks and his family survived thanks to this intervention by a concerned neighbour. Many deaths that occur during events such as flooding, fires, hurricanes and mudslides, could be prevented by leaving vulnerable areas, but people don't always move, even after receiving evacuation orders or warnings of imminent risk.

To understand why, the authors worked with Facebook to understand evacuation patterns based on the structure of people's social networks before, during and after hurricanes.

We found that social networks, especially connections to those beyond immediate family, influence decisions to leave or stay in place before disasters.

Many communities that are vulnerable to disasters put a lot of resources into providing residents with early warnings. For example, in Montecito, California,

during the January 2018 mudslides, local authorities and disaster managers tried to warn residents through channels that included emails, social media alerts, press releases and deputies going door to door. Despite these efforts, not all residents evacuated and nearly two dozen lost their lives.

Traditionally, much emphasis has been placed on the role of physical infrastructure preparedness during crisis. But in light of findings about the importance of social capital during crises, our team wanted to cast a light on human behaviour during these events.

Behavioural nuances

To understand evacuation behaviour, social scientists have typically asked survivors weeks, or even years, after an event to recall what they did and why. Other researchers have waited at rest stops along evacuation routes and directly interviewed evacuees fleeing oncoming hurricanes or storms.

We wanted to capture nuances of human behaviour without having to rely on memory, or upon catching people as they stopped for fuel and coffee.

To do so, we worked alongside researchers from Facebook using high-level, aggregated and anonymised summaries of city-level data before, during and after a disaster in order to construct the outcome variables based on these questions: "Did you evacuate?" and, "If you did, how soon after the disaster did you return?"

Facebook engages in numerous academic collaborations across engineering, business and research disciplines. We believe that our research

team is among the first to study the movement of so many people across multiple disasters using geolocation data.

To protect user privacy, we submitted our research design to a rigorous internal review by specialists in data science, law, privacy and security. We only reported overall associations in the study population and used geolocation data no more specific than the city level. And our models only incorporated features grouped into broad categories, for example, 'Age group 35–44', rather than any person's precise age.

Based on research showing that social ties provide resilience to people during crises, we suspected that social capital might be a critical factor in helping people to decide whether to stay or go. By social capital, we mean people's connections to others, and resources available to them through their social communities, such as information and support.

Some aspects of these resources are reflected through social media. With this in mind, we set out to study whether attributes of people's social networks affected evacuation behaviour.

We looked at three different types of social ties:

- Bonding ties, which connect people to close family and friends;
- Bridging ties, which connect them through a shared interest, workplace or place of worship; and
- Linking ties, which connect them to people in positions of power.

While our research is currently being revised for resubmission to a peer-reviewed journal, we feel comfortable arguing that, controlling for a number of other factors, individuals with more

Social science and social media are a critical part of disaster toolkits; this research discovered that social networks, especially connections to those beyond immediate family, influence decisions to leave or stay in place before disasters.

Gary Waters | Alamy

bridging ties and linking ties – that is, people with more connections beyond their immediate families and close friends – were more likely to evacuate from vulnerable areas in the days leading up to a hurricane.

We theorise that this happens for several reasons.

First, people with more bridging ties have far-reaching social networks, which may connect them to sources of support outside those areas directly affected by disasters.

Second, people with more bridging ties may have built those networks by moving or travelling more, and thus feel more comfortable evacuating far from home during a disaster.

Linking ties are also important. Our data showed that users whose social networks included following politicians and political figures, were more likely to evacuate. This may be because they were more likely to receive warning information and trust figures of authority who were disseminating that information.

In contrast, we found that having stronger bonding ties – that is, family and friends – made people less likely to evacuate leading up to a hurricane. In our view, this is a critical insight. People whose immediate, close networks are strong, may feel supported and better-prepared to weather the storm. And staying in place could have positive outcomes, such as a higher likelihood of rebuilding in existing neighbourhoods.

But it is also possible that seeing relatives, close friends and neighbours decide not to evacuate, may lead people to underestimate the severity of an impending disaster.



Such misperceptions could put people at higher immediate risk and increase damage to lives and property during a crisis. Whether people whose stronger bonding ties lead them to stay far better or worse than others are questions for further study.

Climate change and coastal development are making disasters more frequent and damaging.

Social science and social media, which are a critical part of disaster toolkits, offer opportunities to tackle critical questions about factors that can make communities and societies more resilient to disasters and crises. 

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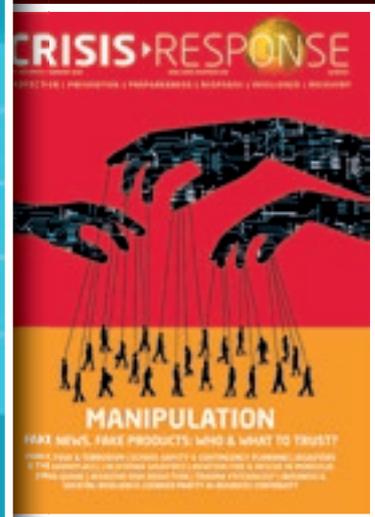
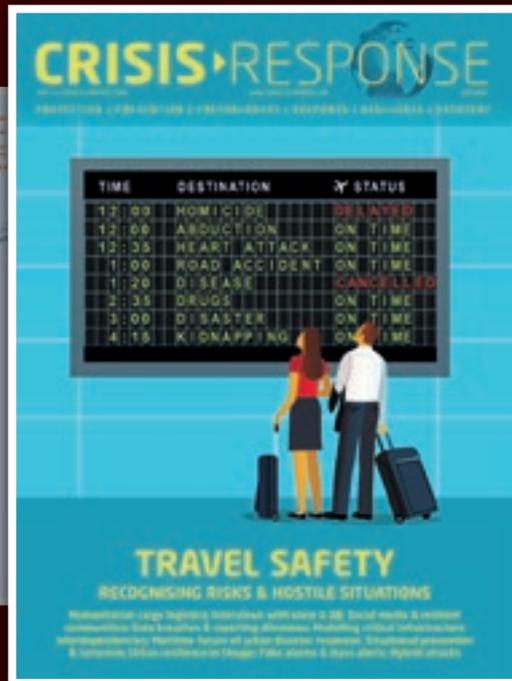
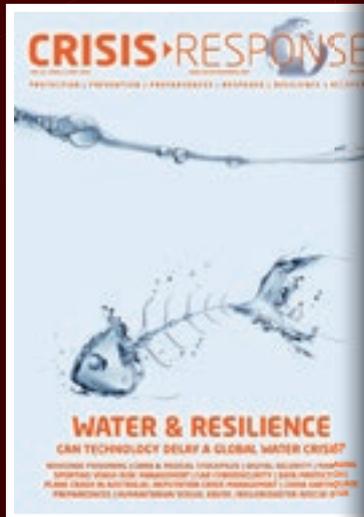
■ Sonoma resident Brooks Fischer also contributed to this article, which was first published in *The Conversation*

■ www.theconversation.com

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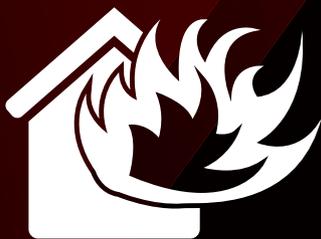
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