Chapter XXI

Knowledge Management and Hurricane Katrina Response

Tim Murphy
Autonomechs, LLC, USA

Murray E. Jennex
San Diego State University, USA

ABSTRACT

This chapter explores the use of knowledge management with emergency information systems. Two knowledge management systems that were utilized during Hurricane Katrina response are described and analyzed. The systems specified were developed by both federal agencies as well as grass root efforts without the support or mandate of government programs. These programs, although developed independently, were able to share data and interact in life-saving capacities, transcending traditional geo-political boundaries. We conclude that emergency information systems are enhanced by incorporating knowledge management tools and concepts.

INTRODUCTION

Emergency response in the U.S. is evolving from something that was locally handled to something that is standardized under federal control. The U.S. implemented the National Incident Management System (NIMS) in 2004 to accomplish this. NIMS established standardized incident management protocols and procedures that all responders are to use to conduct and coordinate response actions (Townsend, 2006).

It was expected that on August 27th, 2005, when President George W. Bush declared a state of emergency for three coastal states days before the August 29th landfall of Hurricane Katrina that this approach would be sufficient to handle necessary emergency response. However, Mississippi, Alabama, and Louisiana would be the site of the worst natural disaster in U.S. history, stretching government resources far beyond their ability to respond to the instantaneous and growing number of casualties. Running out of shelter and supplies for the growing number of victims, the government became logistically overwhelmed and under-equipped. Private citizens and companies (all non-government offices) responded immediately.
Multiple independent, yet collaborative by design, knowledge management systems (KMS) were developed and implemented for immediate use to help victims find housing, medical supplies, post requests for immediate evacuation, as well as help find those separated in the storm. Via the Internet, people as far north as Michigan were able to help find housing in Washington State for people in southern New Orleans. This chapter proceeds to describe how these systems were developed, implemented, and used. We will describe the situation that led to the need of these systems, how these systems were created, the resources required for each, which category of knowledge management system each falls within, use of the systems by the end users, and finally describe the end result of these systems.

This chapter discusses two of these systems developed to respond to Hurricane Katrina. The purpose of this discussion is to illustrate the use of knowledge management (KM) and KMS in emergency response. The chapter will discuss how KM was implemented and how effective the resulting systems were.

BACKGROUND

Before discussing these systems it is important that we establish what we mean by knowledge, KM, and a KMS as well as provide a framework for how KM fits into disaster and/or emergency response.

Knowledge

Davenport and Prusak (1998) define knowledge as an evolving mix of framed experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information. Knowledge often becomes embedded in documents or repositories and in organizational routines, processes, practices, and norms. Knowledge is also about meaning in the sense that it is context-specific (Huber, Davenport, & King, 1998). Jennex (2006) extends the concepts of context to also include associated culture that provides frameworks for understanding and using knowledge. A simpler definition of knowledge is that it is the how and why of something. It is the insight into why something happens that creates knowledge. To be useful though, this knowledge needs to be framed in context and culture, the information and data that explain how the knowledge was generated, what it means, and how it should be used.

Knowledge Management

Jennex (2005) defines knowledge management (KM) as the practice of selectively applying knowledge from previous experiences of decision making to current and future decision-making activities with the express purpose of improving the organization's effectiveness. KM is an action discipline; knowledge needs to be used and applied for KM to have an impact. Inherent in KM is communication between knowledge creators and/or possessors and knowledge users. A knowledge management system (KMS) is the system developed to aid knowledge users in identifying, sharing, retrieving, and using knowledge they need. The following section further defines a KMS.

Knowledge Management Systems

Alavi and Leidner (2001) defined a KMS as “IT (Information Technology)-based systems developed to support and enhance the organizational processes of knowledge creation, storage/retrieval, transfer, and application” (p. 114). They observed that not all KM initiatives will implement an IT solution, but they support IT as an enabler of KM. Maier (2002) expanded on the IT concept for the KMS by calling it an ICT (Information and Communication Technology) system that supported the functions of knowledge creation, construction,