THE USE AND IMPACT OF DISASTER RECOVERY INDICATORS FROM THE PERSPECTIVE OF COMPLEX ADAPTIVE SYSTEMS THEORY: THE CASE OF *THE NEW ORLEANS INDEX*

AN ABSTRACT

SUBMITTED TO THE LAW SCHOOL OF TULANE UNIVERSITY
IN PARTIAL FULFILLMENT FOR THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY FOR INTERNATIONAL DEVELOPMENT

ON THE 2 DAY OF DECEMBER 2016

BY

MELISSA A. SCHIGODA

APPROVED:

Nancy Mock, Dr.P.H., Chair

Doug Ahlers

Philip Anglewicz, Ph.D.

William Bertrand, Ph.D.

Amy Liu

Geoff Parker, Ph.D.

ABSTRACT

This study examines a disaster recovery indicator project, *The New Orleans Index*, published by Brookings and The Data Center following Hurricane Katrina. It looks at the dissemination, use, and perceived impact of *The New Orleans Index*, as well as the its most useful aspects and challenges from a complex adaptive system (CAS) perspective. This study is important because 1) it fills a gap in the research on how disaster recovery indicator project are used and their perceived impact; 2) it draws on the emergent literature on CAS, which provides insight into the dynamic, nonlinear behavior of disaster recovery systems; and 3) it provides recommendations to future disaster recovery indicator projects.

This research utilizes a mixed-methods, case study approach with three main phases. The research began with archival data analysis of references to the *Index*, web stats, and other sources. This analysis informed a series of focus groups that gathered rich qualitative data on the research questions. The focus group data analysis informed a survey that gathered quantitative data from a larger group of recovery leaders who used the *Index*. Finally, the survey data analysis informed a series of key informant interviews.

High percentages of disaster recovery leaders who used the *Index* reported using it in ways related to CAS, including: 1) to get a better understanding of what was happening in the recovery (situational awareness); 2) to identify and prioritize needs (adaptation); 3) to communicate and collaborate with others (cooperation); and 4) to make the case for new investments, policies, and programs (emergence of new structures). High percentages also report witnessing the *Index* positively impacting feedback loops related

to perceptions of New Orleans, the demand for data, emerging conversations, resources received, and decisions to return.

Recommendations generated by this research for future disaster recovery indicator projects include: 1) build local data capacity before a disaster, 2) prioritize developing or maintaining credibility, 3) gather feedback on changes in the recovery environment and adapt as necessary, and 4) look across sectors and geographies, when determining which data to include, disseminating findings and engaging stakeholders.

THE USE AND IMPACT OF DISASTER RECOVERY INDICATORS FROM THE PERSPECTIVE OF COMPLEX ADAPTIVE SYSTEMS THEORY: THE CASE OF *THE NEW ORLEANS INDEX*

A DISSERTATION

SUBMITTED TO THE LAW SCHOOL OF TULANE UNIVERSITY
IN PARTIAL FULFILLMENT FOR THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY FOR INTERNATIONAL DEVELOPMENT

ON THE 2 DAY OF DECEMBER 2016

BY

MELISSA A. SCHIGODA

APPROVED:

Nancy Mock, Dr.P.H., Chair

Doug Ahlers

Philip Anglewicz, Ph.D.

William Bertrand, Ph.D.

Amy Liu

Geoff Parker, Ph.D.

ACKNOWLEDGEMENTS

Thank you to all of the New Orleanians and honorary New Orleanians who have helped to rebuild the best city on the planet over the past eleven years and taught me so much about dedication, creativity, joy, and resilience. This research would not have been possible without your participation in the focus groups and survey. Your generosity with your time and sharing your experience is truly humbling.

I also want to thank my former colleagues at The Data Center / Nonprofit Knowledge Works, especially Allison Plyer, Denice Ross, and Charlotte Cunliffe. I have learned so much from each of you and feel honored to have worked with you. My sincerest appreciation for your support of this research.

Thank you to my dissertation chair Nancy Mock and my committee members, Doug Ahlers, Philip Anglewicz, William Bertrand, Amy Liu, and Geoff Parker. Your feedback and insights throughout this process have been invaluable, and I can't thank you enough for working with me on this.

Thank you to Laura Murphy, my professor and PhD advisor, for introducing me to complexity theory and for her help getting started on this path. Thank you to Sheila Favalora for her help navigating administrative issues over the past decade, with a wonderful attitude and impeccable administration skills. Thank you to Jennifer McKeever and Oliver Wise for granting me time off work to devote to this research and for their inspiring leadership.

I would like to thank my friends and colleagues for their support and encouragement. The laughter we have shared has kept me going through the toughest times. Mom and Dad, thank you for always believing in me and telling me how proud you are of me. And last but not least, Ben, thank you for everything.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter 1. Introduction

1.1. Introduction

The amount of data in the world is exploding. According to Frank (2012), "IBM estimates that every day 2.5 quintillion bytes of data are created – so much that 90% of the data in the world today has been created in the last two years. It is mind-boggling. The irony is we have more information available, but we feel less informed." Big data, open data, data science, analytics, informatics, and indicator projects all represent emerging opportunities to tap into some of this data and use it to make more effective decisions. According to Jeffrey Sachs (May 6, 2015), "…the data revolution can drive a sustainable development revolution, and accelerate progress toward ending poverty, promoting social inclusion, and protecting the environment." However, according to Lawyue and Petite of the Urban Institute (June 2, 2016), harnessing the power of data is not easy: "Uncovering useful, actionable information requires trust, technical expertise, knowledge of the local context, and coordination among multiple stakeholders." It is also resource intensive. According to the United Nations Sustainable Development Solutions Network's report *Data for Development* (April 17, 2015), just the cost to enable 77 of the world's lower-income countries to put in place statistical systems capable of supporting and measuring the Sustainable Development Goals would be one billion US dollars per year. While it may not be easy, finding ways to use data to benefit communities is a worthy pursuit, especially following disasters. According to the United Nations Office of

Disaster Risk Reduction (2016), "…there were 346 reported disasters in 2015, 22,773 people dead, 98.6 million people were affected by those disasters and US$66.5 billion of economic damages." Clearly, rebuilding after a disaster presents enormous challenges for effected communities. However, with that challenge also comes opportunities to build back smarter and grow more resilient. This dissertation investigates the case of *The New Orleans Index*, as an attempt to harness the power of data to inform decision making during the recovery from Hurricane Katrina from a complex adaptive systems perspective.

1.1.1. *The New Orleans Index*

In recognition of the fact that rebuilding New Orleans and the Gulf Coast after Hurricane Katrina would cost billions of dollars and transform the lives of millions of people, the Brookings Institution's Metropolitan Policy Program published the first edition of *The New Orleans Index* (then known as *The Katrina Index*) in December 2005. Each edition of the report consisted of about 30-60 recovery indicators presented in data tables. In addition to the data tables, the report included a "Summary of findings" or analysis of key recovery trends and remaining challenges. The data and analysis in the *Index* was designed "to serve as an independent, fact-based, resource for leaders to monitor and evaluate rebuilding efforts" (Liu *et al*, 2006).

The recovery indicators that formed the basis of the *Index* were primarily derived from administrative data sources and tracked on a monthly basis. For instance, the *Index* included unemployment claims from the department of labor, home sales from the Louisiana Association of Realtors, and Army Corps demolitions from the U.S. Army

Corps of Engineers. The number of indicators, grouping of the indicators, and indicators themselves varied from edition to edition. The table below shows the indicators and categories used to group the indicators from the August 2009 edition of the *Index*.

Table 1. Indicators included in *The New Orleans Index* from August 2009

Category	Indicator
Population Recovery	Table 1: Total Population Estimates
	Table 2: Residential Addresses Actively Receiving in New Orleans MSA by Parish
	Table 3: Public School Enrollment Totals in New Orleans MSA by Parish
	Table 4: Composition of Public School Students in New Orleans MSA by Parish
	Table 5: Private School Enrollment Totals in New Orleans MSA by Parish
	Table 6: Composition of Private School Students in New Orleans MSA by Parish
	Table 7: College Students Enrolled in New Orleans by University
Housing Market	Table 8: Number of Single Family Home Sales in New Orleans Metro Area
	Table 9: Average Sale Price of Single Family Homes in New Orleans Metro Area
	Table 10: Active Listings of Single Family Homes in New Orleans Metro Area
	Table 11: Average Days on Market for Single Family Homes in New Orleans Metro Area
	Table 12: Delinquency and Foreclosure Rates for Sub-prime, Prime and All Loans in Louisiana & the U.S.
	Table 13: Fair Market Rents in New Orleans MSA by Unit Bedrooms
	Table 14: Gross Median Rents in New Orleans MSA (in 2007 dollars)
	Table 15: Affordable Monthly Rent for Select Occupations in New Orleans MSA, 2008
Rebuilding Damaged Housing Stock	Table 16: Residential Building Permits Issued by New Orleans City Hall
	Table 17: Number of New Residential Housing Units Authorized by Type of Home
	Table 18: Unoccupied Residential Addresses by Parish

	Table 19: Status of Louisiana Road Home Applications
	Table 20: Number of Road Home Closings by Option Selected by Parish
	Table 21: Number of Active Travel Trailers, Mobile Homes & Park Models in Louisiana
	Table 22: Total Number of Active Travel Trailers, Mobile Homes & Park Models in Louisiana by Parish
Fiscal and Economic Conditions	Table 23: Total Sales Tax Collections by Parish
	Table 24: City of New Orleans Sales Tax Collections by Source
	Table 25: Labor Force Size
	Table 26: Unemployment Rates & Total Numbers
	Table 27a: Number of Non-farm Jobs, in Thousands
	Table 27b: Number of Non-farm Jobs by Source and Type of Employment, in Thousands
	Table 27c: Number of Non-farm Jobs in Service-Providing Industries, in Thousands: A-L
	Table 27d: Number of Non-farm Jobs in Service-Providing Industries, in Thousands: M-Z
	Table 27e: Number of Non-farm Jobs in Goods-Producing Industries, in Thousands
	Table 27f: Number of Non-farm Jobs in Government by Level of Government, in Thousands
	Table 28: Employment in New Orleans by Industry Sectors
	Table 29: Average Weekly Wage by Industry Sectors
	Table 30: Net Change in Total Employers by Parish
	Table 31: Job Vacancy Rates in New Orleans Regional Labor Market by Occupation
	Table 32: Number of Unemployment Claims
	Table 33: Personal Income in New Orleans MSA, Louisiana & the U.S. (in millions of dollars)
	Table 34: Number of Passengers Arriving & Departing from Louis Armstrong New Orleans International Airport
	Table 35: Cargo Activity at the Port of New Orleans
Quality and Availability of Basic Public Services	Table 36: Open Public Schools in New Orleans Metro Area by Parish
	Table 37: Open Private Schools in New Orleans Metro Area by Parish
	Table 38: Open Public Schools in New Orleans by Management Type

	Table 39: Composition of Public School Students in New Orleans by Management Type and Admissions Policy
	Table 40: Public School Students Passing High-Stakes LEAP Tests in New Orleans MSA by Parish
	Table 41: Status of Public Transportation in New Orleans
	Table 42: Open State-licensed Hospitals by Parish
	Table 43: Open Child Care Centers in New Orleans Metro Area & Louisiana
	Table 44: Open Public Libraries in New Orleans Metro Area by Parish
	Table 45: Status of New Orleans Police Department Infrastructure
	Table 46: Status of FEMA Public Assistance Grants for Louisiana by Parish
Recovery of New Orleans by Neighborhood	Table 47: Recovery Rate of Residential Addresses Actively Receiving Mail in Orleans Parish by Planning District
	Table 48: Residential Addresses Actively Receiving Mail in Orleans Parish by Planning District
	Table 49: Unoccupied Residential Addresses in Orleans Parish by Planning District, March 2009
	Table 50: New Residential Construction in Orleans Parish by Planning District
	Table 51: Residential Demolitions in Orleans Parish by Planning District
	Table 52: Road Home Closings in Orleans Parish by Planning District, June 2009
	Table 53: Total Employment Located in Orleans Parish by Planning District
	Table 54: Total Employment Located in Orleans Parish by Planning District, by Industry
	Table 55: Total Employment Located in Orleans Parish by Target Zone
	Table 56: Recovery Rate of Residential Addresses Actively Receiving Mail in Orleans Parish by Neighborhood

The New Orleans Index, has not been a rigid series of documents, but has changed in many ways since its first publication in December 2005; its frequency of publication, indicators, authors, format, accompanying products, and even its name have changed over time. In January 2007, the Greater New Orleans Community Data Center (The Data Center), a local non-profit with data expertise, began collaborating with Brookings

Institution on the *Index*. From December 2005 to June 2007, the *Index* was published on a monthly basis with few exceptions. The release of the second anniversary edition marked a transition to a quarterly publication and a name change from *The Katrina Index* to *The New Orleans Index*. In August 2008 a semi-annual publication schedule was adopted and in August 2009 the *Index* became an annual publication. The fourth anniversary edition, published in August 2009 included several new types of data and maps, including a map of population recovery indicators for all 76 New Orleans neighborhoods. This data was also made available at an even finer geographic grain via an interactive mapping system on The Data Center's website. The fifth anniversary edition published in August 2010 focused in on just 20 indicators organized into four sections: economic growth, inclusion, quality of life, and sustainability. In addition to tracking recovery over the past five years, this edition compared the post-Katrina recovery trends to pre-Katrina trends going back to 1980. Different geographies were used for presenting data including: parishes, the 7-parish, an average of the 57 "weak city" metros considered New Orleans metro's peers, and the nation. This edition was accompanied by a series of seven essays written by leading local scholars and practitioners that aimed to systematically document major post-Katrina reforms. The sixth anniversary edition the *Index* was released along with *Resilience and Opportunity: Lessons from the U.S. Gulf Coast after Katrina and Rita*, a book put out by Brookings Institution Press that built upon the essays released with the previous edition, along with several additional essays covering an even wider array of post-Katrina reforms. The fifth, sixth, and eighth editions of the *Index* were also accompanied by YouTube videos

highlighting key trends in the data. The table below details some of these changes to the *Index* that occurred over time.

Table 2. Changes in *The Katrina Index* / *The New Orleans Index* over time

Year	Month	Ed.	Notes on changes
2005	Dec	1	Brookings begins publishing *The Katrina Index*. The full report includes about 40 indicators, accompanied by a 2-3 page executive summary.
2006	Jan	2	
	Feb	3	
	Mar	4	
	Apr	5	
	May	6	
	Jun	7	
	Jul	8	
	Aug	9	At 16 pages, this **first anniversary** special edition of *The Katrina Index* is much shorter than the others published since Dec. 2005. It included a variety of graphs and was not accompanied by an executive summary or data tables.
	Oct	10	*The Katrina Index* resumed its initial format with about 40 indicators, accompanied by a 2-3 page executive summary.
	Nov	11	
	Dec	12	
2007	Jan	13	The Data Center began formally collaborating with Brookings on *The Katrina Index*.
	Feb	14	
	Mar	15	
	Apr	16	The geographic focus of the *The Katrina Index* became the City of New Orleans and the surrounding parishes, with data for Louisiana wherever possible. Mississippi was no longer included within the geographic scope. The recovery indicators were streamlined and organized into new categories: housing, population, services and infrastructure, economy, and emergency response. Indicator data was mapped to highlight the differences in recovery by geography. The indicator analysis was bolstered by local insights provided by The Data Center.
	May	17	
	Jun	18	

	Aug	19	For the **second anniversary** edition the name was changed from *The Katrina Index* to *The New Orleans Index* with the goal of shifting the emphasis away from hurricane recovery to the rebuilding of a great American city. New indicators were added and other indicators were eliminated as the authors learned more about the data sources available and the needs of their readers. A new section tracking programmatic response to rebuilding efforts including data on the availability of key public services, programs and infrastructure was added. Data was provided for the key neighborhoods and commercial corridors targeted for redevelopment by the City of New Orleans' Office of Recovery Management.
	Nov	20	"At a glance" graphical representations were added, highlighting a small number of high level indicators to direct attention to particularly important trends.
2008	Jan	21	
	Apr	22	
	Aug	23	The **third anniversary** edition of the *Index* included more than fifty indicators, and presented many key indicators by planning districts. There are 13 planning districts in New Orleans and these sub-divisions were used in the development of the Unified New Orleans Plan. This version of the *Index* also included data from the United States Postal Service to estimate population recovery, population distribution and unoccupied housing. Another addition was data from the Army Corps of Engineers on their completed and projected work to reduce flood risk in New Orleans.
2009	Feb	24	This edition included outcome data from the Road Home program (the federally program that offered residents in flooded areas a grant to rebuild or the opportunity to sell their property to the state and move elsewhere) and residential demolitions by planning district. It also included a map of the last 77 years of wetland loss in South Eastern Louisiana. To accompany this report, The Data Center released its first 10 minute briefing on New Orleans recovery, which presented the findings in a popular online video format.
	Aug	25	The **fourth anniversary** edition included several new types of data and maps. For example, it included population recovery indicators for all 76 neighborhoods in the city of New Orleans. This data was also made available at an even finer geographic grain via an interactive mapping system on The Data Center's website.

2010	Aug	26	The **fifth anniversary** edition was titled *The New Orleans Index at Five: Measuring Greater New Orleans' Progress toward Prosperity*. The revamped *Index* focused in on 20 indicators organized into four sections: economy, inclusion, quality of life, and sustainability. In addition to tracking recovery over the past five years, this edition compared the post-Katrina recovery trends to pre-Katrina trends going back to 1980 whenever possible. Different geographies were used for presenting data including: parishes, the 7-parish metro, and the 10-parish area. This edition also includes comparisons to national data and the 57 "weak city" metros considered New Orleans metro's peers. *The New Orleans Index at Five* was accompanied by a series of seven essays written by leading local scholars and practitioners. These essays aimed to systematically document major post-Katrina reforms.
2011	Aug	26	Instead of being accompanied by a series of seven essays like the previous edition, the **sixth anniversary** edition, *The New Orleans Index at Six* was released along with a *Resilience and Opportunity: Lessons from the U.S. Gulf Coast after Katrina and Rita*, a book put out by Brookings Institution Press. The book built upon the essays released with *The New Orleans at Five* with several additional essays covering an even wider array of post-Katrina reforms.
2013	Aug	14	The **eighth anniversary** edition, *The New Orleans Index at Eight*, included comparisons to "aspirational metros" and new data on minority owned businesses, educational attainment by race/ethnicity and sex, jail incarceration rates, youth investment, bike pathways and ground water salinity.

1.1.2. Complex Adaptive Systems Theory

Several concepts from complex adaptive systems theory are particularly useful for this investigation of *The New Orleans Index*. Complex adaptive systems are systems comprised of multiple interconnected agents that interact based on a set of local rules. These systems are adaptive in that their agents also have the ability to adapt (or mutate) to their environment in ways that are advantageous. Adaptive agents are both influenced by their environment and each other and vice versa. As a result of these interconnections and interactions, complex adaptive systems exhibit patterns of self-organization, and nonlinear, unpredictable change or emergence. Complexity concepts have been applied to topics as diverse as weather patterns, flocking birds, the evolution of species, ant nests, stock markets, economic development, organizations, education and health care systems, ethnic violence, and, as is the case with this research, disaster recovery.

Complex adaptive systems are made up of elements, levels, dimensions, and sub-systems that are interconnected and interdependent on each other and the wider environment. In a human society, for instance, the various levels of the complex adaptive system can include nested geographic hierarchies, like neighborhoods, cities, states, countries. The various dimensions of society can include social, cultural, physical, technical, economic and political dimensions (Mittleton-Kelly, 2003), or sectors like housing, education, economy, and health. There is also the private, public, non-profit dimension.

In complex adaptive systems, agents perceive information and signals about their environment through their senses and use it to adapt their strategies to meet their goals.

For example, in systems made up humans, the humans are sentient agents with the power of cognition. Because these agents simultaneously send signals to each other and receive signals from each other, they produce a large number of signals that the agents must sift through. As agents process and act on the information they take in, their actions impact other agents and their environment producing new signals and conveying information to other parts of the system. In an immune system "…antibodies counteract invading cells through a complicated exchange of proteins which are signals or "…for markets, the agents are buyers and sellers and the signals are bids."

This begs the question - how do people in a complex adaptive recovery system use information after disasters? First, information plays a crucial role in an agent's ability to orient themselves in a drastically different environment and effectively adapt. Agents also need information during the rebuilding process to help them make the most of the limited resources they have available to them. Second, information plays an important role in an agent's ability to work with others following a disaster. Following a disaster, agents may have very different goals or prioritize their goals differently, which can lead to the conflict that tends to characterize recoveries. However, information helps agents to develop a common operating picture and a shared vision for both the problem confronting the community and the goal for action. One manifestation of cooperation is the establishment of new partnerships between agents. Third, information helps agents accurately assess need, which is one of the first steps to innovation. According to the literature, one of the key factors preventing the establishment of innovative measures following disasters was a lack of accurate information resulting in an underestimation of

the long-term damage caused by the disaster. In complex adaptive systems, innovation is driven by adaptation that arises from the continual testing and rearranging of elements of the system and interactions between the different agents. Another key aspect of innovation is that they "…rarely happen in a vacuum. They are usually made possible by other innovations being already in place" (Waldrop, 1992, p.119). For this reason, networks of innovation can grow in a rapid and unpredictable manner. If information in complex adaptive recovery systems can help agents adapt, collaborate with others, and innovate, to what extent are disaster recovery indicator used in these ways and what impact do they have on the work of recovery leaders?

1.2. Purpose

The purpose of this dissertation is to examine the dissemination, use, and impact of a disaster recovery indicators project (*The New Orleans Index*[1]) in New Orleans after Hurricane Katrina from a complex adaptive systems perspective.

This study will address the following research questions:

1. **Dissemination** - How and to what extent was *The New Orleans Index* disseminated?
2. **Use** – How was the *Index* used and to what extent was it used in ways associated with complex adaptive systems theory?

[1] Please note, *The New Orleans Index* is a set of disaster recovery indicators (a set of quantitative metrics that measure recovery), NOT an "index" in the sense of a composite score or summary measure like the *Index of Economic Freedom* or the *Human Development Index*.

3. **Impact on work** – How do recovery leaders who used the *Index* report that it impacted their work?
4. **Impact on larger system** – How do recovery leaders who use the *Index* report that it impacted the larger system?
5. **Most useful aspects -** What aspects of the *Index* were reported as most useful by recovery leaders who used it?
6. **Barriers and challenges -** What barriers and challenges to using the *Index* were reported by recovery leaders who used it?

This study will employ a case study design and include the following components:

1. **Archival data collection** – Archival data was collected including actual copies of the *Index* and associated products, grant reports, internal media mention reports, web stats, and media articles, academic articles and government publications retrieved from accessible databases.
2. **Focus Groups** – A series of segmented focus groups, accompanied by a pre-focus group survey, were used to collect qualitative data on the research questions from disaster recovery leaders who are known users of the *Index*.
3. **Survey** – A survey was sent to potential users of the *Index* to collect quantitative data on the research questions.
4. **Key Informant Interviews -** Interviews were conducted with four people involved with the creation and dissemination of the *Index* throughout much of its lifespan.

1.3. Significance

The significance of this study results from the following three features. First, this study addresses the research gap on the use and perceived impact of disaster recovery indicators. The current literature on disaster recovery indicators focuses on such topics as the development of standardized indicators (Brown *et al*., 2010; Brown *et al*., 2008), which indicators agents use to monitor recovery (Platt, 2008), and barriers to use of recovery indicators (UNDP *et al*., 2009), rather than how the indicators are used and their perceived impact. This study addresses this gap by examining how agents used a set of disaster recovery indicators (*The New Orleans Index*[2]) and the perceived impact on leaders in the recovery. Second, this study incorporates complex adaptive systems concepts into an examination of the use of recovery indicators following a disaster. These concepts provide insight into the dynamic, nonlinear behavior of the disaster recovery system that emerged following Hurricane Katrina and the role disaster recovery indicators can play in 'harnessing complexity,' to use a phrase borrowed from Axelrod and Cohen (2001), and tipping the system toward a path to recovery. Third, this study generates recommendations for those undertaking recovery indicator projects in the future. This is important, because as the number of disasters and the amount of information available to recovery agents continue to grow, so will the need for indicators that drive action and impact the disaster recovery systems in a positive way.

1.4. Overview of Chapters

[2] Please note, *The New Orleans Index* is a set of disaster recovery indicators (a set of quantitative metrics that measure recovery), NOT an "index" in the sense of a composite score or summary measure like the *Index of Economic Freedom* or the *Human Development Index*.

This dissertation presents findings and analysis from a rich, descriptive case study of the use and impact of *The New Orleans Index*, a disaster recovery indicator project created after Hurricane Katrina, from a complex adaptive system perspective. It is organized into ten chapters:

- Chapter 1 introduces *The New Orleans Index* and complex adaptive systems, as well as the purpose and significance of this research.
- Chapter 2 presents the relevant literature on disaster recovery indicators, complex adaptive systems, disaster recovery, and information and signals.
- Chapter 3 presents the conceptual framework.
- Chapter 4 presents the research questions, the study design and research methods.
- Chapter 5 presents the findings from the archival data collection.
- Chapter 6 presents the findings from the focus groups.
- Chapter 7 presents the findings from the survey.
- Chapter 8 presents the findings from the key informant interviews.
- Chapter 9 integrates the findings from the archival data, focus groups, survey and key informant interviews for each of the research questions.
- Chapter 10 presents the relevant implications from my research and recommendations for future research.

Chapter 2. Literature Review

This section will focus on the literature on Disaster Recovery Indicators, Complex Adaptive Systems, Disaster Recovery as a Complex Adaptive System, and Information and Signals in Disaster Recovery as a Complex Adaptive Disaster Recovery System.

2.1. Disaster Recovery Indicators

Disaster recovery indicators are defined as a set of quantitative metrics that measure recovery (Chang, 2010; Brown *et al*., 2010; Brown *et al*., 2008; The Sphere Project, 2011). These statistical indicators provide an important complement to approaches such as surveys, case studies and computer modelling (Chang, 2010). The literature proposes a number of uses for disaster recovery indicators. Chang (2010, p. 307) writes that indicators can be used to make comparisons across different disaster events and within a specific disaster event, in order to "… develop a knowledge base, test hypotheses, validate models and inform policy." The United States' National Disaster Recovery Framework notes that indicators can help agents adjust their recovery strategies and set realistic expectations for recovery (FEMA, 2011, p. 16-17). According to The Sphere Project (2011), indicators can serve as 'signals' that indicate progress toward minimum standards for recovery. Brown *et al*., (2010, p. 5) claim indicators can also improve "coordination, situational understanding and decision-making." Although these studies and reports make claims about how disaster recovery indicators can be used, they fail to provide evidence for how disaster recovery indicators have actually been used and

neglect to explore the perceived impact of these indicators on the work of disaster recovery leaders. This study aims to start building the evidence base on the use and impact of disaster recovery indicators on the work of disaster recovery leaders.

2.2. Complex Adaptive Systems

The term 'complexity science' is still so new it is difficult to define (Waldrop, 1992; Mitchel, 2009) and some would argue that there is no overarching "science" or theory of complexity that is universally accepted across disciplines (Nunn, 2007). That being said, a set of commonly recognized complexity concepts have emerged over the last several decades, drawing from several, previously existing theories including holism, cybernetics, general systems theory, catastrophe theory, and chaos theory. Complexity science looks at the common patterns of behavior amongst complex systems across many fields of science, including physics, biology, medicine, economics, and organization studies. Across these areas, complexity science aims to provide a better understanding of systems that undergo sudden, unexpected or disorderly change or the emergence of novelty within systems. Complexity science focuses on "…how relationships between parts give rise to the collective behaviors of a system and how the system interacts and forms relationships with its environment" (Bar-Yam 1997). Complexity science has been applied to topics as diverse as weather patterns (Lorenz, 1972), flocking birds (Reynolds, 1987), stock markets (Holland, 1995), the evolution of species (Waldrop, 1992), economic development (Rihani, 2002), ant nests (Hofstadter, 1972), and organizations (Axelrod & Cohen, 2001), as well as education systems, health care systems and ethnic violence (Bar-Yam, 2004).

The idea of ‘complex adaptive systems’ is central to complexity science. The term ‘complex system’ is used to describe a system made up of numerous parts or agents that interact in numerous ways. Waldrop (1992) writes: “Think of a quadrillion of proteins, lipids, and nucleic acids that make up the brain, or the millions of mutually interdependent individuals that make up society” (p.11). In a complex system, the components behave based on a set of local rules, but their interactions have nonlinear effects on the system. This sets complex systems apart from ‘complicated systems,’ which also have many parts behaving according to rules but maintain a linear course of action. ‘Complex adaptive systems’ are a sub-category of complex systems that display one additional characteristic: they adapt as the result of being made up of adaptive agents that mutate in response to changes in their environment, including mutations in other agents. Examples of this adaptive quality include the human brain rearranging neural connections to learn from experience, the evolution of species or industries, and markets responding to changing tastes, price shifts and other factors (Waldrop, 1992). While the literature on complex adaptive systems provides a solid understanding of how agents and systems at the macro level use information in general (See Section 3.1), much less is known about the specifics of how information is used in disaster recovery (See Section 3.2). The aim of this study is to build on what is already known about information use in complex adaptive systems by applying it to a specific case of disaster recovery indicators.

2.3. Disaster Recovery

Concepts from the literature on complex adaptive systems have been applied to disaster response and recovery, as well as a variety of related fields including: city

planning (Roo and Silva, 2010; Innes and Booher, 2010), community development (Gilchrist, 2009; Sinclair, 2011), international development (Chambers, 1997; Rihani, 2002; Rihani, 2005), and the broader social sciences (Bar-Yam, 2004; Byrne, 1998; Axelrod, 1997; Harvey, 2001; Hemelrijk, 2005; Jervis, 1997; Marion, 1999; Ormerod, 1998; Urry, 2003). Comfort *et al.* (2010) describe the application of a complex adaptive systems perspective to the study of disaster recovery in the following way:

> The tasks of recovery can be viewed as generating a complex system of interacting jurisdictions, public agencies, private and nonprofit organizations, and households that are engaged in a shared effort to rebuild a community following disaster….The process is dynamic, as interactions among actors at any one point may facilitate or hinder possible actions of other actors at the next point of decision.

Comfort (2006) also approaches recovery from a complex adaptive systems perspective, taking into account the following key complexity concepts: sensitivity to initial conditions, interconnected and interdependent systems, and self-organization. She goes on to suggest that urban policy makers must "harness complexity," to borrow a term from Axelrod and Cohen (2001), and guide the system as a whole toward recovery. Much of the application of complex adaptive systems concepts to disaster recovery has focused on the role of crisis management and the role of leaders within the government and non-governmental organizations involved in disaster response (Bolton and Stolcis, 2008; von Lubitz et al 2008). Much less has been written on the role of individual households and business decisions from a complex adaptive systems framework, with the exception of Chamlee-Wright (2010). This study aims to build on the literature on the role of leaders in complex adaptive disaster recovery systems, but also to move beyond that to examine the dynamics of individual households and businesses making recovery decisions.

2.4. Information and Signals

In "Shared Risk: Complex Systems in Seismic Response" (1999), Louise Comfort examines the role that information plays in the disaster response system in eleven communities following major earthquakes through a comparative case study. Drawing on the complex adaptive systems literature (Prigogine & Stengers, 1984; Kauffman, 1993; Gell-Mann, 1994; Simon, 1981), Comfort describes the role of information in the disaster response system similarly to how the literature on complex adaptive systems describes it (See Section 3.1.4 for more on the role of information and signals in complex adaptive systems):

> This continuing dialogue between the system and its wider environment involves the search, analysis, and dissemination of information to support action. Incoming information enables the system to exercise discretionary choices, adapting its performance through internal choices based on capability, goals, preference, and opportunity rather than relying on external sources for direction or control (Comfort, 1999, p. 21).

Comfort (1999) makes the case that disasters cause policy problems characterized by interdependence, nonlinear dynamics and unpredictability (also key characteristics of complex adaptive systems). While not all complex adaptive systems are coordination problems, disasters definitely are, and they require cooperation and collective action in order to be resolved.

Utilizing on-site field observations, a review of archival records, semi-structured interviews with key decision-makers, and an analysis of news reports for three weeks following each earthquake, Comfort's (1999) study yielded three key findings about the role of information in disaster response systems. First, Comfort found that information exchange is "…critical to the ability of practicing policy makers and response personnel

to adapt the balance between structure and flexibility in their operations to meet the changing needs of a dynamic disaster environment" (Comfort, 1999, p. 274). Second, Comfort found that coordination between organizations requires two kinds of information: "…accurate assessment of both vulnerabilities and resources in their existing communities prior to the earthquake...[and] real-time information disseminated simultaneously to relevant participants in the policy and response process" (Comfort, 1999, p. 274). Third, Comfort found that the structuring information exchange to maximize adaptive performance "…can only be accomplished effectively by the thoughtful design of sociotechnical systems." In short, Comfort (1999) found that information enables agents to adapt their performance and coordinate across organizations to improve their performance following a disaster.

Several other studies build on Comfort's (1999) study and further demonstrate that information enables agents to adapt their performance and coordinate across organizations to improve their performance following a disaster (Comfort, 2001; Comfort, 2002; Comfort *et al*, 2004; Comfort 2007; Comfort *et al*, 2010; Sylves & Comfort 2012). Comfort (2007) is of particular interest because it describes the importance of common indicator information that is gathered, analyzed, and then redistributed for building a "common operating picture" amongst disaster recovery agents. Comfort *et al* (2010) is also of particular interest because it examines disaster recovery, as opposed to the disaster response phase, following Hurricane Katrina. The authors find that the free flow of information necessary for reallocation of roles, responsibilities and resources, and the adaptation to changing risk among households,

organizations, and jurisdictions. They also find that the free flow of information following Katrina was hindered by "…hidden barriers to communication that stem from cultural biases, established organizational protocols, and lack of technical skills" (Comfort *et al*, 2010, p.673).

In her study of the cultural and political economy of recovery following Hurricane Katrina, Chamlee-Wright (2010) examines the role of information by looking at the role of signals that convey information and their impact on the rate and final repopulation level following a disaster. Chamlee-Wright identifies three key non-priced signals that can spur return. First, mutual assistance (the exchange of labor, expertise, child care services, equipment, etc. among returnees following a disaster) is a signal that people are committed to the recovery and that the social fabric of the community is being rebuilt. Therefore, mutual assistance signals to others that they should return as well. Similarly, commercial activity and the rebuilding of community resources can signal commitment from economic and government powers to rebuilding and signal that the area is rebounding. Chamlee-Wright also identifies several signals that could deter people from returning following a disaster, including confusing policies (as was the case with FEMA policies following Hurricane Katrina) and regime uncertainty (the idea that the rules of the game could change at any moment). Additionally, Chamlee-Wright writes about "signal noise" or conflicting signals, which can prevent effective adaptation and coordination. Having a single, reliable, trusted source of information can be key to reducing signal noise.

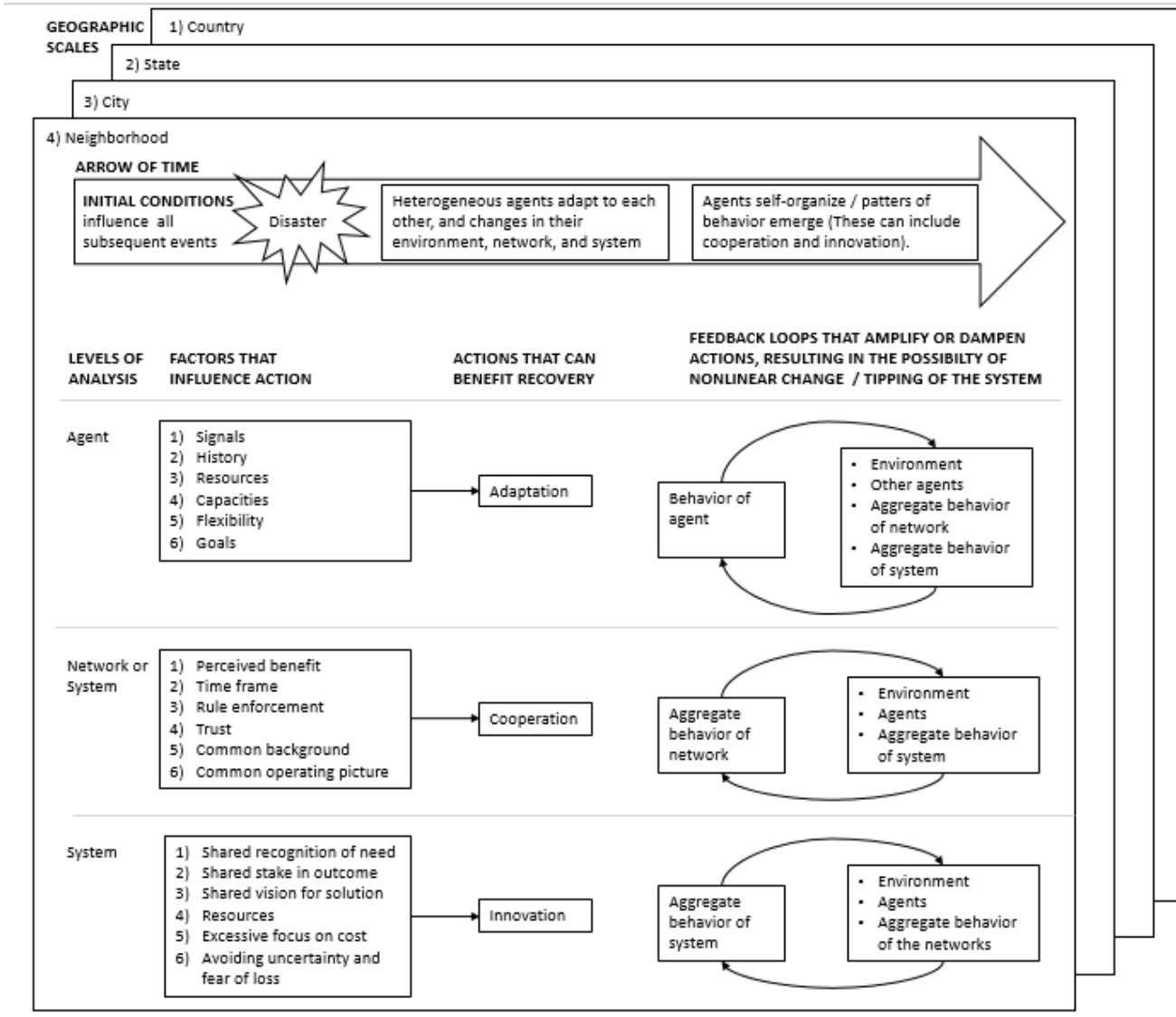
In summary, the literature reveals that information enables agents to adapt their performance and coordinate across organizations to improve their performance following a disaster (Comfort, 1999; Comfort, 2002; Comfort *et al*, 2001; Comfort *et al*, 2004; Comfort 2007; Comfort *et al* 2010; Sylves & Comfort 2012) and that information, conveyed via signals, influences the decisions of individual households and businesses and impacts recovery (Chamlee-Wright, 2010). However, little is known about how a set of disaster recovery indicators could influence adaptation and coordination or serve as signals to the individual households and businesses deciding whether or not to return following a disaster. This study aims to build on the literature on information use following disasters, as well as the general literature on information use in complex adaptive systems (See Chapter 3), by examining whether or not *The New Orleans Index* influenced adaptation and coordination among leaders and served as a signal to individual households and businesses.

Chapter 3. Conceptual Framework

3.1. Concepts from Complex Adaptive Systems

The Conceptual Framework for this study includes the following key attributes of the disaster recovery system from the perspective of complex adaptive systems: 1) Nested Hierarchies, 2) Sensitivity to Initial Conditions, 3) Adaptive Agents, 4) Information and Signals, 5) Feedback, 6) Self-Organization and Emergence, 7) Innovation, and 8) Cooperation. The Conceptual Model below illustrates the relationships between the key attributes of the disaster recovery system as a complex adaptive system.

Figure 1. Conceptual Model



Note: At the agent level, "adaptation" refers to action of adapting, mutating, ideating or innovating and "flexibility" refers to the capacity to adapt, mutate, ideate, or innovate.

3.1.1. Nested Hierarchies

Disaster recovery systems are made up of elements, levels, dimensions, and sub-systems that are interconnected and interdependent of each other and the wider environment. The various levels of a disaster recovery system can include nested

geographic hierarchies, like neighborhoods, cities, states, countries. The various dimensions of a disaster recovery system can include social, cultural, physical, technical, economic and political dimensions (Mittleton-Kelly, 2003). Interconnections can occur "…between individual elements of a system, between sub-systems, among systems, between different levels of a system, between systems and environments, between ideas, between actions, and between intentions and actions" (Weick, 1976). These interconnections lead to interdependence between the systems' elements and result in the complex behavior of the overall system.

3.1.2. Sensitivity to Initial Conditions

Disaster recovery systems display a *sensitivity to the initial conditions* within the system (Priogine and Stengers, 1984; Kauffman, 1993). Sensitivity to initial conditions is the result of the interdependence of the nested hierarchies and heterogeneous elements that make up the complex adaptive system. Meteorologist, Edward Lorenz explained how seemingly insignificant differences in initial weather conditions can set off a chain of events that lead to a completely different weather pattern; for instance, the flap of a butterfly wing in Brazil setting off a tornado in Texas (Lorenz, 1972). Sensitivity to initial conditions coupled with nonlinear change that occurs in disaster recovery systems makes it impossible to predict the path the system will take or the magnitude of the change that a minor change in an initial state will produce in a later state.

3.1.3. Adaptive Agents

Adaptive agents within a disaster recovery system use information about their dynamic environment to adapt their strategies to meet their goals. Adaptive agents are

heterogeneous and include both the people and organizations that make up the system. They are goal directed, have information-processing and decision-making capabilities, are able to anticipate the future, and are capable of abstract self-reflection (Waldrop, 1992). Adaptive agents are embedded in an environment that includes all of the elements of the system around them, not just the physical environment (Waldrop, 1992). A key feature of adaptive agents is that they can physically perceive the environment around them and adjust their performance, resources and skills to these changing conditions in order to meet their goals (Luhman, 1989; Comfort, 2007). According to Axelrod & Cohen (2000), "For a system to exhibit adaptation that enhances survival (or another measure of success), it must increase the likelihood of effective strategies and reduce the likelihood of ineffective strategies" (p.19). Thus, adaptive agents are both dynamically influenced by their environment and dynamically influence it.

It is important to note that an adaptive agent's perceptions of their environment are not necessarily complete or accurate and can be influenced by several factors. First, an agent's perception can be influenced by their location within the system (Axelrod & Cohen, 2000). Different agents will have access to different information about their shared environment depending on their vantage point within the system. Second, an agent's perception can be influenced by their memory (Axelrod & Cohen, 2000). The impressions that an agent carries forward from its past influence the lens through which that agent perceives the current environment. Third, an agent may not know if a particular action will be an advantage or not, due to the emergent nature of the system. if agents knew with certain the results of their actions, the system might be complicated and

adaptive, but not complex and adaptive. In short, while an agent cannot predict the impact of their actions, the agent's history and location within the system impacts their perceptions of the situation and thus their actions.

3.1.4. Information and Signals

Agents perceive information and signals from their environment and other agents through their senses (Holland, 1996; Gell-Mann, 1994). They then filter or condense the information, incorporate it into their mental model (Holland, 1996) or schema (Gell-Mann, 1994) and act on that mental model or schema. Because agents within a disaster recovery system simultaneously send signals to each other and receive signals from each other, they produce a large number of signals that the agents must sift through (Holland, 2006). Examples of agents and signals in complex adaptive systems include the following: in an immune system "…antibodies act as agents counteracting invading cells (antigens) through a complicated exchange of signals (proteins)" and "…for markets, the agents are buyers and sellers and the signals are bids" (Holland, 2012, p.27). As agents process and act on the information they take in, their actions impact other agents and their environment producing new signals and conveying information to other parts of the system (Holland, 1996; Gell-Mann, 1994).

Mitchel (2009) offers a systems-level definition of information processing:

> …when I talk about information processing in these systems I am referring not to the actions of individual components such as cells, ants, or enzymes, but to the collective action of large groups of these components. Framed in this way, information is not, as in a traditional computer, precisely or statically located in any particular place in the system. Instead it takes the form of statistics and dynamics of patterns over the system's components (p.180).

Mitchel goes on to identify several attributes of information processing in complex adaptive systems. First, information processing involves spatial and temporal sampling, since no one agent can perceive the whole system at once. For instance, ants can pick up a different sample of pheromone signals and have a different sample of interactions with other ants depending and their timing and location within the system. Second, information processing is often random and probabilistic, beginning with a series of random searches for signals. Third, because complex adaptive systems are made up of a large number of parts exploring in parallel and providing feedback to one another, information processing allows the system to continuously adapt based on the information it obtains. Finally, information processing involves "… a continual interplay of unfocused random explorations and focused actions driven by the systems perceived needs…the system both explores to obtain information and exploits that information to successfully adapt" (Mitchel, 2009, p.182). Both the agent-level view (Holland, 1996; Gell-Mann, 1994) and systems-level view (Mitchel, 2009) of information processing are important to understanding the spread of innovation in complex adaptive systems. As agents adopt novel, learnable behaviors that are successful, the success of those behaviors is itself a signal that contributes to other agents adopting the same behavior.

3.1.5. Feedback

The cycle of agents sending and receiving information and signals and adapting their actions discussed in the previous section is referred to as *feedback*. Advantageous actions are reinforced by the feedback loop. Feedback impacts the individual level, but also the network level and systems level patterns of change that occur within a complex adaptive

system. Feedback processes both promote and inhibit change within complex adaptive systems. Feedback processes can be viewed as iterative patterns of communication that allow actors to coordinate action and adjust to changes in the system (Nicolis and Prigogine, 1989). Because of feedback processes, a change in one element or relationship alters another, which in turn affects the original element or relationship (Jervis, 1997). In simple systems feedback loops play out in linear ways and are often associated with controlling the system. In complex systems, on the other hand, feedback processes contribute to the nonlinear change that takes place in the system over time (Byrne, 1998).

There are two main types of feedback: damping and amplifying. Damping feedback occurs when change within a system is inhibited while amplifying feedback occurs when the change is reinforced (Byrne, 1998; Jervis, 1997; Maruyama, 1968). One example of damping feedback is social norms working to enforce the social status quo, while one example of amplifying feedback is "…the multiplier and accelerator effects in the Keynesian account of economic cycles" (Byrne, 1998, p.172). Neither type of feedback is inherently beneficial or harmful, but both play a major role in the nonlinear patterns of change that occur within a complex adaptive system at the individual, network and, ultimately, macro system level.

3.1.6. Self-Organization and Emergence

As adaptive agents use information about their dynamic environment to adapt their strategies to meet their goals and feedback loops play their amplifying or damping roles, the agents begin to spontaneously coordinate their actions or *self-organize,* resulting in the *emergence* of new patterns of behavior at the larger systems level. One key

characteristic of self-organization is that it is not imposed from the top down, but emerges from the adaptive tendencies of the individual agents (Marion, 1999). Another important characteristic of self-organization, is that it is nonlinear in that the emergent pattern of behavior is more than the sum of its parts (Holland, 1998). Waldrop (1992) describes this process of self-organization as "…groups of agents seeking mutual accommodation and self-consistency [that] somehow manage to transcend themselves, acquiring collective properties such as life, thought, and purpose that they might never have possessed individually" (p. 11). The economy is an example of a complex adaptive system in which adaptive agents self-organize; when agents have access to information/signals about aspects of their environment like demand for labor and demand for goods and services, coupled with the freedom to act, they automatically begin to align their behaviors and the system level pattern of behavior that emerges is a demonstration of self-organization (Waldrop, 1992). Another, commonly cited example of emergence is the flocking behavior of birds, in which the individual but interconnected behavior of the birds results in a larger, more ordered pattern of action.

3.1.7. Innovation

Innovation is one example of emergent behavior that can result from adaptation within a disaster recovery system. According to Holland (2012), "Innovation is a regular feature of complex adaptive systems." (p.58). Innovation results from adaptations that occur across the system as the result of agents testing different recombination of the 'building blocks' that make up the system (Waldrop, 1992; Holland 2012). Innovation is driven by interactions and linkages between heterogeneous agents (Axelrod &Cohen

2000). Another key aspect of innovation is that they "…rarely happen in a vacuum. They are usually made possible by other innovations being already in place"(Waldrop, 1992, p.119). For this reason, networks of innovation can grow in a rapid and unpredictable manner. Information or signals contribute to the propogation of innovations throughout the system: as agents see a novel, learnable behavior that is succesful, they may choose to adopt it as well.

3.1.8. Cooperation

Cooperation is another example of emergent behavior caused by self-organization within a disaster recovery system. In his seminal work "The Evolution of Cooperation" (1994), Robert Axelrod builds a framework for the emergence of cooperation in complex adaptive systems that is broad enough to encompass systems of people but also nations and bacteria. Axelrod's model is based on the classic Prisoner's Dilemma and explains cooperation as the consequence of a series of individual choices made by agents pursuing their own self-interest. The necessary conditions for cooperation to emerge are very few. First, agents must have the capacity to recognize another agent they have dealt with before and recall their prior interactions at a very basic level as bacteria would. Second, agents must have a substantial chance of meeting again and perceive their interactions as having some significance. An example of this would be soldiers participating in trench warfare during World War I who would face the same enemy soldiers day after day. When the necessary conditions for cooperation were met, soldiers would adopt a strategy of "live and let live" or purposefully missing when shooting at each other (Axelrod, 1994). Third, the system must contain a small cluster of agents who are willing to

cooperate and will respond to other agents differently based on whether or not they cooperate, and these agents must have at least a small proportion of their total interactions with each other (Axelrod, 1994). When these three simple conditions are met (and the cooperative strategy is advantageous), cooperative behavior can emerge and thrive within a system where many competing strategies are being used. One important caveat is that Axelrod's (1994) definition of cooperation does not discriminate between positive and negative forms of cooperation. For instance, corruption would be considered a form of cooperation.

3.2. Theory Development

3.2.1. Situational Awareness

Agents need information following a disaster to orient themselves in a drastically different environment and throughout the disaster recovery process as sudden, drastic changes occur (Comfort, 1999; Gell-Mann, 1994). This suggests the following hypothesis about the use of *The New Orleans Index:*

- Hypothesis 1. The *Index* was used by recovery leaders to better understand what was happening in New Orleans after Hurricane Katrina.
- Hypothesis 5. Recovery leaders reported that the *Index* allowed them to get a basic understanding of what was going on so that they could move forward with their work.

3.2.2 Adaptation

Information plays a crucial role in an agent's ability to effectively adapt in a post-disaster environment (Comfort, 1999; Comfort, 2002; Comfort *et al*, 2004; Comfort

2007; Comfort *et al*, 2010; Sylves and Comfort 2012). Agents also need information during the rebuilding process to help them make the most of the limited resources they have available to them (Comfort, 1999). This suggests the following hypothesis about the use of *The New Orleans Index:*

- Hypothesis 2. The *Index* was used by recovery leaders to identify needs and adapt their priorities and strategies accordingly.
- Hypothesis 6. Recovery leaders reported that the *Index* allowed them to think more innovatively about challenges in the recovery

3.2.3. Cooperation

Information plays an important role in an agent's ability to work with others following a disaster (Comfort, 1999; Comfort, 2002; Comfort *et al*, 2004; Comfort, 2007; Comfort *et al*, 2010; Sylves and Comfort, 2012). Following a disaster, agents may have very different goals or prioritize their goals differently, which can lead to the conflict that tends to characterize recoveries (Haas, Kates & Bowden, 1977). However, information can help agents to develop a common operating picture and a shared vision for both the problem confronting the community and the goal for action (Simon, 1981; Comfort, 2007). According to the complex adaptive systems literature, information exchange is a basic requirement for the process of inter-organizational learning that is necessary for working together and solving difficult problems like those experienced by communities following disasters (Comfort, 1999; Weick, 1995; Gell-Mann, 1994). One manifestation of this increased inter-organizational learning is the establishment of new partnerships

across individuals, organizations and systems. This suggests the following hypothesis about the use of *The New Orleans Index:*

- Hypothesis 3. The *Index* was used by recovery leaders as a common reference and to get on the same page with others.
- Hypothesis 7. Recovery leaders reported that the *Index* allowed them to communicate and collaborate more effectively.

3.2.4. Emergence of New Structure and Investments

Information helps agents accurately assess need, which is one of the first steps to innovation (Kendra & Wachtendorf, 2007). Comfort (1999) found that one of the key factors preventing the establishment of innovative measures following disasters was a lack of accurate information "…resulting in an underestimation of the long-term damage incurred from the disaster in terms of the continuing social and economic development..." *The New Orleans Index* provided a frequently updated source of data that spoke to both the damage incurred by Katrina as well as the varying levels of progress being made in different areas. This suggests the following hypothesis about the use of *The New Orleans Index:*

- Hypothesis 4. The *Index* was used by recovery leaders to make the case for new investments, policies, and programs.
- Hypothesis 8. Recovery leaders reported that the *Index* allowed them to secure funding, influence policy, and create new programs.

3.2.5. Feedback Loops

Feedback processes both promote and inhibit change within complex adaptive systems. In simple systems, feedback loops play out in linear ways and are often associated with regulating the system. In complex systems, on the other hand, feedback processes contribute to the nonlinear change that takes place in the system over time (Byrne, 1998). The findings from the focus groups (Chapter 6) suggests the following hypothesis about ways *The New Orleans Index* may have contributed to amplifying feedback loops at the system level:

- Hypothesis 9. Recovery leaders reported seeing the *Index* positively influence perceptions of New Orleans.
- Hypothesis 10. Recovery leaders reported seeing the *Index* positively influence the demand for and use of data in New Orleans.
- Hypothesis 11. Recovery leaders reported seeing the *Index* positively influence emerging conversations on cross-cutting topics.
- Hypothesis 12. Recovery leaders reported seeing the *Index* positively influence the amount of funding and other resources received by New Orleans.
- Hypothesis 13. Recovery leaders reported seeing the *Index* positively influence the decisions of residents and businesses to return or move to New Orleans.

Chapter 4. Research Approach

4.1. Research Questions and Hypotheses

This research aims to answer the research questions in the table below. This table also connects the hypothesis laid out in the previous section to the relevant research question.

Table 3. Research Questions and Hypotheses

Research Questions	**Hypotheses**
1. Dissemination – How, and to what extent, was *The New Orleans Index* disseminated?	
2. Use – How was the *Index* used, and to what extent was it used, in ways associated with complex adaptive systems theory?	Hypothesis 1. The *Index* was used by recovery leaders to better understand what was happening in New Orleans after Hurricane Katrina. Hypothesis 2. The *Index* was used by recovery leaders to identify needs and adapt their priorities and strategies accordingly. Hypothesis 3. The *Index* was used by recovery leaders as a common reference and to get on the same page with others. Hypothesis 4. The *Index* was used by recovery leaders to make the case for new investments, policies, and programs.
3. Impact on work – How do recovery leaders who used the *Index* report that it impacted their work in ways associated with complex adaptive systems theory?	Hypothesis 5. Recovery leaders reported that the *Index* allowed them to get a basic understanding of what was going on so that they could move forward with their work.

	Hypothesis 6. Recovery leaders reported that the *Index* allowed them to think more innovatively about challenges in the recovery. Hypothesis 7. Recovery leaders reported that the *Index* allowed them to communicate and collaborate more effectively. Hypothesis 8. Recovery leaders reported that the *Index* allowed them to secure funding, influence policy, and create new programs.
4. Impact on larger system – How do recovery leaders who use the *Index* report that it impacted the larger system in ways associated with complex adaptive systems theory?	Hypothesis 9. Recovery leaders reported seeing the *Index* positively influence perceptions of New Orleans. Hypothesis 10. Recovery leaders reported seeing the *Index* positively influence the demand for and use of data in New Orleans. Hypothesis 11. Recovery leaders reported seeing the *Index* positively influence emerging conversations on cross-cutting topics. Hypothesis 12. Recovery leaders reported seeing the *Index* positively influence the amount of funding and other resources received by New Orleans. Hypothesis 13. Recovery leaders reported seeing the *Index* positively influence the decisions of residents and businesses to return or move to New Orleans.
5. Most useful aspects - What aspects of the *Index* were reported as most useful by recovery leaders who used it?	

6. Barriers and challenges - What barriers and challenges to using the *Index* were reported by recovery leaders who used it?	

4.2. Study Design

This study will employ a case study research strategy to describe *The New Orleans Index* in its real-life context, as well as explore how it was used by recovery leaders and the impact it had on their work and the outcomes of their work. A case study is "…an exploration of a bounded system or a case (or multiple cases), over time, through detailed in-depth data collection involving multiple sources of information and rich context" (Miller & Salkind, 2002). According to Yin (2003, p.15), "…case studies can be based on a mix of quantitative and qualitative evidence." As a research strategy, case study has a distinct advantage over other research strategies (experiments, surveys, etc.) when "…a 'how' or 'why' question is being asked about a contemporary set of events over which the investigator has little or no control" (Yin, 2003, p.9).

Case studies are particularly useful when dealing with a complex adaptive system. One reason a case study is particularly useful is that it "…simultaneously fosters an attitude of attention to emerging patterns, dynamism, and comprehensiveness while focusing attention on defined system properties" (Anderson *et al*., 2005, p. 681). These are important factors to pay attention to when dealing with complex adaptive systems. Also, case studies are useful for investigating "…a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and the context are not clearly evident" (Yin, 2003, p. 13), which is the case in the proposed study.

Case studies can be applied in evaluation research in an explanatory, descriptive or exploratory manner (Yin, 2003). For instance, case studies can "…*explain* the presumed causal links in real-life interventions that are too complex for the survey or experimental strategies. In evaluation language, the explanations would link program implementation with program effects" (Yin, 2003, p15). According to Yin (2003, p. 15), case studies can also be used to "…*describe* an intervention and the real-life context in which it occurred" and to "…*explore* those situations in which the intervention being evaluated has no clear, single set of outcomes." This case study of *The New Orleans Index*, seeks to *describe* how it was used, *explain* the impact it had on the outcomes of users work, and *explore* how it could be improved and recommendations for future disaster recovery indicator projects.

Case studies can be particularly valuable in evaluating certain types of programs or undertaking an evaluation for a particular purpose. For instance, Patton (2002) writes:

> Case studies are particularly valuable in program evaluation where the program is individualized, so the evaluation needs to be attentive to and capture individual differences among participants, diverse experiences of the program, or unique variations from one program setting to another (p.55).

This was the case with the *Index*, in that there was no prescribed way to use it; it was completely up to users/participants to decide how they would use the information and analysis. Additionally, Patton (2002) writes that case studies are especially important when evaluating outcomes attainment for program improvement (as opposed to external accountability reporting): "…getting into case details better illuminates what worked and didn't along the journey to outcomes – the kind of understanding a program needs to

undertake improvement initiatives" (p.152). This study does have the aim of improving future disaster recovery indicator projects. In short, a case study approach is well-suited to the research aims of this study.

This case study utilizes an embedded, single-case design. The single-case design is appropriate when the researcher is examining a rare or unique case (Yin, 2003), like *The New Orleans Index*. It is also appropriate when looking at a case over a period of time, as is this case with this research which will consider the nearly ten-year time period between the first publication of the *Index* and the time of this research. This case study includes more than one unit of analysis, in that it looks at how the *Index* was used at different geographic levels, by different sectors, and by different individuals, therefore making it an embedded, single-case design.

4.3. Research Methods

Consistent with case study design, this study will draw on multiple sources of information including:

- **Archival Data:** Archival data collection focused on references to *The New Orleans*, as well as its creation, dissemination, and use. These documents include actual copies of *The New Orleans Index* and associated products, grant reports, internal media mention reports, media articles retrieved via NewBank and Lexis-Nexis, government publications retrieved via the Government Printing Office's Federal Digital System and Lexis-Nexis Academic, academic articles retrieved via JSTOR, web stats from Brookings, Google Analytics and Amazon cloud stats,

and findings from an external evaluation of The Data Center's website. This data is used to establish context, as well as to shed light on the research questions.

- **Focus Groups:** A series of segmented focus groups with disaster recovery leaders who are known users of the *Index* were used to collect qualitative data on the research questions. These findings were then used to develop a survey instrument to gather additional quantitative data from a broader group of *Index* users.
- **Survey:** A survey was designed using the qualitative data collected in the focus groups. It was distributed via email and used to collect quantitative data from a broader group of users of *The New Orleans Index*.
- **Key Informant Interviews:** Key informant interviews with four of the people involved with the creation and dissemination of *The New Orleans Index* through much of its lifespan were conducted. These interviews provided additional valuable information for the case study.

4.4. Ethical Concerns

Consent was obtained from participants prior to any data collection. There was no payment for participation in this study. All Internal Review Board (IRB) procedures and rules were followed to protect participants and to uphold ethical considerations of human subject research. This research also passed the IRB continuing review process in May 2016.

4.5. Limitations

There are several limitations to this study design. First, there is the potential for recall bias when asking respondents about events as far back as nine years or more. To mitigate

recall bias in the interviews, participants were sent a pre-focus group survey to be completed before the focus group that asked them to think back to what they were working on at the time certain events occurred in the recovery (ie. at the first anniversary of Katrina) as well as to when they first remember coming across the *Index*. This information was analyzed and summarized at the beginning of the focus group to save time on warm-up questions and give the participants a good sense of the other people in the room. Focus group participants were also provided with a list of questions in advance to ensure that they had enough time to reflect on the questions ahead of time. Additionally, focus group participants had access to copies of the *Index* and related products to peruse before and during the focus groups to trigger their memories.

A second limitation is that the focus group setting makes it difficult to control for some factors. For instance, results could be biased by a dominating participant or the moderator could "…bias results by knowingly or unknowingly providing cues about what types of responses and answer are desirable" (Steward & Shamdasani, 1990). To mitigate this risk, an experienced, professional facilitator was asked to observe the first focus group and provide feedback to the researcher on ways to reduce bias.

Another potential limitation of using a case study design for this research is the threat that the researcher may use subjective judgments to collect the data (Yin, 2003). To mitigate this risk, this study uses multiple sources of evidence: archival data, qualitative focus group data, and quantitative survey data. Also, four key informants were asked to review the draft case study report and provide any feedback they had during the key informant interviews.

Additionally, the findings from this study may not have a high level of external validity to people who did not receive or use the *Index* or to users of other disaster recovery indicator projects due to the nature of the case study strategy and focus group method. Furthermore, it is impossible to prove causation or establish universally generalizable findings when dealing with complex adaptive systems, due to their complexity, interdependencies and rapidly evolving nonlinear dynamics (Comfort, 1999). Instead of seeking to identify causal relations, this research aims to describe how the *Index* was disseminated and explore how it was used and its impact on the work of its users who are or were leaders in disaster recovery.

Chapter 5. Archival Data

5.1. Method

Archival data on *The New Orleans Index* was collected and analyzed to answer the research question: How and to what extent was *The New Orleans Index* disseminated? The documents analyzed include grant reports, internal media mention reports, media articles retrieved via NewBank and Lexis-Nexis, government publications retrieved via the Government Printing Office's Federal Digital System and Lexis-Nexis Academic, academic articles retrieved via JSTOR, web stats from Brookings, Google Analytics and Amazon cloud stats, and findings from an external evaluation of The Data Center's website.

5.2. Results

5.2.1. Meetings with Decision-Makers

To begin, one of the most direct ways Brookings and The Data Center disseminated *The New Orleans Index* to federal and local policy makers is by meeting with them to discuss the findings from the *Index*. The following excerpt from a grant report written by Brookings and The Data Center for the Rockefeller and Gates Foundations in 2009 summarizes some of the meetings they have had with federal and local policy makers:

> We have met with nearly all members of the Louisiana House and Senate delegation regarding the federal recovery response, as well as with the staff of Senator Thad Cochran and Former Senator Trent Lott. We advised members of the House and Senate and Senate appropriations committee as well as the staff of Donald E. Powell, Federal coordinator of Gulf Coast Rebuilding. We also have met frequently with the staffs of the

> General Accounting Office regarding a review of the federal lessons of the emergency and long-term recovery needs of the region, as well as FEMA's Gulf Coast office regarding their role in supporting local planning efforts.

Meeting with policy makers and their staffs is one of the key ways Brookings and The Data Center engaged policy makers around the *Index*.

A second way that The Data Center and Brookings engaged policy makers is by presenting the findings from the *Index* to them and other groups involved in hurricane recovery. An excerpt from the grant report written by Brookings and The Data Center for the Rockefeller and Gates Foundations in 2009 lists many of the groups to which the *Index* was presented:

> Brookings and The Data Center made several important presentations, which includes audiences such as the White House and Office of Federal Coordinator for Gulf Coast Rebuilding, U.S. Government Accountability Office, the New Orleans Regional Planning Commission, Lt. Gov Mitch Landrieu, Fannie Mae, the Orleans Parish-wide Recovery Advisory Committee Summit, PolicyLink, the Surdna Foundation, Greater New Orleans Foundation, Aspen Institute, Affordable Housing Investors Council, Unified Nonprofits, the Archdiocese of New Orleans, Unified Nonprofits of New Orleans, Population Association of America, Greater New Orleans Housing Alliance, Louisiana Housing Finance Agency, Urban & Regional Information Systems Association, Council of United Way Agencies, Horizon Initiative of New Orleans, Louisiana Recovery Authority Housing Taskforce, Homebuilders Association of Greater New Orleans, CUREx scholars and fellows, the Counselors of Real Estate, and the Banker's Roundtable.

Presenting the findings from the *Index* to policy makers and other groups engaged in hurricane recovery is a second key way that Brookings and The Data Center disseminated the *Index*.

A third way that the findings from the *Index* were disseminated was through testimony given by The Data Center and Brookings staff before Congress. The *Index* was

presented this way to both the U.S. House of Representatives' Subcommittee on Housing and Community Opportunity and the U.S. House of Representatives' Committee on Homeland Security.

On top of Congressional testimonies, presentations and meetings, a fourth way that The Data Center and Brookings disseminated the *Index* was through hard copies delivered directly to their offices. An excerpt from the grant report written by Brookings and The Data Center for the Rockefeller and Gates Foundations in 2009 list many of the organizations receiving a hard copy of the *Index*:

> Since 2008, over 11,000 copies of the five editions of the *Index* were distributed to multiple constituencies the Louisiana delegation in the U.S. Senate and House of Representatives, the Congressional Black Caucus, Office of the Federal Coordinator for Gulf Coast Rebuilding, U.S. Department of Homeland Security, Office of the Governor, Louisiana Recovery Authority, members of the Louisiana Senate and House of Representatives, Governor's Office of Coastal Activities, Mayor's Office, City Council members, Office of Recovery and Development Administration, the New Orleans Regional Planning Commission, and many other individuals and organizations, as well as at multiple presentations and events, include the 2008 Democratic National Convention and the Brookings public forum with former Homeland Security Director Michael Chertoff.

Distribution of hard copies of the *Index* directly to policy makers is another way Brookings and The Data Center attempted to garner attention for data on recovery.

A fifth way that the findings from the *Index* were disseminated was through the "Ask Allison" feature on The Data Center's website that allowed users to enter their specific data questions and receive a customized response from the data analysts on staff. From 2007-2009, responded to over 1,500 data requests, many from federal, state, and local agencies seeking recovery data (Rockefeller/Gates grant report 2009):

- Federal agencies requesting data included the following: Federal Bureau of Investigation, Environmental Protection Agency, Bureau of Labor Statistics, Bureau of Economic Analysis, FEMA, Center for Disease Control, Government Accountability Office, Army Corps of Engineers, Department of Homeland Security, U.S. Air force, U.S. Department of Defense, HUD, and FDIC (Rockefeller/Gates grant report 2009).
- State agencies requesting data included: the Louisiana Recovery Authority, Louisiana Office of Youth Development, Louisiana Department of Health & Hospitals, Louisiana National Guard, Gulf Coast Recovery Office, Louisiana Office of Community Development, Senator Landrieu's office, Lieutenant Governor's office, Louisiana Board of Regents, Louisiana Recovery School District, Louisiana Public Health Institute, Louisiana Department of Social Services, Louisiana Housing Finance Authority, Louisiana Office of Juvenile Justice, Louisiana House of Representatives, Louisiana State Library, Metropolitan Human Service District, and the Regional Planning Commission (Rockefeller/Gates grant report 2009).
- And finally, local policy makers, City of New Orleans Mayor's Office, New Orleans Police Department, City of New Orleans GIS, New Orleans Council District C, Hon. James Carter, New Orleans Fire Department, City of New Orleans Health Department, Office of Emergency Preparedness, New Orleans Redevelopment Authority, Hazard Mitigation Office, New Orleans Public Library, Civil District court, Office of Environmental Affairs, and the Office of Recovery Management(Rockefeller/Gates grant report 2009).

In short, many policy makers involved in the recovery learned about data relevant to their work through The Data Center's "Ask Allison" system

In addition to their work on the *Index*, The Data Center took on several special projects, which helped establish and strengthen their ties with local policy makers. For instance, The Data Center created "a set of future economic scenarios for all counties and metro areas of southern Louisiana, as part of the "Louisiana Speaks" planning project" (Rockefeller/Gates Grant Report, 2009). Additionally, The Data Center worked with the City of New Orleans to challenge the U.S. Census Bureau's 2007 and 2008 population estimates. These successful challenges resulted in an upward revision of the population estimates netting the City over $60 million for law enforcement, education, child care,

food assistance, homeless assistance, mental health services, and more. Both of these projects served to heighten the level of awareness of the *Index* as well as build the credibility of the local authoring organization.

Because of the *Index*, Brookings and The Data Center had unique opportunities to be involved in the transition of the president and administration in 2009 and advise a variety of key players on the state of hurricane recovery using the *Index*. The following excerpts from Brookings' and The Data Center's grant report to the Rockefeller and Gates Foundations in 2009 highlights their involvement in the transition:

> Brookings' Amy Liu was asked by the Obama HUD transition team to prepare a memo on what the Administration's response should be for New Orleans and the Gulf Coast. This internal memo was shared with members of the HUD and DHS/FEMA transition teams…[The Data Center's] Allison Plyer participated in a high profile event on Capitol Hill, which included former federal coordinator, Chairman Don Powell, regarding: "Spotlight on Poverty: A Gulf Coast Agenda for the First 100 Days of the New Administration"… [Brooking's] Liu briefed the chief of staff and other senior staff members of HUD Secretary Shaun Donovan regarding HUD's role in recovery, including a list of "low-hanging fruit" opportunities for HUD and the White House to chart a new federal direction in regards to Gulf Coast recovery….Brookings also hosted a federal disaster recovery roundtable on January 8, 2010 which took initial steps to identify and prioritize the biggest barriers within key federal programs that hinder timely, quality, and flexible post-disaster recovery efforts at the state and local levels.

The findings from the *Index* were disseminated to a number of key people and organizations during the presidential transition with aim of informing the new administration's continuation of the response to Hurricane Katrina.

5.2.2. Media Coverage

The Data Center tracked media mentions of their and Brookings work and the end of year media mention reports were available for 2008-2011. The lists of media mentions

were compiled using Google News search and supplemented in an ad hoc fashion with additional mentions that the staff came across. The 2008, 2009, and 2010 search terms included: "The Data Center," "Greater New Orleans Community Data Center," "New Orleans *Index*," or "Katrina *Index*," and "Brookings" with "New Orleans" and "Data." In 2011, search terms only included "Greater New Orleans Community Data Center," and "Brookings" with "New Orleans." The yearly reports are all Word docs, with exception of 2009 which is a PDF. Each media mention includes the title of the author, news outlet, date, an excerpt of the article in which the search terms were found and a link to the article, although not all links are currently active.

It's important to note that these media mentions may also capture data and analysis unrelated to the *Index*, which is extremely difficult to parse out. For instance, the release of the 2010 Decennial Census data in 2011 generated a lot of media coverage which is not necessarily related to the *Index* that are captured in the 2011 count.

Table 4. The Data Center's end-of-year Media Mention reports, 2008-2011

Year	Media mentions
2008	598
2009	526
2010	474
2011	578

Source: Data Center's internal tracking of media mentions accessed August 9, 2012.

To provide an alternate view of the media dissemination of the *Index*, two news databases were searched – NewsBank and Lexis-Nexis Academic. In the NewsBank database, the search was limited to sources in the United States, and in the Lexis-Nexis Academic database, it was limited to sources in the "All news (English) category. In both databases, the searches were for the phrase "Katrina *Index*" or "New Orleans *Index*" in all

text, and narrowed down to the time period between 12/1/2005 and 12/31/2011. The NewsBank search returned 127 articles and the Lexis-Nexis search returned 177. Next, the blurb with search term for each of the articles was scanned, and13 of the NewsBank articles and 91 of the Lexis-Nexus articles were found to not include the search terms exactly how they were written. For example, some included "…New Orleans. *Index*…" or …NewOrleans/*Index*.html." These articles were eliminated from the search results.

Then, the citations of the search results were exported and brought into Excel. Next, duplicate search results were eliminated from each databases results: ten from MediaBank and five from Lexis-Nexis Academic. Duplicates were defined as those entries with the same source and title – this does not include duplicate articles with the same title reprinted in another source. Six announcements for Katrina anniversary events and presentations featuring the *Index* from the MediaBank database were eliminated, since these do not provide a direct measure of the dissemination of the data and analysis in the *Index*. Eight government documents (including those that listed the source as "Congressional Documents," "CQ Congressional Testimony," "Federal News Service," and "GAO reports") were also eliminated, since these are included in another section focused solely on government documents using a more complete database for that content. Finally, the lists from the two databases were merged and the ten duplicates between the two lists were eliminated. This left 160 articles.

Examining the articles by year provides some interesting insight. In 2005, there are only five mentions. This is by far the lowest count over the six year period, but this is to be expected, since the first *Index* did not come out until December, 2005. The years 2006

and 2007 have the highest article counts with 37 each. From 2008 to 2010, there is a gradual decline in the articles from 27 in 2008 to 22 in 2009 to 21 in 2010. In 2011, the number of articles drops all the way down to eleven.

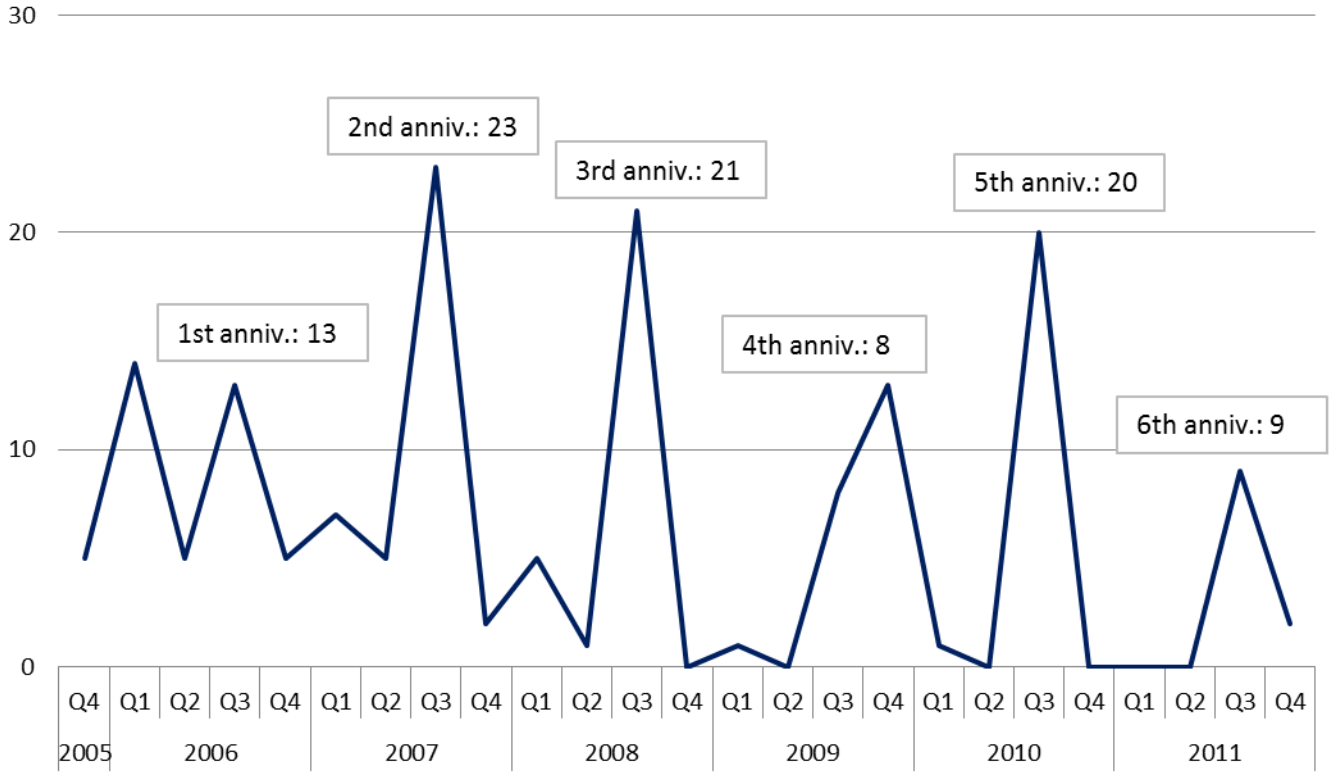
Table 5. Articles mentioning "New Orleans *Index*" or "Katrina *Index*" by year, 2005-2011

Year	Articles
2005	5
2006	37
2007	37
2008	27
2009	22
2010	21
2011	11
TOTAL	160

Source: NewsBank and LexisNexis Academic accessed August 9, 2012.

Examining the articles by quarter provides a slightly more nuanced view. Every year, media mentions of the *Index* peaked in the third quarter when the media reported on the anniversary of Hurricane Katrina. The one exception occurred in 2009 when the number of articles peaked in quarter four when Obama visited New Orleans. The number of third quarter mentions rose from thirteen at the first anniversary to a peak of 23 at the second anniversary. The number of articles decreased slightly to 21 in for the third anniversary and then plummeted to eight for the fourth anniversary in 2009. Articles rebounded for the 5th anniversary with twenty, before dropping again to nine for the 6th anniversary. Another interesting thing to note is that the number of articles for all other quarters were highest during the first year and a half of the *Index*'s lifespan when it was being published on a monthly basis.

Table 6. Articles mentioning "New Orleans *Index*" or "Katrina *Index*" by quarter, Q4 2005 - Q4 2011



Source: NewsBank and LexisNexis Academic accessed August 9, 2012.

5.2.3. Government Documents

Another interesting measure of the extent to which the data and analysis from the *Index* was disseminated is the government documents that cite it. In order to explore this, the Government Printing Office (GPO)'s Federal Digital System (FDsys) database, which provides free online access to official publications from all three branches of the Federal Government, was searched. It was searched for "New Orleans *Index*" or "Katrina *Index*" in the full text. This search returned 8 results. These results were combined with the 5 results from Lexis-Nexis Academic that were categorized as "Congressional Documents," "CQ Congressional Testimony," "Federal News Service," or "GAO

reports." The combined list included two duplicates which were removed, leaving a total of 11 government documents mentioning the *Index*, 1 from 2005, 3 from 2007, 5 from 2009, 1 from 2010, and 1 from 2011.

Table 7. Government publications mentioning "Katrina *Index*" or "New Orleans *Index*," 2006-2012

Date	Publication type	Government publication
9/22/2005	House testimony	*Implications of Hurricane Katrina: Hearing before the Subcommittee on Commerce, Trade, and Consumer Protection of the Committee on Energy and Commerce* (Serial 109-74), U.S. House of Representatives, 109th Cong. (2005).
2/6/2007	House testimony	*Federal Housing Response to Hurricane Katrina: Hearing before the Committee on Financial Services* (Serial 110-1), U.S. House Of Representatives, 110th Cong. (2007).
6/25/2007	GAO report	U.S. Government Accountability Office. (2007, June). *Hurricane Katrina: EPA's Current and Future Environmental Protection Efforts Could Be Enhanced by Addressing Issues and Challenges Faced on the Gulf Coast*. (Publication No. GAO-07-651).
9/25/2007	Senate testimony	*Gulf Coast Housing: Hearing before the Committee on Senate Banking, Housing and Urban Affairs*. U.S. Senate, 110th Cong. (2007)
3/3/2009	House testimony	*FEMA'S Gulf Coast Rebuilding Efforts: The Path Forward: Hearing before the Subcommittee on Emergency Communications, Preparedness, and Response of the Committee on Homeland Security* (Serial 111-2), U.S. House Of Representatives, 111th Cong. (2009).
7/8/2009	House testimony	*FEMA Housing: An Examination of Current Problems and Innovative Solutions: Hearing before the Committee on Homeland Security* (Serial 111-27), U.S. House Of Representatives, 111th Cong. (2009).
7/13/2009	GAO report	U.S. Government Accountability Office. (2009, July). *Barriers to Mental Health Services for Children Persist in Greater New Orleans, Although Federal Grants are Helping to Address The.* (Publication No. GAO-09-563).
8/20/2009	House testimony	*Implementation of the Road Home Program Four Years after Hurricane Katrina: Field Hearing Before the Subcommittee on Housing and Community Opportunity of*

		the Committee on Financial Services (Serial 111-70), U.S. House Of Representatives, 111th Cong. (2009).
12/3/2009	House testimony	*Post-Katrina Recovery: Restoring Health Care in the New Orleans Region: Hearing before the House Oversight and Government Reform Committee*. U.S. House of Representatives, 11^{1th} Cong. (2009).
8/26/2010	Senate testimony	*Progress made, and Work Remaining from Hurricane Katrina: Hearing Before the Ad Hoc Subcommittee on Disaster Recovery of the Committee on Homeland Security and Governmental Affairs* (S. Hrg. 111-1007),U.S. Senate, 111th Cong. (2010).
1/11/2011	Report to president	*Deep Water: The Gulf Oil Disaster And The Future Of Offshore Drilling - Report to the President.* Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. (January 1, 2011).

Source: Government Printing Office (GPO)'s Federal Digital System (FDsys) accessed August 9, 2012.

5.2.4. Academic Journal Articles

The New Orleans Index has been cited by numerous academics. To try to capture some of these citations, the JSTOR database, a full text, scholarly database covering the humanities and social sciences, including African & African-American studies, business, economics, health policy, and women's studies, was searched. The search was for "New Orleans *Index*" or "Katrina *Index*," and it returned 20 articles. There were four articles from both 2006 and 2007, eight articles from 2008, three from 2009, none from 2010 or 2011 and only one from 2012. This reveals that academic interest in the *Index* peaked prior to 2008, as there is a lag caused by publication delays.

Table 8. Academic journal articles mentioning "Katrina *Index*" or "New Orleans *Index*," 2006-2012

Year	**Articles citing the *Index***
2006	4
2007	4
2008	8

2009	3
2010	0
2011	0
2012	1
TOTAL	20

Source: JSTOR database accessed August 9, 2012.

5.2.5. Web Stats

There are three main types of web stats for *The New Orleans Index*: 1) stats on Brooking's website (available for Oct. 2008 – Jul. 2011), 2) stats on PDF downloads from The Data Center's website (available for Nov. 2007 –Jun. 2012), and 3) stats on unique landing page views from The Data Center's website (available for Nov. 2010 – Aug. 2012). These three types of web stats and what they reveal about the *Index* are described in more detail in the following section.

A. Page Views on Brookings Website

Brookings tracked the total page views for the most recent version of *The New Orleans Index* on their website from October 2007 through July 2011. Based on these stats, the third anniversary edition of *The New Orleans Index* released in August 2008 was the most viewed with 15,763 page views; however, the second anniversary edition was a close second with 15,521 and that number does not include data for August or September 2007. The fourth anniversary edition released in August 2009 was the least popular with 13,081 page views. Total page views on Brookings site for this time period was 58,561.

Table 9. *The New Orleans Index* page views per year from Brooking's website, 2007/2008 – 2010/2011

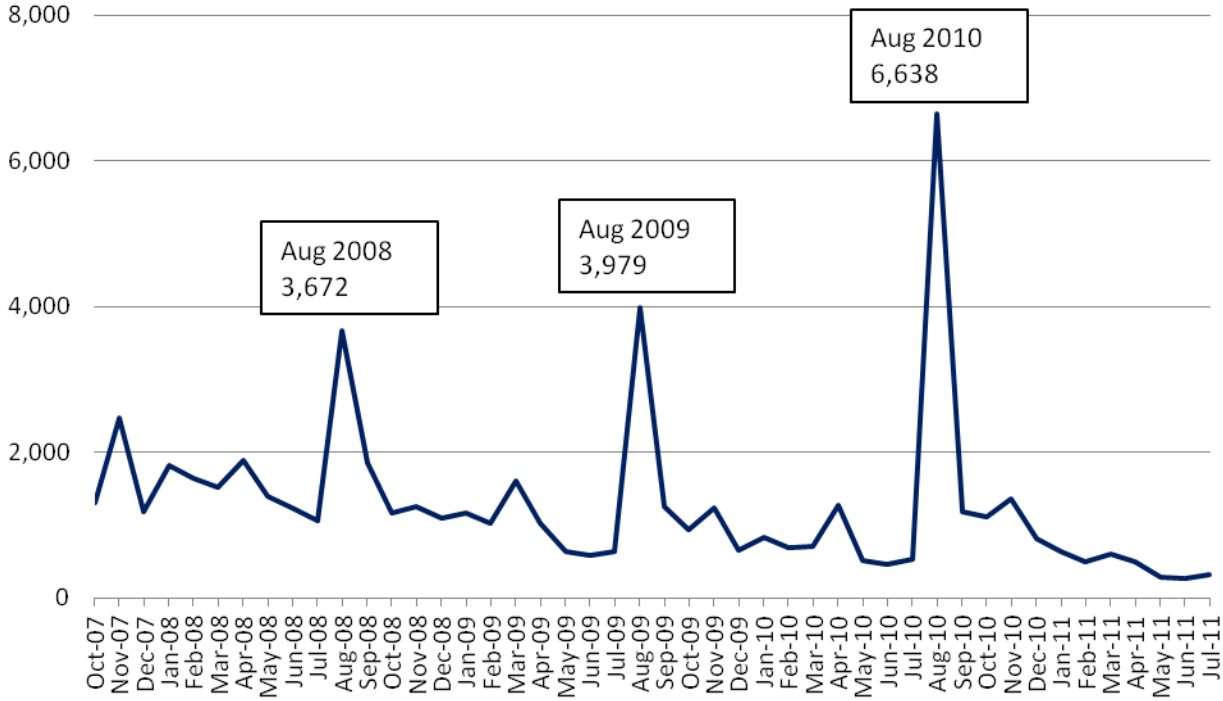
Edition	Time period	Page views

Aug-07	Oct. 2007 – Jul. 2008	15,521
Aug-08	Aug. 2008 – Jul. 2009	15,763
Aug-09	Aug. 2009 – Jul. 2010	13,081
Aug-10	Aug. 2010 – Jul. 2011	14,196
TOTAL	Oct. 2008 – Jul. 2011	58,561

Source: Brookings web stats accessed July 31, 2011.

Examining this data by month, one can see that *The New Orleans Index* page views peaked in the months of August around the anniversary of Hurricane Katrina and the release of the reports. The month with the most page views was August 2010 with 6,638, followed by August 2009 with 3,979 and August 2008 with 3,672.

Figure 2. *The New Orleans Index* PDF downloads per month from Brookings website, Oct. 2007 – Jul. 2011



Source: Brookings web stats accessed July 31, 2011.

B. PDF Downloads from The Data Center's Website

Web stats pulled from The Data Center reports to Brookings and the United Way, combined with web stats directly from their Amazon Cloud can be pieced together to paint a picture of total downloads per edition of the *Index* from the November 2007 edition to the August 2011 edition. Web stats for both the full report and the executive summary are included, because the executive summary of the *Index* was downloaded more times than the full report for the November 2007 and January 2008 editions, but the opposite is true for the other editions. However, there is no data available for the January 2009 executive summary and a separate executive summary was not published in August 2010. Total downloads for the April 2008 edition of the *Index* were by far the lowest with 1,834. This could be due to the fact that the web stats for that edition only covers April 16 – May 2, 2008 excluding the rest of May and June when this edition was still available on the web. The August 2011 edition had the most total downloads with 32,017, followed by the August 2010 edition with 32,017. Based on this data, the full report and executive summary PDFs for *The New Orleans Index* were downloaded at least 98,052 times from The Data Center's website.

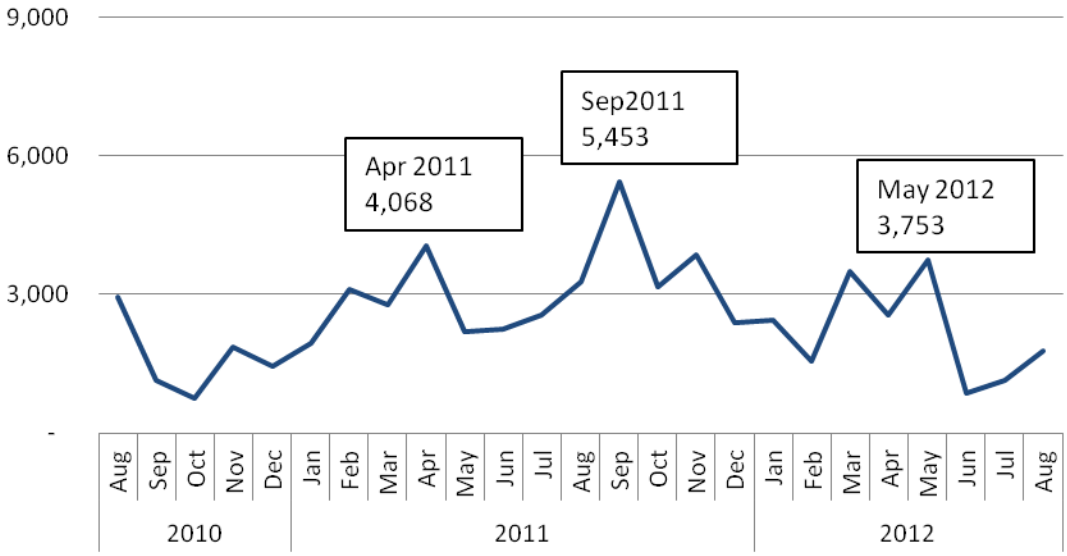
Table 10. *The New Orleans Index* PDF downloads per edition from The Data Center's website, Nov. 2007 – Aug. 2011 editions

Edition	Full report	Exec. summary	Total	Time period of web stat
Nov-07	1,351	1,438	2,789	Nov. 13, 2007 – Jan. 14, 2008
Jan-08	2,348	2,615	4,963	Jan. 15, 2008 – Apr. 15, 2008
Apr-08	838	996	1,834	Apr. 16, 2008 – May 2, 2008
Aug-08	4,277	5,935	10,212	Jul. 1, 2008 – Dec. 31, 2008
Jan-09	5,385	na	5,385	Jan. 28, 2009 – Apr. 30, 2009
Aug-09	11,944	na	11,944	Jul. 1, 2009 – Dec. 31, 2009
Aug-10	23,394	3,631	27,025	Aug. 1, 2010 – Jul. 31, 2011
Aug-11	27,270	6,630	33,900	Aug. 1, 2011 – Jul. 31, 2012
TOTAL	76,807	21,245	98,052	

Source: Data Center reports to Brookings, Data Center reports to the United Way, and Data Center Amazon Cloud stats retrieved July 31, 2012.

To get a more nuanced view of *The New Orleans Index* total (full report and executive summary) PDF downloads, it is possible to look at the monthly Amazon Cloud web stats available from August 2010 through August 2012, which reveal a lot of variation in traffic from month to month. Peaks occurred in April 2011 with 4,068 downloads, September 2011 with 5,453 downloads and May 2012 with 3,753 downloads.

Figure 3. *The New Orleans Index* PDF downloads per month from The Data Center's website, Aug. 2010 – Aug. 2012



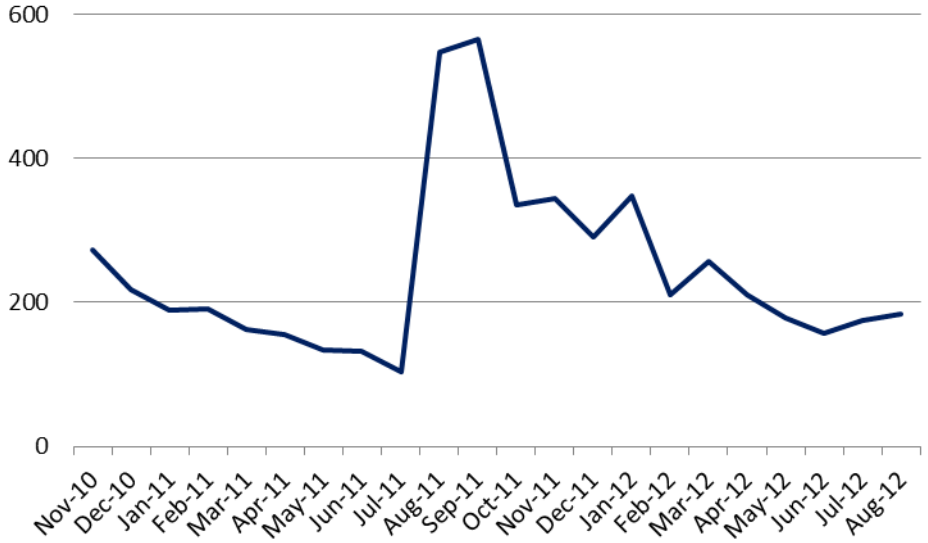
Source: Data Center Amazon Cloud Stats, retrieved August 31, 2012.
Note: The Aug 2011 data is low because it only reflects *The New Orleans Index at Six* PDF downloads, which was published late in the month.

C. Page Views on The Data Center's Website

Google analytics was used to track unique page views for *The New Orleans Index* landing pages on The Data Center's site from November 2010 to August 2012. During

this time period, unique page views peaked in September 2011 with 566 views. The total unique page views during this time period was 5,364.

Figure 4. *The New Orleans Index* unique landing page views on The Data Center's site, Nov. 2010 – Aug. 2012



Source: Data Center Google Analytics accessed August 31, 2012.

Google Analytics also allows one to see the unique page views for *The New Orleans Index* landing page by continent, country, state, and metropolitan area. Since 2010, *The New Orleans Index* landing page on The Data Center's website was visited by users in over 25 states and over 35 metro areas in the U.S., over 35 countries, and five continents. This information is included in the tables below. The continent with the most views after the Americas was Europe with 210. The country with the most views after the United States was Germany with 62. The state with the most views after Louisiana was New York with 309. The Metro with the most views after New Orleans was New York with 307 followed closely by Washington D.C. with 305. This data shows that not only has the

The New Orleans Index been accessed via the web from around the country, it has been accessed by people from countries and continents around the world.

Table 11. *The New Orleans Index* unique landing page views on The Data Center's site by continent, Nov. 2010 – Sep. 2012

Continent	Unique Page views
Americas	5,281
Europe	210
Asia	82
Oceania	51
Africa	3

Source: Data Center Google Analytics accessed September 30, 2012.

Table 12. *The New Orleans Index* unique landing page views on The Data Center's site by country, Nov. 2010 – Sep. 2012

Country (top 10)	Unique Page views
United States	5,222
Germany	62
Japan	49
Canada	48
Netherlands	41
France	37
United Kingdom	37
New Zealand	32
Australia	19
Saudi Arabia	9

Source: Data Center Google Analytics accessed September 30, 2012.

Table 13. *The New Orleans Index* unique landing page views on The Data Center's site by state, Nov. 2010 – Sep. 2012

State (top ten)	Unique Page views
Louisiana	2,879
New York	309
Texas	285
District of Columbia	200
California	195
Massachusetts	115
Georgia	109
Illinois	101

North Carolina	93
Virginia	92

Source: Data Center Google Analytics accessed September 30, 2012.

Table 14. *The New Orleans Index* unique landing page views on The Data Center's site by Metro, Nov. 2010 – Sep. 2012

Metro (top ten)	**Unique Page views**
New Orleans LA	2703
New York NY	307
Washington DC	305
Baton Rouge LA	138
Boston MA-Manchester NH	118
Austin TX	104
Atlanta GA	101
Houston TX	86
Chicago IL	75
Los Angeles CA	75

Source: Data Center Google Analytics accessed September 30, 2012.

The Google Analytics data can also be used to see which websites people come to *The New Orleans Index* landing page from (see Table below). As one can see, people come to the *Index* from a variety of other sites including the sites of local non-profits, global and national data project networks, city government, media (mainstream, independent and social) and local and national research institutes.

Table 15. *The New Orleans Index* unique landing page views on The Data Center's site by source website, Nov. 2010 – Sep. 2012

Source websites (top fifteen)	**Brief description**	**Unique Page views**
neworleanschamber.org	Local non-profit supporting local businesses	49
communityindicators.net	Network focused on connecting data projects like The Data Center around the world	39
noladefender.com	Independent media	37

urbanconservancy.org	Local non-profit focused on the urban built environment and local businesses	35
noraworks.org	City government agency focused on blight and community development	32
nola.gov	City of New Orleans	30
blogs.forbes.com	Mainstream media	28
en.wikipedia.org	Social media	25
facebook.com	Social media	22
katrinafive.com	Na	19
neighborhoodindicators.org	Network focused on connected data projects like The Data Center around the U.S.	19
gnoinfo.com	Hurricane Katrina recovery information	17
coweninstitute.com	Local research institute associated with Tulane focused on public education	16
nola.com	Media	14
blog.metrotrends.org	National research institute (Urban Institute) blog on trends on metro areas	10

Source: Data Center Google Analytics accessed September 30, 2012.

Another interesting fact about visitors to *The New Orleans Index* landing page is that the vast majority come directly from search engines. Google was responsible for 2,870 unique page views, over half of the total unique page views (5,364) during this time period (see Table below). An analysis of the Google analytics data on keywords used in searches that led to *The New Orleans Index* landing page, were most frequently some form of The Data Center's name or the *Index*'s title. This shows that a good portion of the web traffic was coming from people already familiar with the organization or the *Index*.

Table 16. *The New Orleans Index* unique landing page views on The Data Center's site by source search engine, Nov. 2010 – Sep. 2012

Source search engines (top three)	**Unique Page views**

Google	2,870
Bing	142
Yahoo	77

Source: Data Center's Google Analytics accessed September 30, 2012.

Table 17. *The New Orleans Index* unique landing page views on The Data Center's site by search keyword, Nov. 2010 – Sep. 2012

Keyword (top 10)	**Unique Page views**
gnocdc	306
greater new orleans community data center	255
greater new orleans data center	90
new orleans data center	69
new orleans community data center	63
new orleans index at six	59
new orleans index at five	59
Gnodc	49
The New Orleans Index at five	39
The New Orleans Index at six	25

Source: Data Center's Google Analytics accessed September 30, 2012.

5.2.6. Website Evaluation

An independent evaluation of The Data Center's website conducted 2007-2009 revealed a lot of information about the users of The Data Center's website (where *The New Orleans Index* is posted) and their use of the data on the site. While *The New Orleans Index* is just one publication posted on the website, there is significant overlap between the data and analysis in the *Index* and the other publications posted on the site, so while the findings are not directly reflective of the *Index*, it is possible that some of the findings for the site as a whole apply to the *Index* as well.

Four methods were used for the survey. First, a survey attached to an email was manually sent to 175 people who submitted questions through the "Ask Allison" system on The Data Center's website. This method had a 28% return rate and was used in 2007 only. Second, a mass email was sent to 126 people who had submitted questions through "Ask Allison" asking them to go to a Survey Monkey site to complete a survey. This method had a 48% return rate and was used in 2007 only. Third, a similar mass email was sent to 2168 recipients of The Data Center's Numbers Talk e-newsletter. This method had 34.4% return rate in 2007, it was only sent to people who had newly signed up in 2008 (to avoid survey fatigue) and had a 31.1% return rate, and it was sent to the whole list again in 2009 and had a 26.1% return rate. Finally, an automated opt-in survey was posted to The Data Center's homepage for a limited amount of time. Only 31 people responded to this method.

The series of surveys asked about a number of aspects of user response to The Data Center's website. These are summarized in the sections that follow and include: 1)

Frequency of Use, 2) Organizational Affiliation of Users, 3) Purpose for Using the Website, 4) Site's Achievement of Organizational Objectives, 5) Positive Impact on Community Made Because of Site, and 6) Comments on the Site.

A. Frequency of Use

Respondents were asked to indicate the number visits to the site within the past 24 months. The majority (68%) of respondents were frequent users, having visited the site at least 5 times, while only 8% were first time users.

B. Organizational Affiliation of Users

Respondents were asked to indicate their organizational affiliation. The most popular affiliations were nonprofits or neighborhood groups located in New Orleans (31%), no organizational affiliation (19%), universities (16%), local businesses (8%), national businesses (6%), national nonprofits (5%), and state government (4%). The rest were nonprofits located in Louisiana but outside of New Orleans, municipal government agencies in greater New Orleans, municipal or state government outside of New Orleans, Federal government, local foundations, and national foundations.

C. Purpose for Using

Respondents were asked to select the purpose or purposes they had for visiting the site from a list of possibilities. Most respondents indicated 2-3 purposes. The most popular uses were: support for short term or immediate decisions (39%), long term planning for your agency (36%), grant proposal (34%), policy research (22%), advocacy (21%), and personal reasons either curiosity or to support a personal decision (15%).

Other options were media article, academic publication, business advice, research for a book, government report or other (students or teachers, business uses, mix of purposes).

D. Achievement of Organizational Objectives

Respondents were asked to indicate if they strongly agreed, agreed, disagreed, strongly disagreed or didn't know if the site was meeting the following objectives identified in the organization's logic model created in 2006:

- increase access to data about New Orleans
- provide timely and relevant data
- make data easily accessible on the website
- point people to other data sources and/or explain what data does not exist via Ask Allison
- help people avoid wasted time and effort
- help people acquire new knowledge, skills and insight.

Weighted averages were calculated for the responses on each objective. The weighted averages all fell between 1 and 2 indicating that on average respondents agreed or strongly agreed that the website met the organization's objectives.

E. Positive Impact

Respondents were asked to give examples of how the site enabled them to have a positive impact on the community. 1,135 respondents (57% of all respondents) responded to this question. However, only 674 provided actual examples of positive impact. Positive impacts included:

- Grants applied for, received and invested in helping New Orleans
- Service planning, adjusting services to post-Katrina environment
- Business locations determined, business planning supported and implemented, risk evaluations
- Specific supports to recovery efforts
- Provision of information to consumers about service availability
- Influencing public policy decisions at the local state and federal levels

- Informing decisions about financial investments by New Orleans funders

F. Comments

Respondents were asked if there was anything else they wanted to say about the site. 559 people replied to this open-ended question. The results were classified as either positive (452), negative (68) or suggestions (34).They were then divided further into several sub-categories. For example, the largest sub-category for negative comments was "Lack of attention to or inclusion of other parishes."

Another piece of the larger Nonprofit Knowledge Works evaluation was a series of 96 interviews with key informants. Again, these interviews focused on a much larger body of work than the *Index* itself, but could provide clues as to how the data and analysis in the *Index* were used. The evaluator classified the positive impacts of the organization's work into the following categories:

- Support for advocacy on behalf of New Orleans
- Bringing funds into the city to aid in Recovery
- Shaping how others view New Orleans
- Influencing the kind and quality of public information about service availability
- Influencing business decisions positively
- Effect on the general population

Summaries of 45 of the 96 interviews are provided in the final report of the evaluation.

In short, the 2007-2009 independent evaluation of Nonprofit Knowledge Works and specifically The Data Center's website provide some interesting insights about *The New Orleans Index*, including possible characteristics of its audience, purposes for use, achievement of organizational objectives, and resulting positive impacts on the community.

Chapter 6. Focus Groups

6.1. Method

Twelve focus groups with a total of 72 participants were held over the course of July and August 2015. Participants came from a recruitment list assembled by the researcher using an *Index* launch event invite list from the Data Center, a distribution list for hard copies of the *Index* from the Data Center, 35 grant reports from the Data Center, and copies of the *Index* itself which list funders, authors, and steering committee members. Participants that met the following criteria were invited to participate via emails and follow-up phone calls: a) person is a known user of the *Index*, b) person participated in recovery activities, c) person would provide an "information-rich" use case – either an extreme, typical, critical, or politically important case, and d) person's contact information is available in records or findable online.

6.2. Participants

Of the 72 people that opted to participate in a focus group, about 60% were female and about 40% were males. About 60% were White, about 30% were Black/African American, about 7% were of Hispanic/Latino descent, about 1% were of Asian descent, and for the remaining 3% were of unknown race/ethnicity.

Table 18. Focus group participants by gender

Gender	Participants
Females	43 (59.7%)
Males	29 (40.3%)
Total	72 (100%)

Table 19. Focus group participants by race/ethnicity

Race/ethnicity	Participants
White	43 (59.7%)
Black/ African American	21 (29.2%)
Hispanic/Latino descent	5 (6.9%)
Asian descent	1 (1.4%)
Unknown	2 (2.8%)
Total	*72 (100%)*

Two focus groups were held for organizations working at the neighborhood level, three for organizations working at the city/metro level, and three for organizations working at the state, regional, or national level. Additionally, two focus groups were held for foundations working at the city/metro level and two were held for foundations working at the state, regional, or national level. However, it was difficult to label many participants as strictly representing only a city organization or only a national foundation, as many people worked for more than one organization type over the course of the recovery.

Table 20. Focus group participants by individual segments

Individual Segments	Groups	Participants
Neighborhood Organizations	2 (16.7%)	9 (12.5%)
City/Metro Organizations	3 (25%)	22 (30.6%)
State/Regional/National Organizations	3 (25%)	18 (25%)
City/Metro Philanthropy	2 (16.7%)	11 (15.3%)
State/Regional/National Philanthropy	2 (16.7%)	12 (16.7%)
TOTAL	*12 (100%)*	*72 (100%)*

Four of the focus groups (two for state, regional and national organizations and two for state, regional, and national foundations) were conducted over the phone and the other eight focus groups were conducted in person at the Rosa Keller Library in New Orleans, Louisiana.

About 13% of participants were representing neighborhood organizations, 46% were representing organizations or philanthropies working at the city or metro level, and about 42% were representing organizations or philanthropies working at the state, regional or national level. About 32% of participants were representing foundations, while about 68% were representing non-philanthropic organizations.

Table 21. Focus group participants by geographic level

Segments grouped by geographic level	**Groups**	**Participants**
Neighborhood	2 (16.7%)	9 (12.5%)
City/Metro	5 (41.7%)	33 (45.8%)
State/Regional/National	5 (41.7%)	30 (41.7%)
TOTAL	*12 (100%)*	*72 (100%)*

Table 22. Focus group participants by philanthropy vs other organizations

Segments groups by philanthropy vs other orgs	**Groups**	**Participants**
Philanthropy	4 (33.3%)	23 (31.9%)
Other organizations	8 (66.7%)	49 (68.1%)
TOTAL	*12 (100%)*	*72 (100%)*

Prior to the focus groups, participants were asked to fill out an electronic survey that was designed to help them think back to their experiences over the course of the recovery. The focus groups and pre focus group surveys explored people's experiences working on recovery issues over the time period since Hurricane Katrina as well as their use and perceptions of *The New Orleans Index*.

High-level notes were taken during the focus groups and the focus groups were recorded and transcribed. The transcriptions were brought into Nvivo, qualitative data analysis software, along with the notes and the pre focus group survey data. The transcripts, notes, and survey responses were coded first based on which research questions they pertained to. Then a provisional list of codes was developed using the

notes on each question and applied to the rest of the data for that question. The codes were revised as necessary as the process progressed. Coding and recoding continued until the data was "saturated" and a sufficient number of "regularities" emerged (Miles and Huberman, 199d). The resulting codes were clustered into pattern codes or themes, which are explained in the following sections.

6.3. Context

6.3.1. Immediate aftermath

Across eight focus groups, participants talked about how the environment after Hurricane Katrina was characterized by chaos and confusion. In six of those eight focus groups, participants literally used the word "chaos" or "chaotic" when describing the environment following Hurricane Katrina. For example, one participant said:

> I remember there being a lot of chaos. Not like anarchy chaos, there was just – there was such little direction, it was unclear really where this city was headed and everybody was trying their best, but there wasn't really any cohesive element that was tying these efforts together.

Another said, "…it was just so chaotic we were just trying to figure out things and you know all these changes in personnel and all these new people."

In two of these focus groups, participants also talked about how Katrina caused a massive immediate change in the environment, but noted that the situation remained in flux for several years afterward. As noted by one participant, "…there was massive immediate change. Then everything was fluid for at least two or three years. I mean, every day you woke up and the environment was likely to be different one way or another."

Across seven focus groups, participants spoke about the destruction to the physical and organizational landscape caused by Katrina. They recalled things like the waterline on buildings once the flood waters receded, refrigerators on the neutral ground as houses were being gutted, and flooded cars being stacked under the highway overpass as the city was being cleaned up. One participant described the destruction:

> …it was just a level of devastation and all across the board so we had like the same amount of property damage that there was at 80%, we had about the same percentage of nonprofits and social and human services that were also out of commission temporarily or permanently….

Many participants focused on the difficulties faced by organizations following Katrina. For instance, one participant said:

> I think one of the things that was huge was in terms of the shifts and displacements was that many organizations were literally turned upside down. With the flooding, there were lost files, lost people…there were communications issues, there were tracking issues, there were getting paid issues."

Participants in seven focus groups (mostly city/metro and neighborhood level groups) also mentioned people were working in the recovery while also dealing with their own personal recovery issues. This came up in 3 of 3 groups with city/metro level organizations, 2 of 2 city/metro level philanthropies, 1 of 2 neighborhood organizations, 1 of 3 state/regional/national organizations, and 0 of 2 state/regional/national organizations. One person noted, "I don't think you can overstate the impact of the fact that every single person had their own lives to rebuild, their own traumas, their own loses, their own stresses. Organizations had to factor that in too." Another person in the same group responded:

> That's actually a really important point, because that's not always the case. My first disaster was 9-11 and the people that did the recovery work were not necessarily impacted…when I moved here right after the storm…I was having conversations with people that were living on a cruise ship.

6.3.2. Influx of new actors and resources

Participants across six focus groups noted that many new organizations were founded after Katrina or came to New Orleans from elsewhere following Katrina. In many cases the participants themselves fell into this category. In three of the groups participants mentioned that this brought benefits like fresh energy and additional expertise, while in the other three groups participants mentioned that this led to challenges like competition with local organizations that were here before Katrina resulting in resentment.

Participants in eight of the focus groups spoke about an increase in involvement from national foundations or an increase in resources in New Orleans following Katrina. One participant described the level of resources flowing to the city as "unprecedented." Participants in eight of the focus groups noted that the influx of national foundations caused challenges. For instance, some referenced coordination issues and others the fact that national foundations often brought with them negative preconceptions about the lack of capacity in New Orleans, which caused them to overlook funding local groups. One participant said, "…the truth was people were throwing money at this community like you wouldn't believe, and often in very uncoordinated ways with different agendas." Participants in six of the focus groups (two city/metro philanthropy, two city/metro organizations, one state/regional/national philanthropy, and one state/regional/national

organization), noted that the national foundations brought benefits, on the other hand, like a greater focus on equity and inclusion that positively influenced local foundations.

Along with the initial increase in resources, participants in all three of the focus groups with city/metro level organizations talked about challenges experienced with scaling their operations. One participant noted, "Look – we went from 175 staff to 25 staff to 375 staff to 1200 staff in six months. We went from a 35 million dollar organization to a couple million dollar organization to 115 million dollar organization in a year." Another participant described what her agency went through as "being almost like an accordion." She went on to say:

> …it's almost as challenging to have a lot of money, I'm very familiar with having not enough money. A lot of money is a challenge because you need to gear up…One key factor for non-profits after Katrina was very, very difficult to find highly competent people with social service backgrounds.

Participants in six focus groups also noted that eventually the inflated levels of funding began to drop off as a result of the 2008 financial crisis and the federal budget sequestration of 2013, which led to decreased federal entitlement program funding. One participant with a long history of working in the non-profit sector in New Orleans said, "I would say that it was much harder to be a nonprofit in New Orleans post-Katrina, in 2013 than it was before Katrina. Because of the diminution of resources."

6.3.3. Process of planning and recovery

In four focus groups (including three out of four groups with philanthropies), participants talked about how the process of planning for recovery following Katrina took longer than people first expected. One participant noted, "I think that '08 that was when

you started to get it together to be like "Oh yeah this is just really not going to shake out the way that we thought it might."

Participants in four focus groups noted that recovery was characterized by distrust and uncertainty. For instance, one participant said:

> If you were to move beyond the immediate scene of the disaster and move beyond let's say three months to a year essentially, then you begin to see people who - I think there a lot of grief set in at that point, and it wasn't grief for people who had died. It was grief for a feeling of knowing that New Orleans had changed and it wasn't gonna be the New Orleans that you knew.

Another participant said, "…there were so many different processes going on, sometimes it wasn't clear which one was going to sort of win out." Another referred to the planning process as, "…clouded in distrust."

Participants in three focus groups noted that people were generally more open to think differently and try new things following Katrina. For example, one participant said:

> I'm not from New Orleans originally…and you know, to be really candid, what I found when I got here was at times an almost smothering sense of fear of doing things differently and moving in a different direction. But after the storm, I just felt like it was no-holds barred. Let's try anything, Let's be creative. And so that part was very refreshing. Being able to…having people take a fresh look at things and looking at new ways of doing things, and being open to new paths. I thought it was something of a silver lining.

However, some participants noted that that this new openness was taken advantage of at times. For instance, one participant said, "We as a community are more open to trying somethings that maybe we wouldn't have tried before. It's when things are being done to us as a community that I see the problems." Another participant also hit on the need for

balance when he said that one of the biggest challenges facing New Orleans as it rebuilds is: "How do we keep this balance of the best of the old and new ideas?"

6.3.4. Emergence of new engagement and awareness

The emergence of more engaged citizens following Katrina was mentioned in seven focus groups, including both neighborhood level groups. For instance, one participant commented:

> One really big important change in the environment was the emergence of New Orleanians as engaged residents. People were just forced out and once they came out they stayed out and they were front and center and loud at public meetings. That never happened before Katrina.

Discussing this theme, two participants said:

> (Participant a) …the entire city realized "Oh, no… this shit's gonna get real. If we don't pay attention, right? You might not be able to come back home.
>
> (Participant b) And they did pay attention, like we got one assessor. We consolidated levee boards, like minutia of bureaucratic detail that I think average New Orleanians were not interested in, they realized it affected their lives.

Other participants commented on how the increase in civic engagement impacted how business was done at their organizations. One participant said, "Definitely the culture changed in the way we implement our disaster recovery programs because of the level of input and the vocal outcry from the citizens, the residents and the advocates groups for sure."

Across seven focus groups, participants talked about an increased awareness about racial disparities caused by Hurricane Katrina. One participant said, "There was an awful

lot of issues related to race and racism that was right up close and personal subsequent to the storm. It was there before the storm pulled the curtain back and you know as you saw real clearly it was horrible, horrific." Another said, "…we have a regulatory framework that undermines a lot of the poor and black people, right? That people of color (and that was politically correct), they are the people who are getting their tails kicked…" Several participants commented on disparities in the uneven nature of the recovery. For example, one participant commented, "I feel like the recovery has been exceedingly uneven…That means people are just completely left out of that process. They're not getting the tools or the access and stuff like that. And it still shows, and it's gonna get worse, not to be pessimistic. Sorry." Another participant said, "…there's still a list of people who, you know, they fell through the cracks and they don't have the money to come home…they're just kind of left behind." Participants also commented that the challenges around race are persisting, even ten years after Hurricane Katrina. For example, one participant said:

> …there is still a lot of struggles there and there is a lot around race, especially with New Orleans having the distinction, for a while now, of being the murder capital of the country. Black men were dying in the streets every day in New Orleans and so you know there are still some things that are very, very present.

In addition to increased awareness around racial disparities, participants in five focus groups (including all three city/metro level organization groups, one neighborhood level organization group, and one state/regional/national organization group) noted an increased awareness about the environment, the coast, and living with water. One participant stated, "You lose your coast, you lose your coast you lose New Orleans…that's what changed and how it continues to change." Another said:

> I think another big change in the environment was actually the environment in that um there was this sort of awareness of environmental issues has increased you know many, many times…we're now starting to see a ground swell of people being vocal about the environment, and community residents, not just environmental organizations, so that's pretty big.

Another participant said:

> One thing I think Katrina kind of got us, sort of thinking about this, us as an organization and then also us as a city, is like our relationship with water…, which we really hadn't given a whole lot of thought to before, until all of these things started opening up these new conversations.

Participants in three focus groups (one neighborhood and two city/metro level) noted that a third area where participants noted there had been an increased level awareness following Katrina was around regional economic development. One participant talked about the formation of the "super region" between New Orleans and Baton Rouge. Another participant said, "I think after Katrina, having looked at all of the things that that were challenging not only the city but the region, the idea of creating more regional strategy became suddenly very important and had I think taken on prominence for a lot of people."

6.3.5. Organizations' adaptation, partnership, and advocacy

Across all twelve of the focus groups, participants discussed how their organizations adapted following Katrina. For example, one participant said, "It seemed like every 6 months people had new roles and new responsibilities, including myself." In another group, participants commented on adapting business models:

> (Participant a) I think there were a lot of changed business models.
>
> (Participant b) Yeah. I think a lot of people were doing different things.

(Participant c) Week to week in some cases.

Another participant gave her view of the role of adaptation following Katrina, "So I think the adaptation was how do you – how do you fly the plane while you're building it? So the adaptation was – we gotta do something, we can't wait for the perfect to start doing things. You have to start doing things and you make adjustments as you go."

In two focus groups, participants said that their organizations adapted based on what they saw as shifting needs. One participant noted: "…one of my observations is that what was impacting the foundation's shift in its grant making was the return of families to the communities, and how the needs changed." Another participant said, "…it was really trying to be responsive and to be adaptive as the situation continued to unfold, and different processes played out and need and opportunities continued to shift."

In two focus groups, participants mentioned that their organizations adapted based on new resources and emerging opportunities. For instance, one participant said, "…what we did to respond to the, to adapt to the environment was looking at what was out there. You know you think, all this money is coming down and ok how do you get the money deployed, how do you work on that?" Another participant said:

> We did have to be extremely flexible and ready to grasp the opportunities and the possibilities because they didn't come in evenly and they didn't necessarily come in according to need so we had to be on the lookout for what we could do with what we were being offered.

In addition to discussing how their organizations adapted, participants across all twelve of the focus groups discussed the importance of partnership. One participant said,

"It's all we do." Another participant said that partnership was "…all we did when we first came here was…that was really at the basis of the work."

A prominent sub-theme was the necessity of partnership to leverage scarce resources and meet the massive need. One participant said, "We didn't have enough information, money, enough time and so you just had to get really smart and opportunistic about forming partnership because you needed them." Another participant commented on the need for partnership among philanthropies, "So there was probably about year two or three of Katrina, a lot more collaborative grant making, because it just wasn't enough dollars individually to do it…" Another participant's comment is illustrative of several comments that were made on the difference view of partnership and cooperation pre-Katrina as opposed to post-Katrina:

> I do think pre-Katrina collaboration meant keeping an eye on your competition…And then post-Katrina we came together and said let's work and that's been one of the fruits of it, but I don't want to pat ourselves on the shoulder because there was no other way to do it.

Many different types of partnerships and cooperation were discussed across the groups. These included partnerships between national and local nonprofits, foundations and city government, and foundations and business. It also included partnerships amongst foundations, universities, nonprofits focused on housing, and nonprofits focused on youth, as well as regional partnerships and partnerships across sectors. Over a dozen specific collaboratives that emerged post-Katrina were named.

Across all twelve of the groups, participants also discussed the increased importance of advocacy following Katrina. One participant said, "We started to develop policy platforms that honed in on what were the things that we were gonna be fighting every

year on the policy front. We didn't have that before." Another participant talked about how his organizations included a specific section on advocacy in their strategic plan for the first time ever after the storm in 2006. Another participant commented on how organizations had to adapt to engage in a whole other level of advocacy:

> I think that for a lot of organizations themselves became advocates in that ways that probably they never had been. They might have had a policy or advocacy area where they lobbied for better policy for housing or something like that but I think there was a real sea change…that was a big change for organizations and organizations really had to adapt and figure out how to do that.

Another participant commented on an increase in advocacy happening around state and federal resources for recovery:

> …federal level advocacy certainly was a big area that we increased our advocacy in because we needed those dollars to reach people actually on the ground and not get caught up in convoluted, complicated programs that were more focus on fraud than people, so I think we ended up doing a lot more advocacy at the federal level and the state level for that matter.

Another participant commented on an increased sense of necessity and urgency around advocacy:

> And so everybody had a role change in terms of how much time they spent doing advocacy and education in the community because it was out of necessity or we were not going to get anything at all. That's really what it felt like - the sense of urgency needed to be on everybody's plate not just one or two.

A prominent sub-theme was that participants felt they had to do something to stand up for New Orleans broadly speaking. About advocacy, one participant said, "…we felt that we had to do something for New Orleans." Another said, "If we didn't do it, nobody

else was going to do it and that has stayed with us." Another participant from a national foundation said:

> I would say that in terms of advocacy on behalf of the city, and on behalf of the needs in the city, and why it was so important, because remember, in the early days, there were lots of folks saying "Why should be rebuild New Orleans at all?" Um, I think that we were intensively engaged, in um, talking very broadly around the country about why New Orleans mattered, why it was important.

6.4. Results

6.4.1. Use / Impact on Work

In all twelve of the focus groups, participants shared ways that they had used the *Index*. These cluster into four main areas: a) to better understand what was happening in New Orleans after Hurricane Katrina, b) to identify needs and adapt their priorities and strategies accordingly, c) to make the case for their advocacy work and grant proposals, and d) to get on the same page with others.

A. Situational Awareness

Using the *Index* to better understand what was happening in New Orleans after Hurricane Katrina came up in nine focus groups and 21 pre focus group survey responses. Several participants mentioned that it helped them understand changes that were happening across sectors, over time. For instance, one participant described the *Index* as, "…this is the picture that we can see on the ground without actually having to be everywhere at once." Another participant said, "I think it offers a really interesting window into areas I'm not focused on." Similarly, another participant noted: "I think it helps people recognize the breadth of the issues too, that it's not just their silo…and you can see the relationships by having it all in one place. Another participant commented on

how useful it was to have information on several different recovery topics all in one place:

> *The New Orleans Index* was a nice place, one stop shopping, if you will, for information on what is going on in terms of change and all the different aspects of New Orleans recovery. So that we can just grab that and add our information on top of it what we are doing in our specific programs and we're good to go.

Another participant commented on how helpful it was to have the context for why things were changing in addition to what was changing over time across sectors:

> I would say all the data was interesting to me in terms of giving the general context for why things were changing, what need was changing…being able to compare it over time and see how things may be changing…what was going on across housing, transportation, daycare and other things, it was very, very helpful in that way.

A common sub-theme was that participants used the *Index* to track recovery since Katrina. For instance, one participant said the *Index*, "provides a general overview of year-to-year progress post-Katrina." Another said, "I think it's kind of seen now as a yearly report card, right?" and that he used it to "...see how we've either improved or are falling back as a city."

A second sub-theme was that the *Index* provided valuable context, especially for those new to New Orleans. One participant who was conducting survey research after Katrina said, "[The] *Index* in a lot of ways provided good context for some of the changes we were seeing in people's attitudes, over time." Another participant mentioned sharing the *Index* with national organizations considering moving to New Orleans as "a great primer." Another participant mentioned using the *Index* with interns when they came on board: "A lot of them weren't from here. So sharing the *Index* really helped them to get a

better understanding of what was going on in the community." As a former intern herself, one participant noted:

> I feel like [the *Index*] really helped to contextualize…it's been helpful for me, having my entire professional career existing in this recovery space, to get a broader picture and a better idea of what's going on, not only, where I have been the whole time, but over the course of time and space in the city.

A third sub-theme was that participants used the *Index* to check their assumptions or back up what they were seeing on the ground. For instance, one participant said, "I mean if [the *Index*] wasn't here, we'd be scrounging somewhere else to get information wherever we could get it to say, "What am I seeing? Is this true?" Another participant said, "…a lot of the information we needed was coming first hand either from on-site visuals or from speaking with residents in those communities. But what [the *Index*] provided was data to back up our observations…" One participant, reported doing "a complete 180" on her position on low income housing tax credit units in New Orleans East after reading one of *The New Orleans Index* essays, because the data in the essay showed that her previous position was based on a misassumption. Another participant noted:

> I live in a world of talking points and spin and you know if that's all you ever hear then that becomes the truth and what you really need is to kind of go back and get a reality check, well this is what's said but this not what we actually see here. Right, this is actually what's trending, this is actually what's happening.

B. Adaptation

Using the *Index* to identify need and to adapt priorities and strategies accordingly came up in all twelve focus groups and in 28 pre focus group survey responses. For

example, one participant mentioned using the *Index* "to frame the need" in discussions with their board. Another participant said she used the *Index*, "…just trying to get a handle on what was really lost, because I don't think we had any idea of the amount of [housing] units early on." Other participants mentioned using the *Index* in, "deciding where we needed to be providing services,", "adjusting health care services from one area to another," and "to identify unmet need for designing responsive programming." Another participant talked about using the data in the *Index* in "thinking about how we might define the case management needs of folks." Specifically, he said that data in the *Index* on renters who evacuated following Katrina contributed to the case management collaborative he was a part of deciding to work with renters as well as homeowners, even though most of their resources the received were for only homeowners. Another participant mentioned using the *Index* "for various community needs assessment projects." One participant talked about using the *Index* to identify needs to then decide what to tackle:

> [The *Index*] is one of things that I look at when we try and determine what is it we want to tackle, alright, we want to tackle racial equity. Where? Because you can find that in all these different realms. So if you look at sort of the *Index* as a whole picture and you still have to look at the individual pieces and it's like where is the disparity greatest or what is, where are things trending up but there's like this thing really needs to be tackled so this sort of provides a sort of overall look that you can kind of see in all these different sectors, this is where I really want to focus on here, because I really see a big gap here.

A common sub-theme was that participants used the *Index* to identify needs as part of their planning efforts. This came up in seven focus groups and nine pre focus group survey responses. For example, one participant said, "…we used [the *Index*] for this

environmental scan that we did to inform our strategic management plan…I don't think there was any other place that we went to inform our decision making." Another participant said that they had The Data Center team present on the *Index*, "…to our board of directors when we were looking at where we should be headed, what direction, where are we know, etc." Another participant mentioned using it in the neighborhood planning process, another in "…preplanning discussions for design and implementation of our programs." One participant from a local college mentioned using the *Index* to align their workforce training programs to needs and using data from the *Index* in predictive models to help the college plan for future needs. Another participant said:

> We've used [the *Index*] to apply for grants too now, but that was secondary to the need to use it for planning and ensuring that we had it half way right. Data you know – good data makes good policy. I mean that's pretty clear, and if you don't have good data, you're not going to get good policy

Another sub-theme was that participants in the philanthropy groups used the *Index* to identify needs for grant-making. This came up in six focus groups and 12 pre focus group survey responses. One participant described using the *Index* to create an internal indicators project to help the board "…to really understand the issues in the community and to be able to track growth and progress, or not, and then be able to pivot and make funding decisions and strategic decisions based on that." Another participant also described using the *Index* to educate her board:

> This foundation used some of [the *Index*'s] work to talk about strategic directions, about funding priorities, some the things that you named here and it informed that greatly, in terms of our internal learning which is really important for a foundation to do for a board who is now looking at this every day.

It is important to note that while some participants saw the *Index* as driving grant-making, others saw it as more of a support or a guide. For instance, one participant spoke about the *Index* driving a collaborative fund that the foundation she worked for was a part of: "I mean you could make the case that [the *Index*] actually drove the - it was the main thrust of our grant making. The fact that we were so housing focused and stayed so housing focused, was because we had eyes glued to those pages of the *Index*." Meanwhile, another participant speaking about the same funder collaborative described the *Index* as more of a support a guide: "Again I wouldn't say that it - that the data is what drove the funders to come together but…it was a support, a guide…we shifted as a funder collaborative…the kinds of investments that we made based on what the data was saying about need."

Another participant spoke about the *Index* driving the development of a community investment loan fund:

> [The *Index*] really helped to draw the growth of our community investment loan fund…it really helped us understand the continuous need for more affordable housing. And has helped us to really look forward to the expansion of that loan fund to continue with community development projects in low income neighborhoods. And a lot of that is driven by the data in the *Index*, and how it continues to point to the need for small business, but also housing needs in these communities.

Another participant spoke about how the *Index* helped the national foundation where he worked target resources and reprioritize their list of focus areas:

> …we used [the *Index*] towards our research to show what areas the low income, fifty plus were, were mostly affected you know with limited dollars, where could we focus our limited resources on and have the biggest impact and really and truly The Data Center showed us that housing, of course, was going to be one of those needs because the um rent value almost tripled at one point, but housing initially was not the first

> priority. The first priority was hunger. So it's in, The Data Center really elevated housing to be number one, whereas before it was maybe number five or six on the list, and then, um, we also really thought about the way the work force issues were happening, particularly around the 50 plus, and that is a national issue, but it just really showed us you know how many are employed, what the employment really looks like, so The Data Center really reprioritized our list of focus areas…

C. Collaboration

Participants talked about using the data from the *Index* to get on the same page with others in 11 focus groups and 12 pre focus group survey responses. One common sub-theme was that participants found the *Index* helpful to focus conversations with others and stop the debate over facts. This came up in six focus groups and two pre focus group survey responses. For instance, one participant said, "I do think it helped focus the conversation. That it was easier to talk about things that you had real information on." Another participant said, "I think it settles a lot of debates because there's really good verifiable, trusted information, and it's been presented in ways where you can really help try to engage, debate, and engage decision-makers in quality conversation." Another participant described the *Index* as "…a nice tonic to a lot of the hysteria that the media was kind of, um, made a habit of kind of dustin' up." Similarly, another participant commented on the *Index*'s role in helping to create a more rational environment:

> …sometimes just when somebody was going off on some wild misinformed direction, just being able to point to that data, whether it was relevant in our world or not, was really important, and it just, even if the decisions didn't directly impact us, it helped create an overall environment of some rationality and informed decision making when it was frequently a chaotic, emotional, uninformed environment.

Another common sub-theme was that participants found it helpful to have the *Index* as a common reference. This came up in nine focus groups. For example, participants

said the following about the value of the *Index* as sort of a guide for their conversations and work with others.

- "I feel like the *Index* in some of our partnership situations gave us a touchstone of we all agree on this, which was useful."
- "I think it also became a convening point, so seeing the data, everyone having access to the data, and then we gotta come together and do something."
- "I think it helped to direct not only our work, but helped guide other partners in the right direction. I mean, I think it was invaluable."
- "And it means that you can have open and honest and real kind of conversations, at least from the data standpoint, right? Everybody can say we're all speaking from the same language there."

One participant noted that exercise of looking at data with others may have spurred conversations that led to partnerships:

> …sometimes just going through the exercise of looking at data actually gets you talking, like if you're all sitting at a table and looking at a chart and having a discussion about it…it offers the opportunity to kind of engage with others because you have something, you know, you come and you talk about the *Index* and you talk about things and you have conversations that lead to partnerships.

Similarly, another participant spoke about data from the *Index* leading to new conversations:

> …a lot of the constituencies that I worked with who were very conversant with data from their own part of the world and other data is not on their radars yet and that…um…trying to do community wide stuff, I mean, you need to have a few points of common interest for the community. I found that you know, you know, again this was all from the process of developing the *Index*, where we would sit down with people various industries or civic organizations or different governmental units, and we would find that you know there were bits of information, that were compellable enough or at least were perceived to be that it shifted positions where they were now willing to talk. They saw that they had a…they had an interest in something they hadn't known they had an interest in, and until they saw it manifest in some kind of metric, it was just a matter someone opining so in that sense I've certainly seen the

> work, people we've worked with, you know…it has been a bridge in that way.

On the other hand, some participants mentioned that they did not see the *Index* as driving the creation of new partnerships, but more as an undergirding and support to partnerships that had already formed.

A third, common sub-theme was that the *Index* helped participants in their conversations and communications with people from outside of New Orleans. This came up in seven focus groups and ten pre focus group survey responses. For instance, one participant said, "I found it really useful for communicating to folks not from the area. What different situation look like and how far we've come in a number of ways and how far we have to go…" Similarly, another participant said, "I think the other thing that the *Index* has been really helpful with is in the world outside of New Orleans." Several participants mentioned referring outsiders who contact them with questions, especially the media, to the *Index* or The Data Center website. Several participants also mentioned using the *Index* for "recovery tours" with stakeholders from out of town.

Another participant talked about using the *Index* to provide important context for outside stakeholders:

> If somebody is coming in say it's a congressman or somebody from our head office and wants to know what's going on in New Orleans you could provide all kinds of statistics in terms of numbers of money that's gone out to here or what different sectors it's gone to, number of people that are on the ground, etc. But what I've used the *Index* for and what has been important is to really support that. What, what is that, what was the result of that number, what are the soft stats in the community. If we've spent x millions of dollars in schools in the area, what has been the result, how is the school district, how are public schools doing over time. And you can look at different sectors for that.

D. Emergence of New Structures

Participants talked about using the data from the *Index* to make their case for new funding, new policies, etc. in nine focus groups and 21 pre focus group survey responses. For example, one participant said, "I just used it all the time to make my case. A lot of it was funding, um some of it was advocacy…"

Participants talked about using the data from the *Index* for grant writing specifically in eight focus groups and 16 pre focus group survey responses. For instance, one participant said, "I use it for my proposal writing all the time" Another participant talked about using the *Index* to describe demographics and need for grant applications: "As someone who was fundraising then it was, there was always that section where you have to talk about the demographics and the need and [the *Index*] was invaluable [for that]." One of the participants who worked for a local foundation spoke to the level of use of the *Index* for grant applications: "There wasn't one grant application that I received at my three years at [local foundation] that didn't mention the *Index* or The Data Center." Another participant spoke about the importance of the *Index* in grant writing as it was one of the few credible sources of information: "I had been using it for the past few years to deal with grant writing, report writing, anything. Anytime I have to tell a story of what's happening here, I have to reference the *Index*, because it is the few, credible sources of information that we can access." Another participant made a similar comment: "…if it wasn't for the *Index*, I don't think our quarterly reports wouldn't have been strong enough to continue the funding like it had, so we were really reliant upon the *Index* for the work that we did."

One participant described how they used the *Index* to get funding for a new non-profit focused on low-income landlords:

> The non-profit that I started with a partner was about assisting low-income landlords trying to get their rental units [back online]…So when we were developing our business plan and we were trying to get off of the ground and get funding, we used just tremendous amounts of that data, because there was a whole story in there about the loss of those rental units, and about… the numbers really helped us tell that story.

Another participant described using the *Index* for grant writing and more for a new non-profit focused on Latino community that doubled in size (percentage-wise) following the storm:

> …the *Index* was the only place that spoke about the Latino shift…the story told in terms of percentage shift was huge…so we try to use that to justify our everything…we used it in our advocacy. We used it in storytelling. We used it in grant writing. We used it when we talked to whoever we talked to in some government office, you know, to justify why they should be listening to us.

Another participant spoke about using the *Index* to support and attract investors:

> We used the *Index* to support, to underwriting for making investments, either loans or equity projects…we were able to use [the *Index*] to support and attract investors to projects in different neighborhoods that they may not have had their own experience with or information about.

Participants talked about using the data from the *Index* for advocacy specifically in seven focus groups and six pre focus group survey responses. For example, one participant described using the *Index* for high-level talking points about other sectors in her organization's housing advocacy work:

> When we're doing advocacy all the time we needed, because we were doing such deep dive into the housing world we weren't able to do a deep dive into what was happening in education, what was happening with crime, what was happening with economic development and so that really helped color for instance when we were talking with policy makers to be

> able to color the rest of our advocacy, to be able to have higher-level talking points the *Index* provided, to go along with the deeper dive that we had on the housing work.

Another participant described the value of the *Index* being seen as neutral for his organization's research and advocacy work:

> It is one of the best things for us with the *Index* over time has been the fact that the Data Center takes a general, how can I put it, there is no judgement, it is basically research, these are the facts, here it is, and you guys do with it what you. So that's been good because it provides some credibility and independence to arguments that we need to make as advocates that the data that you see is data. It is what is, there is no agenda to it, no bias built into it but these are the facts. Now after that, that's when the fights start, right for folks like who look at the data and try to think about how to make things better. So for me, that's how we look at the *Index* data and analysis in our research and advocacy.

6.4.2. Impact on Larger System

Participants in nine focus groups mentioned system-level impacts made by the *Index*. These cluster into three main areas: a) the *Index* positively influenced stories being told about New Orleans in the media and at the national level, b) the *Index* fostered emerging conversations on important topics like equity and inclusion, living with water, and regional economic development, and c) the *Index* contributed to an increase in data literacy and demands for data.

A. Perception of New Orleans

One system-level impact noted by participants across several focus groups was that the *Index* positively influenced stories being told about New Orleans in the media and at the national level. This came up in five focus groups and one pre focus group survey response. For example, one participant described the *Index* as "…an annual resource that

continued to keep the spotlight on our continued recovery." Several participants talked about how the *Index* improved the ability of New Orleanians to their own story:

- "I think that they've done a nice job of linking data to storytelling. And storytelling is staggeringly important. And I think they've improved the quality of the stories we're telling…"
- "…no other place that I know of in the South has the same thing as The Data Center. And what it did was, one, gave us more capacity here, and the capacity was about telling our own stories…That matters."
- "…it's so important to be able to control the narrative in a way, also, it's really important. And we did battle the [federal] government with this data…And that, again, is like you're telling your own story, even to agencies that think they know better."

One participant commented specifically on the impact of The Data Center staff's interaction with the national media:

> You know, I was always grateful that they were being used as a resource to tell our story nationally as well. I mean, Allison was obviously… you know, she was used greatly as a source for so many national articles. That it was always a relief like "Oh phew." She's telling the story, she'll tell it right.

Another participant commented on how well covered the *Index* was by the national media and the importance of that:

> I didn't move here 'til 2008, so my first encounter with [the *Index*] was as a national audience person. And the report I think was very instrumental in shaping the national press coverage of what was going on and I remember it was very well reported in the New York Times and there was like that blow-up in the Sunday Op Ed piece of the data visualization that came right from this report and that was really important.

B. Demand for and Use of Data

The *Index* contributing to an increase in demands for data and data literacy came up in eight focus groups. In three focus groups (all city/metro level), participants spoke about how the *Index* spurred demand for more data. For instance, participants said:

- "I think there was a need and the *Index* fed that need in a lot of sectors, which pushed more demand across the board."
- "I think it's fair to say that it has helped us think more about data and seeing the sets of data that are presented there gives us other thoughts about additional types of data that might exist or should exist."
- "It has wetted our appetite for data and informed data-based decision making."

Several participants also mentioned that the *Index* or conversations with Data Center staff inspired them to develop their own capacity to collect their own data. For instance, one participant said:

> But also I think inspiring us to not just rely on you guys, to develop some capacity in house but not duplicate. There's no reason to go out and do data work that the Data Center is already doing, but where there are gaps that we need addressed to go out and develop those in house capacities. I know we did that at [city organization]. You know, we developed parcel surveys that we can chart down to the parcel level in the target area so that we can say how much impact not just we had but the redevelopment, how much did those neighborhoods change post-Katrina.

Similarly, another participant said:

> It also sets the standard for, particularly for nonprofits when you're going to philanthropy, when you're going to government that, you know, we have changed from picking money up off the ground to be having outcome based models and that is supported by information. And some of it's just designing your own systems in house to track your efforts and to say ok, how long did it take a person to buy a house and really having that so that you can explain, but some of it's more complicated than that, because funders don't want to hear these soft, rah-rah, help us rebuild notions.

Additionally, several participants spoke about how the *Index* democratized data and made it a tool for people:

- [The *Index*] democratized the data, made it a tool for average citizens…This was a coherent framework, ongoing, repeating, consistent, for getting that data and information out to as many people as possible, providing a shared story of where we're at in that moment and into the future. It was a complete shift.
- "I think one of the core things about the Data Center that is so important is the whole mission focus and orientation around…democratizing data. I mean just the

whole philosophy that they have an approach to thinking about you know what data is for, how it can be used in service to community, and again leveling that playing field, I think is so powerful, and that was really important.

- "I feel more empowered as an African-American woman who comes from poverty when I read [the *Index*] and then to be able to share that with other people. I think it empowers those groups, my groups to think "We don't have a voice and how do we start talking and how do we get involved and move from there?" That's how I see it."

An excerpt from a conversation between participants that occurred during one of the focus groups further illustrates the impact of the *Index* in terms of democratizing data:

> (Participant a) ...democratizing data put it on people minds that well…I want to get my own data, the way that people have data, the way that people have become armed with data.
>
> (Participant b) ...citizens were comfortable with viewing data and understanding it, whereas I think before the storm it was more an academic exercise, you know.
>
> (Participant c) Absolutely. But to Participant 1's point, they wanted to do it, you know, because they wanted to be, they wanted to participate, and they knew the only way they could participate is if they were armed with information.

C. Emerging Conversations

Another system-level impact noted by participants across several focus groups was that the *Index* fostered emerging conversations on important topics like equity and inclusion, living with water, and regional economic development. This came up in six focus group and six pre focus group survey responses. For example, several participants commented on how the *Index* tracked the most important issues at a given time and fueled conversations:

- "They seem to anticipate the next most important [issue] to include or drop from their reporting.'

- "They had a knack of tracking the issues/opportunities of recovery and including key information that help promote the recovery or break up log jams."
- "In looking back, hitting the nerve that is most important. It just seemed like each time they put out one of these, the issue they are working on has a huge impact on the community. I'll say it again their language engages people and it doesn't create silence, it creates a conversation."
- "[The *Index*] just doesn't present data, it asks questions and then answers that question with the data and I feel the answering, the framing of the question, is as much of a contribution as the report, cause that's what sets the conversation."

Another participant spoke about how the *Index* created networks of people that also fueled conversations.

> …I don't view the *Index* as a report. The process they used to develop it is in my view more to create networks of people…if you start knowing the other people and how they handle data, you can start to establish relationships and build trust. That's how you build community. That I think is perhaps the biggest asset that I have seen from it is that it's created a basis for us to all to have a conversation as a community - one that is worthwhile.

Several participants spoke about how the *Index* fostered important conversations that faced the community (for example, conversations around equity in particular).:

- "I value the *Index* because it creates a basis for discussion of important public policy issues like the need for more middle income jobs in New Orleans and the uneven recovery based on race & economic class."
- "…the *Index* promoted conversation about the relationship between income equality and equity and economic development…the *Index* fostered those sorts of conversations in ways looking back pre-Katrina would've been shocking at New Orleans Business Alliance…"
- "I like that they have people talking…You know, this whole thing on equity and inclusion. I don't think it would've blown up like it did if it didn't appear in something as reputable as the *Index*. I mean, we've been shopping that on the road forever, so to have it in there just really makes it more meaningful."
- "…it's done a really good job of…raising the issue of disparity and so forth, and I think that's gotten picked up pretty well by the press…it was enormously valuable because it's helping us as a city to… I hope address the issue that's holding us back…I just… appreciate that it has been happening. At least that conversation to some degree has been taking place."

- "I think before it was really easy to overlook, issues of income disparity…absent, really, a laser-like focus on the data, with this issue, you could kind of walk away thinking everything's a-okay. But [the *Index*] does not allow us to do that. This is pretty stark. And so I really do hope that this is, over a number of years, continue to allow us to address that issue."

A few participants spoke about how the *Index* fostered important conversations about living with water (another topic important to New Orleans). For example, one participant said, "It's really helpful to see what's been going on outside of my focus area(s). Specifically, in terms of topics such as, "living with water" -- which has become a recent interest and is becoming increasingly more important as the new water plan is being launched." Another participant spoke about how *The New Orleans Index* influenced the creation of The Coastal *Index* which "…has absolutely influenced how my organization has approached creating the business cluster that's going to come out of water for example." Another participant said that the "aura" of the *Index* and conversations that went on around it contributed to the Coastal Master Plan being adopted as well as the Urban City Master Plan including a section on living with water. Without the *Index*, "…having the master plan go from being a 1 in 500 year level protection resilience as opposed to 1 in 100 would've been meaningless. No one would know what it meant." He went on to say:

> That's where I had seen data and the work that the Data Center has done influencing community conversation, but as for those actual political and civic decisions, it has given us a chance to do some important things. And even it propelled investments at this point in the millions of dollars.

A few participants spoke about how the *Index* fostered important conversations around regionalism as well. One participant spoke about how *The New Orleans Index* influenced the creation of the community pattern report that "…influenced sort of the, the

super region that has formed between New Orleans and Baton Rouge and those organizations starting to work together..." Another participant said:

> …after Katrina, having looked at all of the things that that were challenging not only the city but the region, the idea of creating more regional strategy became suddenly very important and had I think taken on prominence for a lot of people and it was the information that we had gathered in the Data Center reports um, initially in the *Index* that helped to get those conversations off the ground I think, because here we have a point of departure, a starting point saying you know this is what is happening in New Orleans and eventually slightly beyond New Orleans, how can we address this most effectively, so I think it led to the asking of some pretty important question that probably wouldn't have been asked without that.

6.4.3. Most Useful Aspects

In all twelve of the focus groups, participants noted positive aspects of the *Index* or things they liked about it. These cluster into four main areas: a) that the *Index* consistently provided valuable, cross-sector data and analysis, including context, trends over time, comparable geographies, and breakdowns by race and gender, b) that the *Index* is credible, neutral, rigorous, and transparent, c) that the *Index* is easy to understand and use, and d) that the *Index* adapted over time in response to changing needs and emerging conversations.

A. Cross-Sector Data and Analysis

Many participants liked that the *Index* consistently provided valuable, cross-sector data and analysis, including context, trends over time, comparable geographies, and breakdowns by race and gender. The consistency of publication as a positive came up in two focus groups and five pre focus group survey responses, the comprehensive/cross-sector nature of the *Index* came up in four groups and twelve responses, the analysis came

up in two groups and five responses, comparison geographies and trends over time came up in five groups and seven responses and the breakdowns by race and gender came up in one group and three responses. All grouped together, these characteristics came up in ten focus groups and 27 pre focus group survey responses.

One participant talked about the comprehensiveness and the trends over time as being particularly helpful:

> I would just say the breadth of all the different areas and indicators and different measures that were in it, that were just so comprehensive, ranging from housing to crime to schools and just everything and all in one place was terrific. And then - it just kind of worked to source, to pull out all the different sources that the data came from, that was behind each of those areas, and then to do that consistently over time - those things together made it very useful.

Another participant liked how the cross-sector data mirrored the complexity of what was happening in the city after Katrina:

> I always appreciate this about the *Index* that somebody has said earlier on the call, you weren't just measuring one thing, you were a whole bunch of things, because this is a very complicated situation that occurs, and these kinds of single interventions – "oh I'm a housing funder," "oh I'm an economic opportunity funder," "oh I'm a, this," that was such a blunt instrument, so many of us had trouble with, trying to get, and it was hard to get foundations to break those silos down, and say, "no, we actually we have to kind of do a coordinated thing where we're doing all these different investments at the same time," so the *Index* mirrored that. Mirrored the complexity of what a city is really about, what a region is about.

One participant commented on the consistency of publication of the *Index*: "I like that it came out every year so you could get a real sense of the progression at a very specific point in time and it was reliably going to come out the next year with kind of follow-up information." Another mentioned appreciating that the *Index* tracked change since

Katrina, but included it in the context of the last 30 years; he said, "...that's a really good thing to sort of put in context – like Katrina didn't create all our problems y'all…" Similarly, someone else said, "…especially on the workforce, economic industry side, by going back thirty years, you could see that this decline was not Katrina-induced."

Another participant commented on like the comparisons to weak city and aspirational metros as well as the break downs by race and gender:

> So I really liked the comparison from the weak city and aspirational metros. I thought that was a very unique way of being able to present that information, particularly post-recovery. The numbers can seem so all over the map, just because of how, because of the very unique way of how we were doing our recovery in the midst of a recession and all this kind of stuff. I thought just having those two kind of breakouts helped center the information so that we could kind of see how we're doing against other metros that are doing the same things that we were doing before Katrina, because we were one of the weak city metros. And then also where we're trying to get to. I've always appreciated those types of framings. I've really appreciated just sort of how they've been able to take some of the indicators and break them through gender and through race as well. I think a lot of the times, if we're going to talk about the recovery, we… to your point about… it has been very uneven, but you have to be able to see it.

B. Credibility and Neutrality

Another thing that participants really appreciated about the *Index* is that it was credible, neutral, rigorous, and transparent. The credibility of the *Index* as a positive came up in seven focus groups and one pre focus group survey responses, neutrality came up in five groups and one response, rigorousness came up in three groups and seven responses, and transparency came up in four focus groups and one response. All grouped together, these characteristics came up in nine focus groups and nine pre focus group survey responses. None of the participants said that they thought the Index was not credible, neutral, rigorous or transparent.

For instance, one participant commented on the neutrality of the *Index*, "Their language is always neutral. I never get the sense of an agenda…so conservative business people to liberal people they can all agree this is reasonable, good data to work from." Another participant said, "I mean, they're reputable reports. Everybody, most everybody knows what they are."

Across several focus groups participants commented that the partnership between Brookings and The Data Center lent credibility to the *Index*. For example, one participant commented about the *Index*, "…having it gone through the process of being peer reviewed and getting the validation of Brookings, an external expert like that, helps kind of cements the credibility of that data.' Similarly, another participant commented, "…to find out that the Data Center partnered with Brookings, it was like hallelujah, this extra seal of approval." And other participants noted the local credibility that The Data Center brought to the partnership. For example:

> It kind of also gave - they gave each other credibility, because you know nobody in New Orleans was necessarily going to trust Brookings, right? But the Data Center put their name on it and I think to a certain extent, we knew locally how good the Data Center was, but maybe not necessarily nationally. It seemed like a beneficial relationship for both.

Several participants also commented on liking aspects of the *Index* related to transparency. For instance, one person commented, "I do think they did a good job of the credits, in terms of letting you know where they were getting the data." Another said the authors were "…thoughtful about…what we didn't know and explaining why we didn't know what we didn't know." Another person said the authors, "…help me become better at providing that explanation because they're so good at teaching how to interpret the

data, like "this is what this means" and the footnotes are really, really explicit, contextual explanation of what's happening."

C. Easy to Understand and Use

A third attribute of the *Index* that participants liked was that it was easy to understand and use. The fact that the *Index* was easy to understand and use came up in five focus groups and 25 pre focus group survey responses.

For example, one participant said, "It's very straight to the point. You get it." Similarly, another participant said, "…one good thing about the *Index* is that it was written in a way that's comprehensive and digestible, so you can read the *Index* and feel like "Alright, I've got a good grip and an understanding of what the overall story that it's trying to tell with the information."

A prominent sub-theme echoed across most of the groups was that the visuals in the *Index* contributed to making it easy to understand and use. For example, one participant said, "I'm always amazed at how clearly and graphically it's presented. It's almost immediately comprehensible, which is very difficult with dense data, so I've always appreciated that." Similarly, another participant said that what they liked about the *Index* was, "…the way that it is presented, so the mixture of visual, graphs and text and sort of images. It really provides some interest, and again, the notion of simplicity and clarity. You don't have to feel intimidated. I think it is a book that is developed in such a way that it doesn't intimidate its reader."

Another prominent sub-theme was the organization of the *Index*. For example, one participant said:

> I also liked the way the report is organized, so that you can quickly find, if you are just looking for one particular topic, you can quickly find what you are looking for or you can read the whole thing from beginning to end to sort of get the big picture of how various things in New Orleans have changed over time.

Another participant commented on the titles of the categories used to organize the *Index*:

> I'm struck by the categories that are here in the… it's just wonderful. There's one that's called "inclusion." It's not "race and ethnicity" – it's "inclusion". That word, just using that word it's so sympathetic – that the inclusion of everybody is important. It's striking, and then that it included "sustainability" as a topic. Just the way it's organized is interesting to me.

D. Adapted to Changing Needs

A fourth aspect of the *Index* that participants liked was that it adapted over time in response to changing needs and emerging conversations. The way the *Index* adapted over time in response to changing needs and emerging conversations was mentioned in six focus groups and three pre focus group survey responses. For instance, one participant said:

> I think also they haven't been what I would call a "Johnny One Note" that they really did track the things people needed. The essentials of life – the housing, the education, and they have seemed to have been able to move into other spaces and particularly into economic development and equity, which I think is extremely helpful because it shows that they are not just about – they weren't just about the immediate recovery, but they were looking, they're now looking at the long term.

Another participant commented on how the *Index* began to mirror the conversation that was happening around regionalism:

> …there was an increasingly regional focus, beyond New Orleans per se and into the surrounding parishes and so that was nice too because that sort of echoed or mirrored our thinking, too. I think most of us saw things

> as we thought more systemically. We started seeing that, oh, there are regional issues here.

Another participant commented on how the *Index* began to mirror the conversation that was happening around equity:

> Know what I liked? The evolution of the *Index* with an equity perspective…paying attention to the evolving nature of this community, this conversation about equity and inclusion in the long-term recovery and increasingly adding those points to the *Index*, I think has been really important for us.

6.4.4. Barriers and Challenges

In eleven of the twelve focus groups, participants noted challenges associated with the *Index*. These cluster into three main areas: a) participants would like to see data for additional geographies, including neighborhoods and the Gulf Coast region, b) participants would like to see more data, including deeper dives into their specific area of interest, c) participants saw issues with the data ungirding the *Index* as a challenge, and d) participants saw a need for more qualitative data and data focused around equity and roles for partnerships and philanthropy in meeting those needs.

A. Data for More Geographies

Many participants said they would like to see data for additional geographies, including neighborhoods, Orleans Parish, and the Gulf Coast region Participants mentioned a desire for data for additional geographies, including neighborhoods (participant in one of the neighborhood level groups), Orleands Parish (participant in one of the city/metro groups), and the Gulf Coast region (participant from a state/regional/national group, one from a city/metro group, and one from a neighborhood group) in five focus groups and twelve pre focus group survey responses. For instance,

one participant who would like to see more data for the Gulf Coast region said, "It would have been nice if the *Index* had also reported on the Gulf Coast of Mississippi. That would have made it mostly one-stop shopping for the majority of the recovery story post-Katrina." Another participant who would like to see neighborhood level data for other regions said, "I still like this idea about having this work expanded to other regions because I think it would help policy makers immensely if they had a better sense of what's going on at the neighborhood level, not just the city level, but the neighborhood level."

Another participant who would like to see data for additional geographies said:

> ….for example DHH region 9 encompasses St. Tammany, all the way to I think Livingston Parish, right, which is not in the Greater New Orleans Metro area per say, this is sort of the western portion of that geography, so really being able to look at data about the elderly or aging and services that are available to them just where they live in terms of public transportation all that good stuff, wasn't available in some instances in a format that was very helpful if you were looking just in other governmental geographic areas

Another participant who would like to see city level data in addition to the metro level data in the *Index* said:

> The only challenge is that I sometimes need New Orleans data so I'm often going back between metro and then to the city, so that's a bit of a challenge sometimes, because if you take those other parts of the metro out, stuff looks very different… however, I do understand why they do it that way.

B. Deeper Dives into Specific Areas of Interest

Participants across several focus groups mentioned that they would like to see more data, including deeper dives into their specific area of interest (mentioned in six focus groups and 23 pre focus group survey responses). For example, one participant said, "For

me, the more information the better...I don't care how thick it is because I probably won't be reading every page anyway. But if it has the information I need when I need it, I'll go through and find it." Similarly, another participant said, "I think it's gotten to a point to where I would like more information if there's more information that could be put in there…There are just times where I wish there were some of the indicators went into more detail."

Another participant mentioned they would like to see the *Index* include data on resilience and/or vulnerability:

> I think what would be interesting for me is as we get further away from the storm and the *Index* continues to grow is to start to track that, somehow integrate what it means to be prepared and start to track what it means to be ready for the next event…

Participants in two different focus groups mentioned wanting to see more data around crime and criminal justice. For instance, one participant said, "…one of the primary issues we were dealing was crime in [neighborhood]… I think that was the one thing that we were missing and I know it might not be the *Index's* mission, but it would have been really helpful…" Another participant said:

> I would have wanted to see this other data point that's been floating around, like 1 in 7 African American males is under the supervision of the criminal justice system, right? And it's like 1 in 14 are incarcerated…It's something that people reference so much, it would be helpful if we had a credible source that actually developed that data.

Another participant mentioned wanting to see a deeper dive was around the economy and workforce:

> I think the job cluster section is great and I really like that they are doing it now but I feel that there is a layer of depth that is just not at the level it could be because the categories were a bit broad. For example – we want

> to make programmatic determinations to figure out where you should be preparing for jobs for the five to ten years. We don't have enough information to make that decision based on just what is in the report.

Other areas that participants mentioned that they would like to see deeper dives include housing, entrepreneurship, childcare, healthcare, and education, among other things.

C. Broader Scope to Include Advocacy

Another sub-theme was the need to broaden the scope of the Index to the point of supporting advocacy work. This came up in six focus groups and six pre-focus group survey responses. For instance, one participant mentioned she would like for the *Index*, "…to include snap shots…like connecting it to a story." Another participant mentioned he would like for the *Index*, "…to look at issues of equity and fairness with a more critical perspective."

In one of the focus groups with city/metro level organizations, participants got into an interesting discussion around the desire for more data and analysis "to push an equity agenda" or "shine light" on issues affecting vulnerable populations, while maintaining their credibility and ability to serve as a base to a lot of work happening around the city (See Box 1 below). In the end participants agreed that partnerships were a key component in striking the balance: The Data Center could provide the neutral data and the partner organizations could use it to advocate.

Box 1. Role of partnerships in meeting the need to push an equity agenda
Note: This conversation has been condensed for readability.

(Participant a) I'm just saying, when we start talking about the most vulnerable, we're talking about people that end up going off to jail, people who get locked up in jail without a crime and it may be that - what is the new vision of the Data Center? Right, yes, they can keep doing what they're doing, and they can do that well, but what are the issues that are going to help rebuild New Orleans. Where can they shine light?

(Participant b)…they traditionally started out as very purist and this has been a challenge, but this has been a growth as well, because if it wasn't Census data, they don't touch it, and so like the piece around incarceration and around schools you know, they don't do those things. This whole piece around incarceration of African American men and I'm just wondering if they don't see that as their niche…

(Participant c) …in terms of y'alls comments about sort of getting maybe broadening their stuff – I don't know, I've observed that the Data Center is a good sort of base to a lot of this work that's going on around the city…I look at organizations like…the new outfit out of [local university]…They've sort of launched themselves headlong into the broader political conversation and have paid the price for it in some ways…the Data Center is sort of a little different. It's like an anchor almost that has that credibility and I would be cautious to sort of change that approach perhaps.

(Participant d) I mean I definitely understand what you're saying – stay in your lane. Because I do think that they should continue to do what they do. I still think they need more educators, and I still think there's federal, like census level data, that they can access that can do that trick….To reiterate just one more time just about like in trying to push an equity agenda – [the *Index*] has legs, right? It's very helpful as a foundational tool, but it has limits…it's hard to look at the data that is in front of us and understand how to unpack that when we're just using census level data, and I'm just being honest…there has to be something more, even if it's not that they're producing it, although I think that they can. It is more analysis.

(Participant b) And I think that brings in the importance of partnerships. You know because if the Data Center is going to stay true to its mission and purpose and its niche and then we have organizations like some of ours here that have a particular agenda around specific advocacy issues, how will we overlay that and for me that's what sort of community-based and participatory action research is about, like, partnering with a solid foundational research piece and using that to further whatever agenda you have…I think the Data Center and this is something I'd like to see them do better in the future that I think would address that is partner with organizations that advocate on particular issues to use their base line data.

(Participant 5) That's what I'm thinking too so whether they can I think again…if they're gonna be continued to be looked at by everybody in the community –

(Participant b) As being neutral, because if they go too far, they don't want to be perceived that way.

(Participant 5) Right, so then, but then you can take, we can take the data that they're producing and mold it to our own purposes...But we can't do that easily, unless there's

some kind of willingness of the Data Center to help us work through how to do that effectively.

(Participant b) And it helps everybody, because then whatever we're advocating on, looking at, or not advocating or looking with an equity lens, we have a good foundation with good baseline data you know, and so I think that that's something.

In another group with local philanthropy, participants got into an interesting discussion about the desire for more data, data for people working in the margins, and data to "restore balance" (See Box 2 below). In the end, participants came to a consensus that as funders, it was on them (or at least their leadership and boards) to fund additional data capacity.

Box 2. Role of philanthropy in meeting the need for additional data
Note: This conversation has been condensed for readability.

(Participant a) I have come across the whole "I am just a demographer" thing in terms of looking at Data Center work…I know it's supposed to be neutral, but in terms of taking stances and especially in the face of the inequities that we face, it's been a little bit frustrating…I feel like, is there no room in data for some of that much more nuanced, qualitative view to come into play?…There should be a call to action…So that's where, you know, I wish there was a more flexible, permeable, bloggy kind of way to talk about it…I also wonder how we can engage people whether it's in story form by using the data, or more collective, community-based conversations…I mean plain folk, who, this is their data…

(Participant a) …I've been in meetings, for example, when the City was doing the consolidated planning process, there were data needs and The Data Center was represented, and every time one of the organizations or an advocate said "Could we get data for this?" "Nope, we don't do that." So there's a lot of unsatisfied or unmet data needs, and I don't know to what degree there's flexibility or the budget to address that. I know there are limitations, but you know, when I'm thinking about people who work in the real margin margins in terms of homelessness, HIV, domestic violence, all that. Those folks data needs, I don't think are taken care of….

(Participant b) I think that the capacity of the Data Center limits them, because we've been, as a funder, we ask about things and they tell us "Look, we just don't have the capacity."

(Participant a) I think that ultimately, if you're going to use "Democratizing Data" as your catch line, then standing up for what's right in a democracy is certainly a part of that. So I think, that's both my disappointment and my hope, that moving forward the Data Center plays a bigger role in doing that and informing a lot of the conversations like this about restoring the balance. Because the powers that be won't make decisions based on a moral imperative, they need the data imperative to make the right decision…

(Participant c) And I agree wholeheartedly with everything, but until the funders of the Data Center put up the money…it's not gonna happen. So, I mean, we're talking to ourselves here. If we want this, then we have to figure it out. We're the constituents that want this, because who else is gonna give them the money?

Chapter 7. Survey

7.1. Method

The survey instrument was designed based on the research questions and an analysis of the 12 focus groups that were conducted in August 2015 as part of this dissertation research. The survey was sent to 4,311 email addresses from The Data Center's e-newsletter list on Tuesday, March 22, 2016. This list was selected as the sampling frame because it includes email addresses and is a primary channel for the dissemination of *The New Orleans Index*. Reminders were sent to email addresses that had not responded or had not completed responding on a weekly basis. The survey closed Wednesday, April 20. It was open for 30 days.

Because The Data Center's e-newsletter list does not include everyone in the target population of people who used the *Index* and participated in the recovery from Hurricane Katrina and Rita, this is a convenience/nonprobability sample and the results cannot be considered representative of that larger target population. However, responses can be considered representative of the larger e-newsletter list (since everyone on the e-newsletter list had an equal chance of being selected to participate in the study), with the caveat that there is likely some response bias. People that feel more strongly about the *Index* are more likely to have responded.

The response rate for the survey was 19.4%. More than two thirds (68.5%) of the survey participants met both criteria to participate in the survey: they used the *Index* in

their work as broadly defined (73.5%) and worked or lived in an area impacted by Hurricane Katrina/Rita or on Hurricane Katrina/Rita related issues (88.7%). Of the participants that met both target group criteria, 78.6% completed the entire survey.

7.2. Participants

The majority of respondents were between 35 and 64 years old (68.3%) and fairly evenly spread across each ten-year increment. The remaining 30% was roughly split between those 34 and under and those 65 and older. Roughly 60% of respondents were female and 40% male. The race/ethnicity breakdown was: 72.5% White, 21.1% African American, 4.6% Hispanic or Latino and 2.2% Asian. The most common educational attainment categories were Master's degree (44.5%), Bachelor's degree (24.5%) and Doctorate (15.8%). When asked about the level worked at during the recovery, respondents were fairly evenly split between middle management (29.9%), executive management (26.9%), operations (26.2%), and technical advisor (21.8%).

When asked to select the types of organizations they worked for during the recovery, the most common responses were: nonprofit (45.1%), college or university (24.4%), neighborhood association (18.3%), government - city or parish (10.7%), civic association (10.5%), and foundation / philanthropy (9.4%). There were 15 options for this question and respondents could select as many options as the wanted. The maximum number of options selected was 13, the median was 1, the mean was 2, and the standard deviation was 1.6.

When asked which sectors their organizations worked in, the most common responses were: education (33.1%), community development (30.9%), advocacy (28.6%),

housing / construction / rebuilding (28.4%), resilience / long -term recovery (26.7%), community organizing (26.2%), research (24.5%), capacity building (22.2%), political /policy (21.7%), and health /mental health (20.9%). There were 22 options for this question and respondents could select as many options as the wanted. The maximum number of options selected was 22, the median was 3, the mean was 4, and the standard deviation was 3.5.

Respondents reported their organizations worked at a variety of geographic levels, including city/parish/county (73.5%), neighborhood (59.9%), metro (43.7%), regional (36.9%), state (30.8%), national (18.5%), and international (5.7%). There were 7 options for this question and respondents could select as many options as the wanted. The maximum number of options selected was 7, the median was 2, the mean was 3, and the standard deviation was 1.6.

7.3. Results

7.3.1. Dissemination

The largest group of respondents first remember seeing the *Index* in 2006 (35.8%), 11.2% first remember seeing the *Index* in 2007, 6.7% in 2008 and 5.9% in 2009. This followed by an uptick to 7.4% in 2010, which was the five-year anniversary of Katrina. The total for those who first saw the *Index* in 2011, 2012, 2013, 2014, 2015 and 2016 was 15.9%, and 16.8% were not sure when they first saw the *Index*. The largest group of respondents first remember seeing the *Index* in an email from the Data Center or Brookings (35.0%), followed by when searching for data online (19.0%), at a meeting

where it was being presented (10.1%), and through a colleague (9.1%), while 13.0% were not sure where they first saw the *Index*.

7.3.2. Use

The most used components of the *Index* were the data tables (used by 89.8% of respondents), followed by the executive summary (81.6%), the full report (76.3%), the essays (45.9%), the PowerPoint slides (42.5%), and the YouTube video (13.9%). Over 98.5% of those who used them found the executive summary, data tables, full report and PowerPoint slides helpful or very helpful. Of those who used the essays or the YouTube video, 95.3% and 81.7% found them to be helpful or very helpful.

The most common tangible purposes respondents reported using the *Index* for were a strategic plan (50.7%), advocacy communication (45.7%), grant proposal or fundraising material (42.9%), briefing for volunteers, interns or technical service providers (37.8%), other report (37.4%), and briefing for elected officials, board members or national foundations (35.6%). The tangible uses with the highest total number of uses were advocacy communication (749), grant proposal or fundraising materials (704), strategic plan (698), and briefing for volunteers, interns, or technical assistance providers (650), and briefing for elected officials, board members, or national foundations (553), followed by other report (512), grant report (466), media article (435), academic publication (348), briefing for the media or press release (327), government report (288), grant making decision (280), investment decision (237), and book (138).[3]

[3] Respondents were also asked for the frequency with which they used the *Index* for each purpose they reported using it for (once, 2-5 times or more than 5 times). Using this data, I calculated the minimum

The most common intangible purposes respondents reported using the *Index* for were to understand what was happening over time and across sectors (92.6%), to provide context for their work (90.4%), to check their assumptions (81.4%), as a common reference when working with others (69.5%), and to back up personal experience (67.4%). The intangible uses with the highest total number of uses were the same as the most common uses: to understand what was happening over time and across sectors (1783), to provide context for their work (1696) to check their assumptions (1527), as a common reference when working with others (1257), and to back up personal experience (1251).[4]

Factor analysis

A factor analysis was conducted to reduce the twenty-two variables on tangible and intangible uses of the Index. The extraction method used for the analysis was principal axis factoring. Missing values were replaced by the mean so as not to change the correlation matrix but to ensure that missing values were not over penalized. Promax, an oblique rotation method, was used to simplify the interpretation of the factors. One variable ("as a common reference when working with others") was removed from the analysis to simplify the interpretation of the data. All variables correlate fairly well (the majority of significance values are not >.05 for any variables) and none of the correlation coefficients are particularly large (>.9), so no variables were eliminated from the

number of times the *Index* was reportedly used for each purpose. For example, if a respondent reported using the *Index* for a strategic plan 2-5 times, I counted it as 2 uses, or if a respondent reported using it for a strategic plan more than 5 times, I counted it as 6 uses.

[4] Same as previous foot note.

analysis. The Kaiser-Meyer-Olkin measure of sampling adequacy is .852 (which is considered great) and Bartlett's test is highly significant ($p < .001$), so factor analysis is appropriate for the data. All factors with Eigen factor's above one were retained.

Table 23. Total variance explained: Use of Index

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.023	28.682	28.682	5.571	26.531	26.531	4.312
2	2.026	9.649	38.331	1.602	7.627	34.158	4.085
3	1.573	7.492	45.824	1.052	5.009	39.167	2.904
4	1.353	6.442	52.265	0.906	4.316	43.484	3.690
5	1.155	5.502	57.767	0.580	2.762	46.246	2.652
6	1.002	4.771	62.539	0.562	2.678	48.924	0.909
7	0.934	4.449	66.988				
8	0.877	4.174	71.162				
9	0.787	3.748	74.911				
10	0.658	3.135	78.046				
11	0.642	3.058	81.104				
12	0.556	2.649	83.754				
13	0.533	2.538	86.291				
14	0.477	2.273	88.565				
15	0.457	2.178	90.743				
16	0.428	2.037	92.780				
17	0.370	1.760	94.539				
18	0.353	1.680	96.220				
19	0.289	1.378	97.597				
20	0.273	1.298	98.895				
21	0.232	1.105	100.000				

Extraction Method: Principal Axis Factoring.
a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Bartlett factor scores were used to create index values. This method was chosen because it results in scores that have high validity, are highly correlated to their

corresponding factor and not with other factors (univocality), and are unbiased estimates of factor score. The factor pattern matrix below contains the coefficients for the linear combination of the variables. The factors were given names based on the variables they include.

Table 24. Pattern Matrix – Use of the Index

	1 Situational awareness and identifying and prioritizing needs	2 Communicating with the public	3 Securing funding	4 Settling debates and focusing conversations	5 Investing resources	6 Books and publications
To provide context for my work	0.878					
To understand what was happening over time and across sectors	0.797					
To check my assumptions	0.775					
To back up personal experience	0.543					
To identify / prioritize needs	0.488					
Briefing for the media or press release		0.885				
Briefing for elected officials, board members, or national foundations		0.744				
Media article		0.553				
Advocacy communication		0.491				
Briefing for volunteers, interns, or technical assistance providers		0.428				
Strategic plan						
Government report						
Other report						
Grant proposal or fundraising materials			0.923			
Grant report			0.831			
To settle debates over facts				0.942		
To focus conversations				0.738		
Investment decision					0.719	
Grant making decision					0.483	
Book						0.615
Academic publication						0.566

To determine how much of the variation in each factor is explained by the independent variables (geographic levels, organization types, organization sectors, and levels worked at, and when respondents first remember seeing the Index) a multiple regression analysis were run for each factor. The findings from these analyses are summarized in the following sections.

Use 1. Situational awareness and identifying and prioritizing needs

A multiple regression was run to predict Use 1 (situational awareness and identifying and prioritizing needs) from the variables related to level worked at, geographic level of the organization, organization type, organization sector, and when the respondent first heard about the Index. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.935. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no cases for which the standardized residuals or the studentized deleted residuals were greater than +/- 3 standard deviations. There were fifty-eight leverage values greater than 0.2 (but less than .5) but these were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Use 1 (situational awareness and identifying and prioritizing needs), $F(50, 290) = 1.569$, p

< .05, adjusted R^2 = .077. Three variables (Level worked at: Technical advisor; Sector: Human Services; When first saw Index) added statistically significantly to the prediction, p < .05. All regression coefficients and standard errors can be found in the table below.

Table 25. Coefficients for Use 1, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.252	0.198		0.204
Level worked at: Operations	-0.029	0.128	-0.014	0.824
Level worked at: Executive management	-0.157	0.145	-0.075	0.28
Level worked at: Middle management	0.223	0.136	0.11	0.101
Level worked at: Technical advisor	0.338	0.147	0.155	0.022
Type: College or university	-0.144	0.158	-0.061	0.362
Type: School	-0.062	0.242	-0.016	0.8
Type: Government, City	-0.054	0.191	-0.018	0.78
Type: Government, State	-0.097	0.205	-0.03	0.636
Type: Government, Federal	-0.147	0.223	-0.038	0.51
Type: Government board	0.252	0.371	0.041	0.498
Type: Quasi-governmental agency	-0.16	0.223	-0.045	0.474
Type: Government contractor	-0.295	0.257	-0.071	0.251
Type: Foundation	0.146	0.192	0.047	0.448
Type: Nonprofit	-0.011	0.126	-0.005	0.933
Type: Civic organization	-0.061	0.21	-0.019	0.77
Type: Neighborhood association	0.129	0.209	0.042	0.537
Type: Business	-0.292	0.153	-0.117	0.058
Type: Faith-based	-0.03	0.221	-0.008	0.893
Type: Media	0.254	0.259	0.058	0.327
Type: Other	-0.063	0.199	-0.018	0.75
Sector: Advocacy	0.046	0.148	0.021	0.757
Sector: Arts and culture	0.015	0.174	0.005	0.93
Sector: Capacity building	0.115	0.152	0.052	0.45
Sector: Community organizing	-0.012	0.162	-0.005	0.943
Sector: Community development	0.05	0.15	0.024	0.74
Sector: Criminal justice	0.077	0.203	0.023	0.705
Sector: Economic development	0.236	0.155	0.098	0.128
Sector: Education	-0.009	0.149	-0.004	0.95
Sector: Emergency response	-0.04	0.164	-0.016	0.808

Sector: Environment	-0.003	0.181	-0.001	0.988
Sector: Political	0.112	0.145	0.048	0.442
Sector: Health	-0.002	0.152	-0.001	0.99
Sector: Human Services	0.439	0.162	0.17	0.007
Sector: Hunger	0.06	0.246	0.015	0.806
Sector: Housing	0.169	0.126	0.08	0.183
Sector: Public Safety	-0.259	0.21	-0.072	0.218
Sector: Resilience	0.102	0.145	0.048	0.482
Sector: Research	0.066	0.15	0.028	0.659
Sector: Transit	0.003	0.218	0.001	0.988
Sector: Urban planning	-0.24	0.166	-0.099	0.15
Sector: Youth	0.154	0.16	0.06	0.335
Sector: Other	0.127	0.188	0.041	0.498
Geographic level: Neighborhood	0.158	0.134	0.079	0.24
Geographic level: City	0.053	0.146	0.022	0.717
Geographic level: Metro	0.171	0.128	0.086	0.181
Geographic level: Region	-0.047	0.132	-0.024	0.721
Geographic level: State	0.17	0.145	0.082	0.243
Geographic level: National	-0.045	0.164	-0.019	0.784
Geographic level: International	0.119	0.247	0.028	0.631
When first saw Index	-0.059	0.022	-0.158	0.007

A second multiple regression was run to predict Use 1 (situational awareness and identifying and prioritizing needs) from the variables that added statistically significantly to the prediction from the previous regression. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.752. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance

values greater than 0.1. There were two cases for which the standardized residuals were greater than +/- 3 standard deviations and two cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. These were left in, because after further inspection, there were no other reasons to exclude them. There were no leverage values greater than 0.2. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Use 1 (situational awareness and identifying and prioritizing needs), $F(3, 338) = 12.657$, $p < .0005$, adjusted $R^2 = .093$. All three variables (Level worked at: Technical advisor; Sector: Human Services; When first saw Index) added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 26. Coefficients for Use 1, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	0.101	0.091		0.265
Level worked at: Technical advisor	0.335	0.113	0.153	0.003
Sector: Human Services	0.532	0.135	0.206	0
When first saw Index	-0.064	0.02	-0.17	0.001

Use 2. Communicating with the public

A multiple regression was run to predict Use 2 (communicating with the public) from the variables related to level worked at, geographic level of the organization, organization type, and organization sector. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed

by a Durbin-Watson statistic of 1.982. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no cases for which the standardized residuals or the studentized deleted residuals were greater than +/- 3 standard deviations. There were no leverage values greater than 0.2. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Use 2 (communicating with the public), $F(50, 290) = 2.917$, $p < .0005$, adjusted $R^2 = .220$. Five variables (Type: Business; Sector: Advocacy; Sector: Emergency response; Sector: Political; Sector: Hunger) added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 27. Coefficients for Use 2, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.356	0.215		0.099
Level worked at: Operations	-0.166	0.139	-0.068	0.235
Level worked at: Executive management	0.283	0.158	0.115	0.074
Level worked at: Middle management	0.132	0.147	0.055	0.372
Level worked at: Technical advisor	0.303	0.159	0.118	0.058
Type: College or university	-0.026	0.172	-0.009	0.88
Type: School	-0.229	0.263	-0.05	0.385
Type: Government, City	-0.063	0.208	-0.018	0.761
Type: Government, State	0.004	0.222	0.001	0.985
Type: Government, Federal	-0.255	0.243	-0.056	0.294
Type: Government board	-0.502	0.403	-0.069	0.214
Type: Quasi-governmental agency	0.061	0.242	0.014	0.802
Type: Government contractor	-0.002	0.279	0	0.993
Type: Foundation	0.13	0.209	0.035	0.535
Type: Nonprofit	-0.197	0.136	-0.084	0.151

Type: Civic organization	0.281	0.228	0.075	0.217
Type: Neighborhood association	0.106	0.227	0.029	0.641
Type: Business	-0.469	0.167	-0.159	0.005
Type: Faith-based	0.241	0.24	0.054	0.317
Type: Media	0.415	0.281	0.08	0.141
Type: Other	-0.115	0.216	-0.028	0.596
Sector: Advocacy	0.387	0.161	0.152	0.017
Sector: Arts and culture	0.229	0.189	0.067	0.225
Sector: Capacity building	0.111	0.166	0.042	0.504
Sector: Community organizing	0.067	0.176	0.026	0.702
Sector: Community development	-0.104	0.163	-0.042	0.526
Sector: Criminal justice	-0.025	0.221	-0.006	0.908
Sector: Economic development	0.006	0.168	0.002	0.972
Sector: Education	-0.21	0.162	-0.084	0.194
Sector: Emergency response	0.379	0.178	0.126	0.035
Sector: Environment	-0.095	0.197	-0.028	0.628
Sector: Political	0.587	0.158	0.212	0
Sector: Health	-0.229	0.165	-0.079	0.166
Sector: Human Services	0.18	0.176	0.059	0.308
Sector: Hunger	0.781	0.267	0.162	0.004
Sector: Housing	-0.01	0.137	-0.004	0.942
Sector: Public Safety	0.073	0.229	0.017	0.75
Sector: Resilience	0.031	0.158	0.012	0.847
Sector: Research	-0.017	0.163	-0.006	0.917
Sector: Transit	0.01	0.237	0.002	0.965
Sector: Urban planning	-0.324	0.181	-0.113	0.074
Sector: Youth	-0.066	0.174	-0.021	0.706
Sector: Other	-0.147	0.204	-0.04	0.472
Geographic level: Neighborhood	0.029	0.146	0.012	0.843
Geographic level: City	0.226	0.159	0.08	0.157
Geographic level: Metro	0.162	0.139	0.069	0.244
Geographic level: Region	-0.031	0.144	-0.013	0.831
Geographic level: State	0.241	0.158	0.099	0.128
Geographic level: National	0.156	0.178	0.055	0.381
Geographic level: International	-0.203	0.268	-0.04	0.45
When first saw Index	-0.045	0.024	-0.102	0.055

A second multiple regression was run to predict Use 2 (communicating with the public) from the variables that added statistically significantly to the prediction from the previous regression. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.887. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were four cases for which the standardized residuals were greater than +/- 3 standard deviations and five cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. There were thirty-seven leverage values greater than 0.2 (but less than .5) but these were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Use 2 (communicating with the public), $F(5, 535) = 23.232$, $p < .0005$, adjusted $R^2 = .171$. Four variables (Sector: Advocacy; Sector: Emergency response; Sector: Political; Sector: Hunger) added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 28. Coefficients for Use 2, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.32	0.056		0

Type: Business	-0.107	0.108	-0.039	0.322
Sector: Advocacy	0.328	0.097	0.14	0.001
Sector: Emergency response	0.496	0.115	0.174	0
Sector: Political	0.629	0.105	0.245	0
Sector: Hunger	0.467	0.17	0.111	0.006

Use 3. Securing funding

A multiple regression was run to predict Use 3 (securing funding) from the variables related to level worked at, geographic level of the organization, organization type, and organization sector. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.684. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no cases for which the standardized residuals or the studentized deleted residuals were greater than +/- 3 standard deviations. There were fifty-eight leverage values greater than 0.2 (but less than .5) but these were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Use 3 (securing funding), $F(50, 290) = 2.096$, $p < .0005$, adjusted $R^2 = .139$. Five variables (Type: Nonprofit; Type: Business; Sector: Criminal justice; Geographic level: City; Geographic

level: Metro) added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 29. Coefficients for Use 3, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.432	0.214		0.045
Level worked at: Operations	-0.263	0.139	-0.113	0.059
Level worked at: Executive management	0.188	0.157	0.081	0.231
Level worked at: Middle management	0.145	0.147	0.064	0.323
Level worked at: Technical advisor	-0.168	0.159	-0.069	0.289
Type: College or university	-0.019	0.171	-0.007	0.913
Type: School	-0.129	0.262	-0.03	0.624
Type: Government, City	0.176	0.207	0.053	0.395
Type: Government, State	-0.144	0.221	-0.04	0.515
Type: Government, Federal	-0.219	0.242	-0.051	0.366
Type: Government board	0.376	0.401	0.055	0.349
Type: Quasi-governmental agency	-0.025	0.241	-0.006	0.917
Type: Government contractor	-0.046	0.278	-0.01	0.869
Type: Foundation	-0.153	0.208	-0.044	0.462
Type: Nonprofit	0.282	0.136	0.128	0.039
Type: Civic organization	0.255	0.227	0.072	0.262
Type: Neighborhood association	-0.262	0.226	-0.076	0.247
Type: Business	-0.608	0.166	-0.217	0
Type: Faith-based	0.055	0.239	0.013	0.818
Type: Media	-0.455	0.28	-0.092	0.105
Type: Other	-0.117	0.215	-0.03	0.587
Sector: Advocacy	-0.056	0.16	-0.023	0.726
Sector: Arts and culture	0.19	0.188	0.059	0.312
Sector: Capacity building	0.089	0.165	0.036	0.591
Sector: Community organizing	0.173	0.175	0.069	0.325
Sector: Community development	0.117	0.162	0.05	0.474
Sector: Criminal justice	-0.444	0.22	-0.118	0.044
Sector: Economic development	0.096	0.167	0.035	0.568
Sector: Education	-0.117	0.161	-0.049	0.468
Sector: Emergency response	-0.214	0.178	-0.075	0.23
Sector: Environment	-0.131	0.196	-0.04	0.504

Sector: Political	0.008	0.157	0.003	0.961
Sector: Health	0.105	0.164	0.038	0.523
Sector: Human Services	0.296	0.175	0.103	0.092
Sector: Hunger	0.441	0.266	0.096	0.098
Sector: Housing	0.117	0.137	0.049	0.394
Sector: Public Safety	0.134	0.227	0.033	0.556
Sector: Resilience	0.137	0.157	0.057	0.383
Sector: Research	0.048	0.162	0.018	0.765
Sector: Transit	-0.044	0.236	-0.011	0.852
Sector: Urban planning	-0.214	0.18	-0.079	0.234
Sector: Youth	0.128	0.173	0.044	0.459
Sector: Other	-0.06	0.203	-0.017	0.767
Geographic level: Neighborhood	0.066	0.145	0.029	0.65
Geographic level: City	0.318	0.158	0.12	0.046
Geographic level: Metro	0.303	0.138	0.136	0.029
Geographic level: Region	0.075	0.143	0.033	0.599
Geographic level: State	0.12	0.157	0.052	0.444
Geographic level: National	-0.134	0.177	-0.05	0.45
Geographic level: International	-0.001	0.267	0	0.997
When first saw Index	-0.019	0.023	-0.045	0.42

A second multiple regression was run to predict Use 3 (securing funding) from the variables that added statistically significantly to the prediction from the previous regression. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.843. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no cases for which the standardized residuals were greater than +/- 3 standard deviations and no

cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. There were no leverage values greater than 0.2. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Use 3 (securing funding), $F(5, 531) = 13.970$, $p < .0005$, adjusted $R^2 = .108$. Four variables (Type: Nonprofit; Type: Business; Geographic level: City; Geographic level: Metro) added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 30. Coefficients for Use 3, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.383	0.091		0
Type: Nonprofit	0.393	0.087	0.188	0
Type: Business	-0.439	0.113	-0.162	0
Sector: Criminal justice	-0.256	0.145	-0.073	0.078
Geographic level: City	0.229	0.096	0.099	0.017
Geographic level: Metro	0.347	0.087	0.166	0

Use 4. Settling debates and focusing conversations

A multiple regression was run to predict Use 4 (settling debates and focusing conversations) from the variables related to level worked at, geographic level of the organization, organization type, and organization sector. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.002. There was

homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no cases for which the standardized residuals or the studentized deleted residuals were greater than +/- 3 standard deviations. There were fifty-eight leverage values greater than 0.2 (but less than .5) but these were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Use 4 (settling debates and focusing conversations), $F(50, 290) = 1.628$, $p < .01$, adjusted $R^2 = .085$. Five variables (Level worked at: Middle management; Type: Neighborhood association; Sector: Political; Geographic level: City; When first saw Index) added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 31. Coefficients for Use 4, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.649	0.215		0.003
Level worked at: Operations	0.068	0.139	0.03	0.628
Level worked at: Executive management	0.094	0.158	0.042	0.55
Level worked at: Middle management	0.341	0.147	0.154	0.021
Level worked at: Technical advisor	0.269	0.159	0.113	0.092
Type: College or university	0.069	0.172	0.027	0.69
Type: School	-0.147	0.263	-0.035	0.576
Type: Government, City	-0.172	0.208	-0.053	0.41
Type: Government, State	-0.028	0.222	-0.008	0.901
Type: Government, Federal	0.131	0.243	0.031	0.591
Type: Government board	0.156	0.403	0.023	0.699
Type: Quasi-governmental agency	0.045	0.242	0.011	0.854

Type: Government contractor	-0.027	0.279	-0.006	0.924
Type: Foundation	0.11	0.209	0.032	0.599
Type: Nonprofit	-0.013	0.137	-0.006	0.923
Type: Civic organization	-0.036	0.228	-0.011	0.873
Type: Neighborhood association	0.543	0.227	0.161	0.017
Type: Business	0.046	0.167	0.017	0.785
Type: Faith-based	-0.404	0.24	-0.098	0.093
Type: Media	0.161	0.281	0.034	0.567
Type: Other	-0.119	0.216	-0.031	0.583
Sector: Advocacy	0.224	0.161	0.095	0.166
Sector: Arts and culture	0.153	0.189	0.049	0.417
Sector: Capacity building	0.25	0.166	0.104	0.132
Sector: Community organizing	-0.184	0.176	-0.076	0.298
Sector: Community development	0.175	0.163	0.077	0.285
Sector: Criminal justice	0.004	0.221	0.001	0.984
Sector: Economic development	0.054	0.168	0.021	0.747
Sector: Education	0.071	0.162	0.031	0.659
Sector: Emergency response	-0.278	0.178	-0.101	0.12
Sector: Environment	-0.064	0.197	-0.02	0.745
Sector: Political	0.324	0.158	0.127	0.041
Sector: Health	-0.028	0.165	-0.01	0.865
Sector: Human Services	0.206	0.176	0.073	0.244
Sector: Hunger	0.248	0.267	0.056	0.353
Sector: Housing	0.056	0.137	0.024	0.683
Sector: Public Safety	0.143	0.229	0.037	0.532
Sector: Resilience	-0.002	0.158	-0.001	0.988
Sector: Research	-0.143	0.163	-0.056	0.381
Sector: Transit	-0.076	0.237	-0.019	0.749
Sector: Urban planning	-0.134	0.181	-0.051	0.46
Sector: Youth	-0.176	0.174	-0.062	0.313
Sector: Other	-0.063	0.204	-0.018	0.757
Geographic level: Neighborhood	0.015	0.146	0.007	0.918
Geographic level: City	0.321	0.159	0.124	0.045
Geographic level: Metro	0.153	0.139	0.071	0.27
Geographic level: Region	-0.053	0.144	-0.024	0.71
Geographic level: State	0.085	0.158	0.038	0.589
Geographic level: National	0.118	0.178	0.045	0.506
Geographic level: International	0.394	0.268	0.084	0.143
When first saw Index	-0.048	0.024	-0.117	0.043

A second multiple regression was run to predict Use 4 (settling debates and focusing conversations) from the variables that added statistically significantly to the prediction from the previous regression. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.915. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no cases for which the standardized residuals were greater than +/- 3 standard deviations and no cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. There were no leverage values greater than 0.2. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Use 4 (settling debates and focusing conversations), $F(5, 535) = 9.029$, $p < .0005$, adjusted $R^2 = .106$. Four variables (Type: Neighborhood association; Sector: Political; Geographic level: City; When first saw Index) added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 32. Coefficients for Use 4, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.244	0.144		0.09

Level worked at: Middle management	0.178	0.114	0.08	0.12
Type: Neighborhood association	0.672	0.175	0.199	0
Sector: Political	0.348	0.133	0.136	0.009
Geographic level: City	0.349	0.134	0.135	0.01
When first saw Index	-0.062	0.021	-0.15	0.004

Use 5. Investing resources

A multiple regression was run to predict Use 5 (investing resources) from the variables related to level worked at, geographic level of the organization, organization type, and organization sector. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.101. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. There were two cases where the standardized residuals were greater than +/- 3 standard deviations and fifty-eight leverage values greater than 0.2 (but less than .5). These were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Use 5 (investing resources), $F(50, 290) = 1.796$, $p < .005$, adjusted $R^2 = .105$. Five variables (Level worked at: Technical advisor; Type: Foundation; Type: Nonprofit; Type: Media; Sector: Human Services)

added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 33. Coefficients for Use 5, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.31	0.26		0.234
Level worked at: Operations	-0.105	0.168	-0.038	0.532
Level worked at: Executive management	0.314	0.19	0.113	0.101
Level worked at: Middle management	0.149	0.178	0.055	0.403
Level worked at: Technical advisor	0.41	0.192	0.141	0.034
Type: College or university	0.019	0.207	0.006	0.926
Type: School	-0.012	0.318	-0.002	0.97
Type: Government, City	-0.417	0.251	-0.106	0.098
Type: Government, State	0.252	0.269	0.059	0.349
Type: Government, Federal	0.223	0.293	0.043	0.448
Type: Government board	-0.237	0.487	-0.029	0.627
Type: Quasi-governmental agency	0.029	0.293	0.006	0.922
Type: Government contractor	-0.155	0.337	-0.028	0.646
Type: Foundation	0.983	0.252	0.236	0
Type: Nonprofit	-0.56	0.165	-0.213	0.001
Type: Civic organization	-0.084	0.275	-0.02	0.76
Type: Neighborhood association	0.277	0.274	0.067	0.314
Type: Business	-0.105	0.201	-0.031	0.603
Type: Faith-based	-0.303	0.29	-0.06	0.297
Type: Media	-0.871	0.339	-0.149	0.011
Type: Other	-0.131	0.261	-0.028	0.616
Sector: Advocacy	0.055	0.194	0.019	0.778
Sector: Arts and culture	0.16	0.228	0.042	0.482
Sector: Capacity building	0.047	0.2	0.016	0.813
Sector: Community organizing	-0.218	0.213	-0.074	0.306
Sector: Community development	0.254	0.197	0.092	0.198
Sector: Criminal justice	-0.016	0.266	-0.004	0.953
Sector: Economic development	-0.249	0.203	-0.077	0.222
Sector: Education	-0.008	0.195	-0.003	0.966
Sector: Emergency response	0.086	0.216	0.025	0.69
Sector: Environment	0	0.238	0	0.999

Sector: Political	0.129	0.191	0.041	0.5
Sector: Health	-0.003	0.199	-0.001	0.988
Sector: Human Services	0.523	0.213	0.152	0.015
Sector: Hunger	0.147	0.322	0.027	0.649
Sector: Housing	0.174	0.166	0.062	0.295
Sector: Public Safety	0.437	0.276	0.092	0.114
Sector: Resilience	0.049	0.191	0.017	0.796
Sector: Research	-0.059	0.197	-0.019	0.764
Sector: Transit	0.246	0.286	0.051	0.391
Sector: Urban planning	-0.328	0.218	-0.102	0.134
Sector: Youth	-0.286	0.21	-0.083	0.174
Sector: Other	-0.009	0.246	-0.002	0.97
Geographic level: Neighborhood	0.064	0.176	0.024	0.716
Geographic level: City	0.282	0.192	0.089	0.143
Geographic level: Metro	0.081	0.168	0.031	0.63
Geographic level: Region	0.325	0.174	0.122	0.062
Geographic level: State	-0.031	0.191	-0.011	0.87
Geographic level: National	-0.137	0.215	-0.043	0.524
Geographic level: International	-0.187	0.324	-0.033	0.565
When first saw Index	-0.027	0.029	-0.054	0.346

A second multiple regression was run to predict Use 5 (investing resources) from the variables that added statistically significantly to the prediction from the previous regression. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.823. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were seven cases for which the standardized residuals were greater than +/- 3 standard deviations and

seven cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. These were left in, because after further inspection, there were no other reasons to exclude them. There were no leverage values greater than 0.2. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Use 5 (investing resources), $F(5, 423) = 12.971$, $p < .0005$, adjusted $R^2 = .123$. All five variables (Level worked at: Technical advisor; Type: Foundation; Type: Nonprofit; Type: Media; Sector: Human Services) added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 34. Coefficients for Use 5, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	0.042	0.09		0.641
Level worked at: Technical advisor	0.329	0.128	0.116	0.011
Type: Foundation	1.043	0.192	0.248	0
Type: Nonprofit	-0.398	0.117	-0.158	0.001
Type: Media	-0.692	0.254	-0.124	0.007
Sector: Human Services	0.491	0.154	0.149	0.001

Use 6. Books and publications

A multiple regression was run to predict Use 6 (books and publications) from the variables related to level worked at, geographic level of the organization, organization type, and organization sector. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed

by a Durbin-Watson statistic of 1.790. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. There were six cases where the standardized residuals were greater than +/- 3 standard deviation and fifty-eight leverage values greater than 0.2 (but less than .5). These were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Use 6 (books and publications), $F(50, 290) = 3.098$, $p < .0005$, adjusted $R^2 = .236$. Eight variables (Type: College or university; Type: Government, State; Type: Nonprofit; Type: Civic organization; Type: Media; Sector: Community development; Sector: Environment; Sector: Research) added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 35. Coefficients for Use 6, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	0.307	0.233		0.19
Level worked at: Operations	0.113	0.151	0.042	0.455
Level worked at: Executive management	-0.299	0.171	-0.111	0.082
Level worked at: Middle management	-0.269	0.16	-0.102	0.094
Level worked at: Technical advisor	-0.095	0.173	-0.033	0.585
Type: College or university	0.933	0.186	0.305	0
Type: School	0.105	0.286	0.021	0.713
Type: Government, City	-0.245	0.226	-0.064	0.278
Type: Government, State	-0.537	0.241	-0.129	0.027
Type: Government, Federal	-0.084	0.263	-0.017	0.75
Type: Government board	0.299	0.437	0.038	0.495
Type: Quasi-governmental agency	0.336	0.263	0.072	0.202
Type: Government contractor	0.3	0.303	0.055	0.324

Type: Foundation	0.015	0.226	0.004	0.948
Type: Nonprofit	-0.361	0.148	-0.141	0.015
Type: Civic organization	0.566	0.247	0.138	0.023
Type: Neighborhood association	-0.203	0.246	-0.051	0.409
Type: Business	-0.297	0.181	-0.092	0.102
Type: Faith-based	0.026	0.261	0.005	0.921
Type: Media	0.832	0.305	0.146	0.007
Type: Other	-0.394	0.234	-0.088	0.094
Sector: Advocacy	-0.109	0.175	-0.039	0.532
Sector: Arts and culture	0.191	0.205	0.051	0.353
Sector: Capacity building	0.046	0.18	0.016	0.8
Sector: Community organizing	-0.03	0.191	-0.011	0.874
Sector: Community development	-0.46	0.177	-0.171	0.01
Sector: Criminal justice	0.126	0.239	0.029	0.598
Sector: Economic development	-0.322	0.183	-0.102	0.079
Sector: Education	-0.179	0.175	-0.065	0.308
Sector: Emergency response	-0.219	0.194	-0.067	0.26
Sector: Environment	0.481	0.213	0.128	0.025
Sector: Political	0.012	0.171	0.004	0.944
Sector: Health	-0.344	0.179	-0.108	0.056
Sector: Human Services	-0.024	0.191	-0.007	0.901
Sector: Hunger	0.379	0.29	0.071	0.192
Sector: Housing	-0.066	0.149	-0.024	0.658
Sector: Public Safety	-0.231	0.248	-0.05	0.352
Sector: Resilience	0.173	0.171	0.063	0.313
Sector: Research	0.564	0.177	0.186	0.002
Sector: Transit	-0.265	0.257	-0.057	0.303
Sector: Urban planning	0.211	0.196	0.067	0.282
Sector: Youth	-0.181	0.189	-0.054	0.339
Sector: Other	0.009	0.221	0.002	0.967
Geographic level: Neighborhood	0.072	0.158	0.028	0.651
Geographic level: City	0.039	0.173	0.013	0.823
Geographic level: Metro	-0.081	0.151	-0.032	0.591
Geographic level: Region	-0.066	0.156	-0.025	0.672
Geographic level: State	0.093	0.171	0.035	0.587
Geographic level: National	-0.16	0.193	-0.051	0.409
Geographic level: International	0.051	0.291	0.009	0.861
When first saw Index	-0.005	0.026	-0.009	0.857

A second multiple regression was run to predict Use 6 (books and publications) from the variables that added statistically significantly to the prediction from the previous regression. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the

predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.725. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were fourteen cases for which the standardized residuals were greater than +/- 3 standard deviations and fourteen cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. These cases were left in, because after further inspection, there were no other reasons to exclude them. There were no leverage values greater than 0.2. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Use 6 (books and publications), $F(8, 532) = 21.577$, $p < .0005$, adjusted $R^2 = .234$. Seven variables (Type: College or university; Type: Government, State; Type: Nonprofit; Type: Civic organization; Type: Media; Sector: Community development; Sector: Research) added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 36. Coefficients for Use 6, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.15	0.078		0.055
Type: College or university	0.79	0.119	0.269	0
Type: Government, State	-0.533	0.177	-0.115	0.003
Type: Nonprofit	-0.396	0.1	-0.156	0
Type: Civic organization	0.352	0.166	0.085	0.035
Type: Media	0.706	0.188	0.143	0
Sector: Community development	-0.308	0.111	-0.113	0.006
Sector: Environment	0.2	0.153	0.052	0.193
Sector: Research	0.678	0.122	0.23	0

7.3.3. Impact on Work

At least 42% of respondents agreed or strongly agreed with each of the options to the question about the impact the *Index* had had on their work. Over 90% of respondents agreed or strongly agreed that the *Index* enabled them to access data they did not have time to access. Over 80% said it enabled them to get a basic understanding of what was going on so they could move forward with their work and work more efficiently. Over 70% said it enabled them to access data they did not have the expertise to access, think more innovatively about challenges in the recovery, and communicate more effectively with the general public. Over 60% said it enabled them to collaborate more effectively with others and communicate more effectively with elected officials, board members, or national foundations.

Factor analysis

A factor analysis was conducted to reduce the fourteen variables on the Index's impact on respondent's work. The extraction method used was principal axis factoring. Missing values were replaced by the mean so as not to change the correlation matrix but to ensure that missing values were not over penalized. Two variables ("collaborate more effectively with others" and "think more innovatively about challenges in the recovery") were removed from the analysis to simplify the interpretation of the data. Promax, an oblique rotation method, was used to simplify the interpretation of the factors. All variables correlate fairly well (the majority of significance values are not >.05 for any variables) and none of the correlation coefficients are particularly large (>.9), so no variables were eliminated from the analysis. The Kaiser-Meyer-Olkin measure of

sampling adequacy is .856 (great) and Bartlett's test is highly significant ($p < .001$), so factor analysis is appropriate for the data. All factors with Eigen factor's above one were retained.

Table 37. Total variance explained: Impact on work

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	4.619	38.493	38.493	4.126	34.385	34.385	3.260
2	1.592	13.263	51.756	1.065	8.876	43.260	3.248
3	1.127	9.391	61.147	0.693	5.777	49.037	2.740
4	0.839	6.988	68.135				
5	0.711	5.925	74.060				
6	0.633	5.277	79.337				
7	0.606	5.051	84.388				
8	0.479	3.994	88.382				
9	0.417	3.475	91.858				
10	0.394	3.281	95.138				
11	0.324	2.703	97.842				
12	0.259	2.158	100.000				

Extraction Method: Principal Axis Factoring.
a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Bartlett factor scores were used to create index values. This method was chosen because it results in scores that have high validity, are highly correlated to their corresponding factor and not with other factors (univocality), and are unbiased estimates of factor score. The factor pattern matrix below contains the coefficients for the linear combination of the variables. The factors were given names based on the variables they include.

Table 38. Pattern Matrix – Impact of Index on Work

	1 Persuade Others	2 Communicate Effectively	3 Work efficiently
make the case for new programs or investments	0.963		
secure additional funding or resources	0.721		
influence policy	0.498		
communicate more effectively with the general public		0.799	
communicate more effectively with the media		0.702	
communicate more effectively with volunteers, interns, or technical assistance providers		0.59	
communicate more effectively with elected officials, board members, or national foundations		0.555	
access data I didn't have the expertise to access			0.697
access data I didn't have the time to access			0.69
get a basic understanding of what was going on, so I could move forward with my work			0.613
work more efficiently			0.549
save money			

To determine how much of the variation in each factor is explained by the independent variables (geographic levels, organization types, organization sectors, and levels worked at, and when respondents first remember seeing the Index) a multiple regression analysis were run for each factor. The findings from these analyses are summarized in the following sections.

Impact on work 1. Persuade others

A multiple regression was run to predict Impact on work 1 (persuade others) from the variables related to level worked at, geographic level of the organization, organization type, and organization sector. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.939. There was homoscedasticity, as assessed by visual

inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no cases for which the standardized residuals were greater than ±3 standard deviations. There were fifty-eight leverage values greater than 0.2 (but less than 05), and one case where the studentized deleted residuals was greater than ±3 standard deviations. These were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Impact on work 1 (persuade others), $F(50, 290) = 1.483$, $p < .05$, adjusted $R^2 = .079$. Two variables (Type: Media; Sector: Advocacy) added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 39. Coefficients for Impact on work 1, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.364	0.202		0.072
Level worked at: Operations	-0.122	0.131	-0.057	0.352
Level worked at: Executive management	0.007	0.148	0.003	0.96
Level worked at: Middle management	0.04	0.138	0.02	0.77
Level worked at: Technical advisor	0.159	0.149	0.072	0.287
Type: College or university	-0.048	0.161	-0.02	0.767
Type: School	-0.403	0.247	-0.103	0.103
Type: Government, City	0.205	0.195	0.068	0.295
Type: Government, State	-0.185	0.208	-0.057	0.376
Type: Government, Federal	-0.179	0.228	-0.046	0.433
Type: Government board	0.054	0.378	0.009	0.886
Type: Quasi-governmental agency	0.221	0.227	0.061	0.331
Type: Government contractor	-0.112	0.262	-0.026	0.668
Type: Foundation	-0.021	0.196	-0.007	0.913
Type: Nonprofit	0.207	0.128	0.103	0.106

Type: Civic organization	-0.012	0.213	-0.004	0.953
Type: Neighborhood association	0.037	0.213	0.012	0.861
Type: Business	-0.026	0.156	-0.01	0.87
Type: Faith-based	-0.124	0.225	-0.032	0.581
Type: Media	-0.681	0.263	-0.152	0.01
Type: Other	0	0.202	0	0.998
Sector: Advocacy	0.443	0.151	0.201	0.004
Sector: Arts and culture	0.266	0.177	0.091	0.134
Sector: Capacity building	-0.003	0.155	-0.001	0.986
Sector: Community organizing	0.118	0.165	0.052	0.474
Sector: Community development	0.115	0.153	0.054	0.452
Sector: Criminal justice	-0.332	0.207	-0.097	0.109
Sector: Economic development	-0.031	0.158	-0.012	0.846
Sector: Education	0.224	0.151	0.103	0.141
Sector: Emergency response	0.077	0.167	0.03	0.645
Sector: Environment	0.026	0.184	0.009	0.887
Sector: Political	0.098	0.148	0.041	0.506
Sector: Health	0.062	0.155	0.025	0.691
Sector: Human Services	0.254	0.165	0.096	0.126
Sector: Hunger	-0.08	0.25	-0.019	0.75
Sector: Housing	0.043	0.129	0.02	0.737
Sector: Public Safety	0.214	0.214	0.059	0.319
Sector: Resilience	0.078	0.148	0.036	0.6
Sector: Research	-0.276	0.153	-0.116	0.072
Sector: Transit	0.102	0.222	0.028	0.646
Sector: Urban planning	-0.285	0.169	-0.116	0.093
Sector: Youth	0.029	0.163	0.011	0.859
Sector: Other	0.045	0.191	0.014	0.816
Geographic level: Neighborhood	0.039	0.137	0.019	0.778
Geographic level: City	0.01	0.149	0.004	0.944
Geographic level: Metro	0.068	0.13	0.034	0.6
Geographic level: Region	0.072	0.135	0.035	0.592
Geographic level: State	0.237	0.148	0.113	0.11
Geographic level: National	-0.126	0.167	-0.051	0.451
Geographic level: International	-0.277	0.252	-0.063	0.272
When first saw Index	-0.014	0.022	-0.037	0.526

A second multiple regression was run to predict Impact on work 1 (persuade others) from the variables that added statistically significantly to the prediction from the previous regression. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.902. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There was one case for which the standardized residuals were greater than +/- 3 standard deviations and one case for which the studentized deleted residuals were greater than +/- 3 standard deviations. These cases were left in, because after further inspection, there were no other reasons to exclude them. There were no leverage values greater than 0.2 There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Impact on work 1 (persuade others), $F(2, 538) = 12.011$, $p < .0005$, adjusted $R^2 = .039$. Two variables (Type: Media; Sector: Advocacy) added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 40. Coefficients for Impact on work 1, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.078	0.051		0.126
Type: Media	-0.458	0.165	-0.117	0.006
Sector: Advocacy	0.387	0.094	0.175	0

Impact on work 2. Communicate effectively

A multiple regression was run to predict Impact on work 2 (communicate effectively) from the variables related to level worked at, geographic level of the organization, organization type, and organization sector. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.937. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were three cases for which the standardized residuals were greater than ±3 standard deviations and two cases where the studentized deleted residuals were greater than ±3 standard deviations. There were fifty-eight leverage values greater than 0.2 (but less than 05). These were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression model did not statistically significantly predict Impact on work 2 (communicate effectively), $F(50, 290) = 1.238$, $p = .08$, adjusted $R^2 = .046$. One variable (Type: Civic organization) added statistically significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 41. Coefficients for Impact on work 2, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.287	0.217		0.187
Level worked at: Operations	-0.213	0.141	-0.095	0.132
Level worked at: Executive management	0.103	0.159	0.046	0.517
Level worked at: Middle management	0.053	0.149	0.024	0.723
Level worked at: Technical advisor	0.097	0.161	0.041	0.546
Type: College or university	0.267	0.174	0.105	0.125
Type: School	-0.089	0.266	-0.021	0.739
Type: Government, City	0.136	0.21	0.042	0.518
Type: Government, State	-0.28	0.225	-0.081	0.213
Type: Government, Federal	-0.297	0.245	-0.071	0.228
Type: Government board	-0.156	0.407	-0.024	0.702
Type: Quasi-governmental agency	0.084	0.245	0.022	0.731
Type: Government contractor	-0.042	0.282	-0.009	0.882
Type: Foundation	-0.195	0.211	-0.058	0.355
Type: Nonprofit	0.036	0.138	0.017	0.797
Type: Civic organization	0.48	0.23	0.141	0.038
Type: Neighborhood association	-0.123	0.229	-0.037	0.592
Type: Business	0.032	0.168	0.012	0.849
Type: Faith-based	-0.042	0.243	-0.01	0.864
Type: Media	-0.057	0.284	-0.012	0.84
Type: Other	0.033	0.218	0.009	0.88
Sector: Advocacy	0.214	0.163	0.092	0.188
Sector: Arts and culture	0.196	0.191	0.063	0.304
Sector: Capacity building	0.131	0.167	0.055	0.436
Sector: Community organizing	-0.104	0.178	-0.043	0.558
Sector: Community development	0.157	0.165	0.07	0.343
Sector: Criminal justice	-0.057	0.223	-0.016	0.797
Sector: Economic development	-0.012	0.17	-0.004	0.945
Sector: Education	-0.077	0.163	-0.034	0.636
Sector: Emergency response	0.165	0.18	0.06	0.362
Sector: Environment	0.142	0.199	0.045	0.476
Sector: Political	0.045	0.16	0.018	0.78
Sector: Health	-0.053	0.167	-0.02	0.75
Sector: Human Services	-0.084	0.178	-0.03	0.636
Sector: Hunger	0.224	0.27	0.051	0.407
Sector: Housing	0.11	0.139	0.048	0.43

Sector: Public Safety	0.036	0.231	0.009	0.876
Sector: Resilience	-0.031	0.16	-0.013	0.846
Sector: Research	-0.144	0.165	-0.057	0.382
Sector: Transit	0.212	0.239	0.055	0.375
Sector: Urban planning	-0.11	0.183	-0.042	0.546
Sector: Youth	-0.113	0.176	-0.041	0.519
Sector: Other	-0.365	0.206	-0.108	0.077
Geographic level: Neighborhood	0.204	0.147	0.094	0.167
Geographic level: City	0.159	0.161	0.062	0.324
Geographic level: Metro	0.054	0.14	0.025	0.7
Geographic level: Region	0.051	0.145	0.024	0.723
Geographic level: State	0.193	0.159	0.087	0.226
Geographic level: National	-0.043	0.18	-0.016	0.813
Geographic level: International	-0.242	0.271	-0.052	0.373
When first saw Index	-0.041	0.024	-0.1	0.089

A second linear regression was run to predict Impact on work 2 (communicate effectively) from the variable that added statistically significantly to the prediction from the previous regression (Type: Civic organization). The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.794. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were eight cases for which the standardized residuals were greater than +/- 3 standard deviations and eight cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. These cases were left in, because after further inspection, there were no other reasons to exclude

them. There were no leverage values greater than 0.2 There were no values for Cook's distance above 1. The linear regression model statistically significantly predicted Impact on work 2 (communicate effectively), $F(1, 541) = 10.699$, $p < .005$, adjusted $R^2 = .018$. The one variable (Type: Civic organization) added statistically significantly to the prediction, $p < .05$. The regression coefficient and standard error can be found in the table below.

Table 42. Coefficients for Impact on work 2, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.049	0.047		0.294
Type: Civic organization	0.474	0.145	0.139	0.001

Impact on work 3. Work efficiently

A multiple regression was run to predict Impact on work 3 (work efficiently) from the variables related to level worked at, geographic level of the organization, organization type, and organization sector. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.894. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There was one case for which the standardized residuals was greater than ±3 standard deviations and two cases where the studentized deleted residuals were greater than ±3

standard deviations. There were fifty-eight leverage values greater than 0.2 (but less than 05). These were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Impact on work 3 (work efficiently), $F(50, 290) = 1.30$, $p < .01$, adjusted $R^2 = .042$. Five variables (Type: Government contractor; Type: Nonprofit; Sector: Economic development; Sector: Research; Sector: Urban planning) added significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 43. Coefficients for Impact on work 3, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	0.084	0.21		0.687
Level worked at: Operations	0.1	0.136	0.046	0.461
Level worked at: Executive management	0.041	0.154	0.019	0.789
Level worked at: Middle management	0.134	0.144	0.064	0.35
Level worked at: Technical advisor	0.137	0.155	0.06	0.379
Type: College or university	-0.06	0.168	-0.025	0.719
Type: School	-0.06	0.257	-0.015	0.815
Type: Government, City	-0.105	0.203	-0.034	0.604
Type: Government, State	0.051	0.217	0.015	0.816
Type: Government, Federal	-0.029	0.237	-0.007	0.903
Type: Government board	-0.439	0.393	-0.069	0.265
Type: Quasi-governmental agency	0.278	0.236	0.075	0.241
Type: Government contractor	-0.602	0.272	-0.138	0.028
Type: Foundation	0.044	0.203	0.014	0.827
Type: Nonprofit	-0.351	0.133	-0.171	0.009
Type: Civic organization	-0.023	0.222	-0.007	0.919
Type: Neighborhood association	0.192	0.221	0.06	0.385
Type: Business	0.022	0.163	0.008	0.893
Type: Faith-based	0.22	0.234	0.056	0.348
Type: Media	0.334	0.274	0.073	0.224
Type: Other	0.069	0.21	0.019	0.744

Sector: Advocacy	0.202	0.157	0.09	0.199
Sector: Arts and culture	0.004	0.184	0.001	0.982
Sector: Capacity building	0.16	0.162	0.07	0.322
Sector: Community organizing	0.18	0.172	0.078	0.295
Sector: Community development	0.009	0.159	0.004	0.953
Sector: Criminal justice	-0.242	0.215	-0.069	0.261
Sector: Economic development	0.363	0.164	0.144	0.028
Sector: Education	0.146	0.158	0.066	0.354
Sector: Emergency response	-0.034	0.174	-0.013	0.843
Sector: Environment	-0.044	0.192	-0.015	0.817
Sector: Political	0.028	0.154	0.012	0.854
Sector: Health	0.101	0.161	0.04	0.53
Sector: Human Services	0.081	0.172	0.03	0.638
Sector: Hunger	0.017	0.26	0.004	0.948
Sector: Housing	0.074	0.134	0.034	0.581
Sector: Public Safety	-0.062	0.223	-0.017	0.782
Sector: Resilience	-0.098	0.154	-0.044	0.525
Sector: Research	-0.502	0.159	-0.206	0.002
Sector: Transit	0.115	0.231	0.031	0.62
Sector: Urban planning	-0.4	0.176	-0.159	0.024
Sector: Youth	-0.086	0.17	-0.032	0.612
Sector: Other	-0.372	0.199	-0.114	0.062
Geographic level: Neighborhood	-0.079	0.142	-0.038	0.579
Geographic level: City	0.144	0.155	0.058	0.353
Geographic level: Metro	-0.008	0.135	-0.004	0.955
Geographic level: Region	0.047	0.14	0.023	0.735
Geographic level: State	-0.242	0.154	-0.113	0.117
Geographic level: National	0.333	0.173	0.133	0.056
Geographic level: International	0.082	0.262	0.018	0.755
When first saw Index	-0.025	0.023	-0.064	0.275

A second multiple regression was run to predict Impact on work 3 (work efficiently) from the variables that added statistically significantly to the prediction from the previous regression.The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was

met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.957. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were four cases for which the standardized residuals were greater than +/- 3 standard deviations and five cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. These cases were left in, because after further inspection, there were no other reasons to exclude them. There were no leverage values greater than 0.2 There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted Impact on work 3 (work efficiently), $F(5, 535) = 2.315$, $p < .05$, adjusted $R^2 = .012$. Two variables (Sector: Economic development; Sector: Research) added significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 44. Coefficients for Impact on work 3, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	0.047	0.069		0.499
Type: Government contractor	-0.387	0.219	-0.076	0.078
Type: Nonprofit	-0.034	0.092	-0.016	0.713
Sector: Economic development	0.297	0.125	0.108	0.018
Sector: Research	-0.233	0.109	-0.094	0.033
Sector: Urban planning	-0.059	0.122	-0.022	0.631

7.3.4. Impact on Larger System

At least 39% of respondents agreed or strongly agreed with each of the options for the question about the system-level impacts of the *Index*. Over 70% agreed or strongly agreed that they had seen the *Index* positively influence stories being told about New Orleans in the media and an increase in the use of data for decision making among citizens and organizations in New Orleans. Over 70% agreed or strongly agreed that they had seen the *Index* positively influence emerging conversations on cross-cutting topics (for example, conversations on topics like equity and inclusion, youth, living with water, regional economic development, etc.) and an increase in the demand for more data among citizens and organizations in New Orleans.

Factor analysis

A factor analysis was conducted to reduce the ten impact on system variables. The extraction method used was principal axis factoring. Missing values were replaced by the mean so as not to change the correlation matrix but to ensure that missing values were not over penalized. Promax, an oblique rotation method, was used to simplify the interpretation of the factors. A fixed number of factors (five) were extracted to simplify the interpretation of the factors as well. All variables correlate fairly well (the majority of significance values are not >.05 for any variables) and none of the correlation coefficients are particularly large (>.9), so no variables were eliminated from the analysis. The Kaiser-Meyer-Olkin measure of sampling adequacy is .888 (great) and Bartlett's test is highly significant ($p < .001$), so factor analysis is appropriate for the data. All factors with Eigen factor's above one were retained.

Table 45.. Total variance explained: Impact on system

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.528	55.278	55.278	5.232	52.315	52.315	3.698
2	1.038	10.382	65.660	0.788	7.883	60.198	3.964
3	0.728	7.282	72.942	0.470	4.702	64.900	3.444
4	0.623	6.234	79.176	0.320	3.201	68.101	4.136
5	0.520	5.197	84.373	0.118	1.184	69.284	4.057
6	0.485	4.848	89.220				
7	0.405	4.052	93.273				
8	0.265	2.654	95.927				
9	0.218	2.178	98.105				
10	0.190	1.895	100.000				

Extraction Method: Principal Axis Factoring.
a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Bartlett factor scores were used to create index values. This method was chosen because it results in scores that have high validity, are highly correlated to their corresponding factor and not with other factors (univocality), and are unbiased estimates of factor score. The factor pattern matrix below contains the coefficients for the linear combination of the variables. The factors were given names based on the variables they include.

Table 46. Pattern Matrix – Impact of Index on Larger System

	1 Decisions to return or move	2 Demand for and use of data	3 Media stories	4 Resources received	5 Perceptions of funders and politicians
residents' and businesses' decisions to return to New Orleans	0.938				
new residents' and businesses' decisions to move to New Orleans	0.819				
demand for more data among citizens and organizations in New Orleans		0.908			
use of data for decision making among citizens and organizations in New Orleans		0.835			

stories being told about New Orleans in the media			0.713		
emerging conversations on cross-cutting topics (for example, conversations on topics like equity and inclusion, youth, living with water, regional economic development, etc.)					
the amount of funding received by New Orleans				0.982	
the amount of volunteers, technical assistance, or other resources received by New Orleans				0.648	
politicians' perceptions of New Orleans					0.623
funders' perceptions of New Orleans					0.41

To determine how much of the variation in each factor is explained by the independent variables (geographic levels, organization types, organization sectors, and levels worked at, and when respondents first remember seeing the Index) a multiple regression analysis were run for each factor. The findings from these analyses are summarized in the following sections.

System impact 1. Decisions to return or move

A multiple regression was run to predict System impact 1 (decisions to return or move) from the variables related to level worked at, geographic level of the organization, organization type, and organization sector. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.151. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance

values greater than 0.1. There was one case for which the standardized residuals was greater than ±3 standard deviations and two cases for which the studentized deleted residuals were greater than ±3 standard deviations. There were fifty-eight leverage values greater than 0.2 (but less than 05). These were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression model did not statistically significantly predict System impact 1 (decisions to return or move), $F(50, 290) = 1.155$, $p = .234$, adjusted $R^2 = .022$. One variable (Type: Government, federal) added significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 47. Coefficients for System impact 1, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	0.217	0.204		0.288
Level worked at: Operations	-0.09	0.132	-0.043	0.497
Level worked at: Executive management	0.115	0.15	0.055	0.444
Level worked at: Middle management	-0.048	0.14	-0.023	0.734
Level worked at: Technical advisor	-0.008	0.151	-0.004	0.959
Type: College or university	0.209	0.163	0.088	0.201
Type: School	-0.296	0.249	-0.077	0.237
Type: Government, City	-0.033	0.197	-0.011	0.868
Type: Government, State	-0.153	0.211	-0.048	0.468
Type: Government, Federal	0.521	0.23	0.135	0.024
Type: Government board	0.104	0.382	0.017	0.786
Type: Quasi-governmental agency	0.277	0.23	0.077	0.229
Type: Government contractor	0.101	0.265	0.024	0.702
Type: Foundation	-0.112	0.198	-0.036	0.573
Type: Nonprofit	-0.244	0.129	-0.124	0.06
Type: Civic organization	-0.195	0.216	-0.061	0.368
Type: Neighborhood association	0.242	0.215	0.078	0.262
Type: Business	0.077	0.158	0.031	0.625
Type: Faith-based	-0.242	0.228	-0.064	0.289

Type: Media	0.303	0.266	0.069	0.256
Type: Other	-0.034	0.205	-0.01	0.868
Sector: Advocacy	0.111	0.153	0.051	0.468
Sector: Arts and culture	0.116	0.179	0.04	0.517
Sector: Capacity building	0.071	0.157	0.032	0.651
Sector: Community organizing	0.153	0.167	0.069	0.361
Sector: Community development	-0.106	0.155	-0.051	0.492
Sector: Criminal justice	-0.045	0.209	-0.013	0.829
Sector: Economic development	-0.076	0.16	-0.031	0.634
Sector: Education	0.171	0.153	0.08	0.266
Sector: Emergency response	0.119	0.169	0.047	0.483
Sector: Environment	0.215	0.186	0.074	0.251
Sector: Political	-0.014	0.15	-0.006	0.927
Sector: Health	-0.006	0.156	-0.003	0.969
Sector: Human Services	-0.015	0.167	-0.006	0.927
Sector: Hunger	-0.328	0.253	-0.08	0.195
Sector: Housing	0.146	0.13	0.069	0.264
Sector: Public Safety	0.23	0.217	0.064	0.29
Sector: Resilience	-0.156	0.15	-0.073	0.299
Sector: Research	-0.139	0.155	-0.059	0.371
Sector: Transit	0.166	0.225	0.046	0.459
Sector: Urban planning	-0.232	0.171	-0.096	0.177
Sector: Youth	0.011	0.165	0.004	0.946
Sector: Other	-0.349	0.193	-0.111	0.072
Geographic level: Neighborhood	-0.028	0.138	-0.014	0.839
Geographic level: City	-0.049	0.151	-0.02	0.747
Geographic level: Metro	0.16	0.132	0.081	0.225
Geographic level: Region	-0.244	0.136	-0.122	0.074
Geographic level: State	0.207	0.15	0.1	0.168
Geographic level: National	-0.121	0.169	-0.05	0.474
Geographic level: International	0.183	0.254	0.043	0.473
When first saw Index	-0.041	0.022	-0.11	0.065

A second linear regression was run to predict System impact 1 (decisions to return or move) from the variable that added statistically significantly to the prediction from the previous regression. The assumption of normality was met, as assessed by the Histogram

and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.805. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were eight cases for which the standardized residuals were greater than +/- 3 standard deviations and seven cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. These cases were left in, because after further inspection, there were no other reasons to exclude them. There were no leverage values greater than 0.2 There were no values for Cook's distance above 1. The linear regression model statistically significantly predicted System impact 1 (decisions to return or move), $F(1, 541) = 2.791$, $p < .01$, adjusted $R^2 = .003$. One variable (Type: Government, federal) added significantly to the prediction, $p < .01$. The regression coefficient and standard error can be found in the table below.

Table 48. Coefficients for System impact 1, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.018	0.043		0.681
Type: Government, Federal	0.289	0.173	0.072	0.095

System impact 2. Demand for and use of data

A multiple regression was run to predict System impact 2 (Demand for and use of data) from the variables related to level worked at, geographic level of the organization,

organization type, and organization sector. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.997. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There two cases for which the standardized residuals were greater than ±3 standard deviations and three cases for which the studentized deleted residuals were greater than ±3 standard deviations. There were fifty-eight leverage values greater than 0.2 (but less than 05). These were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression statistically significantly predicted System impact 2 (Demand for and use of data), $F(50, 290) = 1.308$, $p < .01$, adjusted $R^2 = .043$. One variable (when first saw Index) added significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 49. Coefficients for System impact 2, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.053	0.205		0.796
Level worked at: Operations	-0.176	0.133	-0.084	0.185
Level worked at: Executive management	0.079	0.15	0.037	0.601
Level worked at: Middle management	0.133	0.14	0.065	0.343
Level worked at: Technical advisor	0.032	0.152	0.015	0.831
Type: College or university	0.062	0.164	0.026	0.706

Type: School	-0.449	0.251	-0.115	0.075
Type: Government, City	0.186	0.198	0.062	0.349
Type: Government, State	0.135	0.212	0.041	0.526
Type: Government, Federal	0.031	0.231	0.008	0.892
Type: Government board	-0.105	0.384	-0.017	0.784
Type: Quasi-governmental agency	-0.17	0.231	-0.047	0.462
Type: Government contractor	-0.283	0.266	-0.067	0.288
Type: Foundation	-0.048	0.199	-0.015	0.81
Type: Nonprofit	0.123	0.13	0.061	0.344
Type: Civic organization	0.244	0.217	0.076	0.262
Type: Neighborhood association	-0.086	0.216	-0.027	0.693
Type: Business	-0.079	0.159	-0.031	0.618
Type: Faith-based	-0.176	0.229	-0.046	0.443
Type: Media	-0.194	0.268	-0.043	0.47
Type: Other	-0.282	0.206	-0.08	0.172
Sector: Advocacy	0.034	0.153	0.015	0.826
Sector: Arts and culture	-0.022	0.18	-0.008	0.902
Sector: Capacity building	0.155	0.158	0.069	0.327
Sector: Community organizing	0.042	0.168	0.019	0.802
Sector: Community development	0.095	0.156	0.045	0.54
Sector: Criminal justice	-0.095	0.21	-0.028	0.651
Sector: Economic development	0.298	0.16	0.121	0.065
Sector: Education	0.012	0.154	0.005	0.94
Sector: Emergency response	0.098	0.17	0.038	0.565
Sector: Environment	0	0.187	0	0.999
Sector: Political	0.121	0.15	0.051	0.423
Sector: Health	-0.05	0.157	-0.02	0.748
Sector: Human Services	-0.017	0.168	-0.007	0.917
Sector: Hunger	-0.108	0.254	-0.026	0.672
Sector: Housing	-0.064	0.131	-0.03	0.625
Sector: Public Safety	0.082	0.218	0.022	0.708
Sector: Resilience	0.133	0.151	0.061	0.378
Sector: Research	-0.13	0.155	-0.055	0.403
Sector: Transit	0.196	0.226	0.054	0.386
Sector: Urban planning	-0.206	0.172	-0.084	0.232
Sector: Youth	0.171	0.166	0.065	0.304
Sector: Other	-0.11	0.194	-0.035	0.57
Geographic level: Neighborhood	-0.108	0.139	-0.053	0.438
Geographic level: City	0.242	0.152	0.1	0.112

Geographic level: Metro	0.184	0.132	0.091	0.164
Geographic level: Region	-0.039	0.137	-0.019	0.775
Geographic level: State	-0.005	0.15	-0.003	0.971
Geographic level: National	-0.082	0.17	-0.034	0.629
Geographic level: International	0.083	0.256	0.019	0.747
When first saw Index	-0.081	0.023	-0.21	0

A second linear regression was run to predict System impact 2 (Demand for and use of data) from the variable that added statistically significantly to the prediction from the previous regression. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.730. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were three cases for which the standardized residuals were greater than +/- 3 standard deviations and threecases for which the studentized deleted residuals were greater than +/- 3 standard deviations. These cases were left in, because after further inspection, there were no other reasons to exclude them. There were no leverage values greater than 0.2 There were no values for Cook's distance above 1. The linear regression statistically significantly predicted System impact 2 (Demand for and use of data), $F(1, 433) = 11.633$, $p < .005$, adjusted $R^2 = .024$. The one variable (when first saw Index) added significantly to the prediction, $p < .05$. The regression coefficient and standard error can be found in the table below.

Table 50. Coefficients for System impact 2, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	0.199	0.071		0.005
When first saw Index	-0.055	0.016	-0.162	0.001

System impact 3. Media stories

A multiple regression was run to predict System impact 3 (Media stories) from the variables related to level worked at, geographic level of the organization, organization type, and organization sector. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.851. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There was one case for which the standardized residuals was greater than ±3 standard deviations and once case for which the studentized deleted residuals was greater than ±3 standard deviations. There were fifty-eight leverage values greater than 0.2 (but less than 05). These were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression model did not statistically significantly predict System impact 3 (Media stories), F(50, 290) = 1.218, p = .163, adjusted R^2 = .033. Three variables (Type: Business; Sector: Community development; Geographic level: International) added significantly to the

prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 51. Coefficients for System impact 3, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	0.3	0.233		0.2
Level worked at: Operations	-0.273	0.151	-0.115	0.071
Level worked at: Executive management	0.054	0.171	0.022	0.754
Level worked at: Middle management	0.051	0.16	0.022	0.748
Level worked at: Technical advisor	-0.131	0.173	-0.052	0.449
Type: College or university	-0.089	0.186	-0.033	0.634
Type: School	-0.341	0.285	-0.077	0.233
Type: Government, City	-0.069	0.225	-0.02	0.761
Type: Government, State	-0.214	0.241	-0.058	0.376
Type: Government, Federal	0.283	0.263	0.064	0.284
Type: Government board	0.09	0.437	0.013	0.837
Type: Quasi-governmental agency	0.399	0.263	0.097	0.13
Type: Government contractor	0.161	0.303	0.033	0.596
Type: Foundation	-0.022	0.226	-0.006	0.922
Type: Nonprofit	-0.011	0.148	-0.005	0.942
Type: Civic organization	0.192	0.247	0.053	0.436
Type: Neighborhood association	-0.014	0.246	-0.004	0.954
Type: Business	-0.404	0.181	-0.141	0.026
Type: Faith-based	-0.272	0.26	-0.063	0.297
Type: Media	-0.01	0.305	-0.002	0.973
Type: Other	-0.016	0.234	-0.004	0.947
Sector: Advocacy	0.249	0.174	0.1	0.154
Sector: Arts and culture	0.298	0.204	0.09	0.146
Sector: Capacity building	0.204	0.18	0.08	0.256
Sector: Community organizing	-0.086	0.191	-0.034	0.651
Sector: Community development	-0.362	0.177	-0.151	0.042
Sector: Criminal justice	-0.383	0.239	-0.099	0.111
Sector: Economic development	0.144	0.182	0.052	0.432
Sector: Education	-0.034	0.175	-0.014	0.846
Sector: Emergency response	0.032	0.193	0.011	0.868
Sector: Environment	0.05	0.213	0.015	0.814

Sector: Political	0.193	0.171	0.072	0.26
Sector: Health	0.027	0.179	0.01	0.879
Sector: Human Services	0.214	0.191	0.072	0.263
Sector: Hunger	0.06	0.289	0.013	0.835
Sector: Housing	-0.063	0.149	-0.026	0.674
Sector: Public Safety	0.478	0.248	0.116	0.055
Sector: Resilience	0.01	0.171	0.004	0.953
Sector: Research	-0.109	0.177	-0.041	0.538
Sector: Transit	-0.2	0.257	-0.049	0.437
Sector: Urban planning	-0.034	0.196	-0.012	0.863
Sector: Youth	-0.303	0.188	-0.102	0.109
Sector: Other	-0.167	0.221	-0.047	0.449
Geographic level: Neighborhood	0.128	0.158	0.056	0.418
Geographic level: City	-0.025	0.172	-0.009	0.886
Geographic level: Metro	0.206	0.15	0.09	0.172
Geographic level: Region	-0.189	0.156	-0.082	0.225
Geographic level: State	0.026	0.171	0.011	0.879
Geographic level: National	0.148	0.193	0.054	0.444
Geographic level: International	-0.635	0.291	-0.129	0.03
When first saw Index	-0.037	0.026	-0.086	0.145

A multiple regression was run to predict System impact 3 (Media stories) from the variables that added statistically significantly to the prediction from the previous regression. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.987. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were four cases for which the standardized residuals were greater than +/- 3 standard deviations and

four cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. These cases were left in, because after further inspection, there were no other reasons to exclude them. There were no leverage values greater than 0.2 There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted System impact 3 (Media stories), $F(3, 533) = 2.626$, $p < .05$, adjusted $R^2 = .009$. Two variables (Type: Business; Geographic level: International) added significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 52. Coefficients for System impact 3, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	0.083	0.062		0.183
Type: Business	-0.244	0.124	-0.085	0.049
Sector: Community development	0.001	0.103	0	0.991
Geographic level: International	-0.426	0.207	-0.089	0.04

System impact 4. Resources received

A multiple regression was run to predict System impact 4 (Resources received) from the variables related to level worked at, geographic level of the organization, organization type, and organization sector. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.093. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values.

There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were two cases for which the standardized residuals was greater than ±3 standard deviations and three cases for which the studentized deleted residuals were greater than ±3 standard deviations. There were fifty-eight leverage values greater than 0.2 (but less than 05). These were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted System impact 4 (Resources received), $F(50, 290) = 1.313$, $p < .01$, adjusted $R^2 = .044$. Three variables (Type: School; Geographic level: Region; When first saw Index) added significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 53. Coefficients for System impact 4, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	0.293	0.203		0.15
Level worked at: Operations	-0.06	0.131	-0.029	0.647
Level worked at: Executive management	-0.122	0.149	-0.058	0.412
Level worked at: Middle management	-0.056	0.139	-0.027	0.688
Level worked at: Technical advisor	-0.013	0.15	-0.006	0.929
Type: College or university	0.036	0.162	0.015	0.824
Type: School	-0.714	0.248	-0.185	0.004
Type: Government, City	-0.121	0.196	-0.041	0.538
Type: Government, State	0.009	0.21	0.003	0.966
Type: Government, Federal	0.084	0.229	0.022	0.715
Type: Government board	0.283	0.38	0.046	0.457
Type: Quasi-governmental agency	0.237	0.228	0.066	0.3
Type: Government contractor	0.227	0.263	0.054	0.39
Type: Foundation	0.028	0.197	0.009	0.885
Type: Nonprofit	0.097	0.129	0.049	0.453

Type: Civic organization	0.006	0.215	0.002	0.978
Type: Neighborhood association	0.172	0.214	0.055	0.422
Type: Business	-0.098	0.157	-0.039	0.534
Type: Faith-based	-0.215	0.226	-0.057	0.342
Type: Media	-0.097	0.265	-0.022	0.715
Type: Other	-0.184	0.203	-0.053	0.366
Sector: Advocacy	-0.084	0.152	-0.039	0.581
Sector: Arts and culture	0.191	0.178	0.066	0.283
Sector: Capacity building	0.261	0.156	0.117	0.096
Sector: Community organizing	0.095	0.166	0.042	0.568
Sector: Community development	0.088	0.154	0.042	0.566
Sector: Criminal justice	-0.104	0.208	-0.031	0.619
Sector: Economic development	-0.084	0.159	-0.034	0.598
Sector: Education	0.157	0.152	0.073	0.305
Sector: Emergency response	0.127	0.168	0.05	0.452
Sector: Environment	-0.044	0.185	-0.015	0.812
Sector: Political	0.156	0.149	0.066	0.295
Sector: Health	0.108	0.155	0.044	0.486
Sector: Human Services	0.039	0.166	0.015	0.814
Sector: Hunger	0.221	0.251	0.054	0.381
Sector: Housing	-0.006	0.129	-0.003	0.961
Sector: Public Safety	0.321	0.215	0.089	0.137
Sector: Resilience	-0.041	0.149	-0.019	0.783
Sector: Research	-0.203	0.154	-0.086	0.187
Sector: Transit	0.201	0.223	0.056	0.368
Sector: Urban planning	-0.194	0.17	-0.08	0.256
Sector: Youth	0.225	0.164	0.087	0.171
Sector: Other	-0.183	0.192	-0.058	0.341
Geographic level: Neighborhood	-0.033	0.138	-0.016	0.811
Geographic level: City	-0.058	0.15	-0.024	0.7
Geographic level: Metro	0.082	0.131	0.041	0.53
Geographic level: Region	-0.298	0.135	-0.148	0.028
Geographic level: State	0.113	0.149	0.054	0.449
Geographic level: National	-0.039	0.168	-0.016	0.815
Geographic level: International	-0.387	0.253	-0.09	0.127
When first saw Index	-0.063	0.022	-0.165	0.005

A multiple regression was run to predict System impact 4 (Resources received) from the variables that added statistically significantly to the prediction from the previous regression. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.623. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were five cases for which the standardized residuals were greater than +/- 3 standard deviations and five cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. These cases were left in, because after further inspection, there were no other reasons to exclude them. There were no leverage values greater than 0.2 There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted System impact 4 (Resources received), $F(3, 425) = 5.515$, $p < .005$, adjusted $R^2 = .031$. Two variables (Geographic level: Region; When first saw Index) added significantly to the prediction, $p < .01$. All regression coefficients and standard errors can be found in the table below.

Table 54. Coefficients for System impact 4, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	0.287	0.083		0.001
Type: School	-0.264	0.183	-0.069	0.149
Geographic level: Region	-0.162	0.097	-0.081	0.095

When first saw Index	-0.059	0.016	-0.173	0

System impact 5. Perceptions of funders and politicians

A multiple regression was run to predict System impact 5 (Perceptions of funders and politicians) from the variables related to level worked at, geographic level of the organization, organization type, and organization sector. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.004. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were three cases for which the standardized residuals was greater than ±3 standard deviations and three cases for which the studentized deleted residuals were greater than ±3 standard deviations. There were fifty-eight leverage values greater than 0.2 (but less than 05). These were left in, because after further inspection, there were no other reasons to exclude them. There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted System impact 5 (Perceptions of funders and politicians), $F(50, 290) = 1.418$, $p < .05$, adjusted $R^2 = .058$. Five variables (Sector: Housing; Sector: Youth; Geographic level: Metro; Geographic level: Region; When first saw Index) added significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 55. Coefficients for System impact 5, Model 1

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	0.117	0.246		0.635
Level worked at: Operations	-0.187	0.159	-0.073	0.241
Level worked at: Executive management	-0.097	0.18	-0.038	0.591
Level worked at: Middle management	-0.141	0.168	-0.057	0.403
Level worked at: Technical advisor	-0.056	0.182	-0.021	0.759
Type: College or university	-0.055	0.196	-0.019	0.781
Type: School	-0.487	0.3	-0.103	0.106
Type: Government, City	0.2	0.238	0.055	0.401
Type: Government, State	0.265	0.254	0.067	0.298
Type: Government, Federal	0.352	0.277	0.075	0.205
Type: Government board	-0.25	0.46	-0.033	0.587
Type: Quasi-governmental agency	0.509	0.277	0.116	0.067
Type: Government contractor	-0.205	0.319	-0.04	0.521
Type: Foundation	-0.181	0.238	-0.047	0.449
Type: Nonprofit	0.252	0.156	0.104	0.107
Type: Civic organization	-0.136	0.26	-0.035	0.602
Type: Neighborhood association	-0.192	0.259	-0.051	0.46
Type: Business	0.19	0.19	0.062	0.32
Type: Faith-based	-0.07	0.274	-0.015	0.8
Type: Media	0.209	0.321	0.039	0.516
Type: Other	0.079	0.246	0.019	0.749
Sector: Advocacy	-0.037	0.184	-0.014	0.84
Sector: Arts and culture	-0.109	0.215	-0.031	0.613
Sector: Capacity building	0.213	0.189	0.079	0.261
Sector: Community organizing	0.153	0.201	0.056	0.448
Sector: Community development	-0.082	0.186	-0.032	0.661
Sector: Criminal justice	-0.312	0.252	-0.075	0.216
Sector: Economic development	0.011	0.192	0.004	0.954
Sector: Education	0.096	0.184	0.037	0.601
Sector: Emergency response	-0.145	0.204	-0.047	0.476
Sector: Environment	0.393	0.225	0.11	0.081
Sector: Political	0.247	0.18	0.086	0.171
Sector: Health	0.001	0.188	0	0.996
Sector: Human Services	-0.206	0.201	-0.065	0.307
Sector: Hunger	0.274	0.305	0.054	0.37

Sector: Housing	0.361	0.157	0.139	0.022
Sector: Public Safety	0.226	0.261	0.051	0.387
Sector: Resilience	-0.075	0.18	-0.028	0.68
Sector: Research	-0.029	0.186	-0.01	0.877
Sector: Transit	0.083	0.27	0.019	0.76
Sector: Urban planning	0.072	0.206	0.024	0.729
Sector: Youth	0.429	0.198	0.135	0.031
Sector: Other	-0.269	0.233	-0.07	0.249
Geographic level: Neighborhood	-0.205	0.167	-0.083	0.219
Geographic level: City	-0.123	0.182	-0.042	0.5
Geographic level: Metro	0.341	0.158	0.14	0.032
Geographic level: Region	-0.468	0.164	-0.19	0.005
Geographic level: State	0.27	0.18	0.107	0.135
Geographic level: National	0.08	0.203	0.027	0.694
Geographic level: International	0.389	0.306	0.074	0.205
When first saw Index	-0.064	0.027	-0.137	0.019

A multiple regression was run to predict System impact 5 (Perceptions of funders and politicians) from the variables that added statistically significantly to the prediction from the previous regression. The assumption of normality was met, as assessed by the Histogram and Normal P-P Plot of Regression Standardized Residuals. The assumption of linearity was met, as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were five cases for which the standardized residuals were greater than +/- 3 standard deviations and five cases for which the studentized deleted residuals were greater than +/- 3 standard deviations. These cases were left in, because after further inspection, there were no other reasons to exclude them. There were no leverage values

greater than 0.2 There were no values for Cook's distance above 1. The multiple regression model statistically significantly predicted System impact 5 (Perceptions of funders and politicians), $F(5, 423) = 6.271$, $p < .0005$, adjusted $R^2 = .058$. Four variables (Sector: Housing; Sector: Youth; Geographic level: Metro; Geographic level: Region; When first saw Index) added significantly to the prediction, $p < .05$. All regression coefficients and standard errors can be found in the table below.

Table 56. Coefficients for System impact 5, Model 2

	Unstandardized Regression Coefficient	Std. Error of the coefficient	Standardized Coefficients	Sig.
(Constant)	-0.099	0.115		0.392
Sector: Housing	0.35	0.126	0.131	0.006
Sector: Youth	0.381	0.152	0.119	0.012
Geographic level: Metro	0.342	0.12	0.141	0.005
Geographic level: Region	-0.163	0.122	-0.066	0.182
When first saw Index	-0.045	0.02	-0.107	0.024

7.3.5. Most Useful Aspects

At least 80.3% of respondents agreed or strongly agreed with each of the options for the question about positive aspects of the *Index*. Over 95% agreed or strongly agreed that the *Index* provides valuable, cross-sector data and analysis, is easy to understand and use, and includes valuable context, trends over time, comparable geographies, and breakdowns by race and gender.

7.3.6. Barriers and Challenges

When asked about challenges to using the *Index*, respondents agreed or strongly agreed with the following options most often; however for all but one a greater number of respondents disagreed or strongly disagreed: the *Index* does not include enough

neighborhood level data for New Orleans (35.5% agree or strongly agree, 24.3% not sure, 37.7% disagree or strongly disagree), does not include enough data for the larger Gulf Coast region (29.1% agree or strongly agree, 44.5% not sure, 23.2% disagree or strongly disagree), does not include enough qualitative data (28.9% agree or strongly agree, 31.8% not sure, 37.0% disagree or strongly disagree), does not include enough data on disparities (27.0% agree or strongly agree, 27.7% not sure, 43.6% disagree or strongly disagree), and does not include enough depth in their specific area of interest (26.1% agree or strongly agree, 29.5% not sure, 40.9% disagree or strongly disagree).

Chapter 8. Key Informant Interviews

Chapters 5, 6, and 7 have focused on the use of the *Index* by agents in the complex adaptive recovery system. However, it is important to note that The Data Center, Brookings and *The New Orleans Index* are themselves agents in the complex adaptive recovery system. The Data Center, Brookings and the *Index* are influencers and in turn influenced in an iterative process. Not only did agents use the *Index* to adapt their behavior, but The Data Center and Brookings adapted the *Index* to its changing environment. This chapter aims to explore these themes further through an analysis of four key informant interviews with staff from The Data Center and Brookings that worked on the *Index*.

8.1. Method

Four key informant interviews were conducted in July and August of 2016 with key staff at The Data Center and Brookings responsible for creating *The New Orleans Index*. The key informants were sent a copy of the focus group and survey findings ahead of time, along with a copy of the interview guide for the key informant interviews so that they could see the questions they would be asked ahead of time. The interviews lasted approximately 30 minutes each. Two were done in person and two were done over the phone. All of the interviews were recorded and transcribed in Microsoft Word.

The transcripts were coded first based on which research questions they pertained to and a provisional list of codes was developed. The codes were revised as necessary

throughout the data coding process. The process of coding and recoding continued until the data was "saturated" and a sufficient number of "regularities" emerged (Miles and Huberman, 199d). The resulting codes were clustered into pattern codes or themes, which are explained in the following section.

8.2. Results

8.2.1. Sensitivity to Initial Conditions

Across three of the four interviews, key informants talked about the importance of factors preceding Hurricane Katrina that were instrumental to *The New Orleans Index*. All three specifically mentioned the importance of the fact that The Data Center existed and had developed capacity to access and analyze data before the storm. For instance, one person said:

> I think that model [the partnership between Brookings and The Data Center on the *Index*] was really effective, but of course you need to have a data intermediary in place to begin with…I think it's more challenging when you don't have an intermediary in place to identify someone who would really be trusted by the community, because that's something that The Data Center had going into the disaster - the community's trust. That's hard to assess after a disaster has already happened.

Another said:

> I think first is really having dedicated data capacity to work across all of those indicators. I think it's really clear from my own travels with other regional think tanks is that it's really rare to find a place like The Data Center that has the nimbleness and the relationships to be able to collect that level of data across the economy or across the community.

A third key informant said:

> The stuff that was happening before the *Index* was really critical to there being an *Index*. So you can't just come in a year later and start an *Index*…I think that the reality of it is that if you don't have something like The Data Center, it's very hard to have something like this come out…so if you

> have no one who is even marginally working in these fields and then you have a major disaster, I suspect it's hard to get these things off the ground.

The same person went on to say:

> We were just poised - it was like you just handed us a project of lifetime, because we had been trying for literally years to try to figure out how to publish something like this and make it relevant, but we just hadn't been able to do it. [The Data Center] had already established itself before Brookings came in, as the go to both locally and nationally around this data, so we were well poised to go from having produced some census data to doing some rapid information to being able to put the *Index* out.

This person also mentioned:

> The timing was also important. There was a great push in the funding community in the late 90s early 2000s, a huge push of how do we get data out to people, the internet goes crazy, so it's kind of a confluence of moments, right?

Similarly, another key informant mentioned:

> …the few years after Katrina happened to be when all of the media outlets were scaling back their budgets and the first things that went were their research departments, and so they relied more and more on us just for fact checking even outside of *The New Orleans Index* and that built our relationships with the media and really helped with the dissemination of the *Index* and everything else we published, so that was just kind of fortuitous.

8.2.2. Role of Disaster

Across three of the four interviews, key informants talked about the importance of the disaster of Hurricane Katrina in the creation and sustainability of *The New Orleans Index*. For instance, one key informant commented on how the disaster brought a sense of urgency and a clear audience and purpose, along with funding:

> [Before Katrina]…we tried to do this whole idea of an *Index* and it was clearly a hot topic, but again there just wasn't an openness and there

> wasn't a driver behind it….[After Katrina there was] … urgency. We were able to get really focused on providing data. Rather than trying to figure out what people wanted, we were able to respond to a specific purpose…You don't ever want to wish this kind of disaster on anybody, so I don't know how well it translates to future relationships, because so much of it was related to the fact that there was money, there was interest, it was just so huge that people wanted to study it and I just don't think that there's that many replicable situations like that.

Another key informant also commented on how the adrenaline of working in a post-disaster environment contributed to the quality of the *Index*:

> I think I would add that doing this kind of thing well requires hard work, a lot of dedication, not compromising on quality and frankly it's a lot more likely to get that quality of work out of people that are running on adrenaline after a disaster…I think when people are not running on adrenaline, it's hard to do something this high quality, because the importance just doesn't seem there.

A third key informant commented on the role of the disaster in framing the *Index*:

> Maybe it's easier when you have a definite, anniversary date to tune your recovery to. Maybe that's one thing that helped. A lot of our disasters now are slower moving – there's not a single date that the disaster happened…in New Orleans before Katrina things were not looking good, but there was no punctuating event to say, "Ok – we're starting the clock here, everything else was before." Then, this disaster happened. Now we're tracking what the recovery in the new city looks like.

8.2.3. Local-National Partnership

Across all four of the interviews, key informants talked about the importance of the partnership between The Data Center and Brookings. For instance, one key informant talked about the legitimacy that Brookings brought to The Data Center and vice versa:

> The partnership between The Data Center and Brookings was critical. There's absolutely no doubt in my mind. I think the Brookings brand really made the media pay attention and provided overall high level credibility, but then from the local folks' perspective [The Data Center] provided credibility, because people locally weren't going to believe national groups. And lots of national groups got rode out of town on a rail,

> national consultants and what not. And that could've easily happened to Brookings if they didn't have a local partner. But Brookings was smart and they knew the importance of having a local partner. And it wasn't just perceptual. [The Data Center] had local knowledge. We were the ones that could see the trends. They couldn't tell what was happening. We could see that ten more schools just opened, and that's why the school population just jumped or whatever it was. They would have never have been able to identify that.

Similarly, another key informant said:

> [The Data Center] had been producing data but we hadn't come up with the format and timing and then Brookings coming in and the interest and just how we already had the established value system of being neutral and they picked us a partner which then really solidified us as more legitimate… [The Data Center] had a great local reputation. People thought a lot of us, but there's something about having a national think tank come in and say I want to partner with you. It opened a lot of doors and it really set the stage for people to depend on the information...it also legitimized Brookings locally to some degree so I think there was a give and take…

Several of the key informants also commented about how the partnership with Brookings built the capacity of The Data Center. For instance, one said:

> I think the collaboration with Brookings and the strong branding of the *Index* probably helped keep The Data Center, which wasn't its own organization at the time, afloat. It helped keep that role carved out when all of the staff efforts could have been subsumed into other recovery efforts.

Another commented:

> Before [The Data Center] started working on the *Index*, we really didn't know about informing policy. We were putting data out there and we also weren't doing any analysis. So over the course of doing *The New Orleans Index* we learned about informing policy while remaining neutral and certainly Brookings was our guide on that. Also we learned to do media work, which we hadn't done before…and we developed relationships with decision makers in lots of sectors at lots of levels, and we learned to write like Brookings. [Also, the Data Center's relationship with Brookings] did open the door to doing other analysis projects like housing, economic development, and workforce.

Similarly, another key informant said:

> I am really proud of the fact that our collaboration allowed The Data Center to become a really strong thought leader and independent voice in the community and that attracted more talent and resources to strengthen what is a really important resource in the community. I think that is the most important lasting impact of the *Index* is The Data Center itself.

8.2.4. Feedback and Adapting

Across all four interviews, key informants commented on the importance of staying tuned in to what was happening on the ground during the recovery and gathering feedback, in order to keep make the *Index* relevant to decisions that were being made. For example, one key informant commented, "[*The Index*] went from mostly tracking numbers to really being strategic about indicators and making sure that they were meaningful and relevant for decisions that needed to be made...that would impact policy and public opinion." Another said, "So that would be the biggest challenge – making it relevant to people when it hadn't been part of their everyday decision making, from business to anybody…" Similarly, another key informant commented:

> It's been a really good exercise helping us learn how to make sure an *Index* isn't just a chronicling tool but really a planning and aspirational tool…also I think we were very cognizant of evolving the *Index* to meet the moment. So as recovery progressed….it allowed us to keep evolving the *Index*, so that it was still relevant in guiding public decision making…And I think part of it was the feedback we were getting on the *Index*, like what indicators did people really value, what indicators did people think were missing and that so that guided how we added new indicators over time.

On the topic of gathering feedback, another key informant commented:

> The Data Center had a feature called "Ask Allison" on their website and protocols for answering things really rapidly… [these data requests] always made us think – is this a common question that other people have

> that there's data available to answer and that would fit in *The New Orleans Index*.

This same person also commented about feedback gathered through the *Index*'s advisory committee:

> …once we started working on topics that could inform local policy more so than just federal policy it was really great to have stakeholders be part of an advisory committee where they gave input as to what they though some of the trends were and what they thought was important to track and then also gave input as to what our draft analysis was, but also they heard each other. That was the key of those meetings – that they got the chance to hear each other and different perspectives on what the data meant. That helped form that common understanding, so right off the back you had x number of people that had a common understanding even though they came into the room with very different understandings and helped to disseminate that shared understanding.

8.2.5. Constraints to Adapting

Across all four interviews, participants commented on the constraints they faced in adapting to the environment as much as they felt they needed and wanted to. In three out of four of the key informant interviews, people commented on the lack of data as a challenge with creating the *Index*. For instance, one key informant said that a challenge was: "Lack of data on certain topics like infrastructure and sustainability. Infrastructure during the recovery and then sustainability after the 5th anniversary." Another said, "The lack of timely data was really a problem." Similarly, a third said:

> Lack of access to local data was a huge pain point – local data and the disaster data, like the FEMA spreadsheets that were maintained…for the individual person managing the incident. They didn't really design it so that it could be used by a data intermediary to publish in *The New Orleans Index*. So it was a flaw getting data out of federal agencies and especially out of local government in the early days. And of course the federal statistics weren't super useful because of the time lag.

Also, in three out of four of the key informant interviews, people said that funding was a big challenge. One said, "Another barrier I would argue would be capacity and funding." Another said, "[Data like the *Index*] is always going to be beneficial, it's just not always going to be a high priority. And it's really a public good, so what ends up happening is people are like, 'Well, why would we pay for that?' Everyone wants it but no one wants to pay for it…That's what make it hard." Similarly, another said:

> Despite the incredible demand and desire for it, that doesn't mean that funders will step up, because they often have issue specific stuff that they're interested in and they don't necessarily feel it fits with what their issue is. So that's probably the problem going forward and might be the problem for lots of other communities who would try to do something similar.

In two of the three key informant interviews, people commented on challenges with timing and the publication process. One key informant commented:

> Another challenge was certainly the publishing process. The lag time between putting together the data and the report and then publishing it – that was definitely a huge lift that required a lot of resources. And it's always sort of a tradeoff – how quickly can you get the data out vs how much good analysis and content building do you do. That's just a tension.

Another key informant said:

> I think the *Index* was really important when data mattered, when there was rapid change. We tried to stop publishing it as often when the data wasn't changing. I think we could have waited for longer periods of time when there really wasn't any change happening…The challenge was did we begin to lengthen the time as effectively as we could have or did we publish too often.

8.2.6. Tension Between Less and More

The tension between adding more data and analysis to the *Index* versus maintaining a tighter focus is another idea that came up in three out of four of the interviews. For

instance, one key informant said, "What [the *Index*] was trying to do was to stay simple, to stay clean, not too complicated, "graphable." That really does limit the kind of data you can use…you wish you could do more." Similarly, another key informant said of the suggestions that came out of the focus groups:

> I realize of course from the focus groups that other people had other ideas about what could have been done initially. But essentially every idea would have just made the thing bigger. Like should we make it for the whole gulf coast, should we have more information by neighborhood, should we drill more down on housing? Any of those would've just made it bigger and the bigger you make it, it's not necessarily an improvement in terms of people's abilities to consume it, so I don't actually feel like most of those things would've been improvements. I think those things are needed and maybe in a different setting or product.

Another key informant's reaction to the suggestions that came out of the focus groups was similar:

> They want us to cover more neighborhood data and cover the larger gulf coast (laughter) – you just can't win can you? What I do disagree with is [with adding] qualitative data and I disagree with keeping the same indicators over time. If you keep the same indicators over time, you're just assuming that your goal is to get back to where you were before and that's nobody's recovery goal anywhere, so while I can see why people would want that, but I think it's a bad idea. And I think that if you add more qualitative data, then you undermined your credibility and neutrality. I don't think you can do both. Also, it's so time consuming to work with qualitative data. It's time consuming working with quantitative data, but even more so with qualitative, and since these organizations are never over staffed – if it were a zero sum game. There are other people who can do qualitative data, but you have to do what your core strength. You have to think of this as an ecosystem too – one organization doesn't have to do everything. The Data Center can provide the base data and other organizations can overlay qualitative data on top of that. It doesn't have to be the same organizations doing everything.

Chapter 9. Discussion

This chapter integrates the findings from the archival data, focus groups, survey, and key informant interviews for each of the research questions.

9.1. Dissemination

Research Question 1. How and to what extent was *The New Orleans Index* disseminated**?**

As mentioned in the literature review, disaster recovery systems are made up of elements, levels, dimensions, and sub-systems that are interconnected and interdependent of each other and the wider environment. The various levels of a disaster recovery system can include nested geographic hierarchies, like neighborhoods, cities, states, countries. The various dimensions of a disaster recovery system can include social, cultural, physical, technical, economic and political dimensions (Mittleton-Kelly, 2003). Interconnections can occur "…between individual elements of a system, between sub-systems, among systems, between different levels of a system, between systems and environments, between ideas, between actions, and between intentions and actions" (Weick, 1976). These interconnections lead to interdependence between the systems' elements and result in the complex behavior of the overall system.

The dissemination of *The New Orleans Index* relates to the concept of nested hierarchies in that the *Index* was distributed to a broad group of local and federal policy makers, civic leaders, foundations, and the general public in a variety of different ways. First, the most recent edition was always posted on Brookings' and The Data Center's

website. Brookings' website also keeps an archive of the executive summaries of past editions. E-newsletters linking to recently released editions of the *Index* were sent to both Brookings' and The Data Center's civic/policy contacts as well as their media contacts. *The New Orleans Index* was viewed 58,561 times on Brooking's website and downloaded over 98,052 times from The Data Center's website since 2007. Since 2010, *The New Orleans Index* landing page on The Data Center's website was visited by users in over 25 states and over 35 metro areas in the U.S., over 35 countries, and five continents. Second, extensive media work was done to encourage fact-based coverage of hurricane recovery. At least 160 media articles specifically mention *The Katrina Index* or *The New Orleans Index*. Over two thousand media articles contain search terms related to the *Index* and are likely related to its data and analysis. Third, policy makers and philanthropists at the local and national levels were engaged in dozens of meetings and presentations about the *Index*. Printed copies of the *Index* were delivered to hundreds of key policy makers, philanthropists, and civic leaders in their offices, and given away to a wider group of people at meeting, presentations, and events focused on recovery in the region. *The New Orleans Index* is cited in eleven federal government documents and twenty academic journal articles. Finally, policy makers and civic leaders can receive answers to their specific questions about data via the "Ask Allison" feature available on The Data Center's website. Data and findings from the *Index* have informed responses to over 1,500 data requests.

Of the survey respondents, the largest group first remember seeing the *Index* in 2006 (35.8%), 11.2% first remember seeing the *Index* in 2007, 6.7% in 2008 and 5.9% in 2009.

This followed by an uptick to 7.4% in 2010, which was the five-year anniversary of Katrina. The total for those who first saw the *Index* in 2011, 2012, 2013, 2014, 2015 and 2016 was 15.9%, and 16.8% were not sure when they first saw the *Index*. The largest group of respondents first remember seeing the *Index* in an email from the Data Center or Brookings (35.0%), followed by when searching for data online (19.0%), at a meeting where it was being presented (10.1%), and through a colleague (9.1%), while 13.0% were not sure where they first saw the *Index*.

9.2. Use and Impact on Work

Research Question 2. How was the *Index* used and to what extent was it used in ways associated with complex adaptive systems theory?

Research Question 3. How do recovery leaders who used the *Index* report that it impacted their work in ways associated with complex adaptive systems theory**?**

The *Index* was both used in a variety of ways associated with complex adaptive systems theory, including to better understand what was happening in New Orleans after Hurricane Katrina (situational awareness), to identify needs and adapt their priorities and strategies accordingly (adaptation), as a common reference and to get on the same page with others (cooperation), and to make the case for new investments, policies, and programs (emergence of new structures). Similarly, recovery leaders who used the *Index* report that it impacted their work in ways associated with complex adaptive systems theory, including to get a basic understanding of what was going on so that they could move forward with their work (situational awareness), to think more innovatively about challenges in the recovery (adaptation), to communicate and collaborate more effectively

(cooperation), and to secure funding, influence policy, and create new programs (emergence of new structures).

9.2.1. Situational Awareness

Hypothesis 1. The Index was used by recovery leaders to better understand what was happening in New Orleans after Hurricane Katrina.

Hypothesis 5. Recovery leaders reported that the Index allowed them to get a basic understanding of what was going on so that they could move forward with their work.

As mentioned in the literature review, agents need information following a disaster to orient themselves in a drastically different environment and throughout the disaster recovery process as sudden, drastic changes occur (Comfort, 1999; Gell-Mann, 1994). This was confirmed in both the focus groups and survey data.

Across eight of the 12 focus groups, participants talked about how the environment after Hurricane Katrina was characterized by chaos and confusion. In six of those eight focus groups, participants literally used the word "chaos" or "chaotic" when describing the environment following Hurricane Katrina. In two of these focus groups, participants also talked about how Katrina caused a massive immediate change in the environment, but noted that the situation remained in flux for several years afterward. Across seven focus groups, participants spoke about the destruction to the physical and organizational landscape caused by Katrina. Participants across six focus groups also noted that many new organizations were founded after Katrina or came to New Orleans from elsewhere following Katrina.

Using the *Index* to better understand what was happening in New Orleans after Hurricane Katrina came up in nine of the 12 focus groups and 21 pre focus group survey

responses. Several participants mentioned that it helped them understand changes that were happening across sectors, over time. A common sub-theme was that participants used the *Index* to track recovery since Katrina. A second sub-theme was that the *Index* provided valuable context, especially for those new to New Orleans. A third sub-theme was that participants used the *Index* to check their assumptions or back up what they were seeing on the ground.

A very high percent of survey respondents indicated using the *Index* in ways related to situational awareness. Of these, the most prevalent use was to understand what was happening over time and across sectors (92.6%), followed by to provide context for my work (90.4%), to check my assumptions (81.4%), and to back up personal experience (67.4%). The majority of survey respondents also indicated that the *Index* impacted their work in ways related to situational awareness. Of these, the most prevalent impact was that the *Index* enabled me to access data I otherwise didn't have the time to access (91.6%), followed by the *Index* enabled me to get a basic understanding of what was going on, so I could move forward with my work (88.2%) and the *Index* enabled me to access data I otherwise didn't have the expertise to access (77.9%).

9.2.2. Adaptation

Hypothesis 2. The Index was used by recovery leaders to identify needs and adapt their priorities and strategies accordingly.

Hypothesis 6. Recovery leaders reported that the Index allowed them to think more innovatively about challenges in the recovery.

According to the literature, information plays a crucial role in an agent's ability to effectively adapt in a post-disaster environment (Comfort, 1999; Comfort, 2002; Comfort

et al, 2004; Comfort 2007; Comfort *et al*, 2010; Sylves and Comfort 2012). Agents also need information during the rebuilding process to help them make the most of the limited resources they have available to them (Comfort, 1999). These ideas and hypotheses were confirmed in both the focus group and survey data.

Across all twelve of the focus groups, participants discussed how their organizations adapted following Katrina. In two focus groups, participants said that their organizations adapted based on what they saw as shifting needs. In two focus groups, participants mentioned that their organizations adapted based on new resources and emerging opportunities. Additionally, participants in eight of the focus groups spoke about an increase in involvement from national foundations or an increase in resources in New Orleans following Katrina. Along with the initial increase in resources, participants in all three of the focus groups with city/metro level organizations talked about challenges experienced with scaling their operations. Participants in six focus groups also noted that eventually the inflated levels of funding began to drop off as a result of the 2008 market collapse and 2013 congressional budget restraints which led to decreased federal entitlement program funding.

Using the *Index* to identify need and to adapt priorities and strategies accordingly came up in all twelve focus groups and in 28 pre focus group survey responses. A common sub-theme was that participants used the *Index* to identify needs as part of their planning efforts. This came up in seven focus groups and nine pre focus group survey responses. Another sub-theme was that participants in the philanthropy groups used the *Index* to identify needs for grant-making. This came up in six focus groups and 12 pre

focus group survey responses. It is important to note that while some participants saw the *Index* as driving grant-making, others saw it as more of a support or a guide.

Many survey respondents indicated using the *Index* in ways related to adaptation. Of these, the most prevalent use was to identify / prioritize needs (63.7%), followed by for a strategic plan (50.7%), for a grant making decision (16.9%), and for an investment decision (15.1%). The majority of survey respondents (71.9%) indicated that the *Index* enabled them to think more innovatively about challenges in the recovery.

9.2.3. Cooperation

Hypothesis 3. The Index was used by recovery leaders as a common reference and to get on the same page with others.

Hypothesis 7. Recovery leaders reported that the Index allowed them to communicate and collaborate more effectively.

As mentioned in the literature review, information plays an important role in an agent's ability to work with others following a disaster (Comfort, 1999; Comfort, 2002; Comfort *et al*, 2004; Comfort, 2007; Comfort *et al*, 2010; Sylves and Comfort, 2012). Following a disaster, agents may have very different goals or prioritize their goals differently, which can lead to the conflict that tends to characterize recoveries (Haas, Kates & Bowden, 1977). However, information helps agents to develop a common operating picture and a shared vision for both the problem confronting the community and the goal for action (Simon, 1981; Comfort, 2007). According to the complex adaptive systems literature, information exchange is a basic requirement for the process of inter-organizational learning that is necessary for working together and solving difficult problems like those experienced by communities following disasters (Comfort, 1999;

Weick, 1995; Gell-Mann, 1994). One manifestation of this increased inter-organizational learning is the establishment of new partnerships across individuals, organizations and systems. These concepts and hypotheses were confirmed by the focus group and survey data.

Participants across all twelve of the focus groups discussed the importance of partnership. A prominent sub-theme was the necessity of partnership to leverage scarce resources and meet the massive need. Many different types of partnerships and cooperation were discussed across the groups. These included partnerships between national and local nonprofits, foundations and city government, and foundations and business. It also included partnerships amongst foundations, universities, nonprofits focused on housing, and nonprofits focused on youth, as well as regional partnerships and partnerships across sectors. Participants in eight of the focus groups also noted that the influx of national foundations caused challenges, including coordination issues.

Focus group participants talked about using the data from the *Index* to get on the same page with others in 11 focus groups and 12 pre focus group survey responses. One common sub-theme was that participants found the *Index* helpful to focus conversations with others and stop the debate over facts. This came up in six focus groups and two pre focus group survey responses. Another common sub-theme was that participants found it helpful to have the *Index* as a common reference. This came up in nine focus groups. On the other hand, some participants mentioned that they did not see the *Index* as driving the creation of new partnerships, but more as an undergirding and support to partnerships that had already formed. A third, common sub-theme was that the *Index* helped participants in

their conversations and communications with people from outside of New Orleans. This came up in seven focus groups and ten pre focus group survey responses.

Many survey respondents indicated using the *Index* in ways related to cooperation. Of these, the most prevalent use was as a common reference when working with others (69.5%), followed by to focus conversations (49.4%), to settle debates over facts (43.3%), and for briefing volunteers, interns or technical assistance providers (37.8%). The majority of respondents indicated that the *Index* impacted their work in ways related to cooperation. Of these, the most prevalent impact was that the *Index* enabled me to communicate more effectively with the general public (70.7%), followed by the *Index* enabled me to collaborate more effectively with others (64.5%), the *Index* enabled me to communicate more effectively with elected officials, board members, or national foundations (63.6%), the *Index* enabled me to communicate more effectively with volunteers, interns, or technical assistance providers (59.7%), and the *Index* enabled me to communicate more effectively with the media (43.5%).

9.2.4. Emergence of new structures

Hypothesis 4. The Index was used by recovery leaders to make the case for new investments, policies, and programs.

Hypothesis 8. Recovery leaders reported that the Index allowed them to secure funding, influence policy, and create new programs.

According to the literature, information helps agents accurately assess need, which is one of the first steps to innovation (Kendra & Wachtendorf, 2007). Comfort (1999) found that one of the key factors preventing the establishment of innovative measures following disasters was a lack of accurate information "…resulting in an underestimation of the

long-term damage incurred from the disaster in terms of the continuing social and economic development..." *The New Orleans Index* provided a frequently updated source of data that spoke to both the damage incurred by Katrina as well as the varying levels of progress being made in different areas. These concepts and hypotheses were confirmed by the focus group and survey data.

Across all twelve of the groups, participants also discussed the increased importance of advocacy following Katrina. A prominent sub-theme was that participants felt they had to do something to stand up for New Orleans broadly speaking.

Focus group participants talked about using the data from the *Index* to make their case for new funding, new policies, etc. in nine focus groups and 21 pre focus group survey responses. Participants talked about using the data from the *Index* for grant writing specifically in eight focus groups and 16 pre focus group survey responses. Participants talked about using the data from the *Index* for advocacy specifically in seven focus groups and six pre focus group survey responses

Almost half of the survey respondents indicated using the *Index* to make the case for new investments, policies, and programs. Of these, the most prevalent use was for an advocacy communication (45.7%), followed by for a grant proposal or fundraising materials (42.9%) and for a briefing for elected officials, board members, or national foundations (35.6%). About half of respondents indicated that the *Index* impacted their work in ways related to the emergence of new funding, policy and programs. Of these, the most prevalent impact was that the *Index* enabled me to make the case for new

programs or investments (54.6%), followed by the *Index* enabled me to influence policy (51.6%), and the *Index* enabled me to secure additional funding or resources (42.6%).

9.3. Impact on Larger System

Research Question 4. How do recovery leaders who use the *Index* report that it impacted the larger system in ways associated with complex adaptive systems theory?

As mentioned in the literature review, in complex adaptive systems the cycle of agents sending and receiving information and signals and adapting their actions is referred to as *feedback*. Feedback impacts the individual level, but also the network level and systems level patterns of change that occur within a complex adaptive system. Because of feedback processes, a change in one element or relationship alters another, which in turn affect the original element or relationship (Jervis, 1997). There are two main types of feedback: damping and amplifying. Damping feedback occurs when change within a system is inhibited while amplifying feedback occurs when the change is reinforced (Byrne, 1998; Jervis, 1997; Maruyama, 1968). Feedback processes both promote and inhibit change within complex adaptive systems. In simple systems feedback loops play out in linear ways and are often associated with regulating or controlling the system. In complex systems, on the other hand, feedback processes contribute to the nonlinear change that takes place in the system over time (Byrne, 1998).

Several system-level impacts of *The New Orleans Index* related to feedback loops were identified in the focus groups, including positively influencing perceptions of New Orleans, positively influencing the demand for and use of data in New Orleans, positively influencing emerging conversations on cross-cutting topics, positively influencing the amount of funding and other resources received by New Orleans, and positively

influencing the decisions of residents and businesses to return or move to New Orleans. These findings were confirmed by the survey data as detailed in the sections that follow.

9.3.1. Perception of New Orleans

Hypothesis 9. Recovery leaders reported seeing the Index positively influence perceptions of New Orleans.

One system-level impact noted by participants across several focus groups was that the *Index* positively influenced stories being told about New Orleans in the media and at the national level. This came up in five focus groups and one pre focus group survey response. Several participants talked about how the *Index* improved the ability of New Orleanians to tell their own story. The fact that the *Index* was well covered by the national media and the importance of that was mentioned, as well.

More than half of the survey respondents indicated that that they saw the *Index* positively influence perceptions of New Orleans. Of these, the most prevalent impact was that the *Index* positively influenced stories being told about New Orleans in the media (76.1% agree or strongly agree, 20.1% not sure, 2.9% disagree or strongly disagree), followed by the *Index* positively influenced funders' perception of New Orleans (58.4% agree or strongly agree, 34.1% not sure, 4.2% disagree or strongly disagree), and the *Index* positively influenced politicians' perceptions of New Orleans (53.3% agree or strongly agree, 39.6% not sure, 4.6%).

9.3.2. Demand for and Use of Data

Hypothesis 10. Recovery leaders reported seeing the Index positively influence the demand for and use of data in New Orleans.

The *Index* contributing to an increase in data literacy and demands for data came up in eight focus groups. For example, several participants spoke about how the *Index* democratized data and made it a tool for people. In three focus groups (all city/metro level), participants spoke about how the *Index* spurred demand for more data. Several participants also mentioned that the *Index* or conversations with The Data Center staff inspired them to develop their own capacity to collect their own data.

The majority of survey respondents indicated that that they saw the *Index* positively influence the demand for and use of data in New Orleans. Of these, the most prevalent impact was that the *Index* positively influenced an increase in the use of data for decision making among citizens and organizations in New Orleans (71.0% agree or strongly agree, 25.7% not sure, 2.4% disagree or strongly disagree), followed by the *Index* positively an increase in the demand for more data among citizens and organizations in New Orleans (63.9% agree or strongly agree, 33.0% not sure, 2.0% disagree or strongly disagree).

9.3.3. Emerging Conversations

Hypothesis 11. Recovery leaders reported seeing the Index positively influence emerging conversations on cross-cutting topics.

The emergence of more engaged citizens following Katrina was mentioned in seven focus groups, including both neighborhood level groups. Across seven focus groups, participants talked about an increased awareness about racial disparities caused by Hurricane Katrina. In addition to increased awareness around racial disparities, participants in five focus groups (including all three city/metro level organization groups, one neighborhood level organization group, and one state/regional/national organization group) noted an increased awareness about the environment, the coast, and living with

water. Participants in three focus groups (one neighborhood and two city/metro level) noted that a third area where participants noted there had been an increased level awareness following Katrina was around regional economic development.

Another system-level impact noted by participants across several focus groups was that the *Index* fostered emerging conversations on important topics like equity and inclusion, living with water, and regional economic development. This came up in six focus group and six pre focus group survey responses. For example, several participants commented on how the *Index* tracked the most important issues at a given time and fueled conversations. The fact that the *Index* created networks of people that also fueled conversations came up in the focus groups as well.

More than two thirds of survey respondents (69.2% agree or strongly agree, 24.8% not sure, 4.4% disagree or strongly disagree) indicated that that they saw the *Index* positively influence emerging conversations on cross-cutting topics (for example, conversations on topics like equity and inclusion, youth, living with water, regional economic development, etc.).

9.3.4. Resources Received by New Orleans

Hypothesis 12. Recovery leaders reported seeing the Index positively influence the amount of funding and other resources received by New Orleans.

About half of respondents indicated that they saw the *Index* positively influence the amount of funding and other resources received by New Orleans. Of these, the most prevalent impact was that the *Index* positively influenced the amount of volunteers, technical assistance, or other resources received by New Orleans (50.0% agree or strongly agree, 41.8% not sure, 5.5% disagree or strongly disagree), followed by the

Index positively influenced the amount of funding received by New Orleans (45.8% agree or strongly agree, 46.2% not sure, 5.1% disagree or strongly disagree).

9.3.5. Decisions to Return

Hypothesis 13. Recovery leaders reported seeing the Index positively influence the decisions of residents and businesses to return or move to New Orleans.

About 40% of respondents indicated that that they saw the *Index* positively influence the decisions of residents and businesses to return or move to New Orleans. Of these, the most prevalent impact was that the *Index* positively influenced new residents' and businesses' decisions to move to New Orleans (40.0% agree or strongly agree, 52.0% not sure, 5.5% disagree or strongly disagree), followed by the *Index* positively influenced residents' and businesses' decisions to return to New Orleans (39.6% agree or strongly agree, 51.1% not sure, 7.1% disagree or strongly disagree).

9.4. Most Useful Aspects

Research Question 5. What aspects of the *Index* were reported as most useful by recovery leaders who used it?

In all twelve of the focus groups, participants noted positive aspects of the *Index* or things they liked about it. These cluster into four main areas: a) that the *Index* consistently provided valuable, cross-sector data and analysis, including context, trends over time, comparable geographies, and breakdowns by race and gender (mentioned in ten groups), b) that the *Index* is credible, neutral, rigorous, and transparent (mentioned in nine groups), c) that the *Index* is easy to understand and use (mentioned in five groups), and d) that the *Index* adapted over time in response to changing needs and emerging conversations (mentioned in six groups).

Over 95% of survey respondents agreed or strongly agreed that the *Index* provides valuable, cross-sector data and analysis, is easy to understand and use, and includes valuable context, trends over time, comparable geographies, and breakdowns by race and gender. Over 80% of survey respondents agreed or strongly agreed that the *Index* is credible and neutral, is published on a consistent basis, is rigorous and transparent, and adapts over time in response to changing needs.

When asked about factors that helped in creating the *Index*, all four key informants interviewed mentioned the partnership between The Data Center and Brookings. They talked about how this partnership brought more local legitimacy to Brookings and more national credibility to The Data Center. They also mentioned that the two organizations brought complimentary skill sets and built each other's capacity. The Data Center brought on-the-ground knowledge of what was happening in post-Katrina New Orleans, while Brookings brought experience in informing policy and working with the media to disseminate information.

All four key informants also mentioned the importance of staying tuned in to what was happening on the ground during the recovery and gathering feedback, in order to keep make the *Index* relevant to decisions that were being made. The Data Center's presence "on-the-ground" in New Orleans helped with this, as did the "Ask Allison" feature on The Data Center's website and the *Index*'s advisory committee.

9.5. Barriers and Challenges

Research Question 6. What barriers and challenges to using the *Index* were reported by recovery leaders who used it?

In eleven of the twelve focus groups, participants noted challenges associated with the *Index*. These challenges cluster into three main areas: a) participants would like to see data for additional geographies, including neighborhoods and the Gulf Coast region (mentioned in five groups), b) participants would like to see more data, including deeper dives into their specific area of interest (mentioned in six groups), c) participants saw issues with the data ungirding the Index as a challenge (mentioned in six groups), and d) participants saw a need to broaden the scope of the *Index* to the point of supporting advocacy work and roles for partnerships and philanthropy in meeting those needs (mentioned in six groups).

When asked about challenges to using the *Index*, survey respondents agreed or strongly agreed with the following options most often; however for all but one a greater number of respondents disagreed or strongly disagreed: the *Index* does not include enough neighborhood level data for New Orleans (35.5% agree or strongly agree, 24.3% not sure, 37.7% disagree or strongly disagree), does not include enough data for the larger Gulf Coast region (29.1% agree or strongly agree, 44.5% not sure, 23.2% disagree or strongly disagree), does not include enough qualitative data (28.9% agree or strongly agree, 31.8% not sure, 37.0% disagree or strongly disagree), does not include enough data on disparities (27.0% agree or strongly agree, 27.7% not sure, 43.6% disagree or strongly disagree), and does not include enough depth in their specific area of interest (26.1% agree or strongly agree, 29.5% not sure, 40.9% disagree or strongly disagree).

When asked about challenges with creating the *Index*, key informants mentioned data availability, funding for the work and timing the publication. First, in three out of four of

the key informant interviews, people commented on the lack of data as a challenge with creating the *Index*. Lack of data on particular topics, difficulty with getting data from government agencies, and time lags between when the data was collected and when it was made available were all mentioned. Second, in three out of four of the key informant interviews, people said that securing funding for data work was a big challenge, despite the huge demand. The fact that many view data as a public good was one explanation offered for this. Third, two key informants commented on challenges around timing the publication of the *Index*: at times the process of pulling together the *Index* slowed down publication more than desirable, while further out after the disaster recovery had slowed to such an extent that publishing on such a frequent basis was no longer necessary.

The tension between adding more data and analysis to the *Index* versus maintaining a tighter focus is another idea that came up in three out of four of the key informant interviews. Key informants commented on the fact that adding more data would have made the *Index* more difficulty to consume. It was mentioned that adding qualitative data would have required a major time investment that would have taken away from the core mission of the *Index* and using more of equity lens would have diminished the neutrality and credibility of the *Index*.

Chapter 10. Conclusion

10.1. Implications for Future Projects

My research explored a single, disaster recovery indicator project from a complex adaptive systems perspective: how it was used, its perceived impact on the work of disaster recovery leaders and the system as a whole, which aspects were most useful and what were the biggest barriers/challenges to use. These findings have several implications for future disaster recovery indicator projects:

- **Build local data capacity before a disaster**: Much of the *Index*'s success was contributed to the fact that The Data Center as already established as a credible source of local data prior to Hurricane Katrina. Building the necessary technical skills, knowledge of local context, and community trust needed for a successful disaster recovery indicator project, is difficult, if not impossible, to accomplish in the after math of a disaster.
- **Credibility**: The importance of credibility and trust came up again and again in this research. This is another important ingredient to a successful disaster recovery indicator project. Technical skills and rigor of analysis, communication skills and the way the data is presented, relationships with opinion leaders, the mainstream media, etc., and knowledge of local context are all factors that can contribute to the perceived credibility of a project.

- **Feedback and adaptation**: The ability to perceive changes in the environment and adapt to them is critical for a disaster recovery indicator project to be able to influence the conversation as it changes over the course of recovery. Feedback can be gathered in myriad ways, including scanning local media (mainstream media and social media), through a feedback mechanism on a website, attending community meetings, having conversations with key stakeholders, convening and advisory committee.
- **Looking across sectors and geographic levels**: By looking across sectors and geographic levels, a disaster recovery indicator project can encourage a more holistic view of the recovery that spurs innovation. Looking across sectors can happen in a variety of ways. The indicators included can come from a variety of sectors and drill down or roll up to a variety of geographies. The grouping of the indicators and the analysis can encourage new ways of thinking. Further, stakeholder engagement in the creation and/or dissemination of the indicator project can be a venue for bringing people together across sectors and building relationships that encourage cross-sector cooperation.

10.2. Recommendations for Future Research

The findings in this study revealed several how one disaster recovery indicator project was used and its perceived impact on the work of disaster recovery leaders and the system as a whole. This research left me wanting know:

- How did social networks influence the creation and dissemination of *The New Orleans Index*?

- How could the value of a disaster recovery indicator project like *The New Orleans Index* be quantified?
- How did disaster recovery leaders use other data products put out by The Data Center following Hurricane Katrina and what were their perceived impact? The series of housing reports put out by The Data Center and the Urban Institute come to mind in particular.
- What implications do the social/technological changes that have occurred in recent years (ie. advance of the open data movement, internet access on mobile phones, social media, big data, etc.) have for future disaster recovery indicator projects?
- What uses and impacts would be more or less prevalent in a disaster recovery indicator project in a developing countries following a disaster?

In short, there is much more to be learned about the use of data for decision making following a disaster from a complex adaptive system perspective, but this research aims presents some initial findings toward that end.

APPENDICES

Appendix A. Focus Group Guide

Background and Introductions

[To be read by focus group facilitator.]

Welcome, and thank you for participating in this conversation today. My name Melissa Schigoda and I'm a Ph.D. candidate at Tulane University. My purpose today is to collect focus group data for my dissertation research on the use and perceived impact of *The New Orleans Index*, a set of disaster recovery indicators published by the Data Center and the Brookings Institute to track recovery following Hurricane Katrina

I'm interested in learning about how you've used the *Index* and the impact it has had on your work. The results from this study will be shared with the Data Center and Brookings and will help inform future disaster recovery indicator projects.

My job today is to facilitate our discussion, making sure we stay on topic and hear from everyone. Your job is to provide honest feedback that can help us understand how you used the *Index*, how it impacted your work, and where you think there are opportunities for improvement.

Throughout this conversation, I'll be referring to "*The New Orleans Index*" In order to ensure that what I mean by this term is clear to the group,

- [For in-person focus groups only] we've brought hard copies of several versions of the *Index* and the data tables, essays, presentations and other products that have gone along with it.
- [For virtual focus groups] we've included links to several versions of the *Index* in the *Index* and the data tables, essays, presentations and other products that have gone along with it in the chat box.

Today's conversation will take about two hours. If you need to step out for a few minutes, please feel free to excuse yourself at any time.

- [For in-person focus groups only] The restrooms are [insert]. Please also help yourself to food or drinks at any time. Please refrain from using your cell phone and ensure it is turned off or placed on silent mode.

Your participation in this conversation is completely voluntary. You can choose to not participate, you can end your participation at any time, and you can choose to decline to answer any particular question. The information you provide will be kept confidential by

the research team. The discussion will be recorded in order to ensure that we capture your feedback accurately.

The recording will begin after introductions are finished, and it will not be shared with anyone outside of the research team. Once the recording has been transcribed, we will erase the recording, and the transcription will exclude all identifying information, such as individual or agency names.

Results will be presented without reference to any specific individual, agency, or jurisdiction. I'd also like to ask that you protect one another's confidentiality by refraining from sharing what we discuss after the focus group ends.

- [For in-person focus groups only] I have a document here that describes what I've just said in writing for you to keep [pass out].
- [For virtual focus groups only] I emailed you a document earlier that describes what I've just said in writing for you to keep.

If there's anything you'd like to share with us after we end today, I can be reached via email at mschigod@tulane.edu or phone at 617-717-9074.

Do you have any questions before I ask you to introduce yourselves?

[Respond to questions.]

Let's take a moment to introduce ourselves before we get started. We'll go around the table beginning with my co-facilitator and note taker. Please provide your name, the name of your agency, and a 10-second description of what you do.

[Complete introductions.]

Today I'd like to learn how you used *The New Orleans Index* and the impact it had on your work. But first, let's begin with some discussion about the role of your organization in the recovery. Before attending this focus group today, you were asked to complete a brief survey about your work in the recovery from Hurricane Katrina. Here's a quick summary of some of what we heard from you.

[Present brief findings from pre-focus group survey]

[BEGIN RECORDING]

Having taken a quick look back at your work in the recovery over the past ten years, I'd like to find out more about the changes that occurred in the post-disaster environment, whether or not they created a need for your organization to adapt, and the factors influencing your organization's ability to adapt.

1. How did the post-disaster recovery environment differ from the normal operating environment for your organizations and how did it change over time?
    a. How would you describe the frequency and volume of change?
2. Did changes in the environment create a need for your organization to adapt?
    a. Did changes challenge the organizational structure?
    b. The leadership style?
    c. The tasks and processes of the organization?
    d. The mission of the organization?
3. What factors influenced your organization's ability (or lack of ability) to adapt to meet these needs?

Next, I'd like to learn more about how your organization adapted, the role that information (in general) and *The New Orleans Index* (in particular) played in this adaptation, and the impact of this adaptation on the organization's recovery efforts.

4. Did your organization adapt to meet changing needs? If so, how?
    a. Did the organization adapt their organizational structure?
    b. The leadership style?
    c. The tasks and processes of the organization?
    d. The mission of the organization?
5. Did information (in general) and *The New Orleans Index* (in particular) play a role in your organizations ability to adapt? If so, how?
6. In the cases where your organization did adapt, did it enhance your organization's recovery efforts? If so, how?

Now, I'd like ask a similar series of questions about your organizations work with other organizations.

7. Did your organization work together with other organizations or establish new partnerships during the recovery? If so, please describe them.
    a. Were these normal partnerships or unusual pairings?
8. Did information (in general) and *The New Orleans Index* (in particular) play a role in your organizations ability to work with other organizations? If so, how?
9. In the cases where your organization did work with other organizations, did it enhance your organization's recovery efforts? If so, how?

Next, I'd like to ask a similar series of questions about your organizations decisions around investing in or advocating for new structures, projects or programs.

10. Did your organization make decisions around investing resources or advocating that others invest resources in new structures, projects, or programs? If so please describe.
    a. Were these normal investments or innovative ones?

11. Did information (in general) and *The New Orleans Index* (in particular) play a role in your organizations' investment or advocacy decisions? If so, how?
12. In the cases where your organization did make an investment or advocacy decision, did it enhance your organization's recovery efforts? If so, how?

Summary & Wrap-up

Before we end our conversation, I'd like to go over some of the themes we've heard discussed today. As I go over these themes and as you reflect on our conversation, please let me know if I've misunderstood any component of our discussion or missed any critical points that you want to ensure I capture.

[Review themes & reflect on additional input.]

Thank you for your time and feedback. The information you've provided will be most valuable. Results will be shared with you through a brief report that will be sent to you later this year. Again, please feel free to contact me at mschigod@tulane.edu or xxx-xxx-xxxx with any questions.

Appendix B. Pre-Focus Group Survey Instrument

Introduction

Part one of the survey is designed to verify your contact information and find out if you are willing to be contacted by the researcher for additional information following the focus group.

Part two of this survey is designed to help you think back to as far back as ten years ago to when the first edition of *The New Orleans Index* was published. This will prime you for the question in part two of the survey and prepare you for questions you'll be asked in the focus group.

Part three of this survey is designed to collect information about how you've used the *Index*, how you think the *Index* impacted your work, and any suggestions you have for improvements. This will help us to make the most of our time during the focus group by allowing us to dig deeper into specific ways in which you may have used the *Index*.

This survey should take 15-30 minutes. You can save the survey and come back to it if you are unable to complete all in one sitting. If you have any questions about the survey, please contact Melissa Schigoda at mschigod@tulane.edu or 617-717-9074. Thank you for your participation!

Consent

Before beginning the survey, please read the consent form: **[embed consent form]**

I have read this form and decided that I will participate in the research project described. Its general purposes, the particulars of involvement and possible risks and inconveniences have been explained to my satisfaction. I understand that I can withdraw at any time. My signature also indicates that I have received a copy of this consent form.

Signature:_____
Date:_____

Part 1

1. Name:

2. Email:

3. Phone number:

4. Are you willing to be contacted for more information? Yes/No

Part 2

5. Please briefly describe how you first got involved with Hurricane Katrina recovery work.

6. Which of the following best describes the sectors you have worked in during the recovery? You can select more than one.
    - Workforce/Economic development
    - Housing
    - Urban planning
    - Transit
    - Community organizing
    - Advocacy
    - Education
    - Youth
    - Health
    - Human services
    - Government
    - Research
    - Public Safety
    - Criminal Justice
    - Emergency preparedness or response
    - Environment
    - Arts and culture
    - Other (Please, describe)

7. Take a minute to think back over the work you've done over the past ten years. Briefly describe your work as it relates to Hurricane Katrina recovery at the following points in time. Include the organization you worked for, your position, primary responsibilities, and priority projects. If you were not involved in recovery work at a given time, please write "NA."
    - What were you working on in 2006 when the Road Home program was announced and the first Mardi Gras was held since Katrina?
    - What were you working on in 2007 when the third Unified New Orleans Plan (UNOP) Community Congress was held?
    - What were you working on in 2008 when Bobby Jindal was inaugurated as governor of Louisiana and Hurricane Gustav hit?
    - What were you working on in 2010 when the Saints won the Super Bowl, the BP oil spill occurred and Mitch Landrieu was inaugurated as mayor of New Orleans?
    - What were you working on in 2012 when Hurricane Isaac hit?

- What have you been working on over the last few years?

8. When and where do you first remember seeing and/or using *The New Orleans Index*? Please, be as detailed as possible and include the approximate year and circumstances in which you first remembering seeing the *Index*. Here are some links to past versions of the *Index* to help jog your memory:
   - Aug 2013
   - Aug 2010
   - Aug 2009
   - Aug 2008
   - Aug 2007
   - Aug 2006

Part 3

9. Have you used the data in *The New Orleans Index* in your work or projects you were involved in? Yes/No

10. **[Show if answer to #5 is yes]** If so, please describe in as much detail as possible.

11. **[Show if answer to #5 is yes]** What were the outcomes of the work or projects you wrote about in your response to the previous question? Again, please describe in as much detail as possible.

12. **[Show if answer to #5 is yes]** If the *Index* did not exist, do you think you would have been able to find this information from other sources? Yes/No

13. Why or why not?

14. **[Show if answer to #8 is yes]** Do you think you would you have had the time and resources to gather this information? Yes/No

15. Why or why not?

16. What (if any) aspects of *The New Orleans Index* have been most useful in your work?

17. What (if any) factors made it easier to use the *Index* or enhanced your use of the *Index*?

18. What (if any) barriers or challenges have you encountered in using *The New Orleans Index*?

19. Please list and briefly describe the main sources of information you've used in your recovery work, besides *The New Orleans Index*. You may list up to five sources.

20. What (if any) improvements do you think could be made to *The New Orleans Index*?

21. What (if any) suggestions do you have for future disaster recovery indicator projects?

Appendix C. Survey Instrument

This survey should take you 30-45 minutes. If you are unable to complete it all in one sitting, open the link to the survey you received on the same computer and in the same browser and you can continue to edit your responses. Once you click "done" at the end of the survey, you will no longer be able to edit your responses. If you have any questions about the survey, please contact Melissa Schigoda at mschigod@tulane.edu or 617-717-9074. Thank you for your participation!

CONSENT

Before beginning the survey, please read the consent form: [embed consent form]

I have read this form and decided that I will participate in the research project described. Its general purposes, the particulars of involvement and possible risks and inconveniences have been explained to my satisfaction. I understand that I can withdraw at any time. My signature also indicates that I have received a copy of this consent form.

Signature:_____
Date:_____

PART 1. INTRODUCTION

1. I have read this form and decided that I will participate in the research project described. Its general purposes, the particulars of involvement and possible risks and inconveniences have been explained to my satisfaction. I understand that I can withdraw at any time.

First name:
Last name:
Date:

2. Have you worked in an area impacted by Hurricane Katrina/Rita OR on Hurricane Katrina/Rita recovery-related issues (as broadly defined) any time between 2005 and present?

- Yes
- No [if no, end survey]

3. Have you used *The New Orleans Index* in your work (as broadly defined – even if just as background information or context)?

- Yes
- No [if no, end survey]

PART 2. ABOUT YOU

4. What is your gender?
- Female
- Male
- Other

5. What is your age?
- Under 18 years old
- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65-74 years old
- 75 years or older

6. What is your ethnicity?
- White
- Hispanic or Latino
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander
- Other

7. What is the highest degree or level of school you have completed?
- Some school, no high school diploma
- High school diploma
- Associate degree
- Bachelor's degree
- Master's degree
- Doctorate degree
- Other

8. What level(s) did you work at during the recovery from Hurricane Katrina/Rita? (Check all that apply)
- Operations
- Executive management

- Middle management
- Technical advisor
- Other

PART 3. ABOUT THE ORGANIZATION(S) YOU WORKED FOR DURING THE RECOVERY

9. Which of the following best describes the **type of organizations** you've worked at during the recovery? (Check all that apply)

- College or university
- School (Elementary, Middle, or High School)
- Government – City
- Government – Parish
- Government – State
- Government – Federal
- Government board or commission
- Quasi-governmental agencies
- Government contractor
- Foundation / Philanthropy
- Nonprofit
- Civic organization or neighborhood association
- Business
- Faith-based
- Media
- Other (Please specify)

10. Which of the following best describes the **sectors** you have worked in during the recovery? (Check all that apply)

- Advocacy
- Arts and Culture
- Capacity Building / Resource Development
- Community Organizing
- Community Development
- Criminal Justice / Law
- Economic / Workforce Development /Entrepreneurship
- Education
- Emergency Preparedness / Emergency Response / Homeland Security
- Environment
- Political / Policy
- Health / Mental Health
- Human Services
- Hunger / Food Access

- Housing / Construction / Rebuilding
- Public Safety
- Resilience / Mitigation / Long-term Recovery
- Research
- Transit / Transportation / Infrastructure
- Urban Planning
- Youth
- Other (please specify)

11. Which of the following **geographic levels** have you worked at during the recovery? (Check all that apply)

- Neighborhood
- Parish
- City
- Metro
- Regional
- State
- National
- International

12. Which of the following **special populations** have you worked with / focused on? (Check all that apply)

- Veterans
- Elderly
- Disabled
- Homeless
- Low income
- Faith group
- Ethnic group
- Children
- Teens
- Young adults
- Single mothers
- Pregnant women
- Teachers
- First responders
- Your employees
- Fraud victims
- Renters
- First time home-buyers
- People seeking home repair assistance

- Unemployed or underemployed
- Formerly incarcerated
- Other (please specify)

PART 4. ABOUT *THE NEW ORLEANS INDEX*

13. **When** do you first remember seeing *The New Orleans Index*?
- 2006 (*The Katrina Index* was put out by Brookings on a monthly basis)
- 2007 (The Data Center began formerly collaborating on the *Index* with Brookings and the name changed from *The Katrina Index* to *The New Orleans Index*)
- 2008 (The *Index* was published three times this year and began to include data by planning district)
- 2009 (The *Index* was published two times this year)
- 2010 (*The New Orleans Index at Five* was published in August of this year)
- 2011 (*The New Orleans Index at Six* was published in August of this year)
- 2012 (No new *Index* was published this year)
- 2013 (*The New Orleans Index at Eight* was published in August of this year)
- 2014 (No new *Index* was published this year)
- 2015 (*The New Orleans Index at Ten* was published in August of this year)
- Do not know or can't remember

14. **Where** do you first remember seeing *The New Orleans Index*?
- At a meeting where it was being presented
- At a meeting where it was not being presented
- In an email / e-newsletter from the Data Center or Brookings
- When I received a hard copy in the mail
- Through personal contact with Data Center staff
- Through a colleague
- As part of a funding solicitation process
- When searching for data online
- Referenced in a newspaper article
- Referenced on TV
- Do not know or can't remember
- Other (please specify)

15. Which **components** of *The New Orleans Index* have you used in your work and how helpful were they to you? (did not use, not at all helpful, somewhat helpful, very helpful, do not know or can't remember)
- Executive summary
- Full report
- Essays
- Data tables

- PowerPoint slides
- YouTube Video

16a. Indicate whether you **used** the *Index* for each **tangible** purpose below and with what frequency (did not use, used once, used 2-5 times, used more than 5 times, do not know or can't remember)

- Grant proposal or other fundraising materials
- Grant report
- Grant making decision
- Investment decision
- Strategic plan
- Media article
- Briefing for the media or press release
- Briefing for elected officials, board members, stake holders, or national foundations
- Briefing for volunteers, interns, or technical assistant providers who were new to working in post-Katrina New Orleans
- Advocacy report or other advocacy communications
- Academic publication
- Book
- Government report
- Other report

16b. If there were any other tangible ways you used *The New Orleans Index*, please write them in below.

17a. Indicate whether you **used** the *Index* for each **intangible** purpose below and with what frequency (did not use, used once, used 2-5 times, used more than 5 times, do not know or can't remember)

- To understand what was happening over time and across different sectors in New Orleans after Katrina
- To provide valuable context for my work
- To check my assumptions
- To back up my personal experience or the experiences of others in the community
- To identify and/or prioritize needs in New Orleans after Katrina
- As a common reference/touchpoint when working with others
- To help settle debates and focus conversations by providing facts

17b. If there were any other intangible ways you used *The New Orleans Index*, please write them in below.

18a. Below is a set of statements about **impacts** *The New Orleans Index* may have had on your work in the recovery. Please select the response to show the extent to which you agree or disagree with each of the following statements. (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree)

- The *Index* provided me with access to data I wouldn't have had the knowledge/expertise to access otherwise.
- It provided me with access to data I wouldn't have had the time to access otherwise.
- It saved me or my organization money that would have been spent on data and analysis otherwise.
- It enabled me to work more efficiently.
- It enabled me to get a basic understanding of what was going on in the recovery, so I could move forward with my work.
- It enabled me to think more innovatively about challenges in the recovery.
- It enabled me to collaborate more effectively with others.
- It enabled me to secure additional funding or resources.
- It enabled me to make the case for new programs or investments.
- It enabled me to communicate more effectively with the general public through the media.
- It enabled me to communicate more effectively with the media.
- It enabled me to communicate more effectively with elected officials, board members, stake holders, or national foundations.
- It enabled me to communicate more effectively with volunteers, interns, or technical assistant providers who were new to working in post-Katrina New Orleans.
- It enabled me to influence policy.

18b. If there were any other impacts *The New Orleans Index* had on your work, please write them in below.

19a. Below is a set of statements about **system-level impacts** *The New Orleans Index* may have had in the recovery. Please select the response to show the extent to which you agree or disagree with each of the following statements. (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree)

- The *Index* influenced emerging conversations on cross-cutting topics (for example, conversations on topics like equity and inclusion, youth, living with water, regional economic development, etc.).
- It contributed to an increase in use of data for decision making among citizens and organizations in New Orleans.
- It contributed to an increase in demand for more data among citizens and organizations in New Orleans.
- It positively influenced stories being told about New Orleans in the media.

- It positively influenced funders' perceptions of New Orleans.
- It positively influenced politicians' perceptions of New Orleans.
- It contributed to the confidence of New Orleans residents and local businesses to return to New Orleans following Katrina.
- It contributed to the attraction of new residents and businesses to New Orleans.
- It influenced the amount of funding received by New Orleans post-Katrina.
- It influenced the amount of volunteers, technical assistance, or other resources received by New Orleans post-Katrina.

19b. If there were any other systems-level impacts *The New Orleans Index* had, please write them in below.

20a. Below is a set of statements about possible **positive attributes** of *The New Orleans Index*. Please select the response to show the extent to which you agree or disagree with each of the following statements. (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree)

- The *Index* provided valuable, cross-sector data and analysis.
- It included valuable context, trends over time, comparable geographies, and breakdowns by race and gender.
- It is credible and neutral.
- It is rigorous and transparent.
- It is easy to understand and use.
- It adapted over time in response to changing needs and emerging conversations.
- The fact that it was published on a consistent basis was valuable.

20b. If there were any other attributes of *The New Orleans Index* that you thought were positive, please write them in below.

21a. Below is a set of statements about **challenges** you may have encountered with using *The New Orleans Index*. Please select the response to show the extent to which you agree or disagree with each of the following statements. (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree)

- The *Index* did not include enough data for the larger Gulf Coast region.
- It did not include enough neighborhood level data for New Orleans.
- It did not go deep enough into my specific area of interest.
- It did not include enough qualitative data.
- It did not include enough quantitative data.
- It did not include enough analysis.
- It did not include enough data on disparities.
- It was too dense.
- It was not published frequently enough.

- The indicators changed over time, which made it difficult to track the same indicators consistently.
- It was too hard to find/access.
- It was too neutral (didn't take a strong enough stance or agenda).
- It was too rigorous (omitted potentially helpful data because it didn't meet standards).

21b. If you had any other challenges with using *The New Orleans Index*, please write them in below.

22a. Below is a list of **suggestions to improve *The New Orleans Index***. Please rank the suggestions from most to least important.

- Include more data for the larger Gulf Coast region
- Include more neighborhood level data for New Orleans
- Go deeper enough into specific areas
- Include more qualitative data
- Include more quantitative data
- Include more analysis
- Include more data on disparities
- Make the *Index* less dense
- Publish the *Index* more frequently
- Keep the same indicators over time
- Make it easier to find/access
- Incorporate a stronger stance or agenda into the *Index* (make it less neutral)
- Relax standards and include lower quality data that could still be helpful

22b. If you have any other suggestions to improve *The New Orleans Index*, please write them in below.

23a. Below is a list of **suggestions for The Data Center to enhance or supplement the use of *The New Orleans Index***. Please rank the suggestions from most to least important.

- Provide more technical assistance to outside groups on how to use the data in the *Index*.
- Provide technical assistance to outside groups on how to collect their own primary data.
- Partner with outside groups to collect primary data.
- Partner more with outside groups on agenda-driven data products or reports, while allowing the *Index* to remain neutral.
- Create more supplemental reports to dive deeper into specific topic areas, while allowing the *Index* to remain a higher-level overview.

23b. If you have any other suggestions for The Data Center to enhance or supplement the use of *The New Orleans Index*, please write them in below.

24a. Below is a set of statements about the possible **lessons learned** for other communities from *The New Orleans Index*. Please select the response to show the extent to which you agree or disagree with each of the following statements. (Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree)

- Other communities who have experienced a disaster could benefit from something similar to *The New Orleans Index* that provides data to track recovery.
- Even communities who have NOT experienced a disaster could benefit from something similar to *The New Orleans Index* that provides data to track progress toward goals.
- Other communities who have experienced a disaster could benefit from having an organization like The Data Center that provides data to inform decision making.
- Even communities who have NOT experienced a disaster could benefit from having an organization like The Data Center that provides data to inform decision making.
- The partnership between The Data Center and Brookings is a great model for local-national partnership following a disaster, because it built local capacity, and provided a combination of local and national expertise that lent credibility to the *Index*.

24b. If you think there are any other lessons learned from *The New Orleans Index* for other communities, please write them in below.

25. Is there **anything else** you would like to tell us about *The New Orleans Index*?

PART 5. OTHER SOURCES OF DATA AND TECHNICAL ASSISTANCE

26. Did you ever receive **technical assistance** from the Data Center staff via the Ask Allison/Ask Vicki mechanism on the Data Center website and if so, how helpful was it to you?

- did not use
- not at all helpful
- somewhat helpful
- very helpful
- do not know or can't remember

27. Did you ever receive **technical assistance** from the Data Center staff through meetings or phone calls with Data Center staff and if so, how helpful was it to you?

- did not use
- not at all helpful
- somewhat helpful

- very helpful
- do not know or can't remember

28. What **other Data Center publications** have you used in your work and how helpful were they to you? (did not use, not at all helpful, somewhat helpful, very helpful, do not know or can't remember)

- Coastal Reports (including the Coastal *Index*)
- New Orleans Youth Reports (including the Youth *Index*)
- Economy and Workforce Reports (including regional commuting trends)
- Housing Reports (including housing production needs)
- Population and Demographic Reports (including re-settlement patterns)
- Neighborhood data profiles
- Monthly population indicators (xls)
- Repopulation google map with data on households receiving mail (no longer available)
- Child care centers google map (no longer available)
- Schools google map (no longer available)
- Other (please specify)

29. Overall, as a user, please indicate your satisfaction with the Data Center's website.

- Very satisfied
- Satisfied
- Unsatisfied
- Very unsatisfied

30. Please provide any other comments about your interactions with the Data Center below.

31. What **other sources of information** have you used in your work and how helpful were they to you? (did not use, not at all helpful, somewhat helpful, very helpful, do not know or can't remember)

- Federal government
    - Army Corps of Engineers
    - Bureau of Labor Statistics (BLS)
    - Census Bureau, which produces the Decennial Census, American Community Survey (ACS), American Housing Survey (AHS), and Louisiana Quick Facts
    - Centers for Disease Control and Prevention (CDC), which produces Behavioral Risk Factor Surveillance System (BRFSS) and Youth Risk Behavior Surveillance System (YRFSS)
    - Congressional Research Service
    - Department of Agriculture (USDA)

    - Department of Education (DOE), which produces Integrated Postsecondary Data System (IPDS)
    - Department of Health and Human Services (DHHS)
    - Department of Housing and Urban Development (HUD)
    - Federal Bureau of Investigation (FBI), which produces Uniform Crime Reports (UCR)
    - Federal Department of Transportation (FDOT)
    - Federal Emergency Management Agency (FEMA)
    - Federal Highway Administration (FHWA)
    - Government Accountability Office (GAO)
    - National Oceanic and Atmospheric Administration (NOAA)
    - Small Business Administration (SBA)
    - United States Postal Service (USPS)
    - Other (please specify)
- State government
    - Coastal Protection and Restoration Authority (CPRA)
    - Louisiana Department of Children and Family Services
    - Louisiana Office of Community Development (OCD) / Louisiana Recovery Authority (LRA), which produces Road Home data
    - Louisiana Housing Corporation (LHC)
    - Louisiana Department of Education (LDOE)
    - Recovery School District
    - Governor's Office of Homeland Security & Emergency Management. (GOSEP)
    - Other (please specify)
- Local government
    - City of New Orleans, data.nola.gov
    - City of New Orleans, GIS Department
    - City of New Orleans, Health Department
    - City of New Orleans Mayor's Office of Homeland Security & Emergency Management. (MOSEP)
    - City of New Orleans, Safety and Permits
    - City of New Orleans, ResultsNOLA report
    - City of New Orleans, STAT programs
    - Orleans Parish Assessor's Office
    - Housing Authority of New Orleans (HANO)
    - New Orleans Redevelopment Authority (NORA)
    - Other (please specify)
- Foundations
    - Annie E. Casey Foundation, which produces Kids Count
    - Foundation for Louisiana (formerly Louisiana Disaster Recovery Foundation), which produced the Louisiana Human Development Report
    - Kauffman Foundation

    - Greater New Orleans Foundation (GNOF)
    - United Way
    - Other (please specify)
- Think Tanks / Research Organizations
    - Brookings
    - Cowen Institute
    - Institute for Local Self Reliance
    - Kirwan Institute
    - Policy Link
    - Prevention Resource Center
    - RAND
    - Urban Institute
    - Urban Land Institute (ULI)
    - Other (please specify)
- Universities
    - Louisiana State University
    - Tulane University
    - University of Washington
    - University of New Orleans
- Other Non-Governmental Organizations
    - Dutch Dialogues
    - Who Data
    - Greater New Orleans, Inc. (GNO, Inc.)
    - Louisiana Association of Charter Schools
    - Louisiana Association of Nonprofit Organizations (LANO)
    - Louisiana Hospital Association
    - National Council on Aging
    - New Orleans Business Alliance
    - RIDE New Orleans
    - The Participatory Budgeting Project
    - International Economic Development Council (IEDC)
    - VIA Link 2-1-1
    - Save the Children
    - Feeding America
    - Other (please specify)
- Media
    - Times Picayune / Nola.com
    - New Orleans Advocate
    - The Lens
    - New Orleans CityBusiness
    - The New Orleans Tribune
    - The Louisiana Weekly
    - Silicon Bayou News

    - The Trumpet Magazine
    - WBOK
    - WWNO
    - The New York Times
    - Harvard Business Review
    - Other (please specify)
- Private Sources / Consultants
    - GCR Inc.
    - Economic Modeling Specialists Intl. (EMSI)
    - Madderra, Cazzalot, and Head multifamily report
    - The Public Strategies Group
    - Other (please specify)
- Your own organization
    - Program data
    - Program evaluations
    - Qualitative or quantitative data collected by your organization through surveys, interviews, etc.
    - Other (please specify)
- Other
    - Other (please specify)

You have completed the survey. If you think of something else you want to add after completing the survey, click on the link to the survey you received and you can continue to edit your responses. If you have any questions about the survey, please contact Melissa Schigoda at mschigod@tulane.edu or xxx-xxx-xxxx. Thank you again for your participation!

Appendix D. Survey Data Tables

D.1. Responses

Table 57. Response rate

	Count	Percent
Respondents consenting to participate in study	837	19.4%

n=4311

Table 58. Target group rate

	Count	Percent
Respondents that used the *Index* in their work (as broadly defined)	586	73.5%
Respondents that worked or lived in an area impacted by Hurricane Katrina/Rita or worked on Hurricane Katrina/Rita recovery related issues (as broadly defined)	707	88.7%
Respondents that met both target group criteria	546	68.5%

n=797

Table 59. Completion rate

	Count	Percent
Respondents that met both target group criteria and completed the entire survey	429	78.6%

n=546

D.2. About Respondents

Table 60. Age

	Count	Percent
Under 18 years old	0	0.0 %
18-24 years old	3	0.5 %
25-34 years old	85	15.6 %
35-44 years old	109	20.0 %
45-54 years old	123	22.5 %
55-64 years old	141	25.8 %
65-74 years old	71	13.0 %
75 years or older	8	1.5 %
Prefer not to answer	6	1.1 %

n=546

Table 61. Sex

	Count	Percent
Female	332	60.8 %
Male	208	38.1 %
Prefer not to answer	6	1.1 %

n=546

Table 62. Race and ethnicity

	Count	Percent
White	396	72.5 %
Black or African American	115	21.1 %
Hispanic or Latino	25	4.6 %
Asian	12	2.2 %
Some other race	7	1.3 %
American Indian or Alaskan Native	6	1.1 %
Native Hawaiian or Pacific Islander	2	0.4 %
Prefer not to answer	24	4.4 %

Note: Participants could select more than one option.
n=546

Table 63. Highest degree or level of school completed

	Count	Percent
Master’s degree	243	44.5 %
Bachelor’s degree	134	24.5 %
Doctorate degree	86	15.8 %
Professional degree	37	6.8 %
Some college, no degree	25	4.6 %
Associate's degree, academic	5	0.9 %
High school diploma	4	0.7 %
Associate's degree, occupational	2	0.4 %
Less than a high school diploma	0	0.0 %
Prefer not to answer	10	1.8 %

n=546

Table 64. Level worked at during the recovery from Hurricane Katrina/Rita

	Count	Percent
Middle management	163	29.9 %
Executive management	147	26.9 %
Operations	143	26.2 %
Technical advisor	119	21.8 %
Prefer not to answer	121	22.2 %

Note: Participants could select more than one option.

n=546

D.3. About Respondents' Organizations

Table 65. Type of organization

	Count	Percent
Nonprofit	244	45.1 %
College or university	132	24.4 %
Business	99	18.3 %
Neighborhood association	62	11.5 %
Government – City or Parish	58	10.7 %
Civic organization	56	10.4 %
Other (please specify)	52	9.6 %
Foundation / Philanthropy	51	9.4 %
Government – State	43	7.9 %
Faith-based	43	7.9 %
School (Elem., Middle or High)	40	7.4 %
Media	39	7.2 %
Quasi-governmental agencies	38	7.0 %
Government – Federal	33	6.1 %
Government contractor	25	4.6 %
Government board or commission	12	2.2 %
Prefer not to answer	3	0.6 %

Note: Participants could select more than one option.
n=541
See Appendix F. Survey Text Responses. Text responses for open-ended responses to "Other (please specify).

Table 66. Sector of organization

	Count	Percent
Education	176	33.1 %
Community Development	164	30.9 %
Advocacy	152	28.6 %
Housing / Construction / Rebuilding	151	28.4 %
Resilience / Long-term Recovery	142	26.7 %
Community Organizing	139	26.2 %
Research	130	24.5 %
Capacity Building	118	22.2 %
Political / Policy	115	21.7 %
Health / Mental Health	111	20.9 %
Urban Planning	104	19.6 %

Economic / Workforce Development	99	18.6 %
Youth	97	18.3 %
Emergency Preparedness / Response	87	16.4 %
Human Services	85	16.0 %
Arts and Culture	79	14.9 %
Environment	65	12.2 %
Other (please specify)	58	10.9 %
Criminal Justice / Law	52	9.8 %
Public Safety	39	7.3 %
Transit / Transportation / Infrastructure	38	7.2 %
Hunger / Food Access	36	6.8 %
Prefer not to answer	3	0.6 %

Note: Participants could select more than one option.
n=531
See Appendix F. Survey Text Responses. Text responses for open-ended responses to "Other (please specify).

Table 67. Geographic level of organization

	Count	Percent
City, Parish or County	389	73.5 %
Neighborhood	317	59.9 %
Metro	231	43.7 %
Regional	195	36.9 %
State	163	30.8 %
National	98	18.5 %
International	30	5.7 %
Prefer not to answer	6	1.1 %

Note: Participants could select more than one option.
n=529

D.4. Dissemination of the *Index*

Table 68. When do you first remember seeing *The New Orleans Index*?

	Count	Percent
2006 (*Index* published monthly)	188	35.8 %
2007 (*Index* published 8 times)	59	11.2 %
2008 (*Index* published 3 times)	35	6.7 %
2009 (*Index* published twice)	31	5.9 %
2010 (*Index* at Five published)	39	7.4 %
2011 (*Index* at Six published)	9	1.7 %
2012	9	1.7 %
2013 (*Index* at Eight published)	26	5.0 %

2014	12	2.3 %
2015 (*Index* at Ten published)	26	5.0 %
2016	1	0.2 %
Not sure	88	16.8 %
Prefer not to answer	2	0.4 %

n=525

Table 69. Where do you first remember seeing *The New Orleans Index*?

	Count	Percent
In an email from the Data Center or Brookings	184	35.0 %
When searching for data online	100	19.0 %
At a meeting where it was being presented	53	10.1 %
Through a colleague	48	9.1 %
Through personal contact with Data Center staff	27	5.1 %
Referenced in a newspaper article	12	2.3 %
When I received a hard copy in the mail	7	1.3 %
At a meeting where it was not being presented	5	1.0 %
As part of a funding solicitation process	5	1.0 %
Referenced on TV	1	0.2 %
Other (please specify)	14	2.7 %
Not sure	68	13.0 %
Prefer not to answer	1	0.2 %

n=525

See Appendix F. Survey Text Responses. Text responses for open-ended responses to "Other (please specify).

D.5. Components Used

Table 70. Which components of *The New Orleans Index* have you used in your work?

	Used	Did not use	Not sure if used	Prefer not to answer
Data tables	89.8%	4.5%	4.9%	0.8%
Executive summary	81.6%	10.2%	7.6%	0.6%
Full report	76.3%	13.5%	9.4%	0.8%
Essays	45.9%	31.4%	22.2%	0.6%
PowerPoint slides	42.5%	39.8%	16.7%	1.0%
YouTube Video	13.9%	72.0%	13.1%	1.0%

n=510

Table 71. For the components of the *Index* you used, how helpful have they been to you?

	Helpful or very helpful	Very helpful	Helpful	Not helpful	n
Executive summary	99.3%	53.6%	45.7%	0.7%	416
Data tables	99.1%	58.5%	40.6%	0.9%	458
Full report	99.0%	47.3%	51.7%	1.0%	389
PowerPoint slides	98.6%	43.8%	54.8%	1.4%	217
Essays	95.3%	30.8%	64.5%	4.7%	234
YouTube Video	81.7%	29.6%	52.1%	18.3%	71

D.6. Use of the *Index*

Table 72. Indicate whether you used the *Index* for each tangible purpose below.

	Used	Did not use	Not sure if used	Prefer not to answer
Strategic plan	50.7%	41.6%	6.4%	1.2%
Advocacy communication	45.7%	47.3%	5.8%	1.2%
Grant proposal or fundraising materials	42.9%	49.5%	6.8%	0.8%
Briefing for volunteers, interns, or technical assistance providers	37.8%	54.9%	6.4%	0.8%
Other report	37.4%	52.9%	8.7%	1.0%
Briefing for elected officials, board members, or national foundations	35.6%	56.5%	7.0%	0.8%
Grant report	29.4%	62.4%	7.4%	0.8%
Media article	27.8%	64.6%	6.6%	1.0%
Briefing for the media or press release	22.1%	70.6%	6.4%	0.8%
Academic publication	21.5%	73.0%	4.4%	1.0%
Government report	21.3%	70.8%	7.0%	0.8%
Grant making decision	16.9%	75.3%	6.8%	1.0%
Investment decision	15.1%	77.5%	6.2%	1.2%
Book	8.0%	86.9%	3.6%	1.4%

n=497

See Appendix F. Survey Text Responses. Text responses for open-ended responses to "If there were any other tangible purposes for which you used *The New Orleans Index*, please write them in below."

Table 73. With what frequency did you the *Index* for each tangible purpose?

	Total uses
Advocacy communication	749
Grant proposal or fundraising materials	704
Strategic plan	698

Briefing for volunteers, interns, or technical assistance providers	650
Briefing for elected officials, board members, or national foundations	553
Other report	512
Grant report	466
Media article	435
Academic publication	348
Briefing for the media or press release	327
Government report	288
Grant making decision	280
Investment decision	237
Book	138

Table 74. Indicate whether you used the *Index* for each intangible purpose below

	Used	Did not use	Not sure if used	Prefer not to answer
To understand what was happening over time and across sectors	92.6%	4.9%	2.3%	0.2%
To provide context for my work	90.4%	6.8%	2.9%	0.0%
To check my assumptions	81.4%	13.7%	4.9%	0.0%
As a common reference when working with others	69.5%	22.3%	8.2%	0.0%
To back up personal experience	67.4%	25.8%	6.6%	0.2%
To identify / prioritize needs	63.7%	25.0%	11.3%	0.0%
To focus conversations	49.4%	36.7%	13.7%	0.2%
To settle debates over facts	43.4%	42.0%	14.3%	0.2%

n=488

See Appendix F. Survey Text Responses. Text responses for open-ended responses to "If there were any other intangible purposes for which you used *The New Orleans Index*, please write them in below."

Table 75. With what frequency did you the *Index* for each intangible purpose?

	Total uses
To understand what was happening over time and across sectors	1783
To provide context for my work	1696
To check my assumptions	1527
As a common reference when working with others	1257
To back up personal experience	1251
To identify / prioritize needs	1153
To focus conversations	837
To settle debates over facts	774

<u>D.7. Impact on Work</u>

Table 76. Impacts of the *Index* on your work

The Index enabled me to…	Agree or strongly agree	Disagree or strongly disagree	Not sure	Prefer not to answer
access data I didn't have the time to access	91.6%	3.0%	4.1%	1.3%
get a basic understanding of what was going on, so I could move forward with my work	88.2%	3.6%	6.6%	1.5%
work more efficiently	80.5%	4.5%	13.5%	1.5%
access data I didn't have the expertise to access	77.9%	13.1%	7.7%	1.3%
think more innovatively about challenges in the recovery	71.9%	10.7%	16.1%	1.3%
communicate more effectively with the general public	70.7%	10.3%	16.1%	3.0%
collaborate more effectively with others	64.5%	12.8%	21.0%	1.7%
communicate more effectively with elected officials, board members, or national foundations	63.6%	11.8%	18.6%	6.0%
communicate more effectively with volunteers, interns, or technical assistance providers	59.7%	13.9%	22.5%	3.9%
make the case for new programs or investments	54.6%	21.6%	20.1%	3.6%
influence policy	51.6%	20.6%	24.0%	3.9%
save money	43.5%	19.5%	34.5%	2.6%
communicate more effectively with the media	43.5%	16.7%	32.1%	7.7%
secure additional funding or resources	42.6%	26.6%	26.6%	4.3%

n=467

See Appendix F. Survey Text Responses. Text responses for open-ended responses to "If there were any other impacts *The New Orleans Index* had on your work, please write them in below."

D.7. System-level impact

Table 77. System-level impacts of the *Index*

I've seen the Index positively influence…	Agree or strongly agree	Disagree or strongly disagree	Not sure	Prefer not to answer
stories being told about New Orleans in the media	76.1%	2.9%	20.1%	0.9%

an increase in the use of data for decision making among citizens and organizations in New Orleans	71.0%	2.4%	25.7%	0.9%
emerging conversations on cross-cutting topics (for example, conversations on topics like equity and inclusion, youth, living with water, regional economic development, etc.)	69.2%	4.4%	24.8%	1.5%
an increase in the demand for more data among citizens and organizations in New Orleans	63.9%	2.0%	33.0%	1.1%
funders' perceptions of New Orleans	58.4%	4.2%	34.1%	3.3%
politicians' perceptions of New Orleans	53.3%	4.6%	39.6%	2.4%
the amount of volunteers, technical assistance, or other resources received by New Orleans	50.0%	5.5%	41.8%	2.7%
the amount of funding received by New Orleans	45.8%	5.1%	46.2%	2.9%
new residents' and businesses' decisions to move to New Orleans	40.0%	5.5%	52.0%	2.4%
residents' and businesses' decisions to return to New Orleans	39.6%	7.1%	51.1%	2.2%

n=452

See Appendix F. Survey Text Responses. Text responses for open-ended responses to "If there were any other systems-level impacts *The New Orleans Index* had, please write them in below."

D.8. Positive aspects of the *Index*

Table 78. Positive aspects of the *Index*

The Index…	Agree or strongly agree	Disagree or strongly disagree	Not sure	Prefer not to answer
provides valuable, cross-sector data and analysis	96.9%	0.7%	2.2%	0.2%
is easy to understand and use	95.5%	0.7%	3.4%	0.4%
includes valuable context, trends over time, comparable geographies, and breakdowns by race and gender	95.3%	1.1%	3.4%	0.2%
is credible and neutral	89.7%	2.2%	7.6%	0.4%
is published on a consistent basis	85.7%	1.6%	12.1%	0.7%
is rigorous and transparent	84.1%	1.3%	14.3%	0.2%
adapts over time in response to changing needs	80.3%	1.3%	17.9%	0.4%

n=446

See Appendix F. Survey Text Responses. Text responses for open-ended responses to "If there were any other attributes of *The New Orleans Index* that you thought were positive, please write them in below.

D.9. Challenges to Using the *Index*

Table 79. Challenges to using the *Index*

The Index…	Agree or strongly agree	Disagree or strongly disagree	Not sure	Prefer not to answer
does not include enough neighborhood level data for New Orleans	35.5%	37.7%	24.3%	2.5%
does not include enough data for the larger Gulf Coast region	29.1%	23.2%	44.5%	3.2%
does not include enough qualitative data	28.9%	37.0%	31.8%	2.3%
does not include enough data on disparities	27.0%	43.6%	27.7%	1.6%
does not include enough depth in my specific area of interest	26.1%	40.9%	29.5%	3.4%
does not include enough analysis	19.3%	55.5%	23.6%	1.6%
is not published frequently enough	14.8%	58.6%	25.5%	1.1%
does not include enough quantitative data	10.2%	63.0%	24.8%	2.0%
changes over time, which made it difficult to track the same indicators consistently	8.9%	53.4%	36.6%	1.1%
is too neutral (didn't take a strong enough stance or agenda)	7.5%	70.7%	20.9%	0.9%
is too hard to find/access	7.0%	79.8%	12.3%	0.9%
is too dense	5.5%	75.9%	17.5%	1.1%
is too rigorous (omitted potentially helpful data because it didn't meet standards)	4.5%	64.8%	29.8%	0.9%

n=440

See Appendix F. Survey Text Responses. Text responses for open-ended responses to "If you had any other challenges with using *The New Orleans Index*, please write them in below."

D.10. Suggestions for Improvement

Table 80. Suggestions to improve *The New Orleans Index*

	Rate in top 3	Rate in top 5	Disagree	Rating average	n
Include more neighborhood level data for New Orleans	45.9%	62.5%	16.4%	4.0	379

Include more data on disparities	34.7%	52.6%	20.3%	4.8	380
Include more qualitative data	28.1%	49.1%	21.3%	5.0	381
Keep the same indicators over time	31.4%	46.9%	18.6%	5.0	382
Include more analysis	24.5%	44.6%	23.2%	5.3	383
Include more depth in my specific area of interest	22.7%	35.8%	34.2%	5.4	374
Include more data for the larger Gulf Coast region	22.6%	37.6%	27.1%	5.7	380
Include more quantitative data	18.5%	34.6%	27.7%	5.9	379
Publish the *Index* more frequently	15.2%	27.4%	37.2%	6.2	376
Make it easier to find/access	16.5%	24.7%	36.7%	6.4	381
Incorporate a stronger stance or agenda into the *Index* (make it less neutral)	8.4%	16.6%	57.5%	7.0	379
Relax standards and include lower quality data that could still be helpful	5.5%	12.6%	56.0%	7.8	382
Make the *Index* less dense / include less data and analysis	4.7%	8.2%	57.5%	8.1	379

See Appendix F. Survey Text Responses. Text responses for open-ended responses to "If you have any other suggestions to improve *The New Orleans Index*, please write them in below."

Table 81. Suggestions for The Data Center to enhance or supplement the use of *The New Orleans Index*

	Rate in top 2	Disagree	Rating average	n
Create more supplemental reports to dive deeper into specific topic areas, while allowing the *Index* to remain a higher-level overview.	59.5%	10.1%	2.13	378
Provide more technical assistance to outside groups on how to use the data in the *Index*.	36.4%	21.0%	2.71	376
Partner with outside groups to collect primary data.	33.4%	20.2%	2.83	371
Partner more with outside groups on agenda-driven data products or reports, while allowing the *Index* to remain neutral.	28.7%	28.7%	3.08	376
Provide technical assistance to outside groups on how to collect their own primary data.	26.9%	22.9%	3.07	375

See Appendix F. Survey Text Responses. Text responses for open-ended responses to "If you have any other suggestions for The Data Center to enhance or supplement the use of *The New Orleans Index*, please write them in below."

D.11. Lessons Learned

Table 82. Lessons learned

	Agree or strongly agree	Disagree or strongly disagree	Not sure	Prefer not to answer
Other communities that have experienced a disaster could benefit from something similar to the *Index* that provides data to track recovery.	94.9%	1.2%	3.0%	0.9%
Other communities that have experienced a disaster could benefit from having an organization like The Data Center that provides data to inform decision making.	93.7%	0.7%	4.7%	0.9%
Even communities that have NOT experienced a disaster could benefit from something similar to the *Index* that provides data to track progress toward goals.	93.5%	0.9%	4.9%	0.7%
Even communities that have NOT experienced a disaster could benefit from having an organization like The Data Center that provides data to inform decision making.	92.1%	0.7%	6.5%	0.7%
The partnership between The Data Center and Brookings is a great model for local-national partnership following a disaster, because it built local capacity, and provided a combination of local and national expertise that lent credibility to the *Index*.	80.7%	1.6%	15.6%	2.1%

n=429

See Appendix F. Survey Text Responses. Text responses for open-ended responses to "If you think there are any other lessons learned from *The New Orleans Index* for other communities, please write them in below."

D.12. Other Data Center products used

Table 83. Other Data Center products used

	Used	Did not use	Not sure if used	Prefer not to answer
Population and Demographic Reports (including re-settlement patterns)	86.9%	8.6%	2.8%	1.6%
Neighborhood data profiles	80.9%	14.0%	3.7%	1.4%
Economy and Workforce Reports (including regional commuting trends)	66.7%	25.2%	6.5%	1.6%
Housing Reports (including housing production needs)	64.6%	26.1%	7.7%	1.6%

Repopulation Google map with data on households receiving mail (no longer available)	56.9%	33.1%	7.9%	2.1%
Monthly population indicators (xls)	55.0%	30.1%	13.1%	1.9%
New Orleans Youth Reports (including the Youth *Index*)	44.1%	44.5%	10.0%	1.4%
Coastal Reports (including the Coastal *Index*)	36.8%	48.5%	12.8%	1.9%
Schools Google map (no longer available)	28.4%	56.2%	13.3%	2.1%
Child care centers Google map (no longer available)	22.4%	62.0%	13.5%	2.1%

n=429

Table 84. Helpfulness of other Data Center products used

	Helpful or very helpful	Very helpful	Helpful	Not helpful	n
Population and Demographic Reports (including re-settlement patterns)	99.2%	56.8%	42.4%	0.8%	373
Neighborhood data profiles	98.8%	53.6%	45.2%	1.2%	347
Economy and Workforce Reports (including regional commuting trends)	98.6%	39.2%	59.4%	1.4%	286
Housing Reports (including housing production needs)	97.8%	45.5%	52.3%	2.2%	277
New Orleans Youth Reports (including the Youth *Index*)	96.8%	37.6%	59.3%	3.2%	189
Repopulation Google map with data on households receiving mail (no longer available)	96.3%	46.7%	49.6%	3.7%	244
Monthly population indicators (xls)	96.2%	42.4%	53.8%	3.8%	236
Coastal Reports (including the Coastal *Index*)	95.6%	31.6%	63.9%	4.4%	158
Child care centers Google map (no longer available)	94.8%	40.6%	54.2%	5.2%	96
Schools Google map (no longer available)	91.0%	33.6%	57.4%	9.0%	122

Table 85. Received technical assistance (TA) from The Data Center

	Received TA	Did not receive TA	Not sure if received TA	Prefer not to answer
Ask Allison / Ask Vicki mechanism on The Data Center Website	23.1%	69.9%	4.4%	2.6%
meetings and/or phone calls with The Data Center staff	24.9%	69.0%	4.0%	2.1%

n=429

Table 86. Helpfulness of technical assistance (TA)

	Helpful or very helpful	Very helpful	Helpful	Not helpful	n
Ask Allison / Ask Vicki mechanism on The Data Center Website	95.9%	53.5%	42.4%	4.0%	99
meetings and/or phone calls with The Data Center staff	97.2%	57.9%	39.3%	2.8%	107

Table 87. Overall satisfaction with The Data Center's website

	Satisfied or very satisfied	Very satisfied	Satisfied	Unsatisfied	Very unsatisfied	Prefer not to answer
Overall satisfaction with The Data Center's website	93.5%	46.6%	46.9%	1.2%	1.4%	4.0%

n=429

See Appendix F. Survey Text Responses. Text responses for open-ended responses to "Please provide any other comments about your interactions with the Data Center below."

D.13. Other info sources used

Table 88. Other info sources used

	Count	Percent
Federal government agencies (Census Bureau, BLS, CDC, HUD, FEMA, USPS, GAO, etc.)	380	88.8%
State government agencies (Louisiana Department of Education, Louisiana Recovery Authority, etc.)	355	82.9%
City/Regional government agencies (GIS department, Health Department, HANO, NORA, Assessor's Office, Regional Planning Commission, etc.)	321	75.0%
Universities (Tulane, LSU, UNO, etc.)	308	72.0%
Think tanks / research organizations (Brookings, RAND, Cowen Institute, Policy Link, Bureau of Governmental Research, etc.)	293	68.5%
Media (TV, radio, websites, newspapers, magazines, etc.)	275	64.3%
Foundations (GNOF, LDRF, United Way, etc.)	265	61.9%
Your own primary data collection (program data, surveys, focus groups, evaluations, etc.)	256	59.8%
Other non-governmental organizations (VIA Link, GNO Inc., Louisiana Association of Nonprofit Organizations, Save the Children, etc.)	226	52.8%
Private sources / consultants (GCR, etc.)	194	45.3%
Other (please specify)	14	3.3%
Prefer not to answer	8	1.9%

n=428
See Appendix F. Survey Text Responses. Text responses for open-ended responses to "Other (please specify).

Appendix E. Key Informant Interview Guide

1. How has The Data Center/Brookings changed over the course of working on *The New Orleans Index*?

2. What factors have helped in creating and disseminating *The New Orleans Index* and how?

3. What barriers or challenges have hindered in creating and disseminating *The New Orleans Index* and how?

4. How do you think *The New Orleans Index* could be improved?

5. What lessons learned from *The New Orleans Index* that could be applied to future disaster recovery indicator projects?

REFERENCES

Axelrod, R.M. (1997). *The complexity of cooperation: agent-based models of competition and collaboration*. Princeton: Princeton University Press.

Axelrod, R.M., & Cohen, M.D. (2001). *Harnessing complexity: Organizational implications of a scientific frontier*. New York: The Free Press.

Anderson, R., Crabtree, B., Steele, D., & McDaniel, R. (2005). Case study research: The view from complexity science. *Qualitative Health Research*, 20(10), 1-17.

Bar-Yam, Y., Ramalingam, C., Burlingame, L., & Ogata, C. (2004). *Making things work: solving complex problems in a complex world*. Cambridge: Knowledge Press.

Barnes, M. & Schmitz, P. (Spring 2016). Community Engagement Matters (Now More Than Ever). *Stanford Social Innovation Review*. Retrieved from http://ssir.org/articles/entry/community_engagement_matters_now_more_than_ever

Berreby, D. (1998) Complexity theory: Fact free science or business tool. *Strategy and Business*, 10, 40-50.

Bolton, M. J., & Stolcis, G. B. (2008). Overcoming failure of imagination in crisis management: The complex adaptive system. *The Innovation Journal: The Public Sector Innovation Journal*, 13(3).

Bowles, S., & Choic, J.K. (2003). *The first property rights revolution*. Santa Fe: Santa Fe Institute.

Bowles, S., Choi, J.K., & Hopfensitz, A. (2003). The co-evolution of individual behaviors and social institutions. *Journal of Theoretical Biology*, 223(2), 135–147.

Brown, D. S., Saito, K., Spence, R., Chenvidyakarn, T., Adams, B., Mcmillan, A., & Platt, S. (2008). Indicators for measuring, monitoring and evaluating post-disaster recovery. Paper presented at the 6th International Workshop on Remote Sensing for Disaster Applications. Pavia: University of Pavia.

Brown, D., Platt, S., & Bevington, J. (2010). *Disaster recovery indicators*. Cambridge: Cambridge University Centre for Risk in the Built Environment (CURBE).

Byrne, D. (1998). *Complexity Theory and the social sciences: An Introduction*. London: Routledge.

Capra, F. (1996). *The Web of life*. London: Flamingo/Harper Collins.

Chambers, R. (1997). *Whose reality counts: Putting the first last*. London: Intermediate Technology Publications.

Chamlee-Wright, E. (2010). *The Cultural and Political Economy of Recovery: Social Learning in a Post-disaster Environment*. Abingdon, Oxon: Routledge.

Chang, S. E. (2010). Urban disaster recovery: a measurement framework and its application to the 1995 Kobe earthquake. *Disasters,* 34(2), 303-327.

Chapman, J. (2004). *System failure: Why governments must learn to think differently*. London: Demos.

CityWorks. (May, 2008) *Mapping of New Orleans: Neighborhood Organization and Their Reinvigoration in the Face of Government Inaction*. Retrieved from: http://www.city-works.org/documents/MAPPINGOFNEWORLEANSFINAL.pdf,

Cohen, J., & Stewart, I. (1995). *The Collapse of chao*s. London: Penguin Books.

Comerio, M. C. (1998). *Disaster hits home: New policy for urban housing recovery*. Berkeley: University of California Press.

Comfort, L. K. (1994). Self-organization in complex systems. *Journal of Public Administration Research and Theory*, 4(3), 393-410.

Comfort, L. K. (1999). *Shared risk: Complex systems in seismic response*. Oxford: Pergamon.

Comfort, L. K. (2002). Rethinking security: Organizational fragility in extreme events. *Public Administration Review*, 62, 98-107.

Comfort, L. K. (2003). Governance under fire: Organizational fragility in complex systems. In A. Roberts (Ed.), *Governance and Public Security* (pp. 113-127). New York: Campbell Public Affairs Institute, Maxwell School of Citizenship and Public Affairs, Syracuse University.

Comfort, L. K. (2006). Cities at risk: Hurricane Katrina and the drowning of New Orleans. *Urban Affairs Review*, 41(4), 501-516.

Comfort, L. K. (2007). Crisis management in hindsight: Cognition, communication, coordination, and control. *Public Administration Review*. 67:189-197.

Comfort, L. K., Cigler, B.A ., Birkland, T. A., & Nance, E. (2010). Retrospectives and prospectives on Hurricane Katrina: Five years and counting. *Public Administration Review*, 70(5), 669-678.

Comfort, L. K., Ko, K., & Zagorecki, A. (2003). *Modeling Fragility in Rapidly Evolving Disaster Response Systems*. Berkeley: Institute of Governmental Studies, University of California at Berkeley.

Comfort, L. K., Ko, K., & Zagorecki, A. (2004). Coordination in rapidly evolving disaster response systems: The Role of information. *American Behavioral Scientist*, 48(3), 295-313.

Comfort, L.K., Sungu, Y., Johnson, D., & Dunn, M. (2001). Complex systems in crisis: Anticipation and resilience in dynamic environments. *Journal of Contingencies & Crisis Management*, 9(3), 144.

Comfort, L. K., Waugh, W. L., & Cigler, B. A. (2012). Emergency management research and practice in public administration: Emergence, evolution, expansion, and future directions. *Public Administration Review*, 72(4), 539-547.

Feigenbaum, M. (1978). Quantitative Universality for a Class of Nonlinear Transformations. *Journal of Statistical Physics*, 19(1), 25–52.

FEMA (2011). *The National Disaster Framework*. Retrieved from http://www.fema.gov/national-disaster-recovery-framework.

Fowler, F. J. (1993). *Survey research methods*, 2nd ed.). Newbury Park: Sage Publications.

Frank, C. (2012). Improving Decision Making in the World of Big Data. *Forbes*. Retrieved from http://www.forbes.com/sites/christopherfrank/2012/03/25/improving-decision-making-in-the-world-of-big-data/.

Gell-Mann, M. (1994). *The Quark and the jaguar: Adventures in the simple and the complex*. New York, NY: W.H. Freeman and Co.

Gladwell, M. (2002). *The Tipping point: How little things can make a big difference*, Boston: Little, Brown and Company.

Gilchrist, A. (2009). *The Well-connected community: A Networking approach to community development*. Bristol: The Policy Press.

Gleick, J. (1987). *Chaos: Making a new science*. New York: Viking.

Haas, J. E., Kates, R. W., & Bowden, M. J. (1977). *Reconstruction following disaster*. Cambridge: MIT Press.

Harvey, D. (2001). Chaos and complexity: Their bearing on social policy research. *Social Issues*, 1(2). Retrieved from http://www.whb.co.uk/socialissues/index.htm.

Haynes, P. (2003). *Managing complexity in the public services*. Berkshire: Open University Press.

Hemelrijk, C. (Ed.) (2005). *Self-organization and evolution of biological and social systems*. Cambridge: Cambridge University Press.

Holland, J. (1995). *Hidden Order: How Adaptation Builds Complexity*. New York: Helix Books.

Holland, J. (2000). *Emergence: From Chaos to Order*. Cambridge: Perseus.

Holland, J. (2006). Studying Complex Adaptive Systems. *Journal of System Science & Complexity*. 19, 1–8. Retrieved from http://deepblue.lib.umich.edu/bitstream/handle/2027.42/41486/11424_2006_Article_1.pdf?sequence=1

Holland, J. (2012). *Signals and Boundaries: Building Blocks for Complex Adaptive Systems*: MIT Press.

Hofstadter, D. R. (1979). Godel, Escher, Bach: An Eternal Golden Braid. New York: Basic Books.

Innes, J., & Booher, D. (2000). Indicators for sustainable communities: A Strategy building on complexity theory and distributed intelligence. *Planning Theory & Practice*, 1(2), 173–86.

Innes, J., & Booher D. (2010). *Planning with complexity: An Introduction to collaborative rationality for public policy*. Milton Park: Routledge.

International Labour Organization (2011). Tracer Study - Book 1: Methodology Manual. Retrieved from http://www.ilo.org/ipecinfo/product/viewProduct.do?productId=19155

Jervis, R. (1997). *System effects: Complexity in political and social life*. Princeton: Princeton University Press.

Jordan, E., & Javernick-Will, A. (2013). Indicators of community recovery: Content analysis and Delphi approach. *Natural Hazards Review*, 14(1), 21–28.

Kauffman, S. (1995). *At Home in the universe: The Search for the laws of self-organization and complexity*. London: Penguin Books.

Kauffman, S. (1993) *The Origins of order: Self-organization and selection in evolution*. New York: Oxford University Press.

Kendra, J. M., & Watchendorf, T. (2007). Community Innovation and Disasters. In H. Rodriguez, E.L. Quarantelli & R.R. Dynes (Eds.), *Handbook of Disaster Research* (316-334). New York, NY: Springer.

Kreuger, R.A. "Telephone Focus Groups." Retrieved from: http://www.tc.umn.edu/~rkrueger/focus_tfg.html

Kreuger, R. A. & Casey, M. A. (2000). Focus groups: A practical guide for applied research (3rd ed.). Thousand Oaks, CA: Sage Publications.

Lawyue, M. & Pettit, K. (May 31, 2016). Your City Needs a Local Data Intermediary Now. *Next City*. Retrieved from https://nextcity.org/daily/entry/national-neighborhood-indicators-partnership-local-data-intermediary

Lewin, R. (1992). *Complexity: Life at the edge of chaos*. Chicago: University of Chicago Press.

Liu, A., Mabanta, M., & Fellowes M. (December 13, 2006). *Katrina Index: Tracking Variables of Post-Katrina Recovery*. Washington D.C.: The Brookings Institution.

Lorenz, E. (1972) Predictability: Does the Flap of a butterfly's wings in Brazil set off a tornado in Texas? Paper presented to American Association for the Advancement of Science, Washington, DC.

Luhmann, N. (1989). *Ecological communication*. Chicago: University of Chicago Press

MacIntosh, R., & MacLean, D. (2007). Complex Adaptive Systems. *International Encyclopedia of Organization Studies*, 224-226. Thousand Oaks: Sage Publications. Retrieved from http://sage-ereference.com/organization/n78.xml.

Markose, S. (2004). Introduction to markets as complex adaptive systems (CAS) and agent-based modelling. Retrieved from http://www.essex.ac.uk/CCFEA/Teaching/CF902/Year2005_06/SpringTermIntroduction.doc.

Marion, R. (1999). *The Edge of organization: Chaos and complexity theories of formal social systems*. Thousand Oaks: Sage Publications.

Maruyama, M. (1968). The Second cybernetics: Deviation amplifying mutual causal processes. In W. Buckley (Ed.), *Modern systems research for the behavioral scientist*. Chicago: Aldine.

Mendenhall, M., Macomber, J., Gregersen, H., & Cutright, M. (1998). Nonlinear dynamics: A New perspective on IHRM research and practice in the 21st century. In *Human Resource Management Review*, 8(1), 5–22.

Miles, M. B., & Huberman, A. M. (1984). *Qualitative data analysis: A sourcebook of new methods*. Beverly Hills, CA: Sage Publications.

Mileti, D. (1999). *Disasters by design: A Reassessment of natural hazards in the United States*. Washington, D.C.: National Academy/Joseph Henry Press.

Miller , D. C. & Salkind, N. J. (2002). *Handbook of Research Design and Social Measurement* (6th ed.). Thousand Oaks: Sage Publications.

Mitchel, M. (2009). *Complexity: A Guided tour*. New York: Oxford University Press.

Mittleton-Kelly, E. (2003). Ten principles of complexity and enabling infrastructures. In *Complex systems and evolutionary perspectives of organizations: The Application of complexity theory to organizations*. London: Elsevier Press.

Musters, C. J. M., de Graaf, H. J., & ter Keurs, W. J. (1998). Defining socio-environmental systems for sustainable development. *Ecological Economics,* 26, 243–58.

Nicolis, G. & Prigogine, I. (1989) *Exploring complexity*. New York: W.H. Freeman.

Nigg, J. M. (1995). Disaster recovery as a social process. In *Wellington after the quake: The challenge of rebuilding*. Wellington: The Earthquake Commission.

Nunn, R. J. (2000). "Complexity theory applied to itself." *Emergence: Complexity and Organization*, 9(1-2), 93-106.

Olshansky, R., Johnson, L., & Topping, K. (July 11, 2003). Post-disaster redevelopment: lessons from Kobe and Northridge. Final Report, NSF Award No. CMS-9730137. Urbana-Champaign: University of Illinois at Urbana-Champaign.

Ormerod, P. (1998) *Butterfly economics: A New general theory of social and economic behavior*. London: Faber and Faber.

Patton, M. Q. (1987). *How to use qualitative methods in evaluation*. Sage Publications.

Patton, M. Q. (1990). *Qualitative evaluation methods* (2nd ed.). Newbury Park, CA: Sage Publications.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed). Thousand Oaks, CA: Sage Publications.

Patton, M. Q. (2010). *Developmental evaluation: Applying complexity concepts to enhance innovation and use*. New York: Guilford Publications.

Peak, D., & Frame, M. (1998). *Chaos under control: The Art and science of complexity*. New York: WH Freeman and Company.

Perrow, C. (1999). *Normal accidents: Living with high risk technologies*. Princeton: Princeton University Press.

Pina e Cunha, M., & Vieira da Cunha, J. (2006). Towards a complexity theory of strategy. *Management Decision,* 44(7).

Platt, S. (2008). *Disaster recovery user needs survey*. Cambridge: Cambridge Architectural Research Limited.

Priogine, I., & Stengers, I. (1984). *Order out of chaos: Man's new dialogue with nature*. New York: Bantam Books Inc.

Quarantelli, E. (1999). *The Disaster recovery process: What we know and what we do not know from research*. Newark: University of Delaware Disaster Research Center.

Quarantelli, E. L. (2001). Statistical and conceptual problems in the study of disasters. *Disaster Prevention and Management*, 10(5), 325-338.

Ramalingam, B., & Jones, H., with Reba, T., & Young, J. (2008). *Exploring the science of complexity: Ideas and implications for development and humanitarian efforts* (Working Paper No. 285). London: Overseas Development Institute.

Reynolds, C. (1987). *Flocks, herds and schools: A distributed behavioral model* Proceedings of the 14th annual conference on Computer graphics and interactive techniques, 25–34.

Ricart, J. E., & Caldart, A. A. (2007). Complexity Theory. In *International Encyclopedia of Organization Studies*. Thousand Oaks: Sage Publications. Retrieved from http://sage-ereference.com/organization/n80.xml.

Rihani, S. (2002). *Complex systems theory and development practice: understanding non-linear realities*. London: Zed Books.

Rihani, S. (2005). Complexity theory: a new framework for development is in the offing. *Progress in Development Studies*, 5(1), 54-61.

Romenska, S. (2006) Innovation in higher education systems in the post-socialist countries in Central and Eastern Europe, 1999-2005: Possibilities for exploration through a complexity theory framework. *Research in Comparative & International Education,* 1(2).

Roo, G., & Sliva, E. (2010). A Planner's encounter with complexity. Farnham: Ashgate Publishing, Ltd.

Sachs, J. (May 6, 2015). Data for Development. *Project Syndicate*. Retrieved from https://www.project-syndicate.org/commentary/sustainable-development-data-by-jeffrey-d-sachs-2015-05

Sellnow, T. L., Seeger, M. W., & Ulmer, R. R. (2002). Chaos theory, informational needs, and natural disasters. *Journal of Applied Communication Research*, 30(4), 269.

Simon, H.A. (1981). *The Sciences of the Artificial*, 2nd edn. Cambridge, MA: MIT Press

Sinclair, S. (2011). Partnership or presence? Exploring the complexity of community planning. *Local Government Studies*, 37(1), 77-92.

Stacey, R. (1995). The science of complexity: An alternative perspective for strategic change processes. *Strategic Management Journal*, 16, 477−495.

Steward, D., & Shamdasani, P. (1990). *Focus groups: Theory and practice*. Newbury Park: Sage Publications.

Strogatz, S. (2003.) *Sync: The Emerging science of spontaneous order*. London: Penguin Books.

Sundkvist, A., Milestad, R., & Jansson, A. (2005). On the importance of tightening feedback loops for sustainable development of food systems. *Food Policy*, 30, 224–39.

Sylves, R. T., & Comfort, L. K. (2012). The Exxon Valdez and BP Deepwater Horizon Oil Spills: Reducing Risk in Socio-Technical Systems. *American Behavioral Scientist*, 56(1), 76-103.

The Sphere Project. (2011). *Humanitarian charter and minimum standards in disaster response*. Oxford: Oxfam Publishing.

Taleb, N.N. (2007). *The black swan: The impact of the highly improbable*. New York: Random House.

UNDP, WHO, & IFRC. (2009). Lessons learned in post-crisis recovery monitoring: Tsunami Recovery Impact Assessment and Monitoring System (TRIAMS). Retrieved from http://www.who.int/hac/crises/international/asia_tsunami/triams/triams_report_3.pdf

United Nations International Strategy for Disaster Reduction (UNISDR). (2009). *Terminology on disaster risk reduction*. Retrieved from http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf

United Nations Office of Disaster Risk Reduction. (2016). 2015 Disasters in Numbers. Retrieved from https://www.unisdr.org/we/inform/publications/47804

United Nations Sustainable Development Solutions Network. (April 17, 2015). Data for Development: A Needs Assessment for SDG Monitoring and Statistical Capacity Development. Retrieved from http://unsdsn.org/wp-content/uploads/2015/04/Data-for-Development-Full-Report.pdf

Urry, J. (2003). *Global complexity*. Cambridge: Blackwell Publishing Ltd.

Waldrop, M. M. (1992). *Complexity: the emerging science at the edge of order and chaos*. New York: Simon & Schuster.

Weick, K. (1976). Educational organizations as loosely coupled systems. *Administrative Science Quarterly*, 21, 1–9.

Weick, K. (2001). *Managing the Unexpected: Assuring High Performance in an Age of Complexity*. Hoboken: Jossey-Boss.

Wildavsky, A. (1988). *Searching for Safety*. New Brunswick: Transaction Books.

Yin, R. K. (2003). *Applications of case study research*. Thousand Oaks: Sage Publications.

Yin, R. K. (2003). *Case study research: Design and methods* (3rd ed). Thousand Oaks, CA: Sage Publications.

Yin, R. K. (2013). *Case study research: Design and methods* (5th ed). Thousand Oaks, CA: Sage Publications.

BIOGRAPHY

Melissa Schigoda completed her Bachelor of Science in International Development and Political Science with an emphasis in International Relations at Tulane University. During her undergraduate studies she lived and worked in both Buenos Aires, Argentina and Puno, Peru. These experiences fueled her interest in International Development and she went on to complete her Masters in International Development at Tulane in the following years. Over the last ten years, she has worked for a variety of organizations in New Orleans including the Tulane Center for Public Service, The Data Center, PolicyLink, the National Network of Public Health Institutes, and the City of New Orleans, both as a Mayoral Fellow and in the Office of Performance and Accountability. Through this work, Melissa has had the opportunity to learn a lot about the types of data that non-profit and public sector decision makers request and the importance of data quality, well-informed data analysis and information design to making data understandable and actionable. Over the course of her doctoral studies she has focused on complex adaptive systems theory, disaster recovery, and data analytics.