Crisis Knowledge Management to Affect Customer Service Response

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ABSTRACT:*This qualitative case study focused on developing a better understanding of a major utility company's knowledge management/customer service information and communications as well as practices that were implemented during a catastrophic hurricane. The data collection and analysis procedure revealed a gap when a comparison of the actual knowledge management practices that were used and not used in the utility company's customer response during the hurricane. Organizational practices of high-performing knowledge-management companies were used to analyze and compare their practices to utility company. Findings from the analysis resulted in the establishment of a Balanced Scorecard framework for recommended best practices and action steps with the potential to set new strategies and trajectories for allorganizations.*

KEYWORDS –*communication, crisis management, customer service, knowledge management, leadership, learning and development, operations management, organizational performance*

I.   INTRODUCTION

Academics and practitioners recognize knowledge management and service quality as research areas of great interest. Knowledge management has emerged over the past two decades in response to the demands and unpredictable nature of the 21st century. Dominant external factors, such as climate change, have affected the operation of organizational environments. Accordingly, knowledge has surfaced as an extremely valuable asset [1]. Statistics indicate that more than 80% of economic value generated is linked directly to knowledge [2].

The knowledge management (KM) domain encompasses many areas, such as managing knowledge, intellectual capital, knowledge economies, and KM systems. Within and across these and other areas, KM directs attention to issues related to service quality, information technology, operations, people, and performance [3].

Twenty-first century leadership recognizes that service quality impacts business performance and customer satisfaction [4]. The quality of service reflects the extent to which a delivered service meets or exceeds customer expectations. For survival and sustainability in this constantly changing era, delivering superior quality service requires consistently adapting to customer expectations [5].

1.1   Knowledge Management History: The Knowledge-Based Economy

Housel and Bell [6] argued that current and former economies have depended upon knowledge as fundamental for generating worth. The Industrial Revolution's agrarian economy relied on knowledge for planting and farming. Value was placed on tangible assets including equipment and land. However, no value was placed on intangible assets, specifically, the farmers' ability to apply farm-related knowledge. Profound change has altered the shape and economic base of society [2]. Consequently, the primary source of value creation, productivity, and economic growth has shifted to knowledge.

The 21st century economy measures organizational wealth based on the value of existing knowledge, the capacity to generate future knowledge, and the effective exploitation of all knowledge [7]. Thus,

organizations are charged with harnessing and leveraging the knowledge of each member of the organization, that is, the organization's collective intelligence [8].

Sixty years ago, the United States dominated the world markets. The national and international demand for goods and services was significant; the United States accounted for more than 50% of the worldwide average of goods and services produced (Davenport & Prusak, 1998) [2]. However, at this time, the U.S. share in the world economy is less than 15%, which a clear indication that U.S. companies no longer control the global marketplace. This decline suggests that American enterprises can no longer expect that the "products and practices that made them successful in the past will keep them viable in the future" (p. 13) [2].

Managing in a period of great change forces companies to re-examine past assumptions [9]; therefore, the big question:What to do? becomes the mantra—particularly for large companies who have experienced long-term success for the past century. These organizations are considered icons; however, due to unforeseen disasters and unmanageable crises, they could decline and may even become extinct. According to Drucker [9], the root of the problem is outdated organizational assumptions no longer fit the current reality. The outdated assumptions dictate the following organizational behavior, organizational decisions, and organizational definition of important outcomes. The assumptions are about the customers, the existing marketplace, the competitors, and the organization's strengths and weaknesses.

Transformational leadership is required to address the outdated assumptions that have resulted in organizations with fundamental misconceptions. The development of effective strategies is essential to bridge the gaps. If the gaps are bridged, organizations will be equipped to chart a sustainable new course of action suitable for the constantly changing 21st century [8].

1.1.1   The State of Knowledge Management

There is growing recognition that knowledge is an important economic resource [10]. Managing an organization's knowledge has become essential for 21st century business survival and sustainability and, furthermore, studies have suggested that knowledge is considered a strategic resource to create and maximize business value [11].

Debate exists regarding KM as a separate discipline because the integrative foundation of KM allows attachment to several disciplines [12]. The domain challenge leads to conceptual plurality. For the purposes of this study, conceptual plurality is defined as the numerous mental representations to explain the empirical data connected with a discipline. Despite the KM debate, Dalkir [13] argued that KM continues to professionally evolve. Multiple empirical studies have been conducted and numerous articles published on topics related to knowledge strategy, knowledge creation, knowledge sharing, systems, and tacit and explicit knowledge [14].

Further debate in the field concerns people-over-technology issue [15]. The debate considers whether KM manages knowledge resources, specifically people, or whether KM is a data management system. Griffiths and Moon [15] acknowledged that misconception guides organizations to consider knowledge resources separate from people. Data is stored in technological systems that, when triggered, are shaped into knowledge through the interactions of people. Organizations are being forced to realize that "knowledge lies less in its databases than in its people" and, further, people are the creators and carriers of knowledge (p. 121) [16]. Leaders, aspiring to create a better future for the organization, are encouraged to see beyond the data and focus on the social context that shapes and provides meaning to the data. Dalkir [13] argued that within and outside of the organization's boundaries, knowledge is created and transferred via human interactions, technology, processes, and procedures.

II.   STATEMENT OF THE PROBLEM AND PURPOSE OF THE STUDY

Service quality has surfaced as an area of great concern to practitioners and researchers because of its tremendous impact on business performance and customer satisfaction [4]. The quality of service reflects the extent to which a service meets or exceeds customer requirements and expectations. If expectations are greater than performance, quality is perceived as unsatisfactory and, consequently, customer dissatisfaction follows [17].

World-class business organizations view knowledge as the most valuable strategic asset for survival and sustainability [2]. However, organizations that play a critical role in the life of society often do not capitalize on best practices of knowledge management to enhance service quality. Despite the rapid pace of change that is characteristic of the 21st century, many organizations have failed to become outwardly focused, market oriented, and knowledge driven. The failure to look externally, in order to enhance existing resources and capabilities, has resulted in competitive disadvantages and risk to organizational sustainability [2].

Greater organizational performance requires management and practitioners to identify current practices, both adequate and inadequate, and seek best practices for knowledge acquisition and knowledge transfer. Furthermore, appropriate procedures, methods, and instruments, which ensure an inward flow of ideas, build stronger capabilities, and discover gaps, are required.

Figure 1 shows how performance and value can be driven by the exchange of knowledge-acquisition and knowledge-transfer practices to improve organizational response and service delivery to the customer.
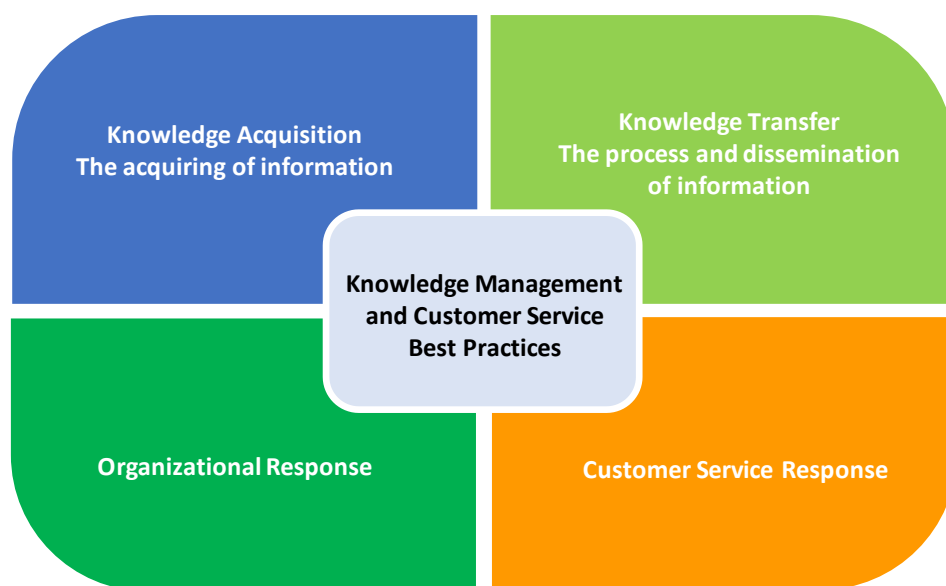

Figure 1. Knowledge Management Flow to Improve Performance and Customer Value

Each of these efforts can become part of an organization's strategic planning initiative that, when shared with stakeholders, facilitates a transfer of ideas that recognizes gaps and enhances capabilities through the sharing of knowledge.

The purpose of this study was threefold:

1.   identify the organizational practices used by the utility company during the hurricane disaster,
2.   compare utility company's practices to the best practices of exemplary companies, and
3.   use the information obtained to propose a pathway from current knowledge management practices to exemplary practices for the studied utility company.

Three questions served to guide the study and inform the selected methodology:

1. What were the knowledge management practices utilized by the utility company during the catastrophic hurricane crisis?
2. Considering the weaknesses identified in knowledge management practices, what knowledge management best practices might benefit the utility company's customers?
3. What processes or procedures might facilitate the transformation from poor knowledge management practices to best knowledge management practices?

The unpredictable climate of the 21st century has charged today's business enterprises to seek how best to capitalize on knowledge management practices for survival, competitive advantage, and sustainability. Alryalat and Alhawari [18] stated that organizational survival and competitive advantage result from getting the right information transferred to the right people, instantaneously. Consider, for example,a recent unprecedented and catastrophic hurricane.A major utility companyplayed a pivotal role in the process of saving lives. People in distress called the North American emergency telephone number (911) or the utility company's direct telephone line, and the calls were intercepted by the utility company's voice automation system. The severity of the hurricane required the utility company's immediate response to customers as electrical fires were erupting, people's homes were sinking, and loss of life and property was at stake. Sadly, the company had difficulty acquiring and transferring knowledge, which resulted in a deficit of service quality and value to the customer.

The utility company's knowledge-acquisition and knowledge-transfer processes were inadequate in responding to customers' needs. Immediate customer response was critical due to the severity of the wind and water damage from the storm. The lapse in response time resulted in inadequate information transfer to the right entity at the right time. The utility company's lack of adequate practices and infrastructure capability resulted in the organization's failure to transfer and share information in real time [18]. The organization's response to the customer signified the existence of organizational gaps.

III. SIGNIFICANCE OF THE STUDY

This research is of great value because the studied utility companyis one of the largest investor-owned energy companies in the United States. The company provides a wide range of energy-related products and services to its customers, a captive audience. Of particular interest is the fact that the company has been in existence for almost two centuries. However, due to its stature as an energy icon, the company is accustomed to operating under the theme of "business as usual." Davenport and Prusak [2], however, argued that companies can no longer continue to operate under the misconception of "business as usual."

Yesterday's assumptions no longer fit into today's reality. Nonetheless, the assumptions about the organization's strengths, weaknesses, and customers, dictate the organization's behavior, decisions, and response when faced withwhat to do, especially during crises [9]. Consequently, when the catastrophic hurricane occurred, the organization chanted, "What do we do?" while the customers shouted, "Help!" to an unresponsive organization.3.1   Research Context

The studied utility company is one of the largest investor-owned, energy-delivery companies in the United States. It servesover three million customers and, yet, it has no statement of vision, but it does have six guiding principles and corporate values that include:

1. plan the work and work the plan,
2. seek and accept responsibility,
3. communicate openly,
4. work in teams,
5. improve continuously, and
6. celebrate success.

The company provides electrical and natural gas service toseveral areas in the Northeastern United States.While the utility company operates in a challenging and unpredictable business environment, there were serious questions surrounding the company's organizational performance and service quality based on responses to customers and stakeholders during the catastrophic hurricane. The assessment of the utility company's performance was obtained from the sources outlined in the Instruments Used in Data Collection section.

3.2   Instruments Used in Data Collection

Data collection focused on the utility company's knowledge-management practices and customer-service quality during the hurricane. Two forms of data collection were used that provided responses to this study's research questions. Archival data served as the primary source of data collected for analysis in the study, and structured interviews were the secondary source of data collection.

The interviews consisted of 20 open-ended questions, and they were designed to collect additional information about the utility company's practices as it related to knowledge management and customer service during the hurricane.Data collection for a gap analysis was used to inform the identification and evaluation of the factors and practices that impacted the knowledge transfer for emergency response and customer service.

3.3   Methodology

While there were several possible qualitative approaches considered for the purposes of exploring the selected topic, case study was determined to be best suited to explore a singular event over which the researcher had little influence or input. This assertion has been supported in previous research using the identified methodology. Specifically, Yin [19] declared that explanatory-exploratory case study is the preferred strategies when "the investigator has little control over events, and . . . the focus is on a contemporary phenomenon within some real-life context" (p. 1).

Historically, case study has been of value for understanding situations of uncertainty and instability because of the generation of new knowledge that is applicable in the specific context of the case study, as well as other similar contexts [20]. Many companies use case studies as vehicles for understanding and improving business performance and providing recommendations for solutions to specific problems [2].

The case study provided the context of information for the completion of a gap analysis, which is a process that compares an organization's existing operations to where the organization would like to be from a best-practices perspective. The utility company case study looked intently at the data from both archival records and interview transcripts, drawing conclusions regarding the specific content within emergency response, customer service quality, and communication, including knowledge acquisition and knowledge transfer.

Case study methodology was also used to analyze the data related to the best practices of high-performing companies that have excelled in knowledge management and customer-service practices. An analysis of the research literature focused on AT&T, the General Electric Company (GE), and the International Business Machines Corporation (IBM). The companies' exemplary practices were compared to the practices of the studied utility company. For this study, the focus was on the practice of knowledge management as it related to quality of service. The study also examined the utility company's gaps by comparison of the actual knowledge management practices that were used and those practices that were not used in response to the company's customers during the hurricane.

Understanding this transformation involved a comparison of the subject utility company's behavior to that of exemplary companies using archival data and personal interviews.This study used the Kaplan and Norton's [21] Balanced Scorecard to provide a knowledge management framework for a set of recommended changes offered to the company by an external evaluator. The Balanced Scorecard was a

powerful tool for measuring the assets of the organization through the framework of four perspectives: finance, customer, internal, and learning and growth [21]. The utility company's practices were found to be less than exemplary; therefore, findings were designed to suggest ways in which the company could transition to exemplary practices. The Balanced Scorecard mapped the solution for the utility company's transformation from poor knowledge management practices to best knowledge management practices [21].

During the past two decades, service quality has surfaced as an area of great concern to practitioners and researchers because of its tremendous impact on business performance and customer satisfaction 4]. World-class companies utilize case studies as vehicles for understanding and improving business performance and, furthermore, providing recommendations for solutions to specific problems 2].

The competitive and rapidly changing 21st century markets force leadership to expand their learning and growth by identifying and evaluating methods and practices that drive organizational performance. External analysis and internal best practices are both necessary to compare practices utilized by best-in-class organizations. Developmentof appropriate action steps charts a new trajectory to increase organizational performance, service quality, and customer satisfaction. The maximization of best practices enables organizations that play a critical role in the life of society to minimize risks to their competitive advantage and sustainability in the 21st century.

IV.   FINDINGS

The findings of this qualitative case study resulted from examining the emergency knowledge management practices used by the organization to affect customer service response. The purpose of this study was to identify the organizational practices used by a major utility company during a catastrophic hurricane disaster; compare the utility company's practices to the best practices of exemplary companies; and use the information obtained to propose a pathway from current knowledge management practices to inform the implementation of exemplary practices.

Broad themes and patterns emerged from the analysis of recurring messages that were derived from three different types of data sources. The data sources included archival data, interviews, and reflective notes.

4.1   Data Analysis

The data analysis process consisted of phases including:

1.   organizing data for analysis;
2.   conducting a scan of data for "major organizing ideas," credibility, and initial categories, in addition to, continual reflecting on the data; and
3.   classifying and interpreting the data into codes, "the heart of qualitative data analysis," from which themes were generated (p. 184) [22].

The first phase involved the review and organization of collected data. Numerous sources of archival data were examined for the purpose of obtaining information to determine responses to the research questions posed within the study. In addition to the review of archival information, three interviews were conducted and a review and organization of the transcript data was performed to interpret themes presented in the materials.

The second phase of the process involved conducting a scan of the data for creditability, organizing major ideas, and developing the initial categories of the themes. In addition, this phase included the continual reflection of the data, analytical questioning, and writing of memos.

The third phase comprised coding the data. The coding process involved analyzing the primarily textual data and assigning codes to segments of the data. The codes were based on the research questions, and applied to both archival data and interviews. Other aspects of the data analysis included reflection

notes, review of the literature about the utility company's performance during the hurricane, as well as suggested best practices.

The analysis of archival data and interview statements disclosed a concentration of gaps in poor knowledge management practices, particularly knowledge acquisition and knowledge transfer. Hence, these two knowledge management practice areas weaved a pattern throughout the themes and subthemes.

4.2   Themes and Subthemes Developed

Once the coding was completed, further analysis led to the creation of four themes and eight subthemes.

Table 1. Definition of Themes and Subthemes [21]

Identified Themes/Subthemes	Definitions
Knowledge Management	The management of a company's most valuable knowledge and knowledge-related assets to increase performance and value to customers.
Knowledge acquisition	The continuous acquisition of valuable information/knowledge that creates value for employees, customers, and the organization.
Knowledge transfer	The continuous movement of valuable information/knowledge that creates value for employees, customers, and the organization.
Service Quality and Customer Restoration	The delivery of quality service to customers during the catastrophic hurricane restoration efforts.
Operations Management	The development and management of efficient processes, procedures, technologies, and equipment required to improve organizational performance, reduce costs, and add value to customers.
Processes/procedures	Documents providing directives for routine and emergency occurrences in every area and function of the company.
Technology	The continuous management of data, processes, and systems required to improve customer service.
Equipment	The acquisition of state-of-the-art equipment required to maximize operations and quick response time to customers during crisis
Workforce Retention	The preservation of knowledgeable employees. The skills and training (knowledge base) required to increase organizational performance and service quality to customers
Aging population	The acquisition and preservation of institutional knowledge, prior to workforce attrition.
Workforce staffing	The continuous assessment of human capital required to meet operational needs, which add value to customers.
Skills and training	The continuous recruitment and hiring of workforce with essential job-related skills and training required to service customers

4.2.1   Theme 1: Knowledge Management

Analysis of the data revealed the utility company's practices for the management of knowledge,and there was evidence of gaps in knowledge management,which hinderedthe company'sresponse to customers. Contractors were hired but theywere delayed in performing their jobs because they had no direct communication with the control center, thus reducing quick decision making.

4.2.1.1   Subtheme: Knowledge Acquisition

Analysis of the data disclosed gaps in the utility company's practices for capturing knowledge.. The data acquired and aggregated from customers was critical for the company's timely response to customers during the catastrophe.

4.2.1.2   Subtheme: Knowledge Transfer

Analysis of the data also revealed gaps in utility company's practices for transferring to the appropriate people at the right time.The information and data transferred within the company to customers was vital to the company's decision making andtimely response.

4.2.2   Theme 2: Service Quality and Customer Restoration

Analysis of the data within the study revealed inadequate practiceswithin the utility companyconcerning service quality to customers during the restoration efforts. Severe gaps in the quality of the customer service was evident in the Moreland Report [23].The report revealed that over 900,000 customers in the company'sservice territory suffered electric outages at the peak of the hurricane. The Moreland Commission investigation of the utility company uncovered numerous problems with its performance during the hurricane. Specifically, the report indicated inadequacies prolonged theduration that customers were out of power [23].The report also concluded that "customers increasingly rely on . . .website outage maps for outage information . . . the insufficient service confused customers during the restoration period" (p.48) [23].The Moreland Report [23] also noted that gaps existed in localized estimated restoration times, which should have been more accurate as to when power would be restored to the service areas, which were essential for customers to plan during that period[23].

4.2.3   Theme 3: Operations Management and the Impact on the Customer

Analysis of the data disclosed that the utility company's practices for the management of operations during routine and emergency occurrences. The gaps in operations management substantially contributed to the company's poor response to the customer.

4.2.3.1   Subtheme: Processes and Procedures

The analysis of the data revealed gaps in the utility company's processes and procedures, which affected the company's response to customers. Its processes and procedures were outlined in the company's corporate procedure documents.The documents provided directives for routine and emergency occurrences in every area and function of the company; however, the utility company's emergency plans lacked formalized processes for dealing with the restoration of homes and businesses that were shut off due to severe flooding.

4.2.3.2   Subtheme: Technology

Analysis of the data revealed gaps in the utility company'sinformation technology practices that impacted the company's customer response during the hurricane. Several technology gaps were disclosed and underscored in the Moreland Report [23], which focused on technology weaknesses during the catastrophe. Further, the need for damage assessment data prior to restoration was conveyed in the Moreland Report [23].Additional technology inadequacies were evidenced in the company's outage managementsystem.

4.2.3.3   Subtheme: Equipment

Analysis of the data disclosed inadequate equipment as a substantial gap relating to the utility company'soperations and response to customers during the hurricane.The company seemed to have adopted an unacceptable "run it until it breaks" mentality,whereongoing maintenance was replaced by emergency repairs, which were conducted only when the equipment failed. Theutility company appeared to be reluctant to performroutine equipment inspections.

4.2.4   Theme 4: Workforce Retention

Analysis of the data revealed gaps in the utility company's practices for the management of workforce retention. Human resource strategy and practices focused on four priorities, one of which was retention.

The company's practice for addressing retention was by offering compensation and benefits that were competitive within the marketplace.

There was evidence of gaps in workforce retention that were significant contributors to utility company's response to customers during the hurricane.

The demographics of the workforce showed a substantial number of younger and older employees, with relatively few employees in the mid-range experience levels. As older employees retire, they takewith them their vast institutional knowledge,it creates a gap for which there may not be sufficient replacements.

4.2.4.1   Subtheme: The Aging Population

The severity of hurricane underscored utility, industry-wide issues with aging human capitaland vast institutional knowledge leaving the company The Center for Energy Workforce Development conducted a survey that pointed to an increase in the quantity of employees with more than 28 years of service since 2006 [24]. While designed for the industry, the survey directly addressed the issue with utility company's "graying" workforce. The Moreland Commission was also concerned about the impact of "graying" on the retention of the workforce. The report stated:

> The aging of the workforce is problematic during storm response because human resources, just like physical plants, are less resilient and more vulnerable during high stress conditions mandatory overtime in the form of multiple 16-hour days under the worst of physical circumstances was taking its toll and threatening the storm response. (p. 54) [23]

The significance of the aging population gap was also of concern to the IBEW as exemplified in their statistic: "50% of the utility workforce will be eligible for retirement within the next five years" [24]. The industry-wide statistic directed attention to the utility company's pool of experienced workers at the time of the catastrophe. Notwithstanding the age factor and physical strain during storm conditions, the company's pre-retirees represent an accumulation of knowledge assets that provide significant value to the company; furthermore, the asset was essential for a sufficient response to customers during the hurricane.

4.2.4.2   Subtheme: Workforce Staffing

Another issue that emerged the utility company's human resource practices relating to assessing staffing requirements. The gap in utility company's workforce staffing was underscored by the UWUA, which outlined the shortfall by stating, that the company:

> needs to increase its full-time, in-house personnel staffing. There is simply too much work and too many issues for too few workers . . . should be required to hire at the baseline staffing level and to fill promptly any vacancies that may occur from time-to-time. . . . was in a weakened condition . . . prior to the arrival . . . . The condition is the result of the [c]ompany being significantly understaffed. (p. 4) [23]

The reduced workforce significantly affected utility company's response to customers during the hurricane. The UWUA affirmed the customer impact by stating, "the reduced workforce means that [during] the months leading up to the storm, important maintenance and related activities were either being ignored orperformed on a reduced basis" (p. 4) [23].

4.2.4.3   Subtheme: Skills and Training

Analysis of the data provided evidence and underscored the shortage of essential job-related skills and training required to service customers during the hurricane.The majority of training was conducted at the company's training and education facility. Despite the company's training efforts, its response to the

hurricane was significantly compromised by the apparent lack of appropriate skills and training of employees.

The Public Service Commission (PSC) observed the shortfall in 2009 at which time they reprimanded The company's skills and training deficit delayed the customer response time during the hurricane.Furthermore, the Moreland Report stated that many utilities conduct refresher courses in the days prior to storm predictions.

> The "refreshers" alleviate inaccuracies during the storm event. For example, the damage-assessing department of . . . "undergo[es] four hour event[s] to better understand the overhead electric system . . . the course is divided into 2 hours of classroom and 2 hours of . . . Learning Center where there [are] physical examples of poles, equipment, and other electrical equipment. (p. 50) [23]

It is unclear whetherthe utility company provided storm training for its workforce prior to the hurricane. While out-of-state contractors became part of the company's workforce during the storm, they were unfamiliar with safety standards and the layout of the company's electrical system. Thus, the insufficiency of skills training, together with inadequate attention to safety standards, was a detriment to customers during the hurricane.

V.   BEST PRACTICES

IBM, the Ritz-Carlton Hotel Company, General Electric Company, and AT&T were analyzed for knowledge management best practices. The summary of the findings are presented in Table 2, which represents the utility company'sgaps and the best practices from the aforementioned exemplary knowledge management companies.

The International Business Machines Corporation (IBM) successfully utilized social media to acquire and transfer knowledge while simultaneously engaging with and enhancing relationships with customers. Through their Social Customer Relationship Management, IBM followed its customers in a virtual community-based environment, where knowledge was acquired, transferred, and exchanged, unreservedly, via networks such as IBM.com Communities, IBM Podcasts, Twitter, Facebook, LinkedIn, YouTube, and unlimited blogs. The social media channels enhanced customer interaction and communication that provided a medium for responding to customer queries, advertised IBM events, acquired customer ideas and feedback, shared employee experiences and practices, trained employees and customers, and facilitated customer-to-customer exchanges [24].

The Ritz-Carlton Hotel Company (Ritz-Carlton) was recognized as the Malcolm Baldrige National Quality Awardee for consistently exceeding customer expectations. The company culture and unwavering values were key success factors that directed excellent employee behavior. Employees were empowered while acquiring continuous and rigorous training in excellent customer service delivery. Regardless of positionality within the organization, employees were expected to deliver world-class customer service with zero tolerance for non-conforming behavior. Despite the rigorous training and zero tolerance for nonconformity, the Ritz-Carlton valued employees and extended them trust, which was essential for encouraging risk-taking and innovation for the benefit of the customer [25].

General Electric Company (GE) was equated with excellence in operations management and service delivery to customers. The corporation acknowledged that in service environments, performance and customer satisfaction were dependent on the management of operations and investment in technology systems. Furthermore, great operations required great investments in people for process improvement and efficient utilization of technology that rapidly responded to customers [26].

GE's best practice included three-day workouts that improved organizational performance and operations efficiency through cooperative problem solving. The process typically involved the selection of

employees and managers from various organizational levels who were divided into teams that deliberated about possible solutions to an assigned operational issue. Proposals were developed and offered by the team and, if accepted by management, then enacted within the organization [27].

AT&T's best-in-class practice for workforce succession was praised by the learning elite, which recognized best companies in learning and development. AT&T realized the link between a talented and dedicated workforce and the organization's on-going success. The highly recognized mentoring program paired selected management trainees and/or high-performing employees with senior members with a work history of more than 20 years. AT&T provided the media, both face-to-face and via technology, for capturing, transferring, and storing, the knowledge gained by senior level managers and executives throughout their career. AT&T's history of commitment to this practice earned the organization the distinction as best-in-class for workforce succession planning (L. Hudson, personal communication, July 10, 2014).

Table 2. Detailed Description of Studied Utility Company's Gaps and Best Practices of Knowledge Management Companies

Best Practice	Company and Description
Knowledge Management	IBM – The successful practice in knowledge acquisition and knowledge transfer, also known as Social Customer Relationship Management, utilized social media communities of engaged customers and colleagues to acquire/transfer information that benefitted the organization and customers.
Service Quality	Ritz-Carlton –Exceeds expectations in service quality and was the recipient of the Malcom Baldrige National Quality Award. The company culture, embedded in the organizational values stated in the Credo, Motto, Three-Steps of Service, mandated exemplary employee behavior standards for customer service delivery. Employee customer service training was continuous and rigorous, which benefitted the delivery of world-class service to customers.
Operations	General Electric Company – GE was renowned for excellence in operations management, process improvement, and service delivery to customers. GE's well-respected, three-day workout practice improved cooperative problem solving through examination and recommendation of process improvements, which upon acceptance, were enacted within the organization.
Workforce Retention and Recruitment	AT&T – Best-in-class practice for workforce succession planning, acknowledged by the learning elite, AT&T was exemplified through the well-respected mentoring program that pairs selected junior members with highly experienced senior members. AT&T provided the medium for exchange through face-to-face interactions and technology designed to capture, transfer, and store, the information/knowledge gained and shared.

The Balanced Scorecard maps the solution for utility company's transformation from poor knowledge management practices to best knowledge management practices. Table 3 represents a proposed strategy map (Balanced Scorecard) that the utility could use to chart a new direction toward a customer-centric organization.

VI.   BALANCED SCORECARD FRAMEWORK

In this case study, the research analyses resulted in the proposed Balanced Scorecard, which is the framework that charts the action plan for the studied utility company's suggested new trajectory.The Balanced Scorecard Strategic Action Plan summarizes how the utility company can create sustained value for the organization and its customers.

The Balanced Scorecard identifies the studied utility company's knowledge management key processes that drive success and align their strategic customer-focused goals with strategies that benefit the organization and customer [28]. The Balanced Scorecard uses four distinct perspectives:

1.   financial,
2.   customer,
3.   internal, and
4.   learning and growth.

Table 3. Proposed Utility Company's Balanced Scorecard Strategic Action Plan (Adapted from Kaplan & Norton, 2004 [21])

Financial Perspective	Maintain distribution and transmission systems	Maintain gas/steam generation facilities	Add customer operations instructors to learning center staff	Hardening of electrical system	Improve technology systems
Customer Perspective	Ensure price is equivalent to service value	Upgrade call center operations	Acquire and store customer information	Restore service in a timely manner	Deliver quality service

Internal Perspective	**Knowledge Acquisition** Establish and maintain social media channels and informal networks to capture customer information, feedback ideas, and suggestions; train employees and customers	**Knowledge Transfer** Establish and maintain social media channels and informal networks to transfer organizational information, employee and customer experiences, ideas, and practices	**Customer Relationship Mgmt.** Establish customer service representative protocol for appropriate behavior and attitude; provide timely and relevant information of delivery of quality service to customers	**Bridging Gaps** Leadership builds a bridge: hire and retain knowledgeable and experienced workforce; commit to continuous training; refocus on team work by encouraging risk taking and cooperative problem solving; reexamine and upgrade internal and external processes, procedures, practices, performance evaluations, and policies

Learning and Growth Perspective	**Human Capital** Develop human capital assets through valuing tacit knowledge and transferring via on-the-job training; align workforce with new customer-focused strategies to improve customer satisfaction; improve succession planning for the graying workforce; train workforce in use of updated technology; enhance workforce skills to improve performance	**Information Capital** Develop technology infrastructure designed to improve customer service delivery; upgrade technology to improve operational performance; solicit and value employee and customer feedback as essential to redefine service quality practices, procedures, and processes, which will reduce cost and response time	**Organizational Capital** Leadership is required to create customer-centric culture to enhance service quality and customer satisfaction; managers empowered to innovate, exercise risk taking to solve problems without retribution; organization exploits internal and external best practices; transfers and uses practices throughout the company

6.1 Financial Perspective

The utility company's financial perspective identifies tangible gaps that require financing to achieve the customer-focused strategic goals. The first two gaps acknowledge maintenance of both transmission and distribution wires and gas/steam facilities.The third gap delineates the need for additional, qualified Customer Operations Instructors for the Learning Center. The fourth gap draws attention to hardening of the electrical system, the process of fortifying the grid for flexibility, and responsiveness to severe weather conditions.The fifth and concluding gap in the financial perspective pinpoints the purchasing of improved technological systems to deliver quicker and more efficient service delivery to customers during emergencies.

Further, the utility company's budget and accounting systems require integration with the four Balance Scorecard perspectives, and the organizational structure, technology, and business context, in order to be effective[29].

6.2 Customer Perspective

The company's customer perspective outlines its value response to customers, delineates what customers seek, and allows managers to identify priority customers [30]. The company's value response to customers include:

1. pricing that is equal to customer service value,
2. upgrading of call center operations,
3. acquisition and storage of customer information,
4. timely restoration of service, and
5. delivery of quality service.

6.3 Internal Perspective

The studied utility company's internal perspective directs attention to important knowledge management processes that are connected with the day-to-day operations that deliver service to customers [31]. The utility company's critical knowledge management processes include Knowledge Acquisition, Knowledge Transfer, and Customer Relationship Management, and Bridging Gaps.

6.4 Learning and Growth Perspective

The utility company's learning and growth perspective is the final perspective, and it is fundamental to the proposed company Balanced Scorecard. The frame identifies the skills and infrastructure required to sustain the utility company's knowledge management processes and the behavior required to interact with customers [21]. Further, the learning and growth perspective pinpoints the intangible assets that are fundamental to the organization's strategy and are classified into three categories: human capital, information capital, and organizational capital. The goal of the learning and growth perspective is to label which jobs and employee competencies (human capital), which information technology systems (information capital), and which climate/culture (organizational capital) are required to support the internal processes that create value [21]. Enhancement and strategic alignment of the intangible assets are critical to providing significant value to the utility company and service quality to its customers.

The utility company's organizational capital advances through leadership shaping a customer-focused organization, not just in word but in deed; management empowerment to encourage risk taking for problem solving and decision making; leadership fostering an environment conducive to continuous learning, and identification and transfer of best practices throughout the company.

The studied utility can bridges the gaps through:

1. the commitment of leadership to shape a customer-focused culture to enhance service quality to customers,
2. hiring and adequately training, and retaining, a knowledgeable workforce,
3. refocusing on the company's core principles, particularly teamwork,
4. valuing and encouraging risk-taking, innovation, and cooperative problemsolving, and
5. re-examining/upgrading internal and external processes and procedures, practices, performance evaluations, and policies.

The primary advantage of the proposed Balanced Scorecard is that the strategy map facilitates the transformation from the company's poor knowledge management practices to better practices that provide sustained value to the organization, the customer, and the shareholders. The concept of the Balanced Scorecard to utilize knowledge management strategies to create value to customers is realized through acceptance by the utility company leadership.

Crisis-management leadership requires examination of organizational vision, or lack thereof, core values, and strategic positioning, all of which prepare the utility company's employees with a successful response from the organization to the customer. Failure to plan for and adapt to uncertainties, such as climate change, produces unsuccessful crisis response, loss of revenue, and reputational [32]. Further, leaders must communicate effectively, because customers derive certain messages from the quality of a response. The leadership response, also known as the information transfer, speaks to the customer about the organization's behavior and the importance the organization attaches to customers [32].

Leadership and crisis management direct attention to reexamination of policy decisions. Leaders make policy decisions expecting outcomes that achieve their organizational objectives. However, leadership misconceptions and faulty assumptions about the past guide inadequate decision making, and it results in unsuccessful outcomes [9]. The organizational response to the customer is directly affected by the quality of leadership decisions and the existing internal and external policies. Thus, leadership is required to increase value to the organization and customer by developing adaptive policy changes in response to environmental shifts [33].

VII. RECOMMENDATION FOR FUTURE RESEARCH

Cybersecurity threats to the grid is an area of great concern to researchers and practitioners both nationally and globally. The Governor of the State of New York has established a Cyber Security Advisory Board comprising leading authorities in the field. Further, the State of New York has partnered with the Center for Internet Security, a nationally renowned non-profit entity that assists the government and private enterprises in the preparation and response to cyber-attacks. As technological advancements have exposed the energy industry to cyber threats, it's reliance on the linkage of these entities' critical operating systems, via the Internet and the growth in smart grid technologies, have presented opportunities and challenges.. The opportunity exists at this time to diligently prepare and strengthen response capabilities while embracing the advancement of these technologies. The Bipartisan Policy Center, a recognized think tank, has issued a report entitled, "Cybersecurity and the North American Electric Grid: New Policy Approaches to Address an Evolving Threat." Additionally, researchers may be interested in examining this relatively new interest area [34]. Finally, the methodology used in this dissertation research is also appropriate for routine use in both identifying weaknesses and developing approaches to dealing with those weaknesses.

VIII. CONCLUSION

Organizational change should begin with appropriate action steps that lead an organization and workforce to learning and growth. Leadership is charged with creating an environment, where,

> People continually expand their capacity to create the results they truly desire, . . . where
> new and expansive patterns of thinking are nurtured, where collective aspiration is set

free, and where people are continually learning to see the whole together. (p. 3) [35]

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