Chapter 7
BI and Analytics for Effective Disaster Recovery Management Lessons From the Bayou

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ABSTRACT

Disaster recovery management requires agile decision making and action that can be supported through business intelligence (BI) and analytics. Yet, fundamental data issues such as challenges in data quality have continued to plague disaster recovery efforts leading to delays and high costs in disaster support. This chapter presents an example of these issues from the 2005 Atlantic hurricane season, where Hurricane Katrina wreaked havoc upon the city of New Orleans forcing the Federal Emergency Management Agency (FEMA) to begin an unprecedented cleanup effort. The chapter brings to light the failings in record keeping during this disaster and highlight how a simple BI application can improve the accuracy and quality of data and save costs. It also highlights the ongoing data driven issues in disaster recovery management that FEMA continues to confront and the need for integrated centralized BI and analytics solutions extending to the supply chain that FEMA needs to become more nimble and effective when dealing with disasters.

INTRODUCTION

The devastation of a violent hurricane can etch lasting images into a country's culture and history. Hurricane Katrina, a 2005 Atlantic hurricane, was one such event. Hurricane Katrina remains one of the strongest hurricanes on record to make landfall in the United States, reaching Category 5 at its maximum (Knabb et. al, 2005). The storm affected most of the coastal states along the Gulf of Mexico and ultimately causing at least $80 billion in damage with over 1,800 confirmed deaths (Swenson & Marshall, 2006). The storm's damaging path tracked for over a week starting on August 23, 2005, before dissipating August 30, 2005 (Knabb et. al, 2005). However, it was on August 29, 2005, that the storm will be forever remembered as it was on this date that Hurricane Katrina wreaked havoc upon New Orleans leaving behind almost unbelievable destruction because of the storm's crushing surge.

Hurricane Katrina's storm surge, water pushed towards shore by the force of swirling winds, set in motion a catastrophic failure of New Orlean's aging levee system. This resulted in approximately 80% of the city and many of the nearby parishes being flooded leaving New Orleans the most devastated location in the Gulf region (Fritz et. al, 2008). Remnants of the storm surge persisted for weeks. In addition to the many examples of loss, exploitation, and heroism in New Orleans, cleanup and recovery throughout the region became imperative (Brinkley, 2007; Cutter et. al, 2006; Schneider, 2005). The aftermath left the Federal Government with an unprecedented debris removal effort. It was estimated that the storm generated behind more than 100 million cubic yards of debris which posed a potential threat to the public's health and safety (Luther, 2008). The removal effort was to be tightly controlled and efficient. Unfortunately, neither prospect proved successful as examples of abuse and fleecing were reported (Myers, 2006; U.S. Congress, 2006).

In the Fall of 2006, an independent public accounting firm in Cincinnati, OH, approached the Williams College of Business at Xavier University with an opportunity to assist with a manpower audit they were preparing for the Federal Emergency Management Agency (FEMA). The manpower audit was a review of Hurricane Katrina debris removal for Washington Parish, Louisiana. The firm had completed a formal review of financials, but required outside expertise to help reconcile and mine collected debris data with an ultimate goal of applying business intelligence (BI) to identify unsupported costs for right of way debris removal. They looked to collaborate with Xavier as a way to provide an opportunity for students and faculty to participate on a timely, real-world BI project. The project was to be completed during the Spring of 2007 with final submission to the accounting firm in April of 2007.

This chapter provides an overview of the work performed to identify unsupported costs resulting from ineligible billing for debris removal. It is organized as follows. First, it provides an overview of business intelligence and analytics. Second, it

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