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# Introduction

- **Emergence and Contributions of Digital Volunteer Networks**

- **Volunteer-based response tasks and activities**

<table>
<thead>
<tr>
<th>Reporting system from the ground</th>
<th>Crisis mapping</th>
<th>Post-disaster base map</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="4636 in Haiti" /></td>
<td><img src="image2" alt="Ushahidi.com" /></td>
<td><img src="image3" alt="Post-disaster base map" /></td>
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Literature Review: Selected Research Gaps

• Understanding how and why digital volunteer networks emerge and contribute to emergency response activities (Park & Johnston, 2017a)

• Building an integrative emergency response system that bridges formal emergency response and volunteer-based emergency response (Park & Johnston, 2017b)

• Examining outputs and outcomes of collaboration between digital volunteer networks and formal responding organizations

• Exploring how and why digital volunteer networks and established formal responding organizations collaborate with each other
Determinants of Collaboration between Digital Volunteer Networks and Formal Response Organizations

• **RQ**: How and why do digital volunteer networks and formal response organizations collaborate with each other in disaster situations?

• **Qualitative case study method** (Yin, 2014)

• **Case selection**: The magnitude of a disaster; public attention; multiple formal organizations involved; digital volunteer networks; and the use of information technology (Gerring, 2007)
  - **Selected case**: The 2015 Nepal earthquake case

*Source: www.express.co.uk
*Source: www.cnn.com
*Source: www.youthconnect.in
Research Procedure

1. Building a preliminary framework
2. Conducting a descriptive case study
3. Revising and refining the framework
Preliminary Conceptual Framework

- Information Technology (P1 & P2)
- Shared Understanding (P3 & P4)
- Inter-dependence (P5)

Collaboration
Research Methods

• Data collection
  ▪ 15 semi-structured individual interviews
    ✓ 8 interviewees from formal organizations (Canadian DART, Humanity Road, MapAction, UNOCHA, UNV, and USAID)
    ✓ 7 interviewees from digital volunteer networks (the Kathmandu Living Labs, the Humanitarian OpenStreetMap Team, and the Standby Task Force)
  ▪ Secondary data from multiple sources
    ✓ Documentation (blog posts, situation reports, etc.), mainstream media coverage, and activity logs and the content on an online platform (QuakeMap)

• Data analysis
  ▪ Pattern matching (Yin, 2014)
  ▪ Proposition-driven thematic analysis (Guest et al., 2012; Saldana, 2013)
Key Findings

Proposition 1: Adoption of technologies (Supported)

• Evidence that supports the proposition

  • Skype
    “Skype groups for the aid were a very active form of communication technology that was used to coordinate between formal and informal members of the participants in the response” (a GIS analyst of USAID).

  • HOT mapping tools
    “our technology platform like the Tasking Manager or the OpenStreetMap Export Tool, those things we provide free of charge to other organizations so the more an organization leverages those tools and that data, the relationship between us and that organization would become more mature” (A member of HOT).

Proposition 2: Technical management capacity (Supported)

• Evidence that supports the proposition

  • HOT: Processed the donated satellite imagery and created online, offline, and printable maps.

  • KLL: Create a way to filter the reports from the ground by Nepalese administrative boundaries (the p-code system).
Proposition 3: Shared understanding of disaster situations (Supported)

• Evidence that supports the proposition
  
  • KLL and formal responding organizations
  “I don’t think we had a huge disjunct[ion] in sort of the severity of the crisis…. I think we had a somewhat shared understanding of what was going on, of what the situation was” (A volunteer coordinator of KLL).

  • UNOCHA and digital volunteer networks
  “that sort of shared understanding...improves the level of the relation[ship]” (An information management officer of UNOCHA).

  “the more difficult areas are [crisis situations] where there...[are] differences...[in] shared understanding particularly relate[d] to warring conflict zones” (An information management officer of UNOCHA).

  • HOT and formal responding organizations
  “when we both agreed an event had a moderate to major impact, there was higher interaction” (A member of HOT).
Proposition 4: Shared understanding of how to deal with disaster situations (*Supported*)

- Evidence that supports the proposition
  - SBTF and formal responding organizations
    “A shared understanding of the different strategies in play is essential for the intensity of the interaction” (A member of SBTF).
  - HOT and formal responding organizations
    “I think that shared understanding is there. Like I said, that’s leading to us further maturing, further developing our...relationships [with formal organizations]” (A member of HOT).
  - KLL and UNOCHA
    “Kathmandu Living Labs is a brand new organization to us. We’ve never worked in Nepal before, however because of that shared knowledge and that shared understanding, ...we were able to form partnerships relatively fast” (An information management officer of UNOCHA).
Proposition 5: Inter-dependence (*Mixed results*)

- **Evidence that supports the proposition**
  - **HOT and formal first responders**
    “Many disasters response organizations rely on data generated by HOT volunteer mappers. This dependence often means we are in direct discussions with humanitarian response organizations who request our data” (A member of HOT).
  - **KLL and Humanity Road**
    “Mutual dependence...spurred on the development on the relationship because it opened up channels of communication” (An emergency communication expert of Humanity Road, P10).

- **Evidence that does not support the proposition**
  - **UNOCHA and SBTF**
    “We are totally dependent on our resources....We are not dependent on OCHA” (A member of SBTF, P1).
    “none of the projects were “dependent” on the work that the participatory groups were doing for us” (An information management officer of UNOCHA).
Revised Framework

- **Information technology**
  - Technology adoption
  - Technical management capacity

- **Shared understanding of**
  - Disaster conditions
  - How to deal with disasters

**Collaboration**
Discussion and Conclusion

• Extending collaborative governance and collaborative emergency management
• Insight into building collaboration between digital volunteer networks and formal response organizations
• Challenges and limitations of digital volunteer networks