LEARNING FROM HURRICANE KATRINA: COMPLEXITY AND URGENCY IN THE HOLISTIC MANAGEMENT MODEL (A RESEARCH NOTE)

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In our earlier paper, "Learning from Kobe: Complexity and Urgency in the Holistic Management Model" published here in 2007, we reviewed the preferred Japanese model of holistic management. In this research note, we apply this model to the aftermath of Hurricane Katrina in the United States in the fall of 2005.

Margaret Wheatley (2005, 1995, and 1992) argues that the vast complexity in the contemporary business environment has forced organizations and institutions to allow for the possibility of anything happening. The reality of anything happening has given rise to holistic management models requiring a total commitment to the system by all of its individual members and components. The holistic model has proven to be effective in the management of complex environments. The model emphasizes total participation, cooperation, and consideration of every possible component. The model considers how the system as a whole can adapt and improve continuous training, learning, and sharing of information.

While the holistic approach is often highly effective in enabling organizations and institutions to adapt to uncertain situations, it is questionable whether holistic approaches can effectively react and adapt when there is a vast amount of diversity in a complex environment. The heavy reliance on total commitment, continuous learning, and sharing of information makes it difficult for holistically managed systems to rapidly incorporate information and resources which are not considered to be part of the system. This analysis will examine how holistic management systems respond when dealing with the diversity of complex environments by examining the potential flaws which can arise and challenge previously held assumptions. When the environment presents such demands, they generally must be managed by an open approach to varying perspectives and values. As an example, an analysis of the responses of the American natural disaster preparedness system during the Katrina hurricane will be conducted to show when and how holistically managed systems are not equipped to handle diversity.

Holistic Management and Hurricanes

On August 29, 2005, Hurricane Katrina struck the Mississippi Gulf Coast and broke the levee protecting New Orleans, leaving an unofficial total of 1,383 people dead and some eighty-five percent of the affected areas homeless and 6,600 persons still missing as of mid-December 2005. The final death toll was expected to rise as some of the still-missing are ruled dead. The death toll and other records are unofficial, because the "record-keeping on refugees is chaotic, scattered, haphazard, and utterly inadequate," according to journalist Robert Lindsay, with losses estimated at $40-$55 billion, displacing the September 11, 2001 terrorist attack as the single-most expensive insured occurrence in the United States today (Guinn, 2005; Lindsay, 2005).

This system, in which various public and private agencies provide disaster prevention and relief, is highly bureaucratic in both form and function. Before the latest devastating hurricanes, Americans assumed the nationwide disaster preparedness system – Department of Homeland Security (which includes FEMA – the Federal Emergency Management Association) and the Red Cross, in particular – could deal with the aftermath in the events of the Gulf Coast region. However, in post-hurricane analysis, it is apparent, as in the Japanese example, that reliance on a bureaucratic approach to disaster preparedness does not necessarily ensure that the system can effectively manage a disaster.

After the devastating Hurricane Camille in 1969 on the Mississippi Gulf Coast, the U.S. government took pride that the nationwide disaster preparedness system could prevent a future tragedy. After Katrina, it has become apparent that the American system, similar to that of Japan and other countries around the world, relies on a holistic approach to emergency management. This approach does not necessarily ensure that the system can effectively manage a disaster.

Holistic Management in Complex Environments
Katrina as a Complex Environment

Complex environments are characterized by rapid change, high volumes of information, high levels of uncertainty, increasing interrelatedness of parts within the whole, diverse assumptions and perspectives, and continuous new information driving changes in the fundamental structure of organizations and institutions (Cyert & March, 1963; Scott, 1992). It is the opposite of a deterministic, predictable, and controllable state of affairs. The three components of complex environments discussed in detail in the analysis of the Kobe earthquake in Japan are continuity, abstraction, and stochastic (Takeda, Helms, and Jones, 2007). Our analysis revealed that in response to

complex environments, holistic management systems suffer from negative effects of the main phenomenon – slow response time, escalation of commitment, and an inability to absorb outside information.

To manage effectively in complex environments, systems have become holistic, in that they operate with the imperative that the whole is greater than the sum of its parts. Proponents of the holistic model, among who are the Japanese, believe the essence of a thing is not found in the details but within the whole. Thus, they are relatively unconcerned about the individual elements of a given system. In the United States, the emergency response system assumes this holistic approach in its structure and design as is reflected in the interdependent, overlapping, and complex system of organizations, including FEMA and the Red Cross. A host of other state and local relief agencies, governmental entities, and non-governmental organizations (NGO's) are typically involved in managing relief in a catastrophic event (see Table 1 on page 136).

Slow Response Time and Decentralized Decision Making

In the holistic management model, the vast complexity of organizations and the need to gather massive amounts of information to make decisions created a heavy reliance on meetings. While this information sharing helps to reduce uncertainty, it requires large amounts of time and effort. The heavy reliance on sharing of information hinders the system's ability to make swift and decisive actions. The reliance on a multi-layered decision-making process made it difficult for the disaster preparedness system to respond quickly and efficiently in the aftermath of Hurricane Katrina. While a number of agencies had authority over the various parts of the system, there was a heavy reliance on shared information. Examples include:

- In an evacuation order beginning at noon on August 28, 2005 and running for several hours, all city buses were redeployed to shuttle local residents to "refuges of last resort" designated in advance, including the Superdome. The state had pre-positioned enough food and water to supply 15,000 citizens with supplies for three days, the anticipated waiting period before FEMA would arrive in force and provide supplies for those still in the city. A BBC documentary indicated FEMA had provided these supplies, but Michael Brown [Undersecretary of Homeland Security for Emergency Preparedness and Response and head of the Federal Emergency Management Agency (FEMA) at the time] was greatly surprised by the much

larger numbers seeking refuge. Brown also held back supply vehicles from delivering food and water for two days before they arrived on Friday, September 2, 2005 (MacCash & O'Bryne, 2005).

- In another example of decentralized and late decision-making, on the night of August 31, the governor of Louisiana, Kathleen Babineaux Blanco, was begging FEMA and other federal authorities for transport without success. The same day, Governor Blanco issued an executive order where "she has in consultation with school superintendents, utilized public school buses for transportation of Hurricane Katrina evacuees." On September 3, she ordered school superintendents to supply bus inventories (Lipton, Drew, Shane, & Rohde, 2005).

- On August 31, President Bush observed damage from Hurricane Katrina in New Orleans as the media openly criticized the local and national government response. Reports continued to show hunger, deaths, and lack of aid. More than two and a half days after the hurricane struck, police, health care, and other emergency workers voiced concerns in the media about the absence of National Guard troops in the city for search and rescue missions and to control looting ("Waiting for a Leader," 2005).

- Slow approvals and paperwork seemed to be to blame for the late response, as governors and other officials in several states expressed surprise that they did not get formal requests for their National Guard troops until days after the hurricane struck. "We could have had people on the road Tuesday," said the commander of the Michigan Guard. Louisiana's governor had accepted an offer of National Guard reinforcements from New Mexico on August 28, but this was not approved by the federal government until September 1. The number of National Guard in New Orleans from other states was only 723 (Moran & Lezon, 2005).

- According to the *Hattiesburg American*, Vice President Dick Cheney, a former oil industry executive, personally called the manager of the Southern Pines Electric Power Association on the night of August 30 and again the next morning. Cheney ordered him

to divert power crews to substations in nearby Collins that were essential to the operation of the Colonial Pipeline, which carries gasoline and diesel fuel from Texas to the Northeast. The power crews were reportedly upset when told what the purpose of the redirection was, since they were in the process of restoring power to two local hospitals but did it anyway. Blogger Joshua Micah Marshall found the swiftness of this response an interesting contrast to the general disorganization of the relief effort (Marshall, 2005).

- "White House and Homeland Security officials wouldn't explain why [Michael] Chertoff [Director of Homeland Security] waited some thirty-six hours to declare Katrina an incident of national significance and why he didn't immediately begin to direct the federal response from the moment on August 27 when the National Hurricane Center predicted that Katrina would strike the Gulf Coast with catastrophic force in forty-eight hours. Nor would they explain why Bush felt the need to appoint a separate task force. Chertoff's hesitation and Bush's creation of a task force both appear to contradict the National Response Plan and previous presidential directives that specify what the secretary of Homeland Security is assigned to do without further presidential orders. The goal of the National Response Plan is to provide a streamlined framework for swiftly delivering federal assistance when a disaster – caused by terrorists or Mother Nature – is too big for local officials to handle" (Landay, Young, & McCaffrey, 2005).

- On September 2, 2005, CNN's Soledad O'Brien asked Brown, "How is it possible that we're getting better information than you were getting...we were showing live pictures of the people outside the Convention Center...also we'd been reporting that officials had been telling people to go to the Convention Center...I don't understand how FEMA cannot have this information." When pressed, Brown reluctantly admitted he had only learned about the starving crowds at the Convention Center from media reports on September 1, 2005, a full three days after Katrina hit, even though twenty-four-hour coverage of the event filled every television network. O'Brien said to Brown, "FEMA's been on the ground four days, going into the fifth day, with no massive air drop of food and water. In Banda Aceh, Indonesia, they got food drops two days after the tsunami" ("The Big

Disconnect," 2005).

- Testifying before a special House Committee on the Government Response to Hurricane Katrina on October 19, DHS Director Chertoff said that FEMA had been "overwhelmed" by the scope of the disaster, and estimated that "eighty percent or more of the problem" could be attributed to poor planning by FEMA. Chertoff directly disagreed with Michael Brown's earlier testimony that state and local officials were responsible for the slow response to the hurricane, saying that he had experienced no problems in dealing with state and local officials and that Brown had not informed him of any problems (Hsu, 2005).

These examples indicate the information sharing and total participation upon which the holistic management model depends can produce dysfunctional responses to the demands to consider outside information. There is no mechanism in the system for rapid decision-making at the proper levels of authority. It is interesting to note that in the Katrina example, the only rapid decisions were made by people, groups and organizations that were virtually outside the system.

The Refusal to Consider Outside Information
Individuals in the natural disaster preparedness system chose to ignore outside information. The U.S. bureaucracy served to limit the opportunities for outside assistance, even though there was a tremendous shortage of medical supplies and a great need for medical attention. Examples include:

- Several foreign leaders expressed frustration that they could not get a go-ahead from the Bush administration to administer help. President Bush said on the ABC News program *Good Morning America* that the United States could fend for itself: "I do expect a lot of sympathy and perhaps some will send cash dollars," Bush said of foreign governments. The immediate response from many nations was to ask to be allowed to send in self-sustaining search-and-rescue teams to assist in evacuating those remaining in the city. France had a range of aircraft, two naval ships, and a hospital ship standing ready in the Caribbean. Russia offered four jets with rescuers, equipment, food, and medicine, but their help was first declined before later being

accepted. Germany offered airlifting, vaccination, water purification, and medical supplies including German Air Force hospital planes, emergency electrical power, and pumping services; their offer was noted and they received a formal request three days later. Similarly, Sweden had been waiting for a formal request to send a military cargo plane with three complete GSM systems, water sanitation equipment, and experts. The Netherlands offered help out of the island Aruba in the Caribbean Sea ("U.S. Receives Aid…," 2005).

- Authorities refused Australian consular officials access to the affected areas, citing dangerous conditions ("Australians Refused Access," 2005).

- The mandatory evacuation called on August 28 made no provisions to evacuate homeless or low-income and households without transportation, as well as large numbers of elderly and the infirm, yet officials knew many New Orleans were without privately-owned cars. A 2000 census revealed that twenty-seven percent of New Orleans households, amounting to approximately 120,000 people, were without privately owned transportation. In a BBC documentary Walter Maestri, head of emergency preparedness for Jefferson Parish, stated that a year previously this issue had been fully discussed with FEMA officials who promised that within forty-eight hours of a hurricane emergency they would provide assistance with transporting evacuees from the city. Karen Tumulty of *Time* magazine stated, "New Orleans…clearly did not have an adequate evacuation plan, even though the city was fully aware that over 100,000 people there don't have cars" (Davis, 2005).

- When Wal-Mart sent three trailer trucks loaded with water, FEMA officials turned them away. Agency workers prevented the Coast Guard from delivering 1,000 gallons of diesel fuel, and on Saturday they cut the parish's emergency communications line, leading the sheriff to restore it and post armed guards to protect it from FEMA (Arenda, 2005; Shane, Lipton, & Drew, 2005).

- Chicago Mayor Richard Daley, announcing the creation of a city-sponsored "Chicago Helps Fund," said of the slow federal response:

"I was shocked...We are ready to provide considerably more help than they have requested...We are just waiting for the call...I don't want to sit here and all of a sudden we are all going to be political...Just get it done" ("Daley 'shocked'…," 2005).

- "Michael D. Brown, (FEMA), urged all fire and emergency services departments *not to* respond to counties and states affected by Hurricane Katrina without being requested and lawfully dispatched by state and local authorities under mutual aid agreements and the Emergency Management Assistance Compact" ("First Responders Urged Not To Respond…," 2005).

- "The General Manager of the Astor Hotel at Astor Crowne Plaza said the hotels teamed to hire ten buses to carry some 500 guests. But Peter Ambros said federal officials commandeered the buses, and told the guests to join thousands of other evacuees at the New Orleans Convention Center. One man says he and others had paid $45 a seat for the buses, and that they were 'totally stunned' when the buses never arrived. Another woman said the crowd had waited fourteen hours for the buses. She said the idea of walking to the convention center scared her because of reports of looting" ("Katrina: at a Glance," 2005).

- The U.S. Forest Service had water-tanker aircraft available to help douse the fires raging on the New Orleans riverfront, but FEMA refused aid. When Amtrak offered trains to evacuate significant numbers of victims – far more efficiently than buses – FEMA again dragged its feet. Offers of medicine, communications equipment, and other desperately needed items continued to flow in, only to be ignored by the agency ("Landrieu Implores President," 2005).

- On Tuesday afternoon, August 30, Jefferson Parish Sheriff Harry Lee asked for all citizens with boats to come to the aid of Jefferson Parish. A short time later, Dwight Landreneau, the head of the Louisiana Department of Wildlife and Fisheries, remarked that his agency had things under control and citizen help was not needed. Apparently, Sheriff Lee did not agree with that assessment, and had one of his deputies provide the Lafayette flotilla (approximately

1,000 citizens pulling 500 boats) with an escort into Jefferson Parish. Sheriff Lee and Senator Gautreaux – 1,000 of Louisiana's citizens responded to the public's pleas for help. They were prevented from helping by Dwight Landreneau's agency, the Department of Wildlife and Fisheries which had been taken over by FEMA" ("Securing America," 2005).

- Wal-Mart agreed to provide bottled water, but FEMA officials turned the trucks back; the Coast Guard had agreed to provide fuel, but FEMA overruled the Coast Guard; and a FEMA official had deactivated the Parish emergency communications tele-data line (Gaouette, Miller, Mazzetti, McManus, Meyer, & Sack, 2005).

- "More than fifty civilian aircraft responding to separate requests for evacuations from hospitals and other agencies swarmed to the area a day after Katrina hit, but FEMA blocked their efforts. Aircraft operators complained that FEMA waved off a number of evacuation attempts, saying the rescuers were not authorized. 'Many planes and helicopters simply sat idle,' said Thomas Judge, president of the Association of Air Medical Services" (Gaouette, Miller, Mazzetti, McManus, Meyer, & Sack, 2005).

- The relief request form on the FEMA website turned people away if they were using any browser other than Microsoft Internet Explorer Version 6.0. This made it difficult for users of non-Windows operating systems to request aid. In some cases, Internet access stations set up for refugees and volunteers using Mac OS or Linux systems were incompatible with FEMA's site (Krakow, 2005).

- At FEMA's request for firefighters for "community service and outreach," some 2,000 showed up in a staging area in an Atlanta hotel. Many were highly trained and brought special equipment and were frustrated when they arrived, believing their skills would be used – or would be better used – for search and rescue operations. Newspaper reports say FEMA requested them to prepare for "austere conditions," and firefighters were quoted as saying they had brought equipment according to FEMA's advice. These volunteers were disappointed when they found themselves watching training videos

and attending seminars in a hotel, waiting, in some cases days, to be deployed in secretarial or public relations jobs. Some firefighters called it a misallocation of resources; others were simply frustrated at the delay (Rosetta, 2005).

Escalation of Commitment to the System's Failed Course-of-Action

One of the most significant components of the informal structure in the holistic Japanese management model is its heavy reliance on group decision-making. This model relies on the continuous sharing of information, experiences, and opinions of all group members in the decisions which affect the group and the organization. This group decision-making structure is driven by a sense of total commitment of group members to their leader and vice-versa (Ishikawa, 1988; Hamabata, 1990). While this level of commitment and loyalty to one's group within a system is one of the reasons holistic management systems are able to produce such effects as commitment to the whole and consensus decision-making, this absolute loyalty to the whole also has the potential to hinder the system's ability to identify and to react appropriately when the system is following a failing course-of-action.

The idea that extreme loyalty and commitment to a greater whole produce a reluctance to identify or abandon a system's failing course-of-action is based on prospect theory which holds that people will throw good money after bad (Kahneman & Tversky, 1979). The strong commitment to the whole makes it difficult for the system to change its behavior, even if its response to the presence of outside information is a complete failure. Escalation of commitment, therefore, is a naturally occurring phenomenon when holistic management systems must rapidly consider and use information and resources which have not traditionally been considered as part of the system. Examples from Katrina include:

- It has been widely reported that no one wants to deliver bad news to President Bush, who may be warm in public but is cold and snappish in private. The bad news on Tuesday, August 30, (again twenty-four hours after Hurricane Katrina had ripped through New Orleans), was that the president would have to cut short his five-week vacation by a couple of days and return to Washington. The President's Chief of Staff Andrew Card; his Deputy Chief of Staff Joe Hagin; his counselor Dan Bartlett, and his spokesman Scott McClellan, held a conference call to discuss the delicate task of telling him. President Bush did not quite realize how bad the hurricane had been.

According to several aides, the reality of the severity of the storm did not really sink in with the president until Thursday night. How this could be – how the president of the United States could have even less "situational awareness," as they say in the military, than the average American about the worst natural disaster in a century – is one of the more perplexing and troubling chapters in a story that, despite moments of heroism and acts of great generosity, ranks as a national disgrace.

Bush can be petulant about dissent; he equates disagreement with disloyalty. After five years in office, he is surrounded largely by people who agree with him. When Katrina struck, it appears there was no one to tell President Bush the truth – that the state and local governments had been overwhelmed, that FEMA was not up to the job and that the military, the only institution with the resources to cope, could not act without a declaration from the President overriding all other authority (Thomas, 2005).

- Even as the hurricane did its damage, President Bush did not alter his schedule. As an example, early on the morning of August 30 (the day after the hurricane made landfall), President Bush attended a V-J Day commemoration ceremony at Coronado, California. Some twenty-four hours before the ceremony, storm surges began overwhelming levees and floodwalls protecting the city of New Orleans (Moran & Lezon, 2005 and MacCash & O'Byrne, 2005).

- Commitment to legal jurisdiction also hindered relief efforts. Whenever active duty federal troops are deployed, there is reference to the Posse Comitatus Act, 18 U.S.C. §1385, which prevents ordinary use of the federal military force in support of local and federal law enforcement or in quelling riots or civil disorder. The National Guard remains under the control of the governor during ordinary times. The president can waive the requirement and assume control of the military in an emergency. However, in practice the president will not assume control of a state's National Guard or move federal troops into a state on a law and order mission until requested by the state's governor. In addition, the Stafford Act states that the president cannot declare that a disaster exists in a state unless requested to do so by the state's governor, who must furnish

information on the disaster and the steps the state has taken to resist or recover from it as part of the request.

The Louisiana governor took the required steps before the storm hit. Some Bush administration supporters contend that Louisiana Governor Blanco did not request military assistance for several days after the hurricane hit. However, Lieutenant General Russel Honoré, the head of the Department of Defense's Joint Task Force Katrina, indicated in a briefing on September 1 that the governors of Louisiana and other Gulf Coast states requested that the Pentagon establish local defense coordinating offices on Friday, August 26, and that the Army began operating in those states that same day and the following weekend in preparation for the hurricane. In addition, Governor Blanco formally requested that the president declare a state of emergency in Louisiana on August 27, in a letter complying with the terms of the Stafford Act ("Tracking Katrina…," 2005).

- William D. Vines, a former mayor of Fort Smith, Arkansas, helped deliver food and water to areas hit by the hurricane. But he said FEMA halted two trailer trucks carrying thousands of bottles of water to Camp Beauregard, near Alexandria, Louisiana's staging area for the distribution of supplies. FEMA would not let the trucks unload. The drivers were stuck for several days on the side of the road, ten miles from Camp Beauregard. FEMA maintained the drivers needed a "tasker number" to unload, yet no one understood what a "tasker number" was or the process for acquiring it (Lipton, Drew, Shane, & Rohde, 2005).

The End Result of the Holistic System's Response to Katrina, an Unusual Event

The natural disaster preparedness system's response to Katrina, in which the system faced numerous demands to consider and use outside information and resources, shows how and when holistic management systems have difficulty managing in complex environments.

The system's slow response time and failure to take swift and decisive actions led to mass death and destruction in the aftermath of the hurricanes. Quite simply, the holistic natural disaster preparedness system was ill-equipped to handle this demand to rapidly acknowledge and use outside information. While the hurricane itself and the U.S. management models have

been emphasized, the theory behind the failure can be generalized to predict and explain how holistic management models produce inadequate and/or inappropriate responses in such situations.

Lessons from Kobe and Katrina

The efficient management of diversity is imperative if an organization or system is to operate effectively in the global business environment. An ideal model of emergency response management may be unattainable. The holistic management model's application to Kobe and Katrina revealed that aspects of the holistic model hindered the system's ability to produce rapid change and adaptation. While in theory, a total approach to issues of uncertainty may logically make sense, if people assume they have prepared for all possible contingencies, then nothing will be left to chance. The danger in this thinking lies in the belief that there is a way to consider and prepare for all possible contingencies. As the natural disasters in Japan and the United States have shown, the misguided belief that the system can and will manage anything can lead to disastrous results.

While we can plan for various contingencies, we cannot believe the system is infallible. This requires education, training, and allowing individual responders to act in ways they believe are appropriate given the context and situation they are faced. The lesson is that we need to free our reliance on the system in a way that allows people individual decision-making and action-taking that result in effective responses.

Table 1: Disaster Relief Organizations

See http://www.disastercenter.com/agnecy.htm for a complete description of each organization.

Action by Churches Together	National Organization for Victim Assistance

ACTION AID	Nazarene Disaster Response
Adventist Community Services	Northwest Medical Teams International
African Medical & Research Foundation	Nippon Volunteer Network
AmeriCares	One World Organization
American Rescue Team International	Oxfam
Amnesty International	PAHO
AMURT	PeaceNet
American Radio Relay League, Inc.	Phoenix Society for Burn Survivors
Australian Aid	Points of Light Foundation
Baptist World Aid	Presbyterian Disaster Assistance
CAFOD	Project HOPE
CARE	REACT International
Carter Center at Emory University	Red Cross/Red Crescent
Catholic Charities USA	Red Cross
Children's Aid Direct	ReliefWeb
Christian Aid	Salvation Army
Christian Children's Fund	Save the Children Alliance
Church World Service	Second Harvest
Christian Disaster Response International	Seventh Day Adventist
Christian Reformed World Relief Community	Society of St. Vincent de Paul
Church of the Brethren Disaster Response	Southern Baptist Disaster Relief
ConflictNet	Samaritan's Purse
Episcopal Relief & Development	Swiss Disaster Relief Unit
European Community Human. Office	Tear Fund
Feed the Children USA	Trocaire
FEMA	UJA Federations Of North America

Foundation Hirondelle	UN Development Programme
Food for the Hungry	UN Food & Agriculture Organization
Food for the Poor	UN Refworld
HelpAge International	UN Reliefweb
Friends-Quaker Organizations	UNHC Refugees
Human Rights Organizations	UNICEF
InterAction	UN World Food Programme
International Association of Jewish Vocational Services	United Methodist-Relief
International Rescue Community	US Small Businesses Administration
International Orthodox Christian Charities	US Service Command
International Relief Friendship Foundation	USAID
Japanese Red Cross Society	Volunteers in Technical Assistance
MAP International Relief and Development	Volunteers of America
Lutheran Disaster Response	World Food Programme
Mennonite Disaster Service	World Health Organization
National Emergency Response Team	World Relief
National Voluntary Organizations	World Vision

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