Chapter 20
Extending the Information-Processing View of Coordination in Public Sector Crisis Response

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ABSTRACT
Coordinating the response of multiple public agencies to a large-scale crisis is a challenge that has been studied predominantly according to the information-processing view. In this paper, the authors extend this view with the notion of emergence giving special attention to information and communication technology (ICT). The extended framework is applied in a case study of crisis response exercises in the public sector. The findings suggest that current practices concentrate on standards and hierarchy, but mutual adjustment and emergent coordination also occur and are susceptible to analysis and equally relevant to understand coordination practices. In addition, ICT can provide information processing capabilities needed for coordination but may also create information processing needs by increasing the volume of data and the interconnectedness of responders. Applying the extended framework improves the understanding of coordination and forms the basis for its future use in designing ICT to support coordination in crisis response and e-government.

DOI: 10.4018/978-1-4666-1776-6.ch020
INTRODUCTION

Crises require public agencies to cooperate with each other using all kinds of information and communication technology (ICT). A large-scale crisis or emergency can severely affect the normal development of society, while at the same time exceeding society’s and government’s regular management abilities, requiring exceptional measures in a short period of time (Da-li et al., 2008). On the one hand, crises come as a surprise to leaders and their agencies, which quickly find out that complex bureaucracies are not ideally suited for non-routine events; on the other hand, political-administrative leaders will still be held accountable (Boin, 2009). As such, crises are inherently wicked problems (Lodge, 2009).

Moreover, in the event of a crisis (such as a large-scale emergency or a natural disaster), “no single organization has all the resources to alleviate the effects” (Bui et al., 2000). It is usually required to deploy a network of diverse public response agencies, including police, fire and medical services, and perhaps additional domain experts (e.g. in hazardous materials). These public agencies are also required to interact with other organizations of non-professional emergency responders, volunteer groups, NGOs, government agencies, and the press. This can create a power vacuum and ambiguity as to who owns the crisis and who must deal with it, leading to tensions and undermining the legitimacy base of governance structures and processes (Boin, 2009). Essentially then, the challenge of crisis response as a key public sector process is centered on coordination.

During an inter-agency (and perhaps even inter-governmental) crisis response, resources have to be shared between the public response agencies and this requires coordination across a network that changes as the phases of the response evolve (Comfort et al., 2004). Such communication and coordination are difficult due to heterogeneity in data, language, people, working environments, rules and regulations (Su et al., 2005). Additional challenges for achieving inter-agency coordination include: high uncertainty, rapid decision making, and response under temporal and resource constraints (Chen et al., 2008). Consequently, ICT can be used to improve inter-organizational communication and coordination during crises (Kapucu, 2006). However, the ICT that the public sector typically employs is aimed at dealing with routine work and optimizing internal management systems, prompting particular requirements for a public crisis management system framed within e-governance (Da-li et al., 2008). The goal of providing inter-agency standards may actually incubate rather than reduce risks and any information gathering services require a completely different understanding of what to look for (Lodge, 2009). Accordingly, the design and use of ICT to support coordination during inter-agency crisis response cannot follow the traditional guidelines of routine e-government services. This implies seeking an improved understanding of coordination in crisis response and of the role that ICT plays in supporting it.

This paper will argue that the dominant understanding of coordination is rooted in the organizational information-processing view (Galbraith, 1974). According to this view, coordination is about resolving or managing dependencies between activities. This definition was established by (Malone & Crowston, 1994) and can be traced back to organizational design theories (Galbraith, 1974; March & Simon, 1958; Mintzberg, 1979). Crisis or emergency response presents many challenging and rich characteristics for studying and improving coordination issues. These characteristics include: the complexity and unpredictable nature of a large-scale crisis, the heterogeneous nature of the responders, the critical requirements of speed and accuracy (for saving lives, protecting the environment or restoring normalcy), and the difficulty in agreeing upon and combining the individual actions of response units and agencies to achieve a globally effective and efficient response. In the domain of crisis response the
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