


# From silos to flows: spatial metaphor and communication responses to the Christchurch earthquakes

Dr Michael Bourk, University of Otago, and Dr Kate Holland, University of Canberra, discuss some of the challenges faced by key organisations involved in public information management after the Christchurch earthquake. 

## ABSTRACT

This paper discusses some of the challenges faced by key agencies involved in public information management after the 2011 Christchurch earthquake. The study analysed data collected from published documents and in-depth semi-structured interviews with senior managers and key personnel within government and a citizen journalist who launched the Christchurch Recovery Map. Metaphor is used as a way of conceptualising the constraints faced by state agencies and consideration is given to the features and possibilities of an alternative approach to imagining bureaucratic spaces in times of national emergency.

The study identified differences between state agencies constrained by political and bureaucratic priorities and more flexible community-based initiatives serving their own perceived civic duties. In particular, it is suggested the former incorporated a recurring bureaucratic spatial metaphor that framed policy and its implementation. This facilitated tensions and unintended contests among agencies seeking stakeholder attention and restricted the potential for collaboration with volunteers offering proven skills and expertise from the broader community. A need to recast established hierarchies of information flow in a way that reflects openness to the value of community sourced information is identified. It is suggested that different ways of conceptualising space may help to facilitate such changes in practice.

## Introduction

On 22 February 2011 the South Island of New Zealand was rocked by an earthquake of magnitude 6.3 (ML) that devastated the country's third-most populous city, Christchurch, and surrounding areas. Although an

earthquake in September the previous year had been larger, its location and seismological characteristics mitigated its impact on the city, taking no fatalities. In contrast, the February earthquakes killed 185 people and severely damaged the city. The Minister of Civil Defence declared the event a National Emergency on 23 February, which remained in place for almost nine weeks. In accordance with Civil Defence legislation and planning provisions, the event and its aftermath involved two phases—response and recovery. The response phase ended on 30 April when the Christchurch Earthquake Recovery Authority (CERA) assumed responsibility for the recovery effort to rebuild the city, which was estimated to take several years at a cost of more than NZ\$20 billion.

The primary purpose of this paper is to discuss some of the challenges faced by key agencies involved in public information management after the February earthquakes. The complementary role of a citizen-based web initiative alongside state online resources is also explored. The paper draws on international scholarship (Luoma-aho 2009, Veil *et al.* 2011, Palen *et al.* 2010) that extends Putnam's (1993) concept of the importance of social capital to functioning democracies. Scandinavian researcher Vilma Luoma-aho's (2009) application of social capital to transform organisational systems through building networks of 'trust and reciprocity' among stakeholders and citizen groups is discussed with reference to engaging the community before and during times of crisis. Furthermore, some scholars are advocating social media as a way of building such networks (Veil *et al.* 2011, Palen *et al.* 2010), reframing emergency response into what Palen and colleagues describe as a 'socially distributed information system' (p. 2).

It is argued that state online responses to manage crisis events such as the Christchurch earthquakes are informed by spatial bureaucratic metaphors that conceptualise information spaces as controlled territory with negative consequences for civic participation and engagement. In contrast, by replacing the former conceptual building blocks with metaphorical associations that stress constructive relational concepts such as family,

teampay and neighbourhood, more inclusive civic engagement structures and policies are encouraged. We also consider the role of boundary spanners (Leichty & Springston 1996) in such a reframed emergency response.

### New Zealand government response

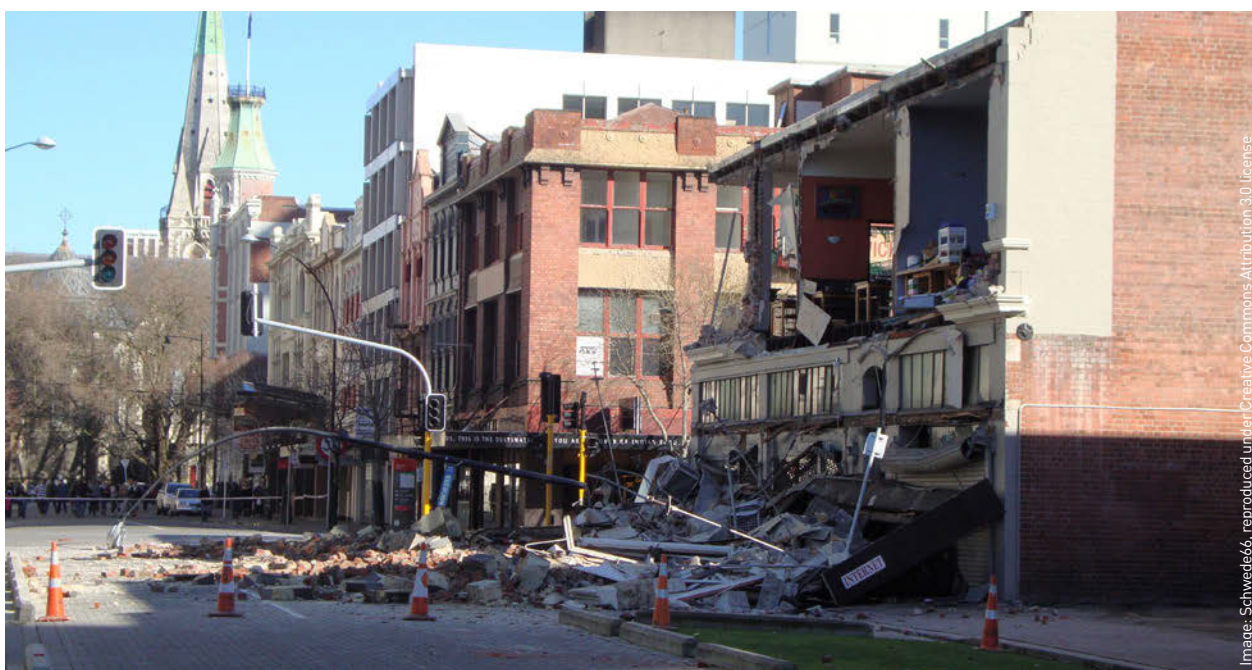
The New Zealand government and state agencies responded quickly to the crisis and in the immediate aftermath. The Ministry of Civil Defence and Emergency Management (MCDEM) assumed overall responsibility as the peak agency for managing the crisis. The Ministry oversees 16 CDEM Groups across the country, including the Canterbury CDEM, which was directly associated with the Christchurch earthquakes. CDEM Groups comprise of elected representatives from local authorities (city, district and regional councils) and maintain their own operational staff (e.g. emergency services).

The earthquakes tested legislation (*Civil Defence Emergency Management Act 2002*) that divested control to deal with a major crisis from central government and state agencies in Wellington to local governments. In practice, local jurisdictional boundaries, coupled with a lack of resources and expertise among local authorities, required the small team of Wellington CDEM staff to assume a greater leadership role to co-ordinate the response. In addition, political interference from larger Ministries led to key Civil Defence personnel being forced to engage in a shared communication platform that came under later scrutiny and criticism (RCDEMR 2012).

### Method

To identify the challenges faced by agencies involved in providing information in the wake of the earthquakes researchers reviewed published documents and conducted in-depth semi-structured interviews. In particular, researchers drew from an independent review of the CDEM response (RCDEMR 2012), a series of interviews carried out in June 2012, and internal memos provided by interview participants. Interview participants included senior managers and key personnel within the MCDEM and a citizen journalist who launched the Christchurch Recovery Map. The recorded interviews were transcribed and thematic analysis was used to draw out key themes pertinent to the study's aims. While the independent review and the participants identified several practices that worked well, the primary focus was on identifying areas of concern and improvement with respect to developing communication and online responses to future disasters.

The analysis draws on metaphor as a way of conceptualising the constraints faced by state agencies. Metaphors are linguistic devices that inform how people describe and relate to the world by comparing common concepts with those less familiar (Lakoff & Johnson 1980). The metaphorical association with communicative events as controlled territory has historical roots in public administration, political campaigning, and corporate message strategies. For example, territorial concepts inform political mandates to 'own the message' as well as the psychology behind branding. Bureaucratic forms of organisation tend to be underpinned by notions of rationality, linear thinking, task differentiation and compartmentalism (Williams 2002). Some of the ways this manifested itself in government responses to the Christchurch earthquakes are identified.



Earthquake damage on Worcester Street, Christchurch after the 2010 quake.

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## The review of the Civil Defence response

In November 2011 the central government commissioned an independent investigation, eponymously named the Review of the Civil Defence Emergency Management Response to the February Christchurch Earthquake (RCDEMR 2012), which released its final report in June 2012. The report presents a rich array of qualitative data based on more than 200 interviews and background material. Headed by Ian McLean, the review found the CDEM response overall to be 'well managed and effective', yet it made 108 recommendations in its 243-page report (RCDEMR 2012, p. 10).

The review observed that before the declaration of the national emergency both the (Canterbury) Group CDEM and the Christchurch City Council (CCC) formed separate Emergency Operating Centres (EOCs), which confused roles, duplicated management and operational activities, and led to uncertainty among service agencies. Although the two groups merged once the event was declared a national emergency, the report concludes they 'never melded into a cohesive organisation', despite each possessing expertise the other lacked (RCDEMR 2012, p. 191). Notably, the whole-of-government response was excluded from the review's terms of reference and the government rejected two of the six major recommendations made in the report. In particular, at a structural level, the location of Civil Defence within the Department of Internal Affairs drew criticism from the McLean committee, that recommended the agency be transferred and elevated to the Department of the Prime Minister and Cabinet. The review also recommended that territorial local authorities should no longer have the power to control the response to emergencies, although they should retain the right to declare them.

The review identified possible material structural constraints that hampered the CDEM in performing its managerial role as lead agency responding to the crisis, which stretched its limited resources significantly (RCDEMR 2012). Located as a small business unit within the Department of Internal Affairs, and overseen by a junior Minister, approximately 30 staff were expected to function as team leaders to manage crisis events. The government's rejection of the review's recommendation to relocate the CDEM reflects the political challenge for governments balancing the need to adequately resource and position emergency response agencies against low probability and infrequent events (Waugh 2000, in Herzog 2007).

## Key features of government communication

Prior to the first earthquake on 4 September 2010, the government had three primary earthquake-related government websites. In addition to these, four additional government websites pertaining to emergency preparedness, disaster recovery, historic

events, and science and education also carried earthquake-related information (DIA 2011a). In response to the February earthquakes the CDEM worked alongside an 'all-of-government' group of communication managers representing various government departments. Together, they collected and distributed information relevant to their various publics, which included politicians, directly affected communities and their friends and relatives, and broader national and international audiences. The all-of-government group posted information deemed relevant to their particular stakeholders to various government websites, frequently duplicating content distributed by Civil Defence (DIA 2011a). An internal memo distributed to Department of Internal Affairs staff stated that individuals seeking information on the Christchurch earthquake 'are forced to navigate a proliferation of websites with very similar purposes, set up by differing government agencies' (DIA 2011a).

The all-of-government website (Canterburyearthquake.govt.nz) also had a similar name to the Environment Canterbury Regional Council initiative (Canterburyearthquake.org.nz), which caused 'significant confusion' according to one interview participant. Furthermore, the report identified differing priorities among government departments and agencies and interdepartmental programmes (RCDEMR 2012, p. 26). At times, agencies posted to their websites incomplete information pertaining to a shared initiative as occurred between the Ministry of Social Development and the Work and Income (WINZ) websites, each of which provided partial details of an Earthquake Support Package (DIA 2011a).

Twitter also featured strongly in the government response to the Canterbury events (Bruns & Burgess 2012). Two national agencies, the Department of Internal Affairs and MCDEM (within the Department of Internal Affairs), and one local government body, the Christchurch City Council used Twitter extensively. Collectively, in the three weeks following the February event, they tweeted 5 000 messages, which were subsequently (DIA 2011b). To maintain consistency and accuracy, all responses were managed through the Public Information Manager at the National Crisis Management Centre (NCMC) in Wellington. Government staff used Twitter to answer questions from affected communities concerning a range of issues, including the state of essential services and 'availability of support'. Twitter allowed government staff to correct erroneous information and 'end false rumours' (*ibid*, see also Poole 2012). On one occasion the feedback received from the NCMC was used in a tweet from Civil Defence to quash a rumour circulating on social media that the Hotel Grand Chancellor was on fire.

## Disaster communication as territorial control

The way in which diverse agencies conceptualise their role during times of crisis influences their communication practices. In the context of state

responses to the Christchurch earthquakes, bureaucratic spatial metaphors that associate communication with 'controlled territory' frame how online communication among state agencies and the broader citizenry are conceptualised in terms of legitimacy, access, control and participation parameters. The perception of online space as territorial control is evident from the interviews, which revealed some confusion about the role or 'fit' of different websites within the information environment.

In discussing the numerous websites that sprang up across government agencies one participant invoked the larger problem of agencies having a sense of ownership over information, driving a reluctance to link to other sources. Doubts were raised, for example, about the creation of [Canterburyearthquake.govt.nz](http://Canterburyearthquake.govt.nz) following the September earthquake in response to a senior ministerial request, as to what information it would provide that was not already being provided elsewhere:

*'Could some of this information more feasibly have gone under the Civil Defence website? Some would say no because it's not part of the Civil Defence response. It's wider, almost getting into the recovery phase. But that's where people might have been looking for it.'* (Interviewee 1)

Despite recovery being listed on the Civil Defence website as part of its role, this comment suggests the presence of rigid borders and boundaries in the minds of those instituting policy can lead to unnecessary duplication. Participants cited the brand that Civil Defence has established through periodic public information campaigns focused on building community awareness and national recognition of the prominent leadership role it has taken in times of emergency, which has seen significant website spikes following an event. Given its brand the Civil Defence website was well-placed to incorporate links to local sources and ensure that information from them reached a wide audience. Further, the community may have expected to find certain information on its site while being unaware of the new specially created site.

## Silo mentality as barrier to collaboration

One participant identified the inward looking, siloed nature of many government agencies as a potential barrier to effecting a more co-ordinated, streamlined approach to information provision:

*'there's a long way to go for us to resolve the – the way that agencies think; the way that Ministers think; it's still quite siloed – they're very – the mindset of many agencies is still around internal structure of their agency.'* (Interviewee 1)

Many New Zealanders were left confused as to where to access timely, relevant and vital information required to mitigate the effects of the disaster. The confusion is characterised by tensions between

state departments and agencies and territorial local authorities of communities affected by the crisis, which led to multiple government websites duplicating information, poor distribution of vital information to affected communities, inadequate training, and lack of understanding of basic communication concepts pertaining to emergency management (DIA 2011a, RCDEMR 2012, p. 165). However, despite some criticism, the report commends the communication efforts of the CDEM staff working under uncertain and challenging circumstances, including the Wellington-based NCMC and the Christchurch CRC. Similarly, interviewees did not identify interdepartmental tensions as a cause of concern. It was clear that government agencies had strict lines of command for verifying information before making it public and the experience of participants was that this process worked well and they were able to disseminate information in a timely fashion.

Participants acknowledged the importance of having an authoritative voice as a reference point within the plethora of available information. However, the downside of this, according to one participant, is that it can inhibit the provision of specifically tailored information (Interviewee 2). This is where sources that are unconstrained by the bureaucratic spatial frame can play an important role.

Some actors operating outside official communication channels were met with resistance and uncertainty among officials concerned about how they were using official information and the reliability of the information they were providing. The Christchurch Recovery Map (CRM), also known as [eq.org.nz](http://eq.org.nz), was created in response to the February earthquake. The site contained information gathered via email, Twitter (#eqnz hashtag), SMS and locally-based websites and was built with open source tools and support of Crisis Commons and Ushahidi.<sup>1</sup> The Ushahidi platform combines crisis information from official sources, citizen generated reports, media and NGOs, facilitates early warning systems and assists in data visualisation (geographical mapping tools) for crisis response and recovery. The site provided information about essential services, including their location and times of operation.

The CRM is an example of an emergent group harnessing their expertise to address perceived gaps in the existing information and communication environment. People involved in putting the site together were drawn primarily from the Wellington IT sector (Interviewee 2). Initially, most of the traffic to the CRM site came from offshore but as connectivity improved it was accessed by locals. One interview participant who was involved with the CRM described

<sup>1</sup> CrisisCommons is a global community of volunteers who use their knowledge of open-access technologies and the Internet to help communities to respond to crisis events and to improve resiliency and response in disaster preparedness (CrisisCommons website). The Ushahidi (Swahili for 'testimony') platform combines crisis information from citizen-generated reports, media and NGOs and facilitates early warning systems and assists in data visualization for crisis response and recovery (Ushahidi website).



Image: Dr Michael Bourk

Local infrastructure damage was widespread.

how it was able to get 'buy in' from official sources such as the Banking Federation and was embedded in the website of the New Zealand Herald (Interviewee 2). Much of the volunteer effort involved in the CRM was focused on ensuring that information on the site was timely and not duplicated.

The initial caution surrounding the CRM site appeared to be related to a lack of familiarity with the Ushahidi platform and the processes through which information included in the site had been filtered. But, for some officials at least, this gradually gave way to recognition that it was performing a role that government agencies were unable to because of resourcing and time constraints and the sheer difficulty of managing and responding to local information needs from the centre. One participant said: 'Crisis Commons were able to get down to a much more localised and specific layer of detail'. They described the site as 'playing in slightly different spaces' (Interviewee 1). Another participant who was involved in co-ordinating the CRM said everyone in Wellington was supportive of what it was doing, but that friction arose as he attempted to communicate with staff within the CRC in Christchurch. His efforts to respond to their concerns and create a dialogue about the workings of the site were unsuccessful (Interviewee 2). This perhaps reflects the understandable anxieties exhibited by those responding to the unfolding crisis occurring literally in the physical space around them as major aftershocks continued.

Some concern about 'boundaries' with respect to how 'informal information' could best feed into more official communication activities and vice versa was also evident. For example, one participant referred to the need for official agencies to 'get a better grip on' the potential of different players and expertise within

the 'Internet community' during disaster situations (Interviewee 1).

### Discussion: (Re) imagining bureaucratic spaces in times of national emergency

As Lakoff & Johnson (1980) observe, spatial metaphors are fundamental to describing human experience. Furthermore, territorial control is one of many ways to conceptualise space. However, the attributes of old public information models are easily incorporated into new models of policy through metaphorical association, which can work to reinforce communication strategies focused on territorial control rather than allowing for those that value shared space, which encourages creative collaboration among diverse agencies and civic groups. This study suggests that both material and symbolic structures influence how responses to national crises are conceptualised and implemented. It is argued that a bureaucratic spatial metaphor framed how stakeholders strategically imagined their role as public servants to manage their stakeholders through the crisis presented by the Christchurch earthquakes. It is also evident that material structures ranging from resource capability, the location of the CDEM overseen by a junior Minister within a general department, through to multiple websites contributed to facilitating turf protection tactics that promoted closed cultures among state agencies (see RCDEM 2012).

Given that the midst of a disaster is not the appropriate time to be attempting to understand and engage new technologies, it is important to ensure that relevant government agencies and citizens are trained in advance and that post-disaster debriefing is inclusive

of those with expertise in these areas. Further, the consequences of silo-building attitudes are not simply confined to general managerial cultures among various departments but also a feature of IT and online information delivery systems. For example, government departments often run different web content management systems that do not necessarily talk to each other. Standardisation at this level is thus an important consideration. The challenge for policy makers is to imagine new spatial contexts that align with the permeable walls and open domains that characterise contemporary communication environments and the multiple publics that inhabit them. Into this conceptual space relational metaphors such as those associated with family membership, teamplay and neighbourhood offer opportunities that focus on roles, trust, and a sense of community, which extends beyond attempts to 'control the message'.

Luoma-ao's (2009) application to public relations of Robert Putnam's approach to social capital offers insights into how spatial metaphors can be reconceptualised around community building. Putnam defines social capital as 'connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them' (in Luoma-ao 2009, p. 235). Luoma-ao extends Putnam's definition, which primarily focuses on heterogeneous grass-roots civic and cultural community groups, to an organisational focus. She argues social capital is the 'extent of the resources available to an organization through networks of trust and reciprocity among its stakeholders', and is shaped by frequent interactions (p. 248).

This approach has a number of theoretical and practical implications that resonate with increasing recognition of the ways in which new media and technologies can be harnessed during disasters (Veil *et al.* 2011). Palen *et al.*'s (2010, p. 2) idea of a 'socially-distributed information system' would see publically available computer-mediated communications such as community websites, blogs, Twitter, social networking sites, mapping sites, etc. integrated into official systems to empower citizens to 'assess context, validity, source credibility, and timeliness to make the best decisions for their highly localized, changing conditions'. This requires a disposition toward co-ordination rather than control and recognition of the dynamic nature of information during a disaster and the way in which community expectations shift accordingly.

Boundary spanning describes the communication activities of social actors interacting with those outside their own organisation for the purpose of building closer relations between an organisation and other publics (Leichty & Springston 1996, see also Grunig & Hunt 1984). Boundary spanners have the capacity to challenge entrenched silo-building attitudes and practices by acting as institutional cultural translators between an organisation and key publics or stakeholders. The response phase in Christchurch benefited from boundary spanning activity when the Christchurch Response Centre relocated a liaison

officer with two volunteer groups, the FARMY Army under the organisation of the Federated Farmers and the Student Army led by students from the University of Canterbury, both of whom contributed significantly to the relief effort (RCDEMR 2012). After the February earthquake, the Student Army relocated to the FARMY Army headquarters in Addington, where the CRC staff-member later joined them, which resolved tensions and facilitated better co-ordination of volunteer resources to meet the priorities set by operations (RCDEMR 2012).

On the basis of this study, it is suggested that liaison officers deployed by the CDEM to function as boundary spanners could work with online emergent groups who demonstrate their capacity to contribute to a socially distributed information system. Evidence-based results are easily obtainable from Google metrics and nested links to trusted community services such as national media and major commercial institutions. For example, the CRM had more than 100 000 views across the ten days of its operation and links to high-profile service providers. However, it experienced similar barriers to accessing the CRC in Christchurch prior to the allocation of a liaison staff member. Likewise, CDEM staff could perform boundary spanning roles as deployed cultural interpreters and liaison officers in other state departments and agencies.

## Conclusion

The Christchurch earthquakes and subsequent response highlight a number of issues that provide salutary lessons to those responsible for dealing with disasters that will occur in the future in any jurisdiction. Among the participants there was a desire to know how the information they were disseminating was actually assisting people to act. In the absence of this knowledge the value of new technologies may be too easily dismissed or, conversely, overstated. This may lead to inaction or inappropriate action. Thus, the study indicates the need for further research into citizens' use and expectations of information sources during various stages of disasters. The potential for confusion to ensue from the production of multiple official websites is a factor that should be considered in the planning and organisation of emergency communication and information. This may be aided by government agencies adopting a disposition toward co-ordination with other agencies as well as citizen groups.

This paper has argued that a spatial metaphor with its origins in historical state bureaucratic structures of control reduced the potential for creative online collaboration and restricted communicative effectiveness through the crisis period. Despite widespread recognition of the importance of empowering local communities during disasters and the role of new technologies in enabling this, in practice this can pose challenges to conventional approaches to public information management (see Mersham 2010, Palen *et al.* 2007). Disasters by their nature break down boundaries creating a need to

rethink or recast established hierarchies of information flow and the assumptions and expectations that underpin them. This requires flexibility and openness to the value of community sourced information. It is suggested that different ways of conceptualising space may help to facilitate changes in practice that allow the development of new and more open informational relationships between official organisations and citizen groups (see Palen *et al.* 2007).

In addition there is a role for communication boundary spanners acting as cultural interpreters through face-to-face interaction to break down organisational barriers and co-ordinate engagement between lead agencies in a crisis and other institutions. This includes state agencies reporting to their own stakeholders and community groups that bring significant social capital to response efforts at times of national emergency. Although the strategic deployment of emergency management staff as boundary spanners requires additional staffing, it is argued the dividends delivered from greater co-ordination of human and information resources will reward the investment.

## Acknowledgement

The research for this project was supported by a grant from Emergency Media and Public Affairs, 'Examining the "crisis commons" during the 2011 Christchurch earthquake'.

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