

## Crowdsourcing Public Safety: Building community resilience by enhancing citizen situational awareness capability

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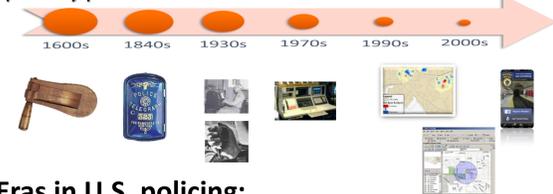
### ABSTRACT

Public safety agencies require assistance from private citizens in terms of surveillance, incident response, and recovery. However, private citizens are ill-equipped to efficiently and effectively perform situation awareness – a combination of sense-making and role-taking capabilities - in a safety crisis. A series of studies is proposed to specify and examine design, implementation and use principles for information systems that more efficiently and effectively engage citizens to enhance **situation awareness** capabilities in particular and **crowdsourcing public safety** in general. The purpose of these studies is to answer a series of research questions regarding the socio-technical issues faced during the crisis management cycle (prepare, respond, and recover) with the ultimate goal of improving **community resilience** capabilities.

The proposed research program examines the role of mobile applications in crowdsourcing public safety by synthesizing past crisis response, **digital fluency**, and **network science** research. Research contributions will provide valuable design and implement principles regarding to improve how individuals (network agents) process and disseminate information before, during, and after crisis situations. The benefits will accrue not only for community-level sustainability, but also situation awareness for first responders and local, tribal, state, and federal agencies responsible for public safety.

### Did you know?

You could track a handful of information & communication technologies to understand five major eras of U.S. policing...and possibly predict the next?



#### Eras in U.S. policing:

1. Citizen Rattle/Night Watch (1600s)
  2. Political era (1800s)
  3. Professional/Reform era (1900s)
  4. Community/Problem-oriented Policing era (1970s)
  5. Policing Analytics (1990s – present)
- ...what's next?

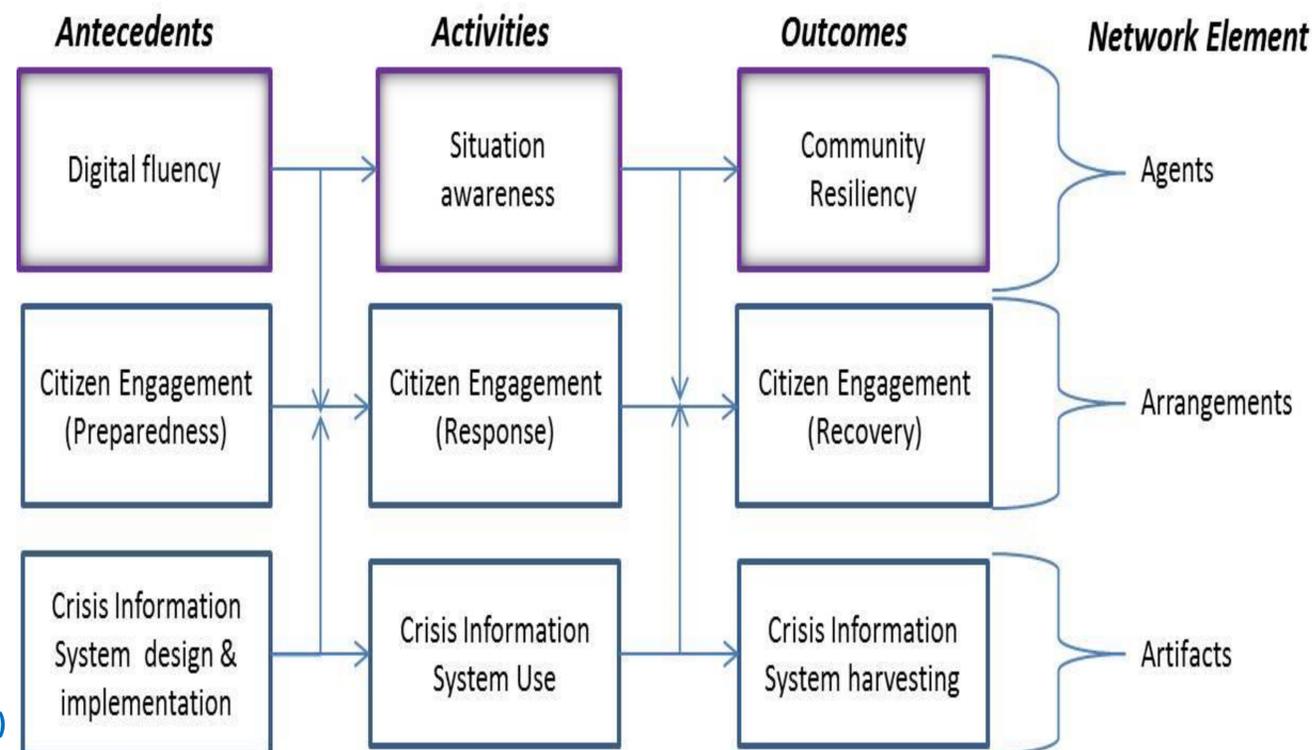
### BACKGROUND

**The macro problem:** Public safety professionals do not have the resources to fully overcome the myriad crises resulting from natural disasters, terror attacks, industrial accidents, and organized crime incidents. Private citizens do not have the training/expertise to effectively/efficiently assist public safety professionals.

#### Research questions:

- 1) How can public safety networks engage private citizens in order to crowdsource public safety?
- 2) How can improving citizen's situation awareness capabilities help build community resilience?
- 3) How can crisis information systems be used to bridge the knowledge gap between professional and novice expertise in efficiently and effectively responding to and recovering from crisis incidents?

### CONCEPTUAL FRAMEWORK



So what's the "micro" problem?



"Actually, you are...sort of."

### RESEARCH PROGRAM

- **Design Science** study current and future apps
- **Surveys** of law enforcement, emergency management, and other public safety leaders
- **Surveys** of crisis and public safety-oriented, volunteer citizen groups
- **Experimental** study of emotional effects (trust, confidence, satisfaction, self-efficacy)
- **Field-based** social network analysis and efficacy evaluation of implementation

### IMPACT

- **Agents:** improve **situation awareness** capabilities for private citizens, increase community resilience capacity (including resourcefulness as an innovation practice)
- **Arrangements:** use of crisis information systems to build **community resilience networks** and trust between first responders and citizen groups (thus improving **crowdsourcing public safety** capability at community level)
- **Artifacts:** improve design quality for citizen-oriented applications and knowledge-transfer applications; provide guidance regarding use of social media during crises; additional empirical evidence for value of **gamification** (serious games) in crisis preparedness training.