



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**PIVOTS—A BOTTOM-UP APPROACH TO ENHANCE
RESILIENCE**

by

Vladimir A. Ibarra

December 2015

Thesis Advisor:
Second Reader:

Rodrigo Nieto-Gomez
Carolyn Halladay

Approved for public release; distribution is unlimited

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE December 2015		3. REPORT TYPE AND DATES COVERED Master's thesis
4. TITLE AND SUBTITLE PIVOTS—A BOTTOM-UP APPROACH TO ENHANCE RESILIENCE			5. FUNDING NUMBERS	
6. AUTHOR(S) Vladimir A. Ibarra				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government. IRB Protocol number ____N/A____.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited			12b. DISTRIBUTION CODE A	
13. ABSTRACT (maximum 200 words) Homeland security is evolving. Past and current linear approaches to preparedness do not focus on improving the “resilience” of an area post-recovery. Most preparation efforts do not address or consider the high number of small business owners failing due to lack of planning, even though small businesses are sometimes as much as half of the economic life of any given area. To address these challenges, a holistic approach establishes multiple sectors of preparedness. This thesis explores the advantages of a wrap-around services model (similar to a business incubator) to provide entrepreneurs with tools and resources to withstand disaster. Case studies and best practices identify and inform models of preparedness, including community asset mapping, scenario planning, and social network analysis for capacity building within Anytown, USA, when facing natural or man-made disasters. This approach engages entrepreneurs and coordinates already existing models and resources into a cost-effective community asset, since every dollar spent on mitigation saves four dollars in the event of a disaster. Successful response models mobilize support for a more resilient nation, community by community.				
14. SUBJECT TERMS PPD-8, whole community approach, resilience, game theory, community asset mapping, scenario planning, social network analysis, preparedness, mitigation, recovery, small business entrepreneurs, incubator, holistic, startup, economic recovery, contingency planning, wrap around services, hybrid			15. NUMBER OF PAGES 123	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified		18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified		19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified
				20. LIMITATION OF ABSTRACT UU

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited

PIVOTS—A BOTTOM-UP APPROACH TO ENHANCE RESILIENCE

Vladimir A. Ibarra

Senior Policy Analyst, Office of the Lieutenant Governor, Providence, Rhode Island
B.S., Roger Williams University, 2002
C.G.S., Salve Regina University, 2013

Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(HOMELAND SECURITY AND DEFENSE)**

from the

**NAVAL POSTGRADUATE SCHOOL
December 2015**

Approved by: Rodrigo Nieto-Gomez
 Thesis Advisor

Carolyn Halladay
Second Reader

Erik Dahl
Associate Chair of Instruction
Department of National Security Affairs

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

Homeland security is evolving. Past and current linear approaches to preparedness do not focus on improving the “resilience” of an area post-recovery. Most preparation efforts do not address or consider the high number of small business owners failing due to lack of planning, even though small businesses are sometimes as much as half of the economic life of any given area. To address these challenges, a holistic approach establishes multiple sectors of preparedness.

This thesis explores the advantages of a wrap-around services model (similar to a business incubator) to provide entrepreneurs with tools and resources to withstand disaster. Case studies and best practices identify and inform models of preparedness, including community asset mapping, scenario planning, and social network analysis for capacity building within Anytown, USA, when facing natural or man-made disasters.

This approach engages entrepreneurs and coordinates already existing models and resources into a cost-effective community asset, since every dollar spent on mitigation saves four dollars in the event of a disaster. Successful response models mobilize support for a more resilient nation, community by community.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	RESEARCH QUESTION	1
B.	PROBLEM STATEMENT	1
C.	LITERATURE REVIEW	4
1.	Growing Cost and Vulnerability	5
2.	Hazard Assessments and Risk Reduction.....	8
3.	The Disaster Management Cycle.....	10
4.	Whole Community Approach.....	12
5.	Economic Recovery and Resilience	15
6.	Entrepreneurship—The Link.....	19
D.	RESEARCH DESIGN	21
E.	CHAPTER OVERVIEW	23
 II.	 COMPLEXITY AND CHALLENGES.....	 25
A.	LACK OF PLANNING	25
B.	FEDERAL GUIDANCE EVOLUTION	31
C.	RESPONSIBILITY.....	34
D.	CULTURE	36
E.	FINANCIAL INCENTIVES—BUREAUCRATIC HURDLES	39
F.	CONCLUSION	42
 III.	 PARTNERSHIPS AND PERSPECTIVES.....	 45
A.	PERSPECTIVES	45
1.	Contingency Planning.....	45
2.	The UK’s Disaster Preparedness and Resilience Practices.....	48
3.	BENS and The National Business Emergency Operations Center.....	50
4.	Florida—Emergency Support Function 18	52
B.	PARTNERSHIPS.....	53
1.	Leveraging Local Resources—Cedar Rapids Case	54
2.	Resilience in Economic Development Planning	56
3.	The City Resilience Framework	59
C.	CONCLUSION	61
 IV.	 PROPOSED MODEL.....	 63
A.	LIMITATIONS IN DISASTER PREPAREDNESS WITHIN U.S. SMALL-BUSINESS ENTREPRENEURS	63

B.	PROPOSED MODEL—WRAP-AROUND SERVICES BUSINESS INCUBATOR.....	64
C.	PROMOTING RESILIENCE THROUGH THE HAT TRICK APPROACH: SOCIAL NETWORK ANALYSIS, COMMUNITY ASSET MAPPING, AND SCENARIO PLANNING	69
1.	Social Network Analysis	70
2.	Community Asset Mapping	72
3.	Scenario Planning	74
4.	Analysis and Application.....	76
D.	IMPLEMENTATION ISSUES.....	78
1.	Stakeholders	79
2.	Next Steps	81
3.	Customization.....	82
4.	Unknowns	83
5.	Future Research.....	83
V.	CONCLUSIONS	85
A.	DISCUSSION—CHALLENGES AND AREAS OF CONTENTION	85
B.	POTENTIAL AREAS OF FURTHER INQUIRY AND RESEARCH	86
1.	Recommendation 1.....	86
2.	Recommendation 2.....	87
3.	Recommendation 3.....	88
C.	CONCLUSIONS AND REFLECTIONS.....	89
	LIST OF REFERENCES.....	91
	INITIAL DISTRIBUTION LIST	103

LIST OF FIGURES

Figure 1.	Social Vulnerability to Environmental Hazards	8
Figure 2.	Disaster Management Cycle	12
Figure 3.	Pavilions as Temporary Housing for Local Businesses.....	40
Figure 4.	Rebuilding of Downtown Santa Cruz	41
Figure 5.	Cedar Rapids Flood Magnitude and Affected Businesses.....	54
Figure 6.	Average Percentage of Resilience Metric Components by Rating	57
Figure 7.	Metric Area Evaluations Summary.....	58

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

BCM	business continuity management
BCP	business continuity planning
BENS	business executives for national security
BEOC	business emergency operations center
BRACE	Be Ready Alliance Coordinating for Emergencies
CCA	Civil Contingencies Act
CHDS	Center for Homeland Defense and Security
CRO	chief resilience officer
CRSBRG	Cedar Rapids Small Business Recovery Group
CWE	Center for Women and Enterprise
DART	disaster acquisition response teams
DHS	Department of Homeland Security
DMA 2000	Disaster Mitigation Act of 2000
EDA	United States Economic Development Administration, Department of Commerce
ESF	emergency support function
FEMA	Federal Emergency Management Agency
IFRC	International Federation of Red Cross and Red Crescent Societies
IRS	Internal Revenue Service
NBEOC	National Business Emergency Operations Center
NDRF	National Disaster Recovery Framework
NFPA	National Fire Protection Association
NPS	Naval Postgraduate School
NRA	National Risk Assessment
NRR	National Risk Register
OPDR	Oregon Partnership for Disaster Resilience
PPD8	Presidential Policy Directive 8
RSF	recovery support function
SAFER	Support Alliance for Emergency Readiness
SBA	United States Small Business Administration
SBDC	Small Business Development Center
SBE	small business entrepreneur

SCORE	Service Corps of Retired Executives
SME	small and medium sized enterprise
SNA	social network analysis
SoVI	Social Vulnerability Index
THIRA	threat hazard identification and risk assessment
UKCO	United Kingdom Cabinet Office

EXECUTIVE SUMMARY

As the United States repeatedly learns the hard way, most communities are unprepared for the disasters that they experience. Some communities are unprepared even for predictable, recurring adverse events, such as heavy snow in New England. Small businesses, which rely on foot traffic (or passable main and side roads, for customer access and deliveries) usually suffer serious losses.

Everyone shares those losses. In a thirty-year period, the economic impact of natural disasters in the United States increased from \$528 billion to \$1,213 billion.¹ During the 2000 to 2009 period, 385 disasters occurred, an increase of 233 percent since 1980–89.²

Entrepreneurs, the putative “backbone” of the U.S. economy, are mostly unprepared for any kind of disaster or any significant business disruption. Those who have taken some measures, nevertheless, tend to be underprepared.

This lack of preparedness represents a significant peril of potential pain to the overall national economic and social vitality. Small businesses account for more than twenty-eight million small businesses in the United States, creating two of every three net jobs while employing half of America’s workforce.

Many intriguing questions are raised by the research that has been conducted, and more research is needed in many areas. Considerable strides have been made in examining the problems and successes in previous disasters. Efforts lag in mobilizing public policy and preparedness initiatives. Many people, including those in positions of responsibility, have an irrational resistance to the contemplation necessary for preparation.

¹ Kunreuther Howard and Michel-Kerjan Erwann, “Challenge Paper: Natural Disasters,” *Center for Risk Management and Decision Processes The Wharton School, University of Pennsylvania*, April 12, 2012, http://opim.wharton.upenn.edu/risk/library/CopenhagenConsensus2012_NaturalDisasters.pdf.

² Ban Wei Xinhua, “Study Shows Dramatic Rise in Natural Disasters over Past Decade,” *SINA English*, January 2010, <http://english.sina.com/technology/p/2010/0128/302222.html>.

Yet, in the event of a disaster, the cavalry is not coming quickly. The National Response Plan's assumption is that communities will be self-sustaining for at least 72 hours after a disaster impact. In some cases, the cavalry is not coming at all. Only about one percent of disasters receive presidential disaster declarations.

Consequently, a lot of misinformation and “wishful thinking” is found among the public in general and entrepreneurs in particular. Overall, regardless of educational level or income, people fail to understand that at some point a disaster will happen near them. As a near-certain consequence of that failure, they are stunned, rather than effective, in response. These cognitive distortions highlight an apparent collective difficulty for people to perceive risk appropriately, especially risks associated with natural disasters, a phenomenon quite challenging in adjustment.

By contrast, engaged communities build capacity before disaster strikes. For every \$1 spent in mitigation, the return on value for being prepared is \$4. Safety on a shoestring is somewhere between impractical and impossible. A defensive, re-active policy misses strategic opportunities in the remaining areas of mitigation, response, and recovery. Most disaster planning in the United States is still reactive. The great added value of mitigation is that its activities are in tandem with lessons from prior incidents.

After studying multiple disasters and responses with respect to entrepreneurial resilience, this writer recommends a number of initiatives to mitigate the losses of communities in general and small businesses in particular. Principally, the “lessons learned” and “best practices” resources available from multiple federal sources clearly indicate a wrap-around business incubator approach that informs guided scenario planning and resource inventory. The writer chose the term “hat trick approach” to describe the combination of community asset mapping, social network analysis and scenario planning. While these terms have a certain intimidating quality, they represent transferable skills, and these skills are a vital part of an effective recovery from an adverse event. Furthermore, the components of the “hat trick” are all readily available products. Federal agencies have tutorials available to enhance the preparedness and disaster management cycle, and therefore, to enhance any given community's resilience.

Emergency response has to manage any chaos that occurs. Scenario planning was designed for just this purpose; however, community asset mapping has value far beyond disaster relief. Social network analysis is an evolving and promising field with multiple applications, especially in public safety. These applications are intriguing, and in many cases, already-proven methods of increasing safety and reducing injuries and fatalities.

It appears possible to ameliorate some of the extraordinary expenses, losses, injuries, and frustrations associated with disasters by using inclusive, holistic, and flexible approaches to guide the formation of public/private partnerships with a proactive, rather than reactive approach. An authentic dialogue within a community can be an excellent first step towards an effective mitigation strategy.

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

In the course of undertaking this thesis, I have had so much assistance that it has become impossible to remember everyone who rendered a gesture or action that caused my chest to pound in appreciation. My first “thank you” goes to the Office of the Lieutenant Governor, more especially, Lt. Governor Elizabeth Roberts and Jennifer Wood, Esq., for allowing me to broaden the inquiry as to how emergency management and small business shape public policy. These two sharp minds, securely placed above generous hearts, gave me the attention that Sara Lawrence-Lightfoot rightly describes as a pure, sincere, and persuasive form of respect.

To the Center of Homeland Defense and Security of the Naval Postgraduate School, I offer profuse and humble thanks. It has been my pleasure and privilege to learn from and interact with such individuals. Over and over again, I met highly effective and perceptive persons who could have chosen to work in any field and been successful. In addition to intelligence and compassion, these individuals have chosen to serve, regardless of reward or recognition, by taking up the difficult and ever-changing work of securing our homeland. The only way to work as hard as they did (and still do) for the United States, and all the people within the same, without distinctions or discriminations, involves a love and strength that embraces any and all frustrations and uncertainties for a much higher purpose than either fame, wealth, or personal advancement. They do this work driven by concern for each other, and all of us as well.

To my advisors, Rodrigo Nieto-Gomez and Carolyn Halladay, “thank you” feels inadequate for your guidance and input defining the problem space and keeping me on track. To the members of Cohort 1303 and 1304, it was an honor to learn from so many different perspectives during the program, and I look forward to long-lasting collegial relationships afterwards.

My family’s continuous support has been invaluable, constant, and extraordinary. My parents provided me with strong roots and ever-growing wings. My wife Yaneth’s encouragement during this arduous process (a process filled with missed family

gatherings and activities, or any challenge put in our way) was unfailing and essential. To my daughter, Sofia, and my son, Sebastian, it is with a profound joy that I thank you most of all, for inspiring me to look at the world with curious eyes, challenge assumptions and continue learning.

I. INTRODUCTION

A. RESEARCH QUESTION

This thesis explores the following question: How can jurisdictions leverage technological and community resources to decrease the failure rate of small business entrepreneurs through education and wrap-around services?

B. PROBLEM STATEMENT

Society has become more of a global marketplace growing in complexity where systems are linked. Then, those systems are linked to more systems. Complexity abounds, and new fields of mathematical interpretation have attempted to explain various events, as the links behave in unexpected ways. These links can exacerbate supply chain disruptions on a large scale.¹ These links, when disrupted, can have fatal consequences, tragic in their avoidability. Examining one example, in 2003 the Station nightclub in West Warwick Rhode Island revived an era of irresponsible recreation facility fatality and remains the fourth worst nightclub fire in U.S. history.² Unapproved pyrotechnics ignited unapproved soundproofing and then ignited the entire club. One hundred people were killed, and many survivors were severely wounded. That link is not complex. Neither is the largest threat to property, economic stability, and communities: disasters.

Consider that in a thirty-year period, the economic impact of natural disasters has increased from \$528 billion (1981–1990) to \$1,197 billion (1991–2000) to \$1,213 billion (2001–2010),³ and it is estimated that economic losses in the United States reached \$1 billion per week and \$10 billion per week in the world.⁴ It is beyond the scope of this

¹ Arjen Boin, “Disaster Research and Future Crises: Broadening the Research Agenda,” *International Journal of Mass Emergencies and Disasters* 23, no. 3 (2005): 199–214.

² Seth Cline, “A Decade Later, Nightclub Fire Lives on: No Nightclub Blaze Rivaling the Station Fire Has Occurred in the United States Since,” *US World News*, February 20, 2013, sec. Press Past.

³ Kunreuther Howard and Michel-Kerjan Erwann, “Challenge Paper: Natural Disasters,” *Center for Risk Management and Decision Processes The Wharton School, University of Pennsylvania*, April 12, 2012, http://opim.wharton.upenn.edu/risk/library/CopenhagenConsensus2012_NaturalDisasters.pdf.

⁴ Hilary Inyang, Terezinha Cassia de Brito Galvão, and David Young, “Integrating Hazard Control into Sustainable Development Plans,” *Natural Hazards Review* 4, no. 2 (2003): 57–58.

paper to predict whether the prevalence of disasters continues to increase. Inyang et al. posit that human activity, including an increase in population density and migration to vulnerable areas, are more plausible causes.⁵ Notwithstanding the macro-scale control that such perspectives necessitate, the planning scale alone is in the decades. Communities taking proactive approaches reduce vulnerability through more holistic approaches. Approaches that assess levels of risk, and suggest effective and efficient mitigation can bend an increasing cost curve.

In 2011, Presidential Policy Directive 8 (PPD-8): National Preparedness was drafted to strengthen the resilience of the nation, and optimize resources through National Planning Frameworks covering the preparedness mission areas (prevention, protection, mitigation, response, and recovery).⁶ The Frameworks are considered living policy guidance and link public safety with economic development, describing how the “Whole Community works together to achieve a resilient nation.”⁷

The National Mitigation Framework in particular uses a proactive bilateral approach in which government addresses the real weakness; a lack of planning that puts property and people at risk. Simultaneously, the National Mitigation Framework reduces the cost curve, since *for every dollar spent in mitigation, its return on value is four*.⁸ Mitigation provides measured outcomes that reduce risk. During large-scale emergencies (such as Hurricanes Katrina or Sandy) needs will be unmet and the assumption from the National Response Plan is that *communities will be self-sustaining for at least 72 hours after a disaster impact*.

⁵ Inyang, Galvão, and Young, “Integrating Hazard Control into Sustainable Development Plans,” 57–58.

⁶ White House, “Presidential Policy Directive-8, National Preparedness,” accessed October 8, 2014, http://www.dhs.gov/xabout/laws/gc_1215444247124.shtm.

⁷ Ibid.

⁸ House Transportation and Infrastructure Committee Subcommittee on Economic Development, Public Buildings, and Emergency Management. *Federal Emergency Management Agency’s Pre-Disaster Mitigation Grant Program*, 110th Congress (2008); Federal Emergency Management Agency, “What is Mitigation?” Department of Homeland Security, accessed April, 15, 2014, <https://www.fema.gov/what-mitigation>.

Through the emergency management phases, the alignment of policy and implementation has been a key challenge. Despite governmental doctrine highlighting the importance of integrating the private sector, 40 percent of small businesses never reopen after a disaster;⁹ another 25 percent fail within one year, and more than 90 percent of all businesses fail within two years after being struck by a disaster.¹⁰

Furthermore, research suggests that most small business owners fail to develop disaster or contingency plans. The problem is not a lack of public awareness campaigns,¹¹ although public relations are an essential element of any policy strategy. Effectiveness of any given public relations strategy is bound to have some influence on the outcome. While in most jurisdictions big business are part of the preparedness efforts, and despite the integration of local chambers of commerce (representing small business), federal directives are not adequately propagated. Clearly, the number of small businesses failing relative to the current efforts trying to raise awareness among small business owners speaks to the urgency of the need for emergency planning.¹² Thus when disasters occur, small business are overdetermined - to be critically underprepared.

As part of this research, the writer explores alternative strategies underlying some of the practices utilized with small business incubators pre- and post-recovery, as well as a wrap-around services support structure. Adapting some of the features of the entrepreneur community/perspective to guidance within the national preparedness goal truly has the potential to engage small business owners in a more holistic approach involving the entire government in the reestablishment of the recovery and post-recovery economy. After all, an incubator model, deployed post-recovery, is similar to the startup level in comprising a team, limited assets, plenty of obstacles, but also an awareness of

⁹ Federal Emergency Management Agency, "Protecting Your Business," Department of Homeland Security, last updated June 15, 2015, <http://www.fema.gov/protecting-your-businesses>.

¹⁰ Corina Mullen, "Business Planning for Disaster Survival," *Chamber101.com*, accessed August 24, 2013, http://www.chamber101.com/2programs_committee/natural_disasters/disasterpreparedness/Forty.htm.

¹¹ Ibid.; Federal Emergency Management Agency, "Business Continuity Plan," accessed January 31, 2014, <http://www.ready.gov/business/implementation/continuity>.

¹² Albert Sligh, *Disaster Recovery: Evaluating the Role of America's Small Business in Rebuilding Their Communities* (Washington, DC: Senate Hearing 112-722, 2011), 7–9.

the importance of the intangible, such as morale. Any effort requires much of what is called “chivvying” in the United Kingdom (UK), (acknowledging the repetition that is sometimes necessary and always helpful) to maintain a collective impetus and the desire to build something.

Entrepreneurs, in a linguistic sense, are “undertakers.” Without the morbid connotations otherwise associated with “undertaking,” a thoughtful and significant activity is conceived. The activity is defined with a goal of economic success. Entrepreneurs create value by perceiving profitability and envisioning different alternatives to problems. Likewise, small businesses usually find ways to engage with local governments. The speakeasy of yesteryear (in the United States, the 1920s) is now a responsible taxpayer, employer, or member of the local chamber of commerce. The liquor and brewing industries provide thousands of jobs inside the United States, although those jobs were defined as crimes less than a 100 years ago. What was the “underworld’s” economic advantage to provide, is now simply in the category of “undertaking” to access an economic opportunity.

If successful, this proposed model has the potential to ease the shock of a disaster; stakeholders are more prepared, and the public is at least aware that preparations have been made. Also, any inherent tension between providing adequate resources, assisting those involved in preparedness, mitigation, and recovery can be greatly reduced by intelligent engagement with community involvement in disaster anticipation. Engaged communities build capacity *before* the next disaster strikes; amplifying their voices beyond their current representation. Emphasized inclusive preparation may enhance the nation’s resilience and responsiveness, while offering alternative economic options via private means in light of potentially diminishing state and federal resources.

C. LITERATURE REVIEW

Engagement of the private sector seems to be an ongoing theme gaining more prominence; however, a more holistic approach is shaped by entrepreneurship and mitigation principles, as well as the emergence of contingency planning (business continuity management and emergency management) as an evolving discipline. This

review examines small business engagement (or the lack thereof) with respect to developing federal policy. The writer's emphasis is on economic recovery and resilience. From the literature review, key insights are developed concerning the need for further research into enhancing the post-disaster resilience of small business entrepreneurs.

1. Growing Cost and Vulnerability

Resilience to natural disasters appears possible at times, and much more challenging at others. Although the 1990s were labeled by the United Nations as the "international decade for natural disaster reduction," the growing cost of natural disasters continues to climb with devastating results. Consider that in 1995 the costliest disaster on record was the earthquake in Kobe, Japan with a price tag between US\$110 to \$150 billion dollars, and that by 2006, the economic impacts of natural disasters worldwide were estimated to be US\$800 billion.¹³

Moreover, in a thirty-year period, the economic impact of natural disasters increased from \$528 billion (1981–1990) to \$1,197 billion (1991–2000) to \$1,213 billion (2001–2010),¹⁴ and data from the Center for Research on the Epidemiology of Disasters cites that "during the 2000 to 2009 period, there were 385 disasters, an increase of 233 percent since 1980-89, and of sixty-seven percent since 1990 to 1999."¹⁵ Although the economic impact of disasters can often be meliorated through insurance, studies suggest adverse selection.¹⁶

¹³ Stacey Menzel Baker, "Vulnerability and Resilience in Natural Disasters: A Marketing and Public Policy Perspective," *Journal of Public Policy and Marketing* 28, no. 1 (2009): 114–123.

¹⁴ Kunreuther Howard and Michel-Kerjan Erwann, "Challenge Paper: Natural Disasters," *Center for Risk Management and Decision Processes The Wharton School, University of Pennsylvania*, April 12, 2012, http://opim.wharton.upenn.edu/risk/library/CopenhagenConsensus2012_NaturalDisasters.pdf.

¹⁵ Ban Wei Xinhua, "Study Shows Dramatic Rise in Natural Disasters over Past Decade," *SINA English*, January 2010, <http://english.sina.com/technology/p/2010/0128/302222.html>.

¹⁶ Michael K. Lindell, Ronald W. Perry, and Carla Prater, *Introduction to Emergency Management* (Hoboken, NJ: Wiley, 2007), 180.

Also, “small businesses are particularly vulnerable to disasters because they often have small profit margins, they also typically lack adaptive business management models, tend to be underinsured, and often, depend on generating revenues from customers and clients who have also been impacted by the disaster.”¹⁷

For municipalities, these effects are amplified through rippling impacts of adverse consequences, including decreased revenue in the form of sales, property, income taxes and user fees.¹⁸ Early figures from Hurricane Sandy (2012) surpassed the destruction and deadliest of Katrina (2005), with estimated economic losses around \$65 billion.¹⁹ Homeowners, business owners, and infrastructure owners were significantly affected across multiple states, with the largest devastation in metropolitan New York City and coastal New Jersey. An article published by the *New York Daily News* (one year after) cites more than 23,000 New York businesses with fewer than 50 employees (245,000 individuals) were impacted by the Hurricane.²⁰ Many businesses never reopened in the aftermath of Sandy; some never will. The situation is that severe economic implications are present when considering that small businesses in the United States maintain almost 30 million positions, which creates two of every three net jobs that accounts for half of America’s workforce.²¹

Damage to small business owners is particularly troubling because despite the financial losses “small businesses are the backbone of the nation.”²² The effects of damage permeate the psyches of many aspiring entrepreneurs and contribute to “social vulnerability” (the lack of social, economic, and political resources to address the impacts

¹⁷ Hurricane Sandy Rebuilding Task Force, *Hurricane Sandy Rebuilding Strategy: Stronger Communities, A Resilient Region* (Washington, DC: Department of Housing and Urban Development, 2013), <http://portal.hud.gov/hudportal/documents/huddoc?id=HSRebuildingStrategy.pdf>.

¹⁸ Lindell, Perry, and Prater, *Introduction to Emergency Management*, 165.

¹⁹ “Deaths Associated with Hurricane Sandy—October–November 2012,” accessed October 4, 2013, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6220a1.htm?s_cid=mm6220a1_w#fig.

²⁰ Phyllis Furman, “Hurricane Sandy, One Year Later: Businesses Struggle to Survive,” *New York Daily News*, 2013.

²¹ SBA Office of Advocacy, “Brochure,” 2013, http://www.sba.gov/sites/default/files/files/WEB_11_Advo_Brochure.pdf.

²² Jared Hecht, “Are Small Businesses Really the Backbone of the Economy?” *Inc.Com*, December 17, 2014.

of the disaster). “Social vulnerability is a measure of both the sensitivity of a population to natural hazards and its ability to respond to and recover from the impacts of hazard.”²³

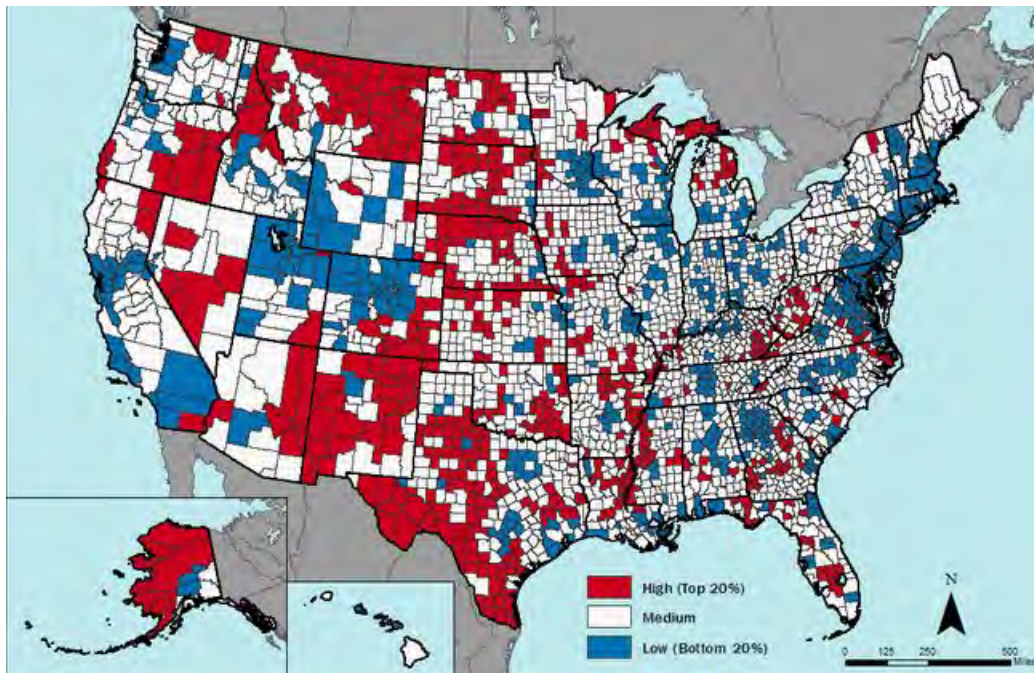
Susan Cutter created a vulnerability assessment “Social Vulnerability Index” (sometimes called SoVI) extrapolating 40 years of research (1960 to 2000) to understand the interactions between the characteristics of individuals and social groups in response to the effects of natural hazards and their resilience. The SoVI captured 250 variables from U.S. census data to look for patterns of social vulnerability to natural hazards “based on the underlying socioeconomic and demographic profile.”²⁴ The SoVI recorded a more detailed and nuance interpretation of the American experience, using a spatial structure. These changes to the American hazards composition of counties were initially concentrated in certain geographic areas but have spread.

Moreover, the latest data from the 2010 census and the American Community Survey (2006–10) confirm the increase of risk areas and the expansion of vulnerability. Figure 1 provides a graphic depiction of the high, medium, and low areas in the country.

²³ Susan Cutter, “Temporal and Spatial Changes to Social Vulnerability to Natural Hazards,” *Proceedings of the National Academy of Sciences* 105, no. 7 (2008): 2301–2306.

²⁴ Ibid.

Figure 1. Social Vulnerability to Environmental Hazards



Source: Susan Cutter, Christopher G. Burton, and Christopher T. Emrich, "Disaster Resilience Indicators for Benchmarking Baseline Conditions," *Journal of Homeland Security and Emergency Management* 7, no. 1, art. 51 (2010).

For policy makers and practitioners, the underlying question is less "whether the pronounced impact of major disasters justifies federal policy guidance that includes small business" entrepreneurs as part of the entire homeland security calculus; the question is when the latter consensus reaches a critical mass, tipping point, or pivot.

2. Hazard Assessments and Risk Reduction

"Forewarning" shapes the way communities perceive natural risk, and subsequent protective actions are closely interrelated. Perry and Lindell argue that the emergency planning process when dealing with natural hazards is driven by both hazard assessment and risk reduction.²⁵ Hazard assessment involves threats based on historical data and adjusting land use plans that often include a consequence analysis of risks to people and property. Social and economic factors can inform the probability of an occurrence. On

²⁵ Ronald W. Perry and Michael K. Lindell, "Preparedness for Emergency Response: Guidelines for the Emergency Planning Process," *Disasters* 27, no. 4 (2003): 336–350.

the other hand, risk reduction involves actions aimed at decreasing the actual or projected levels of threat and identifies resource capabilities. This combination allows jurisdictions to acquire some precision in threat measurement. Threat monitoring and evaluation is then (ideally, at least) expressed in clear outlines. Risk reduction is the development and implementation of activities focusing on mitigation, preparedness, response, and recovery.²⁶

At the local level, the hazard identification and risk assessment and consequence analysis are systematic ways in which communities are trying to buy down risk by using data-driven risk analysis procedures. At the state level, the threat hazard identification and risk assessment (THIRA) is being applied. In light of potential diminishing state and federal resources, expenditures on emergency management and homeland security related initiatives will necessitate more risk analysis to inform annual reports, investment justifications, legislative priorities, and day-to-day decisions.

Furthermore, the THIRA process incorporates the whole community and the highest levels of local government to examine national level concerns, and state, local, and regional issues to determine a jurisdiction's most significant threats and hazards. The process follows the steps prescribed by the Comprehensive Preparedness Guide 201: "1) to identify the threats of concern, 2) give the threats and hazards context, 3) establish capability targets, 4) apply the results."²⁷ As a result, the THIRA provides a window of core capability targets for partners, public/private development of core capabilities among and including stakeholders usually excluded from emergency preparedness. This shift might mean that in certain areas, government involvement will be limited.

For instance, if the capability target of community resilience is to develop a private/public integrated process to increase local multi-hazard mitigation plans, this adaptation could reduce long-term vulnerability. This push-and-pull continues identifying

²⁶ Perry and Lindell, "Preparedness for Emergency Response: Guidelines for the Emergency Planning Process," 339.

²⁷ Federal Emergency Management Agency, *Threat Hazard Identification and Risk Assessment. Comprehensive Preparedness Guide 201*, 2nd ed. (Washington, DC: Department of Homeland Security, 2013), http://www.fema.gov/media-library-data/8ca0a9e54dc8b037a55b402b2a269e94/CPG201_htirag_2nd_edition.pdf.

risk through a multifactorial alignment. Thus, a comprehensive incorporation of local, state, and regional concerns includes economic development with the ultimate goal of enhancing community resilience. After all, “business as usual” means getting everyone, small businesses especially, “back to business.” Any local capacity to deal with the consequences of threats and hazards can be strengthened.

3. The Disaster Management Cycle

Lindell, Perry, and Prater, in *Introduction to Emergency Management*, trace the roots of the discipline from its evolution from civil defense (and a posture with a primary focus on response and recovery) rather than mitigation and preparedness.²⁸ They argue that disasters, and particularly Hurricane Katrina, demonstrated the “flaw in this policy” and shifted attention to building community capacity by utilizing a “hazard management strategy” that combines a degree from all phases (mitigation, preparedness, response, and recovery). Similarly, Dane Egli in “Beyond Storms: Strengthening Preparedness, Response and Resilience in the 21st Century”, contends that the current reactionary posture in regards to disaster policy and grant guidance narrowly focuses on prevention and protection. A defensive, reactive policy misses strategic opportunities in the remaining areas of mitigation, response, and recovery.²⁹

Both these arguments point to flaws in the current conceptions, implementation, and development of disaster policy. However, what is a disaster? A review of the literature points to multiple definitions³⁰ that will affect resource allocation and consequences.³¹ Nevertheless, it is important to underscore that *only about 1 percent of*

²⁸ Lindell, Perry, and Prater, *Introduction to Emergency Management*, 14.

²⁹ Dane S. Egli, “Beyond the Storms: Strengthening Preparedness, Response, & Resilience in the 21st Century,” *Journal of Strategic Security* 6, no. 2 (2013): 32–45.

³⁰ Christopher Bellavita, “Changing Homeland Security: What is Homeland Security?,” *Homeland Security Affairs* 4, no. 1 (2008); Menzel Baker, “Vulnerability and Resilience in Natural Disasters: A Marketing and Public Policy Perspective,” 114–123; B. Wayne Blanchard, “Theory, Principles and Fundamentals of Hazards, Disasters and U. S. Emergency Management, draft sessions 1 and 4” (online project course), Federal Emergency Management Agency Higher Education, 2002.

³¹ Menzel Baker, “Vulnerability and Resilience in Natural Disasters: A Marketing and Public Policy Perspective,” 115.

*disasters receive presidential disaster declarations.*³² Therefore, the onus is on the locals to guide the recovery process and identify best practices, such as they can be found.

Khan, Giurca Vasilescu, and Asmatullah explain disasters and related concepts in disaster management advance a theoretical approach that explains the components of the disaster management cycle. This cycle is characterized by interdependencies intersecting hazards, vulnerability, and capacity. They define a disastrous occurrence as a combination of hazards, vulnerabilities, and not enough capacity to reduce the risk.³³ Lindell defines disaster as “an event that produces greater losses than a community can handle, including casualties, property damage, and significant environmental damage.”³⁴ Therefore, to achieve an optimal level of resilience, communities must shift the current paradigm of disaster preparedness and mitigation measures “heavily tilted towards structural aspects and undermine non-structural elements such as the knowledge and capacities of local people, and the related livelihood protection issues.”³⁵

This approach takes the ongoing process of the disaster management cycle in the mitigation and preparedness phases and includes public policy and plans that breaks the silos approach and integrates long-term planning through vulnerability reduction (Figure 2).

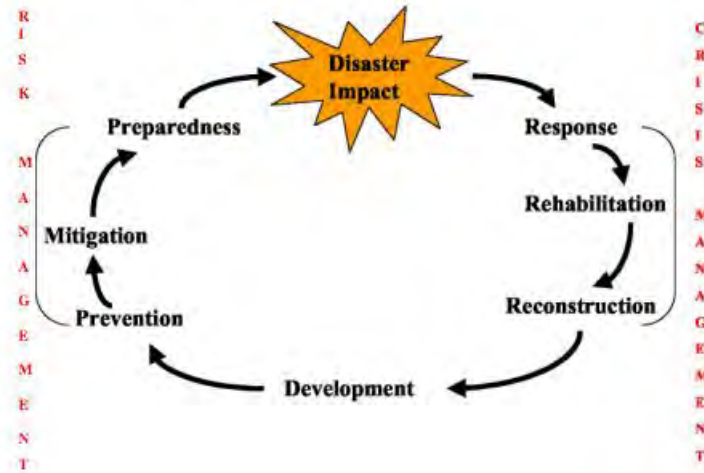
³² Lindell, Perry, and Prater, *Introduction to Emergency Management*, 360.

³³ Khan Himayatullah, Laura Giurca Vasilescu, and Khan Asmatullah, “Disaster Management Cycle—A Theoretical Approach,” *Management and Marketing Journal* 6, no. 1 (2008): 43–50.

³⁴ Lindell, Perry, and Prater, *Introduction to Emergency Management*, 15.

³⁵ *Ibid.*, 50.

Figure 2. Disaster Management Cycle



Source: Khan Himayatullah, Laura Giurca Vasilescu, and Khan Asmatullah, "Disaster Management Cycle—A Theoretical Approach," *Management and Marketing Journal* 6, no. 1 (2008): 49.

These efforts work as a continuum of activities, with symbiosis between pre-disaster activities (aimed at risk reduction) and post-disaster (aimed towards recovery). The combination increases the capacity of a community or individual to address most events through a more holistic approach, which reduces overall vulnerability and risk.³⁶

4. Whole Community Approach

The whole community approach is comprised of families, businesses, non-governmental organizations, schools and higher education, the media, and all levels of government (state, local, tribal, and territorial). This approach grew out of multiple community efforts of engagement and trying to motivate stakeholders while gaining a better understanding of risk and their experience with resilience following disasters. The Federal Emergency Management Agency's (FEMA) Project Impact in 1997 took actions to safeguard commercial enterprises, social and familial units, and larger communities to mitigate the effects of natural disasters by creating public-private partnerships.

³⁶ Lindell, Perry, and Prater, *Introduction to Emergency Management*, 46.

Numerous preparedness and recovery materials affirm that preparedness is a shared goal and by cooperating, actors in the community can keep the nation resilient.³⁷ Presidential Policy Directive 8 (PPD-8): National Preparedness attempts such an arrangement through the integration of several federal agencies, the Department of Homeland Security/Federal Emergency Management Agency (DHS/FEMA), Small Business Administration (SBA), U.S. Department of Commerce/Economic Development Administration, etc. to work with the whole community to improve national preparedness. For the first time, the directive establishes a holistic approach to strengthen the resilience of the nation, which optimizes available resources through National Planning Frameworks covering the preparedness mission areas that describe how the whole community works together to achieve a resilient nation. The 2012 nine federal agency report compiled by the National Research Council report, *Disaster Resilience: A National Imperative* defined resilience as the “ability to plan for, absorb, recover from, and more successfully adapt to adverse impacts.”³⁸

The National Mitigation Framework adumbrates preparedness and harm reduction strategies across the entire community, and focuses on “creating a national culture shift that embeds risk management and mitigation in planning, decision, and development.”³⁹ FEMA has defined mitigation as strategies that either prevent or reduce the occurrence of an event and increase the community’s resilience by minimizing the adverse impact of disasters. Mitigation is best understood in the context of planning as an ongoing never-ending cycle of prevention, mitigation, response, and recovery. The cycle extends from reducing the vulnerability of citizens and property to damage and injury, to preparing for

³⁷ National Research Council, *Facing the Unexpected: Disaster Preparedness and Response in the United States* (Washington, DC: The National Academies Press, 2001), 37; William Waugh and Kathleen J. Tierney, *Emergency Management: Principles and Practice for Local Government* (Washington, DC: International City and County Management Association, 2007); Stephanie E. Chang and Adam Z. Rose, “Towards a Theory of Economic Recovery from Disasters,” Paper 203, *Published Articles & Papers*, 2012, http://research.create.usc.edu/published_papers/203; Committee on Increasing National Resilience to Hazards and Disasters; Committee on Science, Engineering, and Public Policy (COSEPUP); Policy and Global Affairs (PGA); and the National Academies, *Disaster Resilience: A National Imperative* (Washington, DC: The National Academies, 2012).

³⁸ Ibid.

³⁹ Federal Emergency Management Agency, *National Mitigation Framework* (Washington, DC: Department of Homeland Security, 2013), http://www.fema.gov/media-library-data/20130726-1914-25045-9956/final_national_mitigation_framework_20130501.pdf.

prompt rescue efforts, to rehabilitating affected residents, businesses and damaged property, to assessing and planning for potential hazards and risks. However, the great added value of mitigation activities is that its activities are in tandem with lessons learned from prior incidents.

Traditional mitigation efforts include zoning, building codes, floodplain acquisitions, and education about reducing loss and injury through civilian measures. However, in the context of this research, the writer touches upon mitigation actions that deal primarily with small businesses in each disaster management cycle, e.g., including the creation of low interest loans in the recovery phase. These loans are a component designed to avoid damage from future incidents to help individuals and the business community with long-term rebuilding or mitigation measures. While in the preparedness phase mitigation often comes up when “lessons learned” or “best practices” educate government, the business community and the public tend to focus on measures to reduce loss and injury. One of the ways mitigation can have long-lasting effects is to incorporate its efforts in the state’s comprehensive economic development plan and sustainability efforts to incorporate continuity planning and emergency preparedness.

In mitigation policy guidance, the literature seems to indicate a tension between traditional hazard mitigation and future mitigation. Traditional hazard mitigation focuses on ensuring systems are able to withstand disaster forces. On the other hand, future mitigation programs must focus on teaching communities and institutions to reduce hazards since they are the central players in creating resilience. David Godschalk, in “Urban Hazard Mitigation: Creating Resilient Cities,” tries to understand the link between development, environment, and natural disaster with a global perspective that would enable society to become more resilient to adverse events while crafting policy that does not increase the risk of harm.⁴⁰ Along the same lines of effort, the National Disaster Recovery Framework (NDRF) focuses on ways to restore economic viability and other crucial factors to small business owners. According to DHS/FEMA, the guiding

⁴⁰ David Godschalk, “Urban Hazard Mitigation: Creating Resilient Cities,” *Natural Hazards Review* 4, no. 3 (August 2004): 136–142; U.N. Commission on Sustainable Development, *Natural Disasters and Sustainable Development: Understanding the Links between Development, Environment and Natural Disasters* (New York: U.N. Commission on Sustainable Development, 2002).

principles of this approach are including people and recording their participation in policy involvement. However, crisis management literature has not addressed at length the small business response to disasters or considered how they respond to and recover.⁴¹ Moreover, the creation of the Office of Resilience as part of the National Security Council is part of the growing “federal interest in disaster resilience as a mechanism from mitigating the impacts to local communities.”⁴² More recently the 2013 Presidential Policy Directive 21: Critical Infrastructure Security and Resilience alters the resilience definition as “the ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions” whether “deliberate, accidents, or naturally occurring threats or incidents.” As a result, the writers cite a lack of “resilience thinking, integrated planning, and collective action at the national, regional, state and local level.”⁴³

5. Economic Recovery and Resilience

Economic recovery is never an easy proposition, especially for small businesses struck by events. Empirical studies highlight that business and micro environments are not destroyed by disasters and the majority of actors return to economic activity.⁴⁴ However, this research also indicates small businesses experience the greatest difficulty recovering from disasters. Kroll et al. identified a situational lack of resources (insurance, etc.) and a definitional structure that can neither afford the kind of redundancy that

⁴¹ Rodney C. Runyan, “Small Business in the Face of Crisis: Identifying Barriers to Recovery from a Natural Disaster,” *Journal of Contingencies and Crisis Management* 14, no. 1 (2006): 12–26.

⁴² Cutter, Burton, and Emrich, “Disaster Resilience Indicators for Benchmarking Baseline Conditions.”

⁴³ Runyan, “Small Business in the Face of Crisis: Identifying Barriers to Recovery from a Natural Disaster,” 33.

⁴⁴ Gary R. Webb, Kathleen J. Tierney, and James M. Dahlhamer, “Business and Disasters: Empirical Patterns and Unanswered Questions,” *Natural Hazards Review* 1, no. 2 (2000): 83–90; Lam et al., “Business Return in New Orleans: Decision Making amid Post-Katrina Uncertainty,” *PLoS ONE* 4, no. 8 (August 26, 2009): e6765, doi:10.1371/journal.pone.0006765.

mitigates a disaster's impact nor capable of absorbing the expenses of even preparing to do so.⁴⁵ Safety on a shoestring is somewhere between impractical and impossible.

Moreover, an environmental component seems to be present. Damaged or blocked infrastructure reduces foot traffic, and reduces customers. Even businesses, which individually sustained minimal impact, experience difficulty recovering if the neighborhood around them is significantly damaged.⁴⁶ Nevertheless, a silver lining is that the business continuity industry is rapidly growing fulfilling a niche in services not previously available or government centric.

Paton and Johnson define *disaster resilience* "as the ability of a community to withstand a severe shock" and then, return "to a new normal based on lessons learned and improvements made that make a community less vulnerable and more adaptable."⁴⁷ Tim Beatley expands on the concept and argues that resilience includes "the ability to adapt to changing conditions" while building organizational capacity to create cooperative institutions capable of supporting disaster response and recovery.⁴⁸

Conversely, Patricia Longstaff⁴⁹ moves beyond the definitional debate of resilience and advances not only a definition, she also recommends a structural framework to address the growing need of the homeland security and disaster management fields to build resilient communities. The contribution moves beyond

⁴⁵ Cynthia A. Kroll et al., *Economic Impacts of the Loma Prieta Earthquake: A Focus on Small Businesses* (Working Paper 91-187) (Berkeley, CA: U.C. Transportation Center and the Center for Real Estate and Urban Economics, University of California at Berkeley, 1991); Webb, Tierney, and Dahlhamer, "Business and Disasters: Empirical Patterns and Unanswered Questions," 83-90; Gary R. Webb, Kathleen J. Tierney, and James M. Dahlhamer, "Predicting Long-Term Business Recovery from Disasters: A Comparison of the Loma Prieta Earthquake and Hurricane Andrew," *Environmental Hazards* no. 4 (2002): 45-58; Stephanie E. Chang, "Disasters and Transport Systems: Loss, Recovery, and Competition at the Port of Kobe after the 1995 Earthquake," *Journal of Transport Geography* 8, no. 1 (2000): 53-65.

⁴⁶ Webb, Tierney, and Dahlhamer, "Business and Disasters: Empirical Patterns and Unanswered Questions," 83-90; Chang, "Disasters and Transport Systems: Loss, Recovery, and Competition at the Port of Kobe after the 1995 Earthquake," 53-65.

⁴⁷ Douglas Paton and David Johnston, *Disaster Resilience: An Integrated Approach* (Springfield IL: CC Thomas, 2006).

⁴⁸ Timothy Beatley, *Planning for Coastal Resilience: Best Practices for Calamitous Times* (Washington, DC: Island Press, 2006).

⁴⁹ Patricia H. Longstaff, "Building Resilient Communities: A Preliminary Framework for Assessment," *Homeland Security Affairs* 6, issue 3 (September 2010).

government rhetoric and academic debates and provides a policy tool, based on Nobel Laureate Elinor Ostrom's framework to "identify the elements (and the relationships among these elements)...to consider for analysis...organize diagnostic and prescriptive inquiry...[and] provide the most general set of variables that should be used to analyze all types of settings relevant for the framework."⁵⁰ Longstaff's work examines five community subsystems, which she labels "ecological, economic, physical infrastructure, civil society, and governance" for a more concrete analysis adaptable to community circumstances. Similarly, Cutter discusses similar elements as one strives to create a baseline resilience indicator for communities in five areas (social, economic, institutional, infrastructure, and community capital).⁵¹ Community circumstances can be worked. However, both findings are not extensive enough and further research is necessary.

The DHS/FEMA working definition of "preparedness" describes "a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action in an effort to ensure effective coordination during incident response."⁵²

The practical aspects of preparedness are delineated in the national preparedness system. The system's goals are effective prevention, mitigation, response, and recovery in the event of disasters. However, prevailing notions of preparedness focus on the public sector, without addressing small businesses.

Wilson et al. focus on the preparatory and restorative functions of disaster management. Among their findings are the apparent collective social difficulties assessing risk that come with natural disasters.⁵³ Numerous cognitive distortions produce errors, e.g., people tend to equate occurrence with frequency; if a flood took place once, their perception of the likelihood of more flooding diminishes. Also, psychological

⁵⁰ Ostrom, Elinor, *Understanding Institutional Diversity* (Princeton NJ: Princeton University Press, 2005), 28.

⁵¹ Cutter, Burton, and Emrich, "Disaster Resilience Indicators for Benchmarking Baseline Conditions."

⁵² Homeland Security, "Plan and Prepare for Disasters," *Official website of the Department of Homeland Security*, accessed February 22, 2014, <https://www.dhs.gov/topic/plan-and-prepare-disasters>.

⁵³ Sean Wilson et al., "The Lack of Disaster Preparedness by the Public and it's Affect on Communities," *The Internet Journal of Rescue and Disaster Medicine* 7, no. 2 (2007), <http://ispub.com/IJRDM/7/2/11721>.

experiments revealed that people may be willing to accept possible damage from a catastrophic event and yet unwilling to absorb, a priori, the certain costs of insurance payments.

Wilson et al. use the \$9.1 billion handed by FEMA and the SBA in a 16-year period to argue that these government bailouts create a disincentive for non-governmental (or non-federal) efforts at reducing risk prior to disaster. This argument relies on characterizing post-disaster relief efforts undertaken by government as “insurance.” Similarly, Menzel Baker (while examining paradoxes that constraint resilience) makes the argument that “if individuals, communities or institutions do not carry the full burden of their consequences of lack of self-sufficiency, they may become less resilient.”⁵⁴ She uses the example of two homeowners losing their homes. One used mitigation (insurance) while the government steps in for the other and rebuilds the home. Thus, the homeowner who carries insurance no longer feels an incentive to do so. This posture is highly problematic, as it raises the question of the “moral hazard” inversion of FEMA and SBA programs awarding risk-takers, and punishing risk averters, as the programs socialize repair and restoration of costs.⁵⁵

Nevertheless, recovery research from the American Planning Association suggest that most states are requiring the inclusion of natural hazards as part of their comprehensive plans and those plans encourage disaster loss reduction. For instance, per capita flood losses were found in one study to be lower for the states with the requirement. However, it is important to note the policy shift enabled by the Disaster Mitigation Act of 2000 (DMA 2000) amending the Stafford Act to require state mitigation plans and providing financial incentives to local jurisdictions that adopt local hazard mitigation plans.⁵⁶

⁵⁴ Menzel Baker, “Vulnerability and Resilience in Natural Disasters: A Marketing and Public Policy Perspective,” 114–123.

⁵⁵ Wilson et al., “The Lack of Disaster Preparedness by the Public and it’s Affect on Communities.”

⁵⁶ Federal Emergency Management Agency, “Disaster Mitigation Act of 2000,” Department of Homeland Security, accessed February 15, 2014, <http://www.fema.gov/media-library/assets/documents/4596>.

Similarly, “Response and Recovery after the Joplin Tornado,” by Smith and Sutter juxtaposes the Joplin Tornado public safety response and Hurricane Katrina to offer a case study of the recovery efforts of both incidents. This research documents how incentives by Joplin’s private sector sped up the recovery process. Local state government relaxed regulations, waived procurement processes and bidding procedures, and hired extra building inspectors. During Hurricane Katrina, institutional factors were detrimental to the efforts.⁵⁷

Also, the Committee on Homeland Security and Governmental Affairs, U.S. Senate “Disaster Recovery: Past Experience of America’s Small Business in Rebuilding Their Communities,” applies lessons learned from Hurricane Ike and Gustav and the 2008 Midwest floods. A section of the report looks at enhancing the procurement process to provide loans, technical assistance, and support in navigating federal bureaucracy. Childs also makes further suggestions for disaster recovery plans.⁵⁸ In spite of the popularity of the book, the challenge for federal, state, and private stakeholders has been the engagement of small businesses, and individual citizens to ensure the resiliency of their organizations, and thus, the nation.

6. Entrepreneurship—The Link

Small business entrepreneurs could adapt several features from the entrepreneur community to aggregate/develop the necessary skills and knowledge to withstand a business interruption. The main goal is the actors’ collaboration on projects, and development of some capacity to access networks to provide input/assistance. If it is possible to build resilience within the system, the entrepreneur may be the best professor.

In fact, an article on the meaning of social entrepreneurship lays out a succinct development of the word entrepreneur. The word is French in origin and describes someone who acts on plans. The concept gained acceptance as identifying the daring

⁵⁷ Daniel J. Smith and Daniel Sutter, “Response and Recovery after the Joplin Tornado: Lessons Applied and Lessons Learned,” *Social Science Research Network*, 2013, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2261353.

⁵⁸ Donna R. Childs, *Prepare for the Worst, Plan for the Best: Disaster Preparedness and Recovery for Small Businesses* (Hoboken, NJ: John Wiley & Sons, Inc., 2008).

economic actor who would find new ways of conducting business to stimulate the economy. Jean Baptiste Say has been credited with expanding the term around the 19th century by stating, “The entrepreneur shifts economic resources out of an area of lower and into an area of higher productivity and greater yield.”⁵⁹ In the 20th century, Joseph Schumpeter described entrepreneurship as, “the function of entrepreneurs is to reform or revolutionize the pattern of production, by exploring an invention or, more generally, an untried technological possibility for producing a new commodity or producing an old one in a new way, or by reorganizing the industry.”⁶⁰ Both definitions identify a common core as individuals who bring innovation, and thus, value added by “breaking the mold,” i.e., disrupting existing practices and orthodoxies.

More contemporary writers, such as Peter Drucker, considered the founder of modern management, added that entrepreneurs create value by seeking opportunities. He states, “the entrepreneur searches for change, responds to it, and exploits it as an opportunity.” Similarly, Howard Stevenson⁶¹ sees entrepreneurship as “the pursuit of opportunity beyond the resources you currently control.”⁶² Anthony Tjan, in “Vulnerability: The Defining Trait of Great Entrepreneurs,” explores the balancing act between taking a calculated risk and the vulnerability of pivoting to take on new challenges until finding that defining invention. He cites James Dyson who made over 5,100 prototypes and, on his 5,126th variation, developed the “right” vacuum cleaner. He states, “The great test of a great entrepreneur is one who can continue in the face of failure and does not fall prey to passive vulnerability.”⁶³ This defining characteristic makes the entrepreneurial spirit such a formidable group to explore.

⁵⁹ Dees J. Gregory, “The Meaning of Social Entrepreneurship,” The Kauffman Center for Entrepreneurial Leadership, accessed November 16, 2014, http://www.partnerships.org.au/Library/the_meaning_of_social_entrepreneurship.htm.

⁶⁰ Ibid.

⁶¹ Former Business Administration faculty at Harvard Business School, who ignited the startup curriculum since 1982 and most recently was coined by Forbes magazine as the “Lion of Entrepreneurship” for authoring over 100 cases and increasing faculty capacity from a diminutive five to 35 as of 2014.

⁶² Peter Cohan, “Harvard’s Lion of Entrepreneurship Packs Up His Office,” *Forbes*, accessed September 15, 2013, <http://www.forbes.com/sites/petercohan/2011/06/15/harvards-lion-of-entrepreneurship-packs-up-his-office/>.

⁶³ Anthony Tjan, “Vulnerability: The Defining Trait of Great Entrepreneurs,” *Harvard Business Review*, October 6, 2009.

Besides these writers, networks exist that focus on fostering the entrepreneurial spirit in the United States, such as the Kauffman Foundation, which reports assets of approximately two billion dollars and revolves most of their activities around education and entrepreneurship. In 2011, it partnered with Startup Weekend to build the capacity of entrepreneurs and have developing concepts created in 54 hours. This collaboration has been successful and has spread to more than 175 cities in 100 countries, and has created an alumni base of more than 45,000 and growing.

Similarly, the Y Combinator contains defining features to emulate resources, such as monetary and in-kind, and a prominent expanded network. The Combinator spends a lot of time teaching, and helping to navigate paperwork, and to guide by affiliation. It is similar to having a prominent member of the community in a leadership position, such as a board member and/or president, and its viability by association. The messaging on their website states, “The kind of advice we give literally can’t be bought, because anyone qualified to give it is already rich. You can only get it from investors.”⁶⁴

Eric Ries wrote the *The Lean Startup* that showcases pioneering strategies for startup companies to go from concept to implementation. One of his mantras is, “Startup success is not a consequence of good genes or being in the right place at the right time. Startup success can be engineered by following the right process, which means it can be learned, which means it can be taught.”⁶⁵ This entrepreneurial insight leaves a question as to whether small business entrepreneurs can connect to the right network and use existing structures to augment their strengths and minimize their weaknesses. One of the networks closely examined is the resource partners from the SBA.

D. RESEARCH DESIGN

This study examines preparation decisions by small business owners/entrepreneurs, which is the theoretical population of interest. The proposed

⁶⁴ Eric Ries, “Welcome to the Success Factory,” *Management Today*. April 1, 2012, <http://www.managementtoday.co.uk/features/1124092/welcome-success-factory>.

⁶⁵ Eric Ries, “Introduction,” in *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*. 1st edition ed. (New York: Crown Business New York, 2014), 3. 1-11.

research uses the definition used by the Internal Revenue Service (IRS) to qualify for a tax credit under the Patient Protection and Affordable Care Act. The IRS specifies a “small business” employs no more than twenty-five employees who earn below \$50,000 in average annual wages.

The plan is to create a prototype similar to a business incubator, designed to decrease the failure rate pre- and post-disaster through education and wrap-around services. The business incubator concept has been advanced in the tech world and has accelerated growth in the past decade. Startupers and/or techies are not afraid to fail, testing methodologies along the way, learning from mistakes, and building on those experiences. These failures in the business world are called “pivots,” as they allow someone to pivot the original idea. Entrepreneurs will have failures along with successes; to borrow a popular metaphor, it is the nature of the beast. However, the theoretical population of interest would benefit greatly from this prospective modeling, as it might prove to be the difference between building capacity and resilience or imminent failure with its concomitant damages.

A cross-section design is used for this research. The structure of a cross-sectional, as opposed to longitudinal research, examines subjects so that their differences are minimized, except for the characteristics of the study.

The advantage of a cross-sectional design is that it has no time dimension or interventions so that two populations will be compared in terms of differences of the outcome variable. In this instance, the outcome variable is disaster preparation. Time constraints have led to several limitations that include small businesses comprised of a kaleidoscope of entrepreneurs over 50, minority, rural/urban, veterans, guards, reservists, women, and youth. These variations may have an effect on outcomes, although it is also beyond the scope of this paper. Therefore, the research looks at small business as a whole community without delving deeper into other factors.

It is beyond the scope of this research to determine the reasons for small business failure (not attributed to a disaster). Some of the reasons cited by the SBA include “lack of experience, insufficient capital or vulnerability to cash flow, poor location, poor inventory management, over-investment in fixed assets, poor credit arrangement

management, personal use of business funds, unexpected growth, competition and low sales.”⁶⁶ Although, the information is related, it is not central to this inquiry, and thus, not inside the boundaries.

Lastly, trying to address the perspective of the 50 states and/or the more than 80,000 municipalities is beyond the scope of this research. This thesis rests on data acquired from a comprehensive analysis of academic literature based on case studies. Published surveys and interviews gathered from secondary data sources expands the scope to a three-prong approach, which broadens the analysis and allows this researcher to draw better conclusions from the combination of the different perspectives.

This research will contribute to the national discussion by *focusing on an emerging trend*; that is, the need to enhance resilience through business preparedness. Building resilience involves reviewing past responses, and those efforts form a national model for implementation. Some of the federal agencies that would benefit from this model include the FEMA/DHS, the SBA, the Economic Development Administration/Department of Commerce, the U.S. Chamber of Commerce, the National Federation of Independent Business, and the insurance industry among others.

E. CHAPTER OVERVIEW

Chapter I contains the problem statement and the literature review that explores risk and vulnerability, the whole community approach, economic development and resilience, and entrepreneurial principles and practices. Chapter II provides a deep background on the complexity and challenges facing small business owners including federal evolution, and some of the psychological and social barriers that might be at play. Chapter III explores partnerships and perspectives that continue to change the landscape promoting best practices. This chapter is divided into two sections (best practices and perspectives) that highlight continuity planning, models used overseas, as well as home and business alliances shaping policy towards more inclusiveness of the business sector. Chapter IV introduces the proposed model of a wrap-around services business incubator

⁶⁶ Michael Ames, “Small Business Management,” VETBIZ Resource Center, accessed March 2013, http://www.vetbizresourcecenter.com/transition/Why_Small_Businesses_Fail.html.

and explores the possibility to promote resilience through a “hat trick approach,”⁶⁷ leveraging social network analysis, community asset mapping, and scenario planning. Chapter V provides the conclusions and further reflections, based on this research.

⁶⁷ According to the Merriam Webster Dictionary a “hat trick” is a series of three victories and it is also used in sports including soccer, hockey and cricket.

II. COMPLEXITY AND CHALLENGES

Federal guidance has evolved to account for deficiencies and for greater integration of public-private partnerships, which reflects the current operating environment and fiscal restraints. This chapter sets the stage for a deep background on some of the underlying reasons for small business failures and further explores how the lack of planning, accountability, cultural disconnect, and bureaucratic hurdles are detrimental in the overall economic development of small business owners.

For a community to be truly resilient, it must enhance its capacity for disaster preparedness and recovery through a support structure that leverages resources and capacity to increase planning efforts and a generally active engagement with anticipation. For small business entrepreneurs, their operating environment must address the “what if” question and it constantly shifts by preparing for the worst possible outcome. Resilience requires maintaining and augmenting the knowledge base via training and education, and facilitating small business’ access to the tools and equipment necessary to address those contingencies.

A. LACK OF PLANNING

A number of key considerations need to be addressed to move small businesses toward deeper engagement and a commitment to continuity planning. Although systems within the government already exist to support the challenges of business disruption, they have not been geared towards enhancing small business capacity. When considering the challenges of the 21st century, it is important to remember the popular chiasmus;⁶⁸ by failing to prepare, you are preparing to fail.

Small business entrepreneurs neglect to build preparedness and bridge gaps to achieve resilience for many reasons. Less access to insurance, and other financial means/resources, combined with isolated facilities and day-to-day business realities,

⁶⁸ Although it has been attributed to Benjamin Franklin, its source remains unknown.

create limited opportunities for pre-disaster mitigation and preparedness.⁶⁹ However, they need to focus on two main goals, embracing preparedness because their financial success depends on the ability to recover faster than the competition, and developing the resilience necessary to endure the next event by building capacity.

Research on small businesses post-disaster recovery in the 1990s focused on different types of disasters, while in the 2000s, research has been based on business factors including size, geographic location, and the industrial sector.⁷⁰ Empirical studies and literature would suggest, “businesses and local economies are generally resilient to disasters, and most businesses do recover.”⁷¹ Nevertheless, it has been discovered that some sectors and local economies are more prone to difficulty in recovering from disasters than others, especially small businesses.

The vulnerability is a consequence of small profit margins, insufficient flexible business management models, or lack of redundancy in facility location.⁷² For example, Gastkill, Van Auken, and Manning examined 245 clothing storeowners whose small businesses failed from 1988 to 1991. This work combined the operational aspects of small business failures and the interrelated nature of the business environment to confirm

⁶⁹ Kroll et al., *Economic Impacts of the Loma Prieta Earthquake: A Focus on Small Businesses*, 91–187; Webb, Tierney, and Dahlhamer, “Business and Disasters: Empirical Patterns and Unanswered Questions,” 83–90; Webb, Tierney, and Dahlhamer, “Predicting Long-Term Business Recovery from Disasters: A Comparison of the Loma Prieta Earthquake and Hurricane Andrew,” 45–58; Chang, “Disasters and Transport Systems: Loss, Recovery, and Competition at the Port of Kobe after the 1995 Earthquake,” 53–65.

⁷⁰ Schrank et al., “Small-Business Demise and Recovery after Katrina: Rate of Survival and Demise,” *Natural Hazards* 65, no. 3 (February 2013): 2357.

⁷¹ Webb, Tierney, and Dahlhamer, “Business and Disasters: Empirical Patterns and Unanswered Questions,” 83–90; Lam et al., “Business Return in New Orleans: Decision Making Amid Post-Katrina Uncertainty,” e6765. 71/journal.pone.0006765.

⁷² Kroll et al., *Economic Impacts of the Loma Prieta Earthquake: A Focus on Small Businesses*, 91–187; Webb, Tierney, and Dahlhamer, “Business and Disasters: Empirical Patterns and Unanswered Questions,” 83–90; Webb, Tierney, and Dahlhamer, “Predicting Long-Term Business Recovery from Disasters: A Comparison of the Loma Prieta Earthquake and Hurricane Andrew,” 45–58; Chang, “Disasters and Transport Systems: Loss, Recovery, and Competition at the Port of Kobe after the 1995 Earthquake,” 53–65.

research pointing to managerial and planning functions as a controlling factor in business failure.⁷³

Previous research conducted by Keats and Bracker had found that “the neophyte entrepreneur at a very early stage of cognitive strategic sophistication would not be prepared to comprehend and employ sophisticated management concepts and techniques.”⁷⁴ Hence, findings suggest that small business owners sometimes make ineffective decisions as a result of inadequate decision-making skills. This lack of planning permeates most aspects of success, including competitiveness, growth, and expansion, which illustrates the interdependencies leading small business entrepreneurs to financial distress and failure.

However, a study conducted by Schrank et al. published in late 2012 takes a different approach and examines the rate of survival and demise of small businesses. The study provides a more comprehensive picture of the recovery cycle. Research literature has lacked interviews with owners of non-surviving businesses that has left “a gaping hole in our knowledge about disaster impacts on small businesses.”⁷⁵ The gap is part of a lack of context as to how the owners of the failed businesses prepared for disasters, how their business was impacted by the event, and what happened afterwards. Context provides a more comprehensive picture and makes it possible to grasp possible patterns to avoid. For instance, a slowdown in the small business sector of a disaster zone has a larger effect because 52 percent of businesses are operated from the owner’s home or property. As a result, the damage has an impact at both the micro level (family and the small business) and at the macro level (the supply chain management), which consequently impedes the chances of both the business and the family to recover.⁷⁶

⁷³ LuAnn Ricketts Gaskill, Howard E. Van Auken, and Ronald A. Manning, “A Factor Analytic Study of the Perceived Causes of Small Business Failure,” *Journal of Small Business Management* 31, no. 4 (October 1993): 18–31.

⁷⁴ Barbara W. Keats and Jeffrey S. Bracker, “Toward a Theory of Small Firm Performance: A Conceptual Model,” *American Journal of Small Business* 12 (1988): 41–58.

⁷⁵ Schrank et al., “Small-Business Demise and Recovery after Katrina: Rate of Survival and Demise,” 2353–2374.

⁷⁶ *Ibid.*, 2355.

Similarly, research conducted by Pan explores the dispersal of estimated adverse consequences in a major metropolitan area further. Pan's work used a hurricane-based scenario and tools advanced by FEMA's Hazus software. The Hazus loss and risk software can be used in all phases of emergency management, envisioning four types of disasters: hurricanes, earthquakes, coastal surge, and flooding. It utilizes geographic information to calculate the exposure of an area, the level of intensity, and the potential economic losses, damage to infrastructure, and even the social impacts of disasters on the entire community. The model predicted more than \$30.3 billion from property damage and income-related business interruptions for an eight-county metro region within the Houston-Galveston area.⁷⁷ Both approaches provide a more detailed understanding of how small business entrepreneurs anticipate, make preparations, sometimes fail, make subsequent adjustments, and either recover or become extinct. Small business entrepreneurs suffer greater economic losses and business disruptions than their corporate counterparts, which highlights that effective strategies can reduce a small business' vulnerabilities.

These findings are congruent with Maslow's hierarchy of needs.⁷⁸ The psychological motivation for safety and security is second only to the motivation for food and water, and thus, the small business entrepreneur will concentrate in satisfying those needs for at least the first six months. Although Maslow crafted this theory with individuals in mind, small businesses are a group of individuals, and as such it can be theorized that small businesses have similar motivations, such as safety, esteem, and growth that need to be understood and nurtured. The challenge for policymakers and practitioners becomes how to tap into this psychological hierarchy by addressing the way small business entrepreneurs undermine their success and livelihood by failing to prepare. Reframed as resilience, a proactive form of insurance, or community responsibility, implementing preparation and mitigation becomes a form of a status-seeking event that can accrue considerable social and financial benefits.

⁷⁷ Qisheng Pan, "Economic Losses from a Hypothetical Hurricane Event in the Houston-Galveston Area," *Natural Hazards Review* 12, no. 3 (2010): 146–155.

⁷⁸ Saul McLeod, "Maslow's Hierarchy of Needs," *Simply Psychology*, 2007, <http://www.simplypsychology.org/maslow.html>.

Corey and Deitch conducted research on the factors contributing to business recovery six to eight months immediately following Hurricane Katrina. This research is significant because it looks at the organization level including disaster preparation and business recovery. Approximately 183 surviving organizations were interviewed in the Greater New Orleans area. Operating under the hypothesis that organizations with an emergency response plan would have better resources to prepare, the authors looked for multiple levels of redundancy that could protect against predictable problems in communication, which would yield a better organizational performance. At the conclusion of their work, they were able to confirm that organizations with an emergency plan in place were able to “protect their businesses and maximize their ability to continue to do business than did those without a plan.”⁷⁹ Those findings are similar to research by Perry, which suggests that despite small businesses conducting little planning in general, “firms that failed had engaged in less planning than other firms.”⁸⁰ Despite this conclusion being seemingly obvious and dictated by common sense, it is backed by empirical data and it furthers the body of knowledge and literature for practitioners. Moreover, businesses plan adoption rate statistics dating back to 1997 showed that disaster preparedness had increased. For example, in Grand Forks, North Dakota, a flood-prone area, the percentage was close to 12 percent, and in Des Moines, Iowa, it was 29 percent; while Memphis, a city vulnerable to earthquakes, was at 22 percent.

Research conducted by Zolin suggests a “business continuity plan” that includes the protection of a small business’ data.⁸¹ In New Orleans, where businesses closed for nearly a month post-Katrina, the businesses that had data stored remotely fared better. However, this contingency was not available to small business entrepreneurs or was prohibitively expensive. Although, with the advancement of technology, backing information to “the cloud” makes it easier to avoid the chaotic obstacles to

⁷⁹ Christy Corey and Elizabeth Deitch, “Factors Affecting Business Recovery Immediately After Hurricane Katrina,” *Journal of Contingencies and Crisis Management* 19, no. 3 (2011): 169–181.

⁸⁰ Stephen C. Perry, “The Relationship between Written Plans and the Failure of Small Business,” *Journal of Small Business Management* 39, no. 3 (2001): 201–208.

⁸¹ Corey and Deitch, “Factors Affecting Business Recovery after Hurricane Katrina,” 171.

communication and resource management that businesses experienced because of Hurricane Katrina.

Other factors that attributed to the failure of small business entrepreneurs include limited capacity for pre-disaster mitigation and preparedness, lack of insurance or being underinsured, a dependence on generating revenue from customers who are also impacted by the disaster.⁸² In fact, research examined the percentage of small business entrepreneurs who carried insurance and found that in Des Moines during the 1993 floods, only 8 percent of businesses carried insurance, while in Los Angeles during the 1994 Northridge earthquake, only 20 percent of businesses carried earthquake insurance. However, the numbers sampled from 183 businesses in the Greater New Orleans Region were much higher, with 38 percent possessing business recovery insurance, 64 percent flood insurance, and 68 percent business interruption insurance.⁸³

The operating environment involved with the restoration of lifeline infrastructure plays an important role in business recovery and infrastructure concerns, especially relating to businesses in highly damaged or particularly challenging recovery areas, and for highly vulnerable retail businesses because of a reliance on foot traffic.⁸⁴

A recent symposium highlighted the need for further research and stated “Achieving resilience in a cost effective manner requires better understanding of the elements of resilience and the development of appropriate metrics suitable for evaluation, benefit-cost and tradeoff analyses for facilities, networks and communities based on

⁸² Hurricane Sandy Rebuilding Task Force, *Hurricane Sandy Rebuilding Strategy: Stronger Communities, A Resilient Region*; Kroll et al., *Economic Impacts of the Loma Prieta Earthquake: A Focus on Small Businesses*, 91–187; Webb, Tierney, and Dahlhamer, “Business and Disasters: Empirical Patterns and Unanswered Questions,” 83–90; Webb, Tierney, and Dahlhamer, “Predicting Long-Term Business Recovery from Disasters: A Comparison of the Loma Prieta Earthquake and Hurricane Andrew,” 45–58; Chang, “Disasters and Transport Systems: Loss, Recovery, and Competition at the Port of Kobe after the 1995 Earthquake,” 53–65.

⁸³ Corey and Deitch, “Factors Affecting Business Recovery Immediately After Hurricane Katrina,” 173.

⁸⁴ Webb, Tierney, and Dahlhamer, “Business and Disasters: Empirical Patterns and Unanswered Questions,” 83–90; Chang, “Disasters and Transport Systems: Loss, Recovery, and Competition at the Port of Kobe after the 1995 Earthquake,” 53–65.

systems thinking with interdependence, uncertainty and complexity considerations.”⁸⁵ Although neither emergency managers nor business continuity managers can predict with precision a disaster, they can mitigate its impact, and prepare and adjust for its consequences through the unification of emergency management as it refers to public sector activity (e.g., municipalities, communities) managing consequences, and business continuity management (BCM) as a private sector activity (e.g., companies, small and medium sized enterprises (SMEs)) managing business impact.⁸⁶

B. FEDERAL GUIDANCE EVOLUTION

Planning is not simply relevant to small business entrepreneurs and their operating environment; it involves the support structures within the federal government for a community approach. Guidance released in the 2014 Second Quadrennial Homeland Security Review reflects changes in the strategic operational environment to account for more costly natural hazard responses and the interdependencies of factors including aging baby boomers, aging infrastructure, and climate change.

Emergency response during the 1990s, whether ongoing efforts in the Los Angeles earthquake of 1994, the North Dakota Floods in 1997 or the heat waves of 1999, highlighted deficiencies and raised awareness that states were not fully prepared to respond to natural disasters.

In the aftermath of 9/11, and through the creation of the DHS, specific policy guidance documents have been intertwining preparedness to enhance the nation, including the National Response Plan, the National Incident Management System, and the National Preparedness Goal. Local programs benefited through the incorporation of the DMA 2000 that made changes to allow for additional funds for hazard mitigation planning including the prioritization of risk assessments and mitigation strategies.

⁸⁵ Bilal M. Ayyub, Gerald Galloway, and Angela Bernstein, *Developing Infrastructure & Community Resilience to Natural & Human-Caused Disasters: Shaping a Path to the Future* (College Park, MD: University of Maryland, 2013).

⁸⁶ Nathaniel Forbes, “Contingency Planning for Earthquakes in Asia,” *Journal of Business Continuity & Emergency Management* 3, no. 4 (July 2009): 356–367.

In 2003, the Homeland Security Policy Directive 8 stated, “the national preparedness goal will establish measurable readiness priorities and targets ... [and] will also include readiness metrics and elements that support the national preparedness goal.”⁸⁷

The 2004 National Response Plan created a framework to respond to natural disasters or terrorist attacks based in the emergency management maxim that *all disasters are local*, which places the responsibility for natural disaster planning and response at the local level. Once a local government has taxed its resources, the process proceeds to the state, and then to the federal government.

Hurricane Katrina was a dramatic and painful moment for the nation. New Orleans had always been one of America’s “party” towns. The celebration of Mardi Gras has become a legend. Yet, all social stability broke down. Emergency personnel were overwhelmed. The civilian population was not only “on its own,” but at times, the public safety department was a danger to its civilians.⁸⁸ The confusion and suffering demonstrated that the lack of central authority can have devastating effects on disaster response and addressing public safety needs. In fact, scholars who have examined the Katrina response posit that although response relies on various coordinated actions by government entities, *in Katrina, it failed because it was not a system*.⁸⁹

However, “takeaways” from Hurricane Katrina and the enactment by Congress of the legislation,⁹⁰ established responsive hierarchies. It also enabled FEMA to control grants for state and municipalities to improve capabilities and leverage the entire system

⁸⁷ Department of Homeland Security, *Homeland Security Policy Directive/HSPD-8, National Preparedness* (Washington, DC: Department of Homeland Security, 2003).

⁸⁸ Federal Bureau of Investigation, “Five New Orleans Police Officers Sentenced on Civil Rights and Obstruction of Justice Violations in the Danziger Bridge Shooting Case,” April 4, 2012, <https://www.fbi.gov/neworleans/press-releases/2012/five-new-orleans-police-officers-sentenced-on-civil-rights-and-obstruction-of-justice-violations-in-the-danziger-bridge-shooting-case>.

⁸⁹ William D. Eggers and John O’Leary, *If We Can Put a Man on the Moon: Getting Big Things Done in Government* (Boston: Harvard Business Review Press, 2009), Kindle edition, 316–318.

⁹⁰ Committee on Homeland Security House of Representatives, *An Assessment of the Post-Katrina Emergency Management* (Washington, DC: Printing Office, 2011).

towards preparedness, response, and recovery efforts, and helped to solidify the private sector including a private sector division.⁹¹

The private sector division has been key in building coalitions with businesses and non-governmental agencies to develop a more comprehensive approach in facilitating innovation and collaboration. Similarly, the Bush administration examined lessons learned outlining 17 specific lessons and 125 recommendations for corrective action, including the synchronization of policies, strategies, and plans into a unified system, and adopted a culture of preparedness.⁹²

One administrator, a Colonel Booth, stated that in emergency management, a cliché state all disasters are local; in other words, the local authorities will respond to the incident based on their expertise and knowledge of the area, and the state and federal partners will provide support. However, Col. Booth seems to suggest that after Katrina, it is no longer the case, stating, “Sometimes I think it changed the world and sometimes I wonder if anybody was paying attention.”⁹³ These comments reflect the reality that under those dire circumstances, no authority or place was possible to govern from since the floods had destroyed so much.

Yet, as past experience indicates, humans adapt to the threat landscape via lessons learned and adjusting guidance, with an eye to enduring the next event. For instance, in 2008, the 2004 National Response Plan was replaced by the National Response Framework because of the realization that after catastrophic events, government resources alone cannot meet the requirements of those affected.

⁹¹ Committee on Homeland Security House of Representatives, *An Assessment of the Post-Katrina Emergency Management*; Craig Fugate, *Written Testimony of Federal Emergency Management Agency Administrator Craig Fugate for the Senate Committee on Appropriations, Subcommittee on Homeland Security Field Hearing Titled “Hurricane Isaac—Assessing Preparedness, Response and Recovery Efforts* (Washington, DC: Federal Emergency Management Agency, 2012), <http://www.dhs.gov/news/2012/09/25/written-testimony-fema-administrator-senate-committee-appropriations-subcommittee>.

⁹² White House, *The Federal Response to Hurricane Katrina: Lessons Learned* (Washington, DC: White House, 2006).

⁹³ Kate Lahe and Joey Booth, “Lessons from Louisiana, and a New Normal in Disasters,” *Australian Journal of Emergency Management* 29, no. 2 (2014): 53–56.

In 2011, PPD-8 codified the inclusion of the whole community approach. More recently, in 2013, the second edition of the Framework was released, providing further guidance based on themes that emerged from several events, including the Deepwater Horizon oil spill. Also, lessons from 2012, specifically concerning Hurricane Sandy, were included.

All these policy frameworks share a more holistic response to past experiences that confirmed that, initially at least, local responders would be on their own while state and federal resources are marshaled. *The community will need to cooperate to encompass national preparedness.* This gradual shift has been the catalyst for federal guidance to integrate mitigation and preparedness efforts by placing the onus back on individuals and communities for their well-being for at least 72 hours. Moreover, a key distinction of the capabilities to achieve the National Preparedness Goal is that public-private partnerships are finally established as a prominent feature. This integration further facilitates the entrance of small business entrepreneurs as a subset and demonstrates the need for disaster planning as part of good business practice.

C. RESPONSIBILITY

Small business owners are intrinsically risk-takers, since it is a given that the likelihood of going bankrupt is about half within the first year, and they are lucky if a business is profitable after two years. The risk proposition in its bare form breaks down to three choices: assume the risk, mitigate the risk, or transfer the risk through insurance. However, despite these realities, optimism and an interrelated psychological component can cause a person to believe that the problem is external, rather than taking responsibility. In *Thinking in Systems*, Donella Meadows makes this argument when she states, “It’s almost irresistible to blame something or someone else, to shift responsibility away from ourselves, and to look for the control knob, the product, the pill, the technical fix that will make a problem go away.”⁹⁴ Furthermore, a symbiotic relationship exists

⁹⁴ Donella Meadows, *Thinking in Systems: A Primer* (White River Junction, VT: Chelsea Green Publishing, 2008), Kindle edition, 4.

between government and small businesses, and despite the tension of having different interests and goals, they both benefit from one another.

Similarly, Meadows suggests that the solution only becomes apparent when the structure is perceived “as the source of its own problems, and find the courage and wisdom to restructure it.”⁹⁵ Van der Heijden discusses how, in a competitive world, an organization does not need to be perfect, but if the business is able to “react a little faster than its competitors to environmental impulses, seeing dangers and opportunities a little earlier, then it has a preferential position in the battle for survival.”⁹⁶ Both Meadows and van der Heijden reflect the need to take ownership and use the necessary tools within the system to effect change. That change might stem from learning to navigate governmental processes, understanding the dynamics of entrepreneurship from idea to implementation, or increasing preparedness.

In the context of addressing problems, in the *Logic of Failure*, Dorner explains that psychologically, people “neglect them because we don’t have those problems at the moment and therefore are not suffering from their ill effects. In short, we are captives of the moment.”⁹⁷ However, being captives of the moment undercuts all the work that a small business owner does every day to thrive. For instance, during Hurricane Sandy, many businesses downplayed the risk because they had never experienced a storm of that magnitude. This sort of blunder has been described in the field of psychology as cognitive bias, which is an error in the way the brain processes information, or perception versus the facts behind it.

A recent article by Regina Phelps refers to cognitive bias or “faulty thinking.” Her article shows how small business entrepreneurs become victims of cognitive bias through overweighting an individual’s experience, overconfidence, and failure to believe disconfirming evidence.⁹⁸ For example, she shares that businesses with continuity plans

⁹⁵ Meadows, *Thinking in Systems: A Primer*, 4.

⁹⁶ Kees Van der Heijden, *Scenarios: The Art of Strategic Conversation* (Hoboken, NJ: Wiley, 2011), Kindle editions, 7166–7169.

⁹⁷ Dietrich Dorner, *The Logic of Failure: Recognizing and Avoiding Error in Complex Situations* (New York: Basic Books, 1973), Kindle edition, 1962–1963.

⁹⁸ Regina Phelps, “Lessons Learned from Hurricane Sandy,” *Disaster Resource Guide*, 2014, 1–6.

in place during Hurricane Sandy truly believed that they would be just fine; yet found themselves playing catch-up. However, it is noteworthy that the possibility of a direct hit from Hurricane Sandy was downplayed because “a storm of this size had never happened before.”⁹⁹ Similarly, Mark Lupo of the Georgia Small Business Development Center challenges the current messaging techniques appealing to fear. He states, “the predominant message within the preparedness effort seems to be, either develop a preparedness plan or your business will probably not survive the next disaster.”

However, as already alluded to, the message is not resonating. Lupo builds his argument on Malcolm Gladwell’s bestseller *the Tipping Point* to describe the lack of the “stickiness factor,” or how memorable a message is. He sees a much-needed shift in paradigm to the value proposition by focusing on the why. Lupo posits that businesses with a business continuity plan can “potentially re-open for business more quickly than those that do not and can increase their market share by doing business with those needing their product/service before others can re-open.”¹⁰⁰ Recent surveys show that “forty-one percent of small business employees have never participated in safety drills, and thirty-eight percent have never participated in safety training.”¹⁰¹ In 2010, one source pointed out that within two years after losing their data; only 6 percent of businesses survive.¹⁰²

D. CULTURE

You were mentioning that 40 percent of small businesses fail after a disaster. That is a high figure, almost staggering. Now, what can we do differently to avert that? Is there anything that we can do to mitigate that?

~ Sen. Landrieu, U.S. Senate Hearing,
Committee on Small Business and Entrepreneurship, September 15, 2011

⁹⁹ Phelps, “Lessons Learned from Hurricane Sandy,” 1–6.

¹⁰⁰ Mark R. Lupo, “Challenging the Why of Small Business Preparedness,” *Disaster Recovery Journal* 27, no. 4 (2014).

¹⁰¹ *Ibid.*

¹⁰² *Ibid.*

Since most small business owners have many priorities competing for their limited resources, they are unlikely to put time and effort into preparedness, unless the reasoning of preparedness, the value proposition, and the return on investment at the individual level becomes more tangible. Despite many theories presented of why businesses succeed or fail, no agreed upon definition exists besides general growth, profitability, and long-term sustainability. Success remains quite subjective. However, because of subjectivity, examining some of the related social-cognitive theories including attribution theory and self-efficacy that contribute to small businesses success or failure will be useful to practitioners. Some research suggests that attribution theory accounts for psychological factors and has been linked to small business failures. “Attribution theory” attempts to explain the human behavior of explanation.¹⁰³

A study of entrepreneurs found them inclined towards self-serving narratives concerning outcomes.¹⁰⁴ Attribution theory looked at three common errors or biases including blame the victim (people are blamed for their condition, rather than looking at elements); the actor-observer effect (tendency to see an individual’s own behavior as caused by situational factors); and self-serving attribution bias (taking credit for success while omitting responsibility for failure). They sampled three different groups: a specific sample of 189 pharmacy owners, 231 broad examples, and a third group comprised of 16 experts in entrepreneurship, graduates of an master’s in a business administration program, business counselors in a college-based entrepreneurship centers, and professors of entrepreneurship.

Findings confirmed that the broad group of business owners attributed external factors at a rate of 84 percent, while the pharmacist sample attributed a much higher number of 95 percent, compared with the expert panel at 72 percent.

The significance of the attribution theory when applied to the field of entrepreneurship is that the tendency to blame others or events “may arise from a desire

¹⁰³ Saul McLeod, “Attribution Theory,” 2010, <http://www.simplypsychology.org/attribution-theory.html>.

¹⁰⁴ Edward G. Rogoff, Myung-Soo Lee, and Dong-Churl Suh, ““Who Done It?” Attributions by Entrepreneurs and Experts of the Factors that Cause and Impede Small Business Success,” *Journal of Small Business Management* 42, no. 4 (October 2004): 364–376.

to be held harmless for poor management decisions.”¹⁰⁵ In other words, a small business entrepreneur is overdetermined to exhibit this self-serving bias to explain an absence of a business plan or business continuity planning. Rogoff’s research expands entrepreneurship education. It might be valuable to “alert entrepreneurs and aspiring peers to a possible bias that blames external factors for failure.”

Self-awareness is quite empowering and could be leveraged in the creation of educational materials. Rogoff’s conclusions confirm to entrepreneurs that success and failure depends “equally on her or his actions and may take greater personal responsibility in determining the business outcome.”¹⁰⁶

A second cognition theory influencing personal intervention that relates to small business entrepreneurs is self-efficacy. Self-efficacy is defined as “an individual’s beliefs about their capabilities to perform, and in turn, affect how people feel, think, motivate themselves and behave.”¹⁰⁷ Under this approach, people will make choices and determine how much time and effort will be spent persevering in the face of difficulties, based on their belief in the ability to perform that activity.

However, those who underestimate their capacity are easily discouraged by setbacks, while those who believe in their capacity will persevere until successful. Hurricane Katrina has prompted great insight in terms of both federal guidance and as a laboratory with very practical applications on disaster recovery for practitioners. For instance, a dissertation by Blake Escudier took a comprehensive look at different problems faced by small business entrepreneurs during Hurricane Katrina. Specifically, Escudier focused on the involvement of the Small Business Development Center as a key-supporting framework able to help mitigate further problems. The study used three variables, including the type of business (retail vs. trade), the time elapsed between the disaster, and the request for assistance during a two-year recovery period to provide

¹⁰⁵ Rogoff, Lee, and Suh, ““Who Done It?” 368.

¹⁰⁶ Ibid., 374.

¹⁰⁷ Albert Bandura, *Self-Efficacy*. vol. 4. ed. V. S. Ramachaudran (Waltham, MA: Academic Press, Encyclopedia of Human Behavior, 1994).

“evidence of affect on the ability of a business owner to recover from problems during a dynamic environment.”¹⁰⁸

The study underscores the relationship between the environment and the business owner’s self-efficacy, as it assumes that once small business entrepreneurs believe they are no longer capable of making a business decision, they will turn to outside assistance.¹⁰⁹ This information is relevant because it provides valuable clues as to how to strategically plan for those situations. The findings from the study revealed that small business’ responsiveness to problems during the recovery phase is a synthesis of the ability or experience of the owner and on the support available from outside organizations.

E. FINANCIAL INCENTIVES—BUREAUCRATIC HURDLES

Small business entrepreneurs comprise a significant portion of most local economies. However, tax policies, government regulation, or even excessive paperwork demands can disproportionately affect them.¹¹⁰ While a catastrophic event may cause immediate but temporary disruption to the daily pattern of life in a community, the same circumstances may cause immediate and permanent disruption to small businesses. Consider that in the past 20 years, starting with the Clinton administration to President Obama, presidential disaster declarations number 2,325.¹¹¹ The large number of disaster declarations affects a high number of employers, *since if one were to put all small businesses together they comprise the largest employer in the nation*. The SBA figures indicate that 27 million small businesses employ nearly 60 million people as of 2010,¹¹²

¹⁰⁸ Blake O. Escudier, “Louisiana Small Business Owner Stated Problems during Recovery from Hurricane Katrina: Outsider Assistance within a Dynamic Environment” (Ph.D. diss., Cappella University, 2009), 98.

¹⁰⁹ Ibid., 99.

¹¹⁰ Gaskill, LuAnn Ricketts, Howard E. Van Auken, and Ronald A. Manning, “A Factor Analytic Study of the Perceived Causes of Small Business Failure,” *Journal of Small Business Management* 31, no. 4 (October 1993): 18–31.

¹¹¹ Federal Emergency Management Agency, “Disaster Search Database,” accessed August 31, 2013, <http://www.fema.gov/disasters?action=Reset>.

¹¹² SBA Office of Advocacy, “Frequently Asked Questions about Small Business Finance,” September 2011, <http://www.sba.gov/sites/default/files/files/Finance%20FAQ%208-25-11%20FINAL%20for%20web.pdf>.

which represents 99.7 percent of all employer firms¹¹³ and creates 64 percent of net new jobs between 1993 and 2011.¹¹⁴ This situation indicates with considerable clarity the need to attend more to operational continuity for small businesses when a disaster interferes. Otherwise, the significant proportion of the economy that small business represents is left to founder, weak and almost helpless.

Not only does the collapse of small businesses after a disaster wreak havoc on the small business owners themselves, but after a disaster, business relocation and the ill effects on municipal budgets due to a diminished tax base is a major problem. For instance, after an earthquake, the city of Santa Cruz provided temporary shelters for businesses. Those businesses operated for up to three years in these temporary structures while storefronts were built.¹¹⁵ See Figures 3 and 4.

Figure 3. Pavilions as Temporary Housing for Local Businesses



Seven pavilions were erected with volunteer help from the Carpenter's and local unions while private companies donated materials and labor. Photographs courtesy of the City of Santa Cruz Public Works Department and Ray Sherrod. Source: "Remembering the 1989 Loma Prieta Earthquake," 1989, <http://www2.santacruzpl.org/gallery2/v/1989quake/rs007.jpg.html> and <http://www2.santacruzpl.org/gallery2/v/1989quake/Pw-016.jpg.html>.

¹¹³ SBA Office of Advocacy, "Frequently Asked Questions about Small Business Finance."

¹¹⁴ Ibid.

¹¹⁵ Committee on Homeland Security and Governmental Affairs, U.S. Senate, *Disaster Recovery: Past Experience of America's Small Business in Rebuilding Their Communities* (GAO-08-1120) (Washington, DC: U.S. Government Accountability Office, 2008).

Figure 4. Rebuilding of Downtown Santa Cruz



Source: “On Solid Ground, How Good Land Use Planning Can Prepare the Bay Area for a Strong Disaster Recovery,” February 2013, 18, http://www.spur.org/sites/default/files/publications_pdfs/SPUR_On_Solid_Ground.pdf.

In contrast, in the post-earthquake city of Watsonville (near Santa Cruz), many businesses moved to temporary quarters. A senior Watsonville official stated, “these business relocations continue to hamper the recovery of the downtown district almost two decades after the earthquake.”¹¹⁶

Similarly, revisiting Senator Landrieu’s inquiry into the 40 percent of small businesses failing after a disaster and what can be done to mitigate those failures¹¹⁷ leads inevitably to the bureaucratic hurdles and complicated filing process by the SBA and FEMA. Since most of the funds available from the federal government come in the form of loans administered by the SBA, the process can be cumbersome due to the lengthy application process, different documentation requirements, and technical language. Corey and Deitch point to Runyon’s work, in which small businesses “complained that the SBA was asking for three years’ worth of financial statements and tax returns, and how the

¹¹⁶ Committee on Homeland Security and Governmental Affairs, U.S. Senate, *Disaster Recovery: Past Experience of America’s Small Business in Rebuilding Their Communities*.

¹¹⁷ Albert Sligh, *Disaster Recovery: Evaluating the Role of America’s Small Business in Rebuilding Their Communities* (Washington, DC: Senate Hearing 112-722, 2011), 82–93.

process for receiving an SBA loan after Hurricane Katrina was too slow, with fewer than one percent of the 66,819 emergency loan applications sent to the SBA receiving approval.”¹¹⁸

Nevertheless, after a score of issues relating to paperwork after Hurricane Katrina, FEMA created an easier way to help expedite the application process through the disaster acquisition response teams (DARTs).¹¹⁹ DARTs are made up of contracting officers who have had training and experience in post-award executing contracts and engage with the local business community to identify products and services that can be provided locally, as well as providing on-the-spot technical assistance to small businesses. For instance, in Joplin, Missouri, DART members worked with the affected local businesses to comply with the eligibility requirements. A FEMA administrator commented, “Not only was this an opportunity for this business to contract with FEMA, but it was also a chance for this business to gain skills and approvals needed to successfully compete for government contracts in the future.”¹²⁰ Similarly, in Alabama, Mississippi, Tennessee, Kentucky, and Georgia, over 13 million dollars were awarded to local businesses and 90 percent of the local procurement initiatives went to small businesses.¹²¹ The DART is an important lesson learned from past disasters and an added value for small businesses, as they might not be well versed in federal contracting practices.

F. CONCLUSION

Planners and policy specialists will need to address a number of key considerations to engage small business owners in pro-active preparation for disasters. Components within the government already exist to support the challenges of business disruption. Nevertheless, a whole team that reflects the interest of the community can find ways to support and strengthen existing networks before an incident occurs.

¹¹⁸ Corey and Deitch, “Factors Affecting Business Recovery Immediately After Hurricane Katrina,” 172.

¹¹⁹ Sligh, *Disaster Recovery: Evaluating the Role of America’s Small Business in Rebuilding Their Communities*, 82–93.

¹²⁰ Ibid.

¹²¹ Ibid.

Local officeholders and responders will need to overcome concerns about oversight, budget constraints, and other practical barriers to achieve resilience. Incentives for small business engagement, including the deployment of best practices during a disaster response to show the value of both resiliency and public-private partnership, may be necessary to move small businesses toward deeper engagement and a commitment to continuity planning. Those issues are explored in the next section.

THIS PAGE INTENTIONALLY LEFT BLANK

III. PARTNERSHIPS AND PERSPECTIVES

The reasonable man adapts himself to the world; the unreasonable man persists in trying to adapt the world to himself. Therefore, all progress depends on the unreasonable man.

~ George Bernard Shaw,
Irish playwright and Nobel Prize winner

This chapter explores perspectives shaping policy to augment current mitigation and preparedness efforts while examining partnerships from recent disasters or initiatives based on a more comprehensive approach to align resources and stakeholders. These interrelated functions synch policy and practice, and serve as the framework from which the theoretical proposed model is derived.

A. PERSPECTIVES

This section analyzes the evolution of understanding the conceptual structures that have demonstrated relevance to disaster response studies. Newer conceptual structures, such as business continuity planning offer intriguing solutions to older and persistent problems. Many sources are informative, such as the sections of the 9/11 Commission report that relate to private sector resilience, response, and preparedness.

The word “perspective” is a compound from Greek sources, and means “through-seeing” in its root structure. Put another way, “where you stand depends on where you sit.”¹²² This chapter offers some methods to enhance resilience using existing resources within the homeland security penumbra.

1. Contingency Planning

In business, a disruptive event is inevitable.

Since the middle of the 20th century, “private business organizations have taken an increasing interest in emergency management, especially as it relates to their own

¹²² It has been attributed to many, perhaps most reasonably to Rufus E. Miles (1910–96).

business continuity.”¹²³ More actors on the continuum of emergency management are delving deeper into contingency planning, crisis management, emergency response, and risk management. For instance, the concepts of emergency management and business continuity planning (BCP) (referred to as “contingency planning”) have been integrated into DHS policies with the adoption of the National Fire Protection Association (NFPA) 1600 National Preparedness. Title IX of Public Law 110-53 implemented the recommendations of the 9/11 Commission on private sector preparedness, which targeted all hazards to business emergency preparedness and continuity.¹²⁴

The NFPA 1600 was a private/public sector strategic function to address the role of responsibilities and contributions in the private sector, and has evolved into the National Preparedness Standard. Contingency planning becomes key for any organization that wants to survive and prosper, which ultimately gives it an edge to the business. Under the 21st century challenges and the evolving threat landscape from terrorist attacks, pandemics, rising cost of natural disasters and cyber crime, more institutions are considering contingency planning to help protect their bottom line.

Further coordination becomes key since the interdependencies and escalating effects of an event have greater impact on the 16 critical infrastructure sectors,¹²⁵ and global interdependencies need to be better integrated across a diverse set of plans and structures. However, an often-cited challenge for organizations has been the lack of expertise in the implementation of contingency planning to bridge a cultural shift in terms of strategic plans.¹²⁶

¹²³ Lindell, Perry, and Prater, *Introduction to Emergency Management*.

¹²⁴ National Fire Protection Academy, *NFPA 1600 Standard on Disaster/Emergency Management and Business Continuity Programs*, 2013 ed. (Quincy, MA: National Fire Protection Academy, 2013).

¹²⁵ The Department of Homeland Security has designated sixteen Critical Infrastructure sectors under Presidential Policy Directive-21: Critical Infrastructure Security and Resilience to include: Chemical Sector, Commercial Facilities, Communications, Manufacturing, Dams, Defense Industrial Base Sector, Emergency Services, Energy, Water, Financial Services, Food and Agriculture, Healthcare and Public Health, Government Facilities, Information Technology, Nuclear Reactors and Transportation.

¹²⁶ Harold Kerzner, *Strategic Planning for Project Management Using a Project Management Maturity Model* (New York: Wiley, 2001); Lindell, Perry, and Prater, *Introduction to Emergency Management*.

Innovative contingency planning provides a more holistic combination of emergency management and business continuity anticipation by combining it into a model of proactive planning, preparedness, and mitigation. Although a no one-size-fits-all approach to developing more resilient business community exists, those businesses that identify risk and have a plan on how to encounter it may be better poised to respond accordingly and align resources. Moreover, under the fiscal constraints affecting municipal and state governments, this planning foresight is an added benefit since the jurisdiction is proactively and strategically engaging in preparedness or mitigation efforts. For instance, at the local level, the hazard identification and risk assessment and consequence analysis, and at the state level, the THIRA, are shaping policy to integrate the whole community and whole of government. The THIRA, in particular, provides a comprehensive alignment that not only focuses on the economic development component at the national level but incorporates regional and state concerns while targeting public and private partnerships to assist in the development of programs to enhance overall resilience.

Resources may or may not be present to meet community needs. Identifying needs is a *sine qua non* of authentic dialogue.

However, a diverse group of community members can challenge participation coordinators. Furthermore, contingency planning is used throughout the world, from transnational corporations to small and medium sized businesses. For instance, the International Federation of Red Cross and Red Crescent Societies (IFRC) stands as the quintessential example of collaborative work, with 189 national societies, one in almost every country in the world. Underlying their processes is contingency planning and preparedness as a core organizational goal based on their knowledge and expertise in disaster recovery, relief, and public-private partnerships.

In 2012, IFRC developed a contingency planning guide with the aim of supporting practitioners in developing simple plans, supported by preparedness actions and engaging. Organizational or entrepreneurial responses to events are undergirded by decisions, made in advance, about the management of different processes. These processes include human, financial, communication, resources, technical, and logistical

responses. Strategic planning on the part of the small business entrepreneur identifies the needs and processes involved in recovery, whether technical, security, insurance, or financial, providing a baseline of risk tolerance and time savings when an event occurs.

The model used by IFRC includes three key questions, can be adapted to anything from a small corner store to a Fortune 500 company:

- What is going to happen?
- What can be done about it?
- What can be done to prepare ahead of time?

This anticipatory posture is a key feature. Similarly, this posture relates directly with the THIRA since the alignment process involves planning, mitigation, and economic development that will target public and private partnerships to assist in the development of programs to enhance overall resilience.

2. The UK's Disaster Preparedness and Resilience Practices

The business engagement practices based on the model of government and business preparedness plans in place in the United Kingdom, and particularly in the United Kingdom's Cabinet Office (UKCO), are interesting. The United Kingdom is the fourth largest economy in Europe. Three-quarters of its economic activity involves the service sector.¹²⁷ For many reasons, the United Kingdom is an anomaly.¹²⁸

However, this anomaly has enhanced the country's disaster preparedness and resilience practices, which has made the country a model to be emulated. Following incidents in preceding years to draw attention to the importance of a culture based on resilience planning, the Cabinet Office enacted the Civil Contingencies Act of 2004 (CCA). CCA provides exigent measures for special legislative contingencies to deal with

¹²⁷ Nadav Morag, *Comparative Homeland Security: Global Lessons* (Wiley Series on Homeland Defense and Security) (Hoboken, NJ: Wiley, 2012), Kindle edition, 675.

¹²⁸ Ibid., 772–774.

the effects of incidents.¹²⁹ For instance, the governance framework in the United Kingdom started with the 2004 CCA by requiring emergency responders in England and Wales to cooperate to maintain a public Community Risk Register. The Register delineates duties for small business including a duty to assess risk and to maintain emergency plans and promote business continuity.

The primary goal of these efforts is to identify the relationship between planning and coordinating for emergencies at the local and federal level. In 2008, the National Security Strategy expanded its comprehensive effort to achieve resilience by creating a National Risk Register (NRR) and the National Risk Assessment (NRA). Both documents provide guidance to businesses in preparing for civil emergencies by drawing on expertise from several government agencies and departments on three broad categories: malicious attacks, major accidents, and natural events.¹³⁰ The implementation is guided by local resilience forums interpreting the risk from NRA and NRR in helping with their local assessment while underpinning emergency planning throughout the country. Across England and Wales, more than 42 local resilience forums ensure the delivery of actions under the CCA including risk profiles for an area through a Community Risk Register for emergency planning and promotion of business related activities.¹³¹

¹²⁹ Four reports provide the framework for the corporate resilience program including the Sector Resilience Plan. Cabinet Office, “Keeping the Country Running Natural Hazards and Infrastructure,” Gov.UK, last modified October 21, 2011, <https://www.gov.uk/government/publications/keeping-the-country-running-natural-hazards-and-infrastructure>; Cabinet Office, “Resilience In Society: Infrastructure, Communities and Businesses: How Networks and Individuals Can Support the Country’s Emergency Planning, Response and Recovery, and Keep Systems and Services Running,” Gov.UK, last modified February 20, 2013, <https://www.gov.uk/resilience-in-society-infrastructure-communities-and-businesses>; Cabinet Office, “Improving the UK’s ABILITY to Absorb, Respond to and Recover from Emergencies,” Gov.UK, last modified February 20, 2013, <https://www.gov.uk/government/policies/improving-the-uks-ability-to-absorb-respond-to-and-recover-from-emergencies#background>.

¹³⁰ Cabinet Office, “Risk Assessment: How the Risk of Emergencies in the UK Is Assessed,” February 20, 2013, <https://www.gov.uk/risk-assessment-how-the-risk-of-emergencies-in-the-uk-is-assessed>.

¹³¹ Cabinet Office, *The Role of Local Resilience Forums: A Reference Document* (London: Civil Contingencies Secretariat, 2013), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/62277/The_role_of_Local_Resilience_Forum-A_reference_document_v2_July_2013.pdf.

3. BENS and The National Business Emergency Operations Center

Entrepreneur Stanley A. Weiss founded the Business Executives for National Security (BENS) in 1982 as a non-profit, non-partisan organization dedicated to applying best business practices to national security problems. The organization is unique in that it advocated for greater partnerships so that government and industry could combine their strengths and protect institutions, private industry, and the general public from natural and manmade disasters across the five mission areas.¹³² However, some of the challenges BENS encountered can be summed in this quote,: “The premise is simple, and the implementation is difficult: Governors, state and local officials and private sector firms form working partnerships in various locales—strengthening relationships that transcend typical political and other boundaries of government and business relationships.”¹³³

In 2006, BENS was tasked by Congress to provide advice on how to build public-private partnerships and make recommendations to integrate private sector competencies into a national disaster response. A Task Force was created to develop the report “Getting Down to Business: An Action Plan for Public-Private Disaster Response Coordination,” providing several areas of recommendation to include greater public-private collaboration from planning to implementation, and targeting the regulatory and legal environment to remove barriers and create a more predictable system.¹³⁴

While BENS was magnifying the value of public-private partnerships and the vital role of the private sector, at the federal level, the Post Katrina Emergency Management Reform Act enhanced regulatory frameworks under FEMA and added greater capability to incorporate the private sector including small businesses. This hindsight influenced the state and municipal level in a tangible way, with most emergency operations centers having a private sector component and several states creating business emergency operations centers (BEOCs) within current infrastructure to

¹³² The National Preparedness Goal identified five mission areas (prevention, protection, mitigation, response and recovery), “Mission Areas,” last updated October 2, 2015, <http://www.fema.gov/mission-areas>.

¹³³ Laura Keehner Rigas, *National Advisory a Retrospective: BENS’ Impact on Public/Private Partnership* (Washington, DC: Business Executives for National Security, 2011).

¹³⁴ Ibid.

enhance operational capabilities.¹³⁵ For example, the Louisiana Business Emergency Operations Center (LA BEOC) combines the envisioned private sector involvement and academia including the Stephenson Disaster Management Institute, which established a Center for Business Preparedness to bridge the gap between research, business preparedness, and continuity of operations. Col. Booth from the Stephenson Institute stated, “We started looking at ways to exchange information with the private sector and work with them to help them back up to normal operations tempo as soon as possible.”¹³⁶ He stressed that it is of central importance to share lessons learned and then implement those lessons comprehensively.

The LA BEOC has the capability of a virtual BEOC platform to facilitate collaboration. At the federal level, FEMA created the National Business Emergency Operations Center (NBEOC) to augment the shared vision of resilience by building on successful partnerships.¹³⁷ The NBEOC was first activated in 2012 during Hurricane Isaac, and FEMA Administrator Fugate highlighted its successful role, stating “the NBEOC was incredibly well-received during response efforts from private sector stakeholders who applauded the communication and coordination gained through aggregation of multiple communications.”¹³⁸ The NBEOC acts as a force multiplier by sharing information, clearing roadblocks, and connecting the dots by engaging stakeholders for resources, capabilities, or expertise in a decentralized approach so that businesses are backed up and running as quickly as possible.

¹³⁵ Rigas, *National Advisory a Retrospective: BENS’ Impact on Public/Private Partnership*.

¹³⁶ Kate Lahey and Joey Booth, “Lessons from Louisiana, and a New Normal in Disasters,” *Australian Journal of Emergency Management* 29, no. 2 (2014): 54.

¹³⁷ “National Business Emergency Operations Center Fact Sheet,” accessed August 24, 2013, <http://www.fema.gov/media-library/assets/documents/28983?id=6437>.

¹³⁸ *Written Testimony of Federal Emergency Management Agency Administrator Craig Fugate for a Senate Committee on Appropriations, Subcommittee on Homeland Security field hearing titled “Hurricane Isaac—Assessing preparedness, response, and recovery efforts, Homeland Security*, accessed August 25, 2013, <http://www.dhs.gov/news/2012/09/25/written-testimony-fema-administrator-senate-committee-appropriations-subcommittee>

During Hurricane Sandy, the NBEOC dispatched liaisons to the private sector in Connecticut, New York and New Jersey, and Connecticut.¹³⁹ As the program continues, the challenge of managing expectations from both internal (FEMA) and external stakeholders will increase, as impacted regions will expect greater collaboration. Nevertheless, Deputy Associate Administrator Elizabeth Zimmerman cited that “only half of all US states have any type of private sector engagement for emergency management issues, and those efforts range widely in format, focus, level of effort, and sustainability.”¹⁴⁰ Local governments appear aware of the need to engage small businesses, as private sector engagement at the state level is clearly lacking, as Ms. Zimmerman’s comments indicate.

4. Florida—Emergency Support Function 18

The state of Florida has been at the vanguard of adoption of initiatives that support local businesses, by modifying the federal emergency support functions (ESF) to create a plan that integrates the business sector into emergency management functions. At the emergency operations center, the state has enhanced operational capacities. Florida created ESF 18 when two counties came together to promote business continuity initiatives as the support function for business and industry. In Escambia County, the Be Ready Alliance Coordinating for Emergencies (BRACE) combined its preparedness committee with Santa Rosa County’s Support Alliance for Emergency Readiness (SAFER) and its business continuity committee. SAFER was created as a way to continue community engagement and build on the work of the Long Term Recovery Organization formed after Hurricanes Ivan and Dennis.

To continue empowering the community, a plan was devised to create a Community Organization Active in Disasters, developed under the name SAFER. In 2010, it was comprised of 115 member organizations with a mission to “foster efficient,

¹³⁹ Elizabeth Zimmerman, *Deputy Associate Administrator for the Office of Response and Recovery Federal Emergency Management Agency before The Senate Homeland Security and Governmental Affairs Committee Subcommittee on Emergency Management, Intergovernmental Relations and the District of Columbia*, May 8, 2013.

¹⁴⁰ Ibid.

streamlined service delivery to people affected by disasters while eliminating unnecessary duplication of effort through cooperation in the four phases of disaster.”¹⁴¹ ESF 18 combines core groups from both counties to develop plans and implement programs that support small businesses. For instance, both BRACE and SAFER have subcommittees including the preparedness committee, which provides resources to organizations and individuals in preparedness efforts, including training, business continuity, case management, and volunteer support. The Business Continuity committee assists preparedness efforts, such as continuity of operations, logistical support, response and recovery efforts, which are engaged when an event is occurring. Also, representatives from SAFER have a seat in the emergency operations centers and are able to capitalize on online resources, including WebEOC, tools, templates, and a newsletter to apprise the business sector and community at large. Nevertheless, a problem often encountered by organizations is how to continue year-around engagement. SAFER, when not dealing with a hurricane or a flood, contributes to the community through one of several subcommittees and ad-hoc groups.

B. PARTNERSHIPS

It appears that a unified community response is decisive in creating the somewhat ephemeral characteristic of “resilience,” with the additional benefit of lowering costs of recovery. The next section discusses the case study that demonstrates a community is capable of extraordinary self-care, the case of Cedar Rapids, Iowa, in response to a flood in 2008.

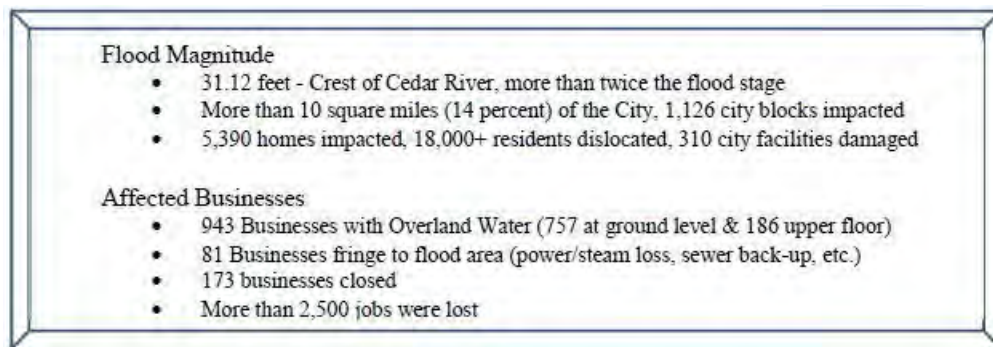
In addition, this writer discusses the vital role of flexibility in response options. The Cedar Rapids case has many micro-lessons to teach about the importance of involving everyone, what has come to be called the “whole community” method, structure, or approach.

¹⁴¹ Daniel Hahn, “How to Create a Public-Private Partnership: A Replicable Project Associated with Business Continuity,” *Journal of Business Continuity & Emergency Planning* 4, no. 3 (July 8, 2010): 278.

1. Leveraging Local Resources—Cedar Rapids Case

Recovery involves the private sector in the preparedness and recovery of the communities where they live, work, and operate in a comprehensive “whole community” approach. Cedar Rapids, Iowa was successful in leveraging local resources, including the counseling and case management from SBA’s resource partners with comprehensive sources of assistance, including counseling, credit, capital, investment, contracting, federal, grants, and insurance, creating community confidence and recovery. When a flood hit Cedar Rapids in 2008, the city experienced more than six billion dollars in damages to businesses, housing, and the city’s infrastructure, which made it the fifth-largest disaster in U.S. history.¹⁴²

Figure 5. Cedar Rapids Flood Magnitude and Affected Businesses



Source: The Cedar Rapids Area Chamber of Commerce, *First Business Case Management Program for A Natural Disaster, Iowa* (Cedar Rapids, IA: The Cedar Rapids Area Chamber of Commerce, 2012), 3.

Two innovative aspects of the Cedar Rapids effort make it a best practice and an example that more communities should follow. The community created the first business case management program that provided wrap-around services to the community. The Cedar Rapids Small Business Recovery Group (CRSBRG) developed as a grassroots economy recovery team by providing direct one-on-one assistance to flood-affected businesses, addressing roadblocks, the need for resources, helping one another, and

¹⁴² The Cedar Rapids Area Chamber of Commerce, *First Business Case Management Program for A Natural Disaster, Iowa* (Cedar Rapids, IA: The Cedar Rapids Area Chamber of Commerce, 2012).

providing a forum for business owners to voice concerns and share stories.¹⁴³ Perhaps the most impressive statistic was that the wrap-around services provided by the case managers improved the survival rate of businesses from 45 percent to 82 percent compared to national statistics at the three-year mark.¹⁴⁴ The team developed centralized damage assessment data and worked on developing a unified recovery strategy. Over a two-year period, a team of business professionals reached out to 1,230 businesses to determine flood status and recovery needs. For delivery of services, the team partnered with the SBA, Service Corps of Retired Executives (SCORE), SBDC, and the Safeguard Iowa Partnership to provide at least five engagements per business to a total of 565 engagements.¹⁴⁵

The CRSBRG was also complemented by the creation of a Community Working Capital Fund, which was a valuable asset:

Over \$6,000,000 was distributed to 330+ small businesses that helped them meet payroll, pay for clean-up and other disaster expenses. Many business owners cited this early financial assistance program as having saved their business, which came at a time when cash was depleted, revenues were considerably down, and disaster loans had not yet been finalized. Many of these businesses were operating on the owners' assets, which included cashing out investments and retirement accounts and use of personal credit cards.¹⁴⁶

Further analysis of the data (\$6,000,000 divided by 330+ business) reveals that about \$18,000 was allocated to each business. For a small business owner, this influx of cash makes a critical difference, sometimes the difference between survival and its alternative.

When dealing with such a fund, oversight is key since tension will occur from competing factors, and a fair structure and competent management will take precedence. For recipients, if funding has been exhausted, some might not be approved, which could

¹⁴³ The Cedar Rapids Area Chamber of Commerce, *First Business Case Management Program for A Natural Disaster, Iowa*.

¹⁴⁴ Ibid.

¹⁴⁵ Ibid.

¹⁴⁶ Ibid.

have dire consequences if this funding is their last resort. For investors and donors, the expectation is that their contributions are being effectively and efficiently utilized and that the process is transparent as possible.

A working capital fund for small businesses to access credit appears as the single most useful incentive that can be applied to fill the gaps in the economic recovery of the local community. Long-term disaster recovery requires economic development efforts at the community level. Reducing economic vulnerability through technical assistance enhances resiliency. Proper oversight is a critical element that allows communities to work through that process in a decentralized manner.

2. Resilience in Economic Development Planning

Along with the Cedar Rapids model, guidance released from the U.S. Economic Development Administration (EDA) on resilience in economic development planning from Colorado federally declared disaster 4145 provides helpful clues for both pre-and post-disaster environments. In September 2013, Colorado experienced extensive floods and landslides covering over eight jurisdictions (more than a third of the state), a death toll of 10 lives that resulted in the largest domestic evacuation since Hurricane Katrina.¹⁴⁷ Under the NDRF, six recovery support functions (RSF) that oversee and partner with other federal agencies to provide training, grants, or technical assistance; with the EDA is the lead agency for the economic RSF.

The Colorado process revolved around three key activities. The first is a team aggregating many years of disaster recovery experience, and guided by “best practices” approach (in disaster mitigation, economic recoveries, and resilience issues) synthesized a metric. The metric considers aspects of economic mitigation, preparedness, and recovery within 52 components that were used to review plans in the hardest-hit areas to identify the features that would highlight resiliency efforts.

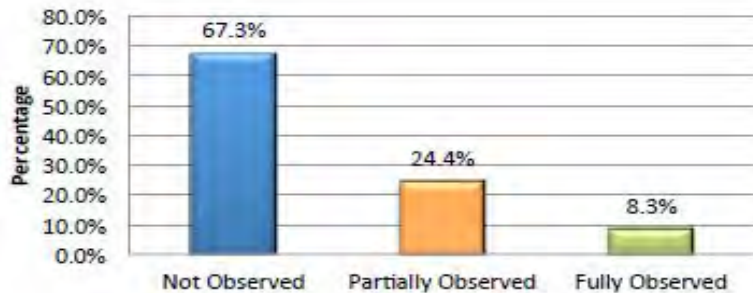
Second, the metric helped when reviewing local plans to identify trends and best practices documenting the “magic,” major strategies and initiatives for supporting

¹⁴⁷ U.S. Economic Development Administration, *Resilience in Economic Development Planning: Colorado Flooding: DR 4145* (Washington, DC: U.S. Economic Development Administration, 2014), 1.

economic recovery for jurisdictions. As part of the effort, the economic RSF teams developed a “mission scoping assessment.” The mission scoping assessment allows for a more ample understanding of the impact of a disaster by focusing on recovery challenges. Also, assessed are the short-term, intermediate and long-term capabilities of the local government, state, and private sector partners to sustain recovery efforts. The assessment provided a starting point for the development of a strategy based on assumptions derived from efforts to encourage economic development. The assessment helped organize the preliminary list of 80 affected municipalities into 25, within five larger regions. Nevertheless, not all 25 communities were able to participate. Some lacked personnel resources; some were constraint by time.¹⁴⁸ However, for the identified regions, plans were rated into three categories: “not observed,” “partially observed,” or “fully observed.”

Figure 6 illustrates the average percent of resilient metrics items rated as observed, partially observed, or fully observed:

Figure 6. Average Percentage of Resilience Metric Components by Rating



Source: U.S. Economic Development Administration, *Resilience in Economic Development Planning: Colorado Flooding: DR 4145* (Washington, DC: U.S. Economic Development Administration, 2014), 10.

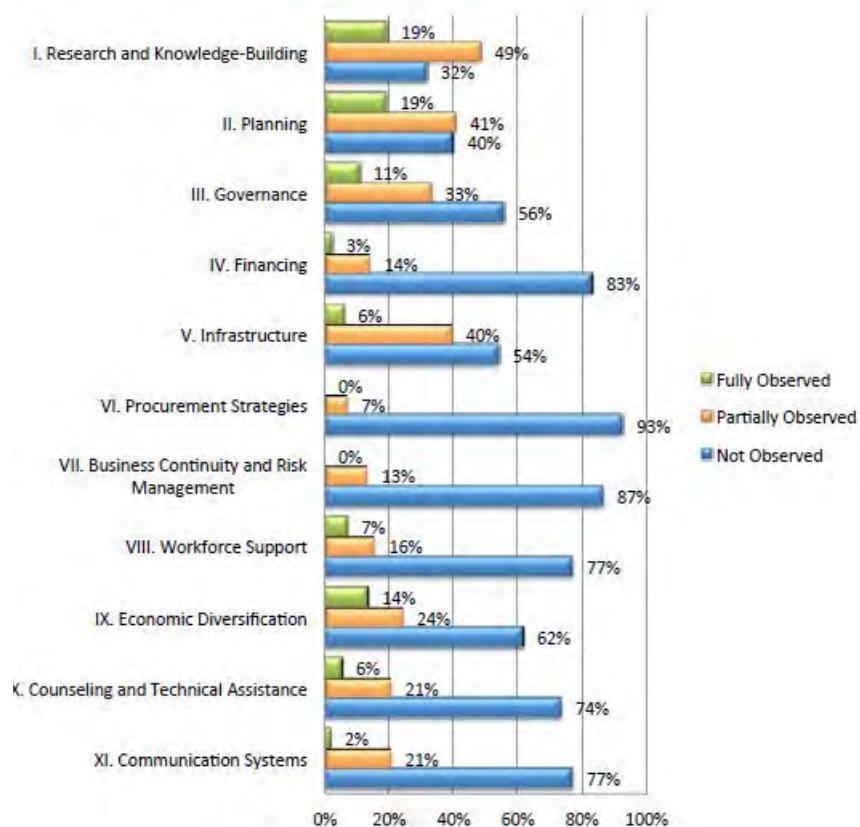
Lastly, plans were drafted to share the results of the plan reviews and recommendations were made for incorporating resilience into planning and recovery activities. It is worth noting that the majority of the businesses impacted in the five regions surveyed dealt primarily with small businesses. Consequently, the findings are

¹⁴⁸ U.S. Economic Development Administration, *Resilience in Economic Development Planning: Colorado Flooding: DR 4145*, 9.

congruent with drawbacks mentioned during the literature review that included lacking overall business and management capacity, with relative few capital and disaster preparedness strategies or methods preserving business continuity in place.¹⁴⁹

One of the most helpful clues from the mission scoping assessment tool and analysis of a recent catastrophe is that most participating communities expressed enthusiasm for the concept of economic resilience and want to learn more about how to incorporate it into their efforts. The 11 areas for economic resilience are illustrated in Figure 7.

Figure 7. Metric Area Evaluations Summary



Source: U.S. Economic Development Administration, *Resilience in Economic Development Planning: Colorado Flooding: DR 4145* (Washington, DC: U.S. Economic Development Administration, 2014), 11.

¹⁴⁹ U.S. Economic Development Administration, *Resilience in Economic Development Planning: Colorado Flooding: DR 4145*, 3.

Although all 11 factors are quite important, the most relevant to this thesis are planning, governance, financing, business continuity, counseling and technical assistance and communications systems. Some of the findings from the study suggest that plans did not address resilience factors, and “the concept of economic resilience is not fully understood by local economic development practitioners—an observation probably nationally applicable and not unique to Colorado.”¹⁵⁰

3. The City Resilience Framework

“100 Resilient Cities” is the philanthropic initiative that looks at a global perspective of making the world better by taking into account urban planning, climate change, and resilience for a more sustainable future. By 2012, the idea of resilience had expanded globally beyond climate change to include reduction of risk, financial strains, infrastructure issues, and assisting businesses to continue.¹⁵¹ This approach has enabled a comprehensive framework for 100 cities around the world, which created a baseline on the key elements that will make these cities more resilient. As always, national security issues also can provide perspective.

The word “resilience” was given a new meaning in the 1970s, expanding through a metaphor its connotations of elasticity and a capacity to resume a former state or shape “to describe the capacity of a system to maintain or recover functionality in the event of a disruption or disturbance.”¹⁵² The concept applies to intersecting systems. Under the City Resilience Framework, asset-based approaches are shortsighted and a focus on intangible assets, such as culture, social networks, and knowledge, takes a much-needed longer perspective. Thus, resilience should focus on abetting the performance of the overall system when dealing with disruption. Asset-loss prevention is “fighting the last war,” as opposed to looking forward.¹⁵³

¹⁵⁰ U.S. Economic Development Administration, *Resilience in Economic Development Planning: Colorado Flooding: DR 4145*, 2.

¹⁵¹ Arup, *City Resilience Framework* (New York: The Rockefeller Foundation, 2014).

¹⁵² U.S. Economic Development Administration, *Resilience in Economic Development Planning: Colorado Flooding: DR 4145*, 3.

¹⁵³ *Ibid.*

To create a grounded framework, the Rockefeller Foundation selected six geographically diverse that either had suffered a major event or were addressing stresses that included Semarang, Indonesia; Surat, India; Concepcion, Chile; Cape Town, South Africa; and New Orleans, USA. The data identified 1,546 factors, physical and nonphysical, that contributed to the resilience of the cities among 12 different themes. Of those themes, “information and knowledge management” and “urban strategy and planning economic sustainability” are the most relevant to this paper, followed closely by “business support” and “strong social networks/social stability” and security, including law enforcement and emergency management. Perhaps more importantly, the availability of financial resources and contingency funds was critical to attract businesses and provide access to an emergency fund.

The framework analysis highlighted the responsibilities the private sector and city government share. “The private sector has a complementary responsibility to develop business continuity plans to ensure that businesses can also function during, and recover from, emergencies.”¹⁵⁴ However, city governments can enhance public safety by maintaining dialogue and strengthening networks between participants.¹⁵⁵

One of the overall findings was that resilient cities are resourceful and able to access funds through grants from non-governmental and business sources. However, a sub-indicator that underpins this area is *business continuity planning*. The continuity of critical services can only be enhanced by cross-sector collaboration that aligns multiple stakeholders, including the private sector and, where they exist, universities to solve city problems.

The framework aims to capitalize on sharing knowledge and “best practices.” Research shows a correlation between a city’s overall competitiveness and its resilience to climate risk.¹⁵⁶ For Surat, India, which is highly dependent on the diamond and textile industries, the exposure and vulnerability to heat stress, drought, and flooding can

¹⁵⁴ Arup, *City Resilience Framework*.

¹⁵⁵ Ibid.

¹⁵⁶ Anna Brown, *Designing Solutions for Climate and Resource Risk* (New York: The Rockefeller Foundation, 2014).

certainly undermine productivity. One of the activities mentioned in the report was the participation of chambers-of-commerce (the traditional locus of public/private dialogues). This approach empowers advocates by making resources accessible, and provides opportunities to the business community by making them active partners in recovery.

Under the City Resilience Framework, a resilience and competitiveness ranking leverages private assets and government towards efforts to address disaster planning and climate risk. Besides the ranking, the resilience framework combines the ground managers to advocate and coordinate activities called chief resilience officers. For instance, the chief resilience officer for the city of San Francisco discussed in an emergency management article that is not just about retrofitting buildings, but also taking an approach that looks at social and economic components. He noted the 7,000 people employed by the city's 2,300 small businesses work in buildings that "may not have continuity insurance or a viable way to recover."¹⁵⁷

As a resilience officer, his goal is to connect with the right groups and resources so that the entire network is involved. The program aims to create comprehensive long-term recovery plans that combine the private sector, including business continuity, and also to participate in a resilient plan. He states, "They'll ask, 'Why should I do that?' I'll say, 'What does it cost to be out of business for a day, a week, a month.' The math is simple: every dollar spent now saves four after a disaster."¹⁵⁸

C. CONCLUSION

Work on disaster resilience is not a new concept. Systemic innovations embrace the elements of essential intangibles, and convey the growing adaptation of systems to large-scale risks. The perspectives advanced by the BENS partnership/collaboration provided a set of recommendations to Congress spearheading greater public/private partnerships that can include the creation of local business emergency operations centers, and a national emergency operation center most recently used during Hurricane Sandy.

¹⁵⁷ Jim McKay, "Chief Resilience Officers: Coming to Your City? Chief Resilience Officers Begin to Guide Cities Toward a Future that's Better Prepared for Physical, Social and Economic Challenges," *Emergency Management*, September 12, 2014.

¹⁵⁸ *Ibid.*

Similarly, in Western Europe, the United Kingdom is marshaling interdependent systems based on metrics, assessments, and collaboration to work in tandem for small business entrepreneurs aligning resources during future challenges. However, government intervention is usually insufficient for a robust recovery. The partnerships models used in Florida, Cedar Rapids and Colorado included local groups and resources to help communities with residential, operational, and workplace challenges. The philanthropic collaboration involving the Rockefeller Foundation's 100 Cities analyzes information and knowledge management, and economic sustainability, and views business support and social networks as active participants.

All these frameworks are adapting to the continuing operating environment, and embedding resilience. Resilience includes a belief system—optimism that recovery is essential and possible—interacting with facts, the on-the-ground information. Preparation with resilience first involves addressing the stark reality that the prospect of a disruption is inevitable. All these perspectives and partnerships practices confront questions of how to create a culture of preparedness. Researchers are familiar with the principle that it is more cost-effective to prevent or mitigate the impacts of disaster through comprehensive efforts than it is to respond and recover. Political leaders, to say nothing of the general public, may have a less informed understanding. Although the NFPA is the established standard addressing contingency planning and preparedness, that agency is still adapting to the National Planning Frameworks.

Consequently, the moment is ripe with an emerging trend recognizing the need to enhance resilience through business preparedness (i.e., private/public preparation partnership). Recommending alternatives for implementation increases the nation's ability to renew normalcy and resume activity after a disaster. Such a model increases small business enterprises' capacity, improves the concept of an organization-wide continuity culture, and offers alternative economic planning options in light of potentially diminishing state and federal resources.

IV. PROPOSED MODEL

The previous chapters reviewed some of the complexities and challenges facing small business entrepreneurs and explored the contribution of different perspectives and partnerships on the rise. The adoption of all these frameworks combines lessons learned, and presents a more comprehensive approach to mitigation and preparedness efforts. It seems momentum is growing to address some of the many issues adumbrated throughout this work. This chapter delves into the current state of affairs of disaster preparedness and response and advances a model based on entrepreneurial principles to leverage what the writer coined the “hat trick approach” to enhance resilience. This approach combines community asset mapping, social network analysis and scenario planning; all readily available products to enhance the preparedness and disaster management cycle.

A. LIMITATIONS IN DISASTER PREPAREDNESS WITHIN U.S. SMALL-BUSINESS ENTREPRENEURS

In 2011, PPD-8 was enacted to strengthen the resilience of the nation, by optimizing available resources through National Planning Frameworks covering the preparedness mission areas describing how the “whole community” works together to achieve a resilient nation. Two primary driving factors are behind the National Planning Frameworks, public safety and economic development/recovery. Both are intended to improve public welfare by encouraging resilience.

U.S. policy and practices have shifted to be more inclusive by subscribing to an all-hazards approach to preparedness, response, and assessing a new category, resilience. The anticipation of threats is more possible than previously believed. A thorough analysis of response addresses outcomes regardless of the source of threat. However, in each of these areas, aligning policy and implementation has been a key challenge, especially given the constant changing operational environment.

“Disaster relief” responsibility is diffused among several federal agencies including FEMA and the SBA. Once the President (or, at times, an SBA administrator) issues a declaration, credit is extended through government programs. FEMA also can

provide housing grants or sometimes housing (the famous FEMA trailer). FEMA housing allowances are sometimes renewable. This linear approach fails to consider or include how small business owners/entrepreneurs are part of the overall preparedness goal and their role (if any) in preparedness or mitigation.

B. PROPOSED MODEL—WRAP-AROUND SERVICES BUSINESS INCUBATOR

Numerous illustrations demonstrate how small business owners are at an inherent, definitional disadvantage when it comes to disaster preparedness. Whether the setbacks come from flaws in the current frameworks, psychological factors, lack of planning, capacity, wrong messaging, or the need to incorporate new models, the reality is that the current situation is unsustainable, and thus, a “paradigm” has to be “shifted” by stakeholders. *Paradigms do not shift themselves*. The “perspectives and partnerships” section highlighted how many entities are, at present, working on components of resilience. Current efforts appear fragmented, or outside of the scope of small business entrepreneurs. Thus, the challenge remains as to how to coordinate resources, community assets, and technology to improve on the concerted efforts and emerging trend.

The small business incubator “wrap-around services” model is aimed at a conceptual restructuring that places the burden (back, in many, if not most cases) on small businesses for their own survival. Since “disaster policy in the United States continues to be reactive,”¹⁵⁹ the problem has been clear. Those entities that do not have mitigation (short-, and long-term strategies) added to preparedness efforts from the onset have and/or will suffer avoidable adverse consequences. In order to improve the nation’s resilience to disasters, the model proposed would proactively build preparedness into pre-existing frameworks. This arrangement allows for the model to tap into expertise and resources at the federal level and adapt knowledge of specific jurisdictional circumstances and capabilities at the local level. Some of the aims of the project would be to:

¹⁵⁹ Susan Cutter and Mary L. Zoback, “Improving the Nation’s Resilience to Disasters,” *Eos, Transactions American Geophysical Union* 94, no. 9 (2014): 89.

- Improve disaster response and self-sufficiency; thereby, reducing reliance on costly federal and state services;
- Establish strong relationships and improve communications. These communications are critical between sectors at all times in a disaster;
- Provide a venue for business collaboration and communications; and
- Increase preparedness and situational awareness; thereby, mitigating possible disruptions.

However, several steps would need to take place to accomplish these tasks. The dissertation, “Louisiana Small Business Owners Stated Problems during Recovery from Hurricane Katrina: Outsider Assistance within a Dynamic Environment,” was accurate, or prescient.¹⁶⁰ Escudier theorized small business owners would seek outside assistance once they reached the maximum point of stress. The work identified the lack of capacity of small business owners. It calls for a shift to involve pre-existing networks and relationships in a more comprehensive approach to disaster preparedness. For the new model to succeed, it has to build tangible results with intangible enhancements. Innovative public/private partnerships systems will probably combine the recognition of existing local cultural assets and traditions with embracing technology.

This model proposes adding a mitigation layer to the current framework of assistance. This writer has worked with multiple frameworks used by the SBA resource partners (Center for Women and Enterprise (CWE), SBDC, and SCORE). Based on experience and observations, a key flaw in practice in the current framework is the reactive, ad-hoc support structure. For instance, the resource partners’ counselor provides guidance to small business owners to make more informed decisions in several areas, including writing a business plan, financial literacy, accounting basics, social media, and best practices. Also, a client’s profile is reviewed and assessed based on the existing business plan and financial acuity. It involves a combination of assessments addressing threats, gaps, and capabilities to ensure that a solid and flexible business plan is in place.

¹⁶⁰ Escudier, “Louisiana Small Business Owner Stated Problems during Recovery from Hurricane Katrina: Outsider Assistance within a Dynamic Environment.”

However, no risk assessment, mitigation efforts, or education related to contingency planning is presented at any point until disaster strikes or funding becomes available due to a disaster. It is a major flaw and a missed opportunity to increase preparedness and capacity, since the small business entrepreneur is already engaged in the process. It is in the best interest of partners to provide preparedness training or materials, so that the client understands how small business entrepreneurs can become part of the solution by understanding the role to play in preparedness and how business continuity can make a difference.

Under the envisioned new model of action, mitigation and preparedness would be part of the services provided by the state or local jurisdiction's economic development agency with the local emergency management agency and private partners including local chamber coalitions, and related small business groups. These entities are nurtured through SBA's business counseling and outside resources to small business entrepreneurs. By aligning mitigation planning from the onset with planning divisions or departments, the federal entity supports the local capacity building and preparedness efforts; thereby, becoming part of the culture of doing business.

The proposed model would combine lessons learned and successful and/or instructive partnerships, including the Cedar Rapids and Colorado cases, public-private partnerships, and incentives. Cedar Rapids was unique in that it was able to leverage a community alliance to bring back businesses on the brink of bankruptcy to exceed all expectations, and more importantly, create community confidence and resilience.¹⁶¹ However, a major drawback with the Cedar Rapids case is that, in light of the fiscal realities facing government, duplicative or even similar it will take a broad partner coalition. The broad partner collaboration needed is similar to the structure used in the Colorado Flooding case, as an applicable tool for communities, state, and federal agencies to encourage translating knowledge into practice.

In Rhode Island following Hurricane Sandy, the NDRF was used when the state and FEMA marshaled federal resources. It built recovery capacity, and created a

¹⁶¹ The Cedar Rapids Area Chamber of Commerce, *First Business Case Management Program for A Natural Disaster*, Iowa.

“community recovery task force” charged with build long-term recovery capacity. State and local levels improved resiliency by developing a state disaster recovery framework, aligned with the NDRF that fulfilled the recovery functions under PPD-8.

The components that facilitated the framework were a broad partner network comprised of a broad group of government actors, the non-profit sector, and private industry. Some of the resources that these groups would leverage included funding, human capital, donated goods or services, supplies, equipment, space, subject matter expertise, technical assistance, viable information, and opportunities to share best practices.

Once established, the stakeholders would work together to develop comprehensive recovery strategies that address disaster recovery issues for all functional areas.¹⁶² Effective strategies provide for partner collaboration, socializing norms of self-sufficiency behaviors in response, and building resilience. In the envisioned model, the infrastructure built by the task force would be in the background supporting the efforts of small business entrepreneurs, but the preparedness and planning would be aligned from the onset. The approach works from the ground up, aligning with PPD-8 to look at a comprehensive way of improving preparedness and resilience based on state and local interdependencies, but supported by federal agencies including FEMA, SBA, EDA, and the third sector, including philanthropy.

This proposed model conceives entrepreneurs exploring, and then wielding preparedness as a tool. Survival capacity, especially of assets like data, expands through a similar concept of business incubators. Business incubators coordinate multiple assets. According to the National Business Incubation Association, business incubation quickens the growth of businesses with hands-on advice, or tactical support, such as office space or access to equipment or supplies.¹⁶³ Facilitating the growth of firms, their “graduates”

¹⁶² NDRF was published by Federal Emergency Management Agency in September 2011, and produced in collaboration with federal and state agencies, created six recovery support functions: economic, health and social services, housing, infrastructure, natural and cultural, and planning and capacity building.

¹⁶³ “What Is Business Incubation,” accessed August 30, 2014, http://www.nbia.org/resource_library/what_is/index.php.

have a sustainability plan and help to create jobs, engage the community, and strengthen local economies. Empirical evidence suggests that incubators have succeeded in stabilizing small businesses and stimulating the local economy.¹⁶⁴

Some of the intangible benefits from small business incubators include cross-fertilization of ideas, sharing of business practices, new methods, and technology. For instance, after the 1989 earthquake, Watsonville, California, used federal and state support to recruit and economically support a major retail department and other small businesses, including the creation of a non-profit small business incubator with grant money to facilitate small business start-ups in the business district.¹⁶⁵ According to Steve Blank,¹⁶⁶ “No business plan survives first contact with customers.”¹⁶⁷

Business plans are conceived, expressed on paper, and might be powered by a great idea. The same plans may also be full of hypotheses and guesses. However, as previously mentioned, a business incubator model provides practical wrap-around services based on information from business owners to aid the researcher’s answer to several of the questions similar to the startups implementation phase that could be changed to achieve a better product. It is more commonly known as pivot (major change to one or more elements of the business model) or iterate (repeat, but with a small adjustment). The likelihood that a business will fare better than a business with no contingency planning is increased.

Furthermore, similar to a business incubator, the envisioned model would provide hands-on support through wrap-around services in general categories, such as accounting, and business plan development. Plans involve technology, and perhaps even social media. However, as the word “focus” means “hearth” in its original form, the focus

¹⁶⁴ Laura Reese, “Small Business Incubators,” Municipal Economic Development Toolkit, 2008. www.Municipaltoolkit.Org.

¹⁶⁵ Natural Hazards Center, *Holistic Disaster Recovery, Ideas for Building Local Sustainability After a Natural Disaster* (Boulder CO: University of Colorado, 2001).

¹⁶⁶ Steve Blank, “No Plan Survives First Contact with Customers—Business Plans Versus Business Models,” steveblank.com, April 8, 2010, <http://steveblank.com/2010/04/08/no-plan-survives-first-contact-with-customers-%E2%80%93-business-plans-versus-business-models/>.

¹⁶⁷ This is a paraphrasing of Helmuth Von Moltke’s “No operation extends with any certainty beyond the first encounter with the main body of the enemy.”

would be on preparedness and business continuity planning as the hearth of the village, the origin of trade, the *sine qua non* of social vitality. The setup of wrap-around services aligned with preparedness efforts is helpful towards planning because systems otherwise prohibitive to small business entrepreneurs become available. The added value is that these resources combine science-based capacity with community awareness goals.

It appears techno-metric risk mitigation reduces community vulnerabilities to economic or other environmental challenges. One of the reasons cited for small businesses vulnerability to disasters is the lack of adaptive business management models.¹⁶⁸ As mentioned in the problem space section, small business entrepreneurs face cultural, organizational (planning), and bureaucratic hurdles, as well as financial restrictions that impede the use of technology-based measures to enable greater integration. Nevertheless, similar to a business incubator, small business entrepreneurs could use science-based tools including social network analysis, community asset mapping, and scenario mapping to harness innovation consistent with the growing importance of information sharing.

C. PROMOTING RESILIENCE THROUGH THE HAT TRICK APPROACH: SOCIAL NETWORK ANALYSIS, COMMUNITY ASSET MAPPING, AND SCENARIO PLANNING

When the word “resilience” is subjected to scrutiny, its pivotal metaphor is found to be active. The word means “to jump again,” to return promptly to a former state.

Every community is different. Cedar Rapids displayed extraordinary unity and cooperation when disaster struck while New Orleans revealed deep divisions and institutional failures. This writer has found that understanding any community is necessary to any kind meaningful scenario planning. Likewise, scenario planning has to integrate any and all community assets. In turn, this writer has discovered, the community asset mapping is incomplete without a social network analysis.

¹⁶⁸ Hurricane Sandy Rebuilding Task Force, *Hurricane Sandy Rebuilding Strategy: Stronger Communities, A Resilient Region*.

To convey the urgency (which is packed into the word resilience already) of disaster preparation, this writer has settled on the term “hat trick” to evoke images of effort and accomplishment. In the following paragraphs, the need for a flexible combination of these three components is discussed.

1. Social Network Analysis

The affected community becomes the frontier of disaster relief. Communities have multiple pre-existing frame- and networks. Networks are increasingly prominent features in the organization of post-disaster economies following the envisioned decentralized approach established by the National Response Framework.¹⁶⁹ Small business entrepreneurs are far from a homogeneous group. If a metaphor is necessary, perhaps the kaleidoscope is closest. Their makeup is comprised of nearly 7.8 million women owners, and 6.1 million minority owners.¹⁷⁰ Moreover, 61.6 percent of workers have a disability, and 62.7 percent of the small business workforce has a high school education or less.¹⁷¹

“Social Network Analysis” (SNA) theorizes and provides methods that provide empirical content to social context.¹⁷² As the DHS broadened its responsiveness in response to Hurricane Katrina, early as 2009, the National Research Council, at the request of the DHS, was seeking guidance on the applications of Social Network Analysis for the purposes of enhancing civilian “resilience.”¹⁷³ The methods of SNA in community disaster resilience would help in the identification, strengthening, and construction of networks with the specific purpose of creating a baseline. It would also

¹⁶⁹ Hurricane Sandy Rebuilding Task Force, *Hurricane Sandy Rebuilding Strategy: Stronger Communities, A Resilient Region*.

¹⁷⁰ SBA Office of Advocacy, “Frequently Asked Questions,” September 2012, http://www.sba.gov/sites/default/files/FAQ_Sept_2012.pdf.

¹⁷¹ SBA Research and Statistics, “The Small Business Economy 2012,” Appendix A, http://www.sba.gov/sites/default/files/files/Appendix_A_2012.xls

¹⁷² Sean F. Everton, *Disrupting Dark Networks (Structural Analysis in the Social Sciences)* (Cambridge, UK: Cambridge University Press, 2012), Kindle edition, 819–820.

¹⁷³ Sammantha L. Magsino and National Research Council, *Applications of Social Network Analysis for Building Community Disaster Resilience : Workshop Summary* (Washington, DC: National Academies Press, 2009).

address knowledge gaps and expand research applicability to provide more flexible approaches to intervene at the different phases of the cycles. Emergencies and disasters cause chaos, and flexibility is vital for any attempts at management.

One of the highlights of the 2009 engagement by stakeholders was that “SNA is not being applied in ways that help local communities and practitioners.”¹⁷⁴ However, in the rapid technological realm, the work with SNA is nascent and can be leveraged to take proactive decisions based on readily available resources. For instance, SNA can be leveraged to collect data to assess patterns and trends, including monitoring change for broader engagement, identifying critical sectors through geospatial analysis, and providing programs and services for a community.

Applying these concepts to the Colorado flood disaster, SNA could have been leveraged to comply with the demands of the supply chain management to align local vendors and resources within affected jurisdictions. In the hypothetical example, situational awareness would be greatly improved and allow the small business prototype wrap-around service model to understand and measure the status of networks within their communities.

Much of the current social network launched in the 1930s. However, the Pentagon moved in this direction in the 1990s with concerns about Al Qaeda’s growing influence. The attacks within the United States in 1993, and later on the USS Cole, heighten a public awareness of national security. The value of social network theory is its explanatory and predictive capacities.¹⁷⁵ In disaster management, a premium is placed on the awareness of local vulnerabilities, needs, and resources.¹⁷⁶ The use of SNA with small business incubators would offer a strategic vision by drawing on a broader field of network science, agent-based models, and analytically enhanced standard methods.

¹⁷⁴ Magsino and National Research Council, *Applications of Social Network Analysis for Building Community Disaster Resilience : Workshop Summary*.

¹⁷⁵ Steve Ressler, “Social Network Analysis as an Approach to Combat Terrorism: Past, Present and Future Research,” *Homeland Security Affairs* II, no. 2 (July 2, 2006), <http://www.hsaj.org/?fullarticle=2.2.8>.

¹⁷⁶ Committee on Private-Public Sector Collaboration to Enhance Community Disaster Resilience, Geographic Science Committee, National Research Council, *Building Community Disaster Resilience through Private-Public Collaboration* (Washington, DC: The National Academies Press, 2011).

For instance, in “Applications of Social Network Analysis for Building Community Disaster,” the data pinpoints vulnerabilities, as illustrated by connecting all *possible* emergency responses in a community to *actual* response. The data gathered increases situational awareness of vulnerabilities within a geographic area. Emergency managers, economic development practitioners, and the community at large, will have to make more informed decisions about sustainability and mitigation. Furthermore, at the local level, the data collected augments the hazard identification and risk analysis to enhance the understanding of trends and aid in finding tactical solutions.

In turn, the information moves up the hierarchy to the state, and ultimately, FEMA in conjunction with local stakeholders to provide a more comprehensive THIRA. THIRA supports a risk based planning process for jurisdictions in which local officials and partners have identified threat and hazards scenarios of particular concern to the region. After identifying the region’s core capabilities, the model estimates the scenarios’ projected damages. Then, with identified target goals for each core capability, the model sets set core targets. Equipped with this data, policy makers (at all levels) can introduce legislative and/or regulatory changes to enhance the government response to the (sometimes abrupt) needs of the community. However, it is unknown whether a baseline information of data about the network and their members exists.¹⁷⁷ Nevertheless, the inclusion of the relationships and attributes of SNA could foster resilience and build capacity for local small business entrepreneurs to be prepared for inevitable disruptions. Also, planning in the long-range for sustainable development can become easier.

2. Community Asset Mapping

Another science-based and innovative tool that can be combined with the benefits of SNA is the use of community asset mapping. John P. Kretzman and John L. McKnight argued that all people and all communities are skillful, creative, and capable and

¹⁷⁷ Magsino and National Research Council, *Applications of Social Network Analysis for Building Community Disaster Resilience: Workshop Summary*.

pioneered this community development philosophy.¹⁷⁸ The approach aims to build communities by mobilizing and using assets to develop a plan to solve problems, improve quality of life, and build resilient communities by honing effectiveness, building on assets present in the community, and fostering connections between individuals and organizations.

For instance, UCLA's Center for Health Policy Research published a community asset-mapping guide that highlights four distinct advantages to using community asset mapping, including that it builds current resources based on strengths and community resilience. Data can be used to enhance projects, fill gaps, develop, or improve services, including funding, and it empowers the community to participate to help uncover solutions.¹⁷⁹ All this information is helpful when starting a new program, and can provide better awareness of available resources and gaps. Furthermore, when dealing with a natural or man-made disaster, this community knowledge can help local resources push information to small business entrepreneurs to raise awareness about the availability of resources, share services, and improve capacity. At the state or local level, it can help coordinate the development and implementation of state post-disaster action plans, including the management of funding, innovative financing alternatives, and other resources for recovery and redevelopment.

At both levels, the added value is that this system can generate lots of participation (community knowledge) and improves stakeholders' buy-in. It also can increase the capacity within the community to care for its residents through strategic planning and community mobilizations. The theory includes the SoVI and its enhanced assessment of community capabilities and resources as a more comprehensive tool. However, drawbacks include the expense of the equipment, the generation of maps, and staffing.

¹⁷⁸ John Kretzmann and John McKnight, *Building Communities from the Inside Out: A Path toward Finding and Mobilizing a Community's Assets* (Evanston, IL: The Asset-Based Community Development Institute, Institute for Policy Research, Northwestern University, 1993).

¹⁷⁹ UCLA Center for Health Policy Research, *Asset Mapping* (Los Angeles, CA: UCLA Center for Health Policy Research, n.d.), http://healthpolicy.ucla.edu/programs/health-data/trainings/Documents/tw_cba20.pdf.

The Rockefeller Foundation's chief resilient officer (CRO) for Norfolk, Virginia has an approach to disaster resilience that is quite congruent with the concept of community asset mapping. The CRO is dealing with water and poverty through a whole community approach. His responsibility is to utilize "the Rockefeller framework ... to understand the community, assess its strengths and weakness, and then address each appropriately."¹⁸⁰ Also, the CRO is empowering the community to configure their personalized definition of resilience, notwithstanding the framework envisioned by the Rockefeller Foundation for the community to truly "own" the process. The philanthropist's ambition: "transform a well managed government into a well managed and resilient one going forward 20, 50, even 100 years."¹⁸¹ However, he cautions that to realize this transformation, all community members must know their importance as a stakeholder. *This means participation "from the bottom up."* This empowerment perspective is the type of cultural shift that will hopefully be achieved by accessing data and expertise.

3. Scenario Planning

In attempting to confront potentially dangerous uncertainty, scenario planning offers the business world a readiness model.¹⁸² Its roots come from military strategy studies under Herman Kahn in his work related to thermonuclear war.¹⁸³ According to FEMA's Strategic Foresight Initiative, scenario planning is a method used by the U.S. National Intelligence Council that considers a broad range of alternative possibilities for the future, and draws on a wide range of disciplines and interest. Some include psychology, politics, demographics, and economics to describe what is possible by looking at low-probability but high-consequence events to help with accounting for the unpredictability of real life. Scenario planning looks to drivers, such as technology or socio-economic factors; drivers that could change the way the world works. The result of

¹⁸⁰ McKay, "Chief Resilience Officers: Coming to Your City? Chief Resilience Officers Begin to Guide Cities Toward a Future that's Better Prepared for Physical, Social and Economic Challenges."

¹⁸¹ Ibid.

¹⁸² "Scenario Planning," accessed September 2014, <http://www.netmba.com/strategy/scenario/>.

¹⁸³ Ibid.

a scenario analysis is a group of plausible although discrete futures to propose a challenging way going forward.

Royal Dutch/Shell, as well as Pierre Wack, may have pioneered scenario planning in the late 1960s and early 1970s. Afterwards, other corporations followed suit, including Motorola, Accenture, and Disney.¹⁸⁴ This rapid growth can be attributed to widespread dissatisfaction with frameworks for planning, as organizations recognized the error of adopting previous models. On a corporate level, Shell had a contingency plan in 1973, and was one of the first corporations to understand the potential of scenario planning. The 9/11 attacks are a shorthand for the public psyche's greater uncertainty about the 21st century threat landscape.

These events only increased the appeal of scenario planning. For instance, scenario planning was used by only 40 percent of companies, but by 2006, the number had risen to 70 percent.¹⁸⁵ Also, the New York Board of Trade resolved in 1993, after scenario planning, that somewhere other than the World Trade Center, it would want to build a second trading floor. That foresight made a difference in the continuity of operations after 9/11, and was the major impetus to create a third trading floor.¹⁸⁶

Van der Heijden, in his book, *Scenarios*, discusses strategic ways for organizations to increase capacity by anticipating trends and insights about the world. He posits “if the organization can react a little faster than its competitors to environmental impulses, seeing dangers and opportunities a little earlier, then it has a preferential position in the battle for survival.”¹⁸⁷ This understanding is not intuitive, but comes from strategic posturing to build resilience by using scenario-based planning, as it “uses a set of different but equally plausible futures, as a suitable way to characterize the environment and understand the uncertainty.”¹⁸⁸

¹⁸⁴ Angela Wilkinson and Roland Kupers, “Living in the Futures,” *Harvard Business Review* 91, no. 5 (2013): 118–27.

¹⁸⁵ Tim Hindle, *The Economist Guide to Management Ideas and Gurus* (Hoboken, NJ: Bloomberg Press, 2008).

¹⁸⁶ Darrell Rigby, “The Next Best Thing to A Crystal Ball,” *Forbes*, 2007.

¹⁸⁷ van der Heijden, *Scenarios: The Art of Strategic Conversation*, 7167–7168.

¹⁸⁸ *Ibid.*, 7185–7188.

This method of dealing with uncertainty becomes more manageable as scenario planning provides a strategy to adopt in a wide range of possible futures, giving a glimpse into different scenarios completely separate from the others. This key strategic insight is the important “what if” question helping to identify unforeseen issues and challenges. Some of the advantages of such scenarios are that they strengthen the business incubator’s strategic management toolbox, as traditional methods tend to focus on the memory, while scenario planning requires vision.

Responsiveness, flexibility and a competitive advantage require vision, as well as memory. David Godschalk’s work on urban resiliency discusses the added value of scenarios, “Planners and emergency managers would prepare businesses and financial institutions to cope with disasters by describing potential scenarios in which business is interrupted following a disaster and enlisting business leaders in private sector mitigation programs.”¹⁸⁹

4. Analysis and Application

Similar to Wack’s foresight, by understanding the potential future environment, small business entrepreneurs can anticipate risk, and support decisions about preparedness efforts. The economic development agency can better assess cycles within supply chain management, and adapt strategically, to these changes and their potential effects to provide a more accurate picture for small business entrepreneurs. The business incubator model could increase capacity for small business entrepreneurs to discuss hypothetical scenarios to see how an incident may impact business depending on the different variables proposed. The exercise could be as simple as breaking down the small business entrepreneurs present in groups and having them respond to a scenario-based event. The added value is that the simulation confronts the complexity of today’s business environment.

At the same time, considering shifts in conceptions, globalization, changing demographics, and decentralized networks, the writer projects that the “hat trick” approach will gain prominence. All these variables are reshaping the social and cultural

¹⁸⁹ Godschalk, “Urban Hazard Mitigation: Creating Resilient Cities,” 141.

context within the operating environment of small business entrepreneurs, and require entirely new tools, capacities, and methods.¹⁹⁰

Although scenario planning and SNA have been used by the intelligence and military communities and large corporations, the applicability is wide ranging, which enables broader strategic thinking for small business entrepreneurs about key driving forces, including social, technical, economic, and environmental trends and the potential effects, and helps to focus on making better mitigation-based decisions. For instance, scenarios might depict parts fitting together and are key in planning for any organization, whether federal, state, tribal, or municipal governments. In fact, the statement “all disasters are local” is appropriate. Notwithstanding planning, a breakdown is likely to take place with much needed unavailable resources that results in chaos among stakeholders, and a public that is not attended to effectively.

The 21st century has brought increasingly unpredictable complex interactions. Nevertheless, scenario planning can provide foresight on arising threats, and mitigate them before an actual event. The multipurpose functionality can be used under numerous disaster situations depending on the geographic area (e.g., East Coast hurricanes vs. West Coast earthquakes or wildfires). The ultimate goal is offering insights for small business entrepreneurs potentially to shift the paradigm of the emergency management cycle and its interaction with risk-based technologies.

The range of possibilities becomes bound only by the imagination of the scenarios, driving small business incubators to enhance capacity of small business entrepreneurs. For instance, the hat trick approach could be utilized to plan for contingencies including the “what if” question, as well as to increase situational awareness of vulnerabilities within a geographic area based on THIRA priorities. All these game theory derivatives are practical for small business entrepreneurs because they help to create a strategy highlighting the power dynamics and interdependencies involved in creating a comprehensive plan. The added value is that it addresses the lack of capacity

¹⁹⁰ Federal Emergency Management Agency, *Strategic Foresight Initiative. Crisis Response and Disaster Resilience 2030: Forging Strategic Action in an Age of Uncertainty* (Washington, DC: Department of Homeland Security, 2012), 2.

for disaster relief through best practices that can in turn be added to a mitigation and preparedness policy. These tools challenge assumptions while encouraging innovation and long-range thinking, which ultimately addresses unforeseen gaps that will aid in decreasing the high failure rate of small business entrepreneurs after a disaster.

The wrap-around services model combines these tools. They relate to complex systems and connect critical nodes to usher in an alternative flexible enough to be replicated in any town USA while providing a cost-effective and valuable community asset for stakeholders. This model offers another opportunity to engage small business entrepreneurs leveraging already existing models and resources by empowering, and mobilizing support for a more resilient nation. For this model to work, a whole community approach of shared commitment to working across different sectors for mutual learning and participation must be established. The result could be a transformative event as a catalyst to build social capital and empowerment within the business community.

D. IMPLEMENTATION ISSUES

Humans are never more important to other humans than in a crisis. Simple, foundational decisions are critical and have long-lasting impacts. Events, such as the Bloomberg Administration's fatal fumbles during a 2010 snowstorm,¹⁹¹ create lasting mistrust in a community until a new story is told about a new response to the next storm.

The following section addresses the paradox of independence and interdependence among the small business community. Since a key feature of independent operators is an avoidance of formality, the various response plans need to include flexibility as a characteristic to ensure an appropriate response. By definition, a disaster is not controlled by policies or predictions. Cedar Rapids, and in isolated incidents in the Katrina response, demonstrated the vital need for coordination and the

¹⁹¹ Larry Mcshane, "Blizzard of 2010: Forecast Were Fuzzy, Buses Were Bungled, Plows Were Pathetic & Mayor Was Missing," *New York Daily News*, December 30, 2010, <http://www.nydailynews.com/new-york/blizzard-2010-forecasts-fuzzy-buses-bungled-plows-pathetic-mayor-missing-article-1.475326>. Although the nearly empty Broadway theatres were repeatedly plowed, more necessary routes, such as borough access points were not, and rescue calls went unanswered for over nine hours in some cases.

effectiveness that coordination can create. Small businesses not only contribute to the overall community resilience, they can marshal and increase the effects of their peers, as well as various other community stakeholders.

1. Stakeholders

One of the few consistent findings in homeland security is that *effective collaboration is the foundation of successful prevention*. The current literature and guidance dealing with resilience has been explored in the context of vulnerable populations or supply chain management assisting local governments, but lacks a focus on small business owners or building capacity through a collaborative decision-making framework.

To build a successful group of stakeholders, the *Dictator's Handbook* makes the argument that a leaders' power and longevity is dependent on the balance of power of three groups notwithstanding the environment: the interchangeableables, the influentials, and the essentials. With this framework in mind, the book explains how the term "dictatorship" refers to democracies where a powerful elite ("essentials") control the mechanisms of powers ("interchangeableables"), and typically, a small batch of "influentials." Meanwhile, in a democracy, in theory the structure is made up of a very large number of essentials and a very large number of interchangeableables, with the "influential" almost as numerous as the "interchangeableables."¹⁹²

Figures from the SBA suggest that 27 million small businesses are employing nearly 60 million people as of 2010, which comprise a major sector of the national economy and originate 64 percent of new jobs between 1993 and 2011.¹⁹³ The entrepreneurial challenge is to break down who makes up each one of the three categories of players described in the *Dictator's Handbook*. An environmental scan would suggest that the three groups break down into similar layers of local, state and federal resources. In that case, interchangeableables would be comprised of small business entrepreneurs, and

¹⁹² Bruce Bueno De Mesquita and Alastair Smith, *The Dictator's Handbook: Why Bad Behavior is Almost Always Good Politics* (New York: PublicAffairs), Kindle edition, 8.

¹⁹³ SBA Office of Advocacy, "Frequently Asked Questions about Small Business Finance."

community alliances (volunteer organizations active in disaster, community emergency response teams, non-profit organizations, etc.). The influentials encompass state level resources including policy makers (elected leaders), chambers of commerce, the CWE, SBDC, SCORE, etc. The essentials are comprised of federal resources including the SBA, DHS/FEMA, EDA, and the insurance industry.

Under the current power structure, the power is exerted from the top down. The paradigm shift is to empower small business entrepreneurs to exert power from the bottom up. After identifying the three groups, there are two customer segments, since the envisioned model serves both internal and external factions. One group is the businesses that would receive the wrap-around services from the incubator. The second group is the overarching environment and how those interactions feed into the incubator. Checkland's soft systems methodology¹⁹⁴ provides a helpful way to break down stakeholders through six taxonomic elements: customers, actors, transformation, worldview, ownership and environmental constraints. Also, guidance from the Urban Land Institute Advisory Panels is a great way to engage multiple practitioners including emergency managers, urban planners, architects, and planners among others. In fact, for over 65 years, the Urban Land Institute has provided services and employed strategic advice to communities on over 600 advisory services teams. Although the new framework combines federal guidance to coordinate and lead the delivery of services in affected jurisdictions, it is not intended to place undue burden or requirements on local or state stakeholders.

Similarly, *Disaster Resilience: A National Imperative*, from the National Academy of Sciences, combines a two-year effort sponsored by one community resilience group and eight (federal) government agencies. The report defines resilience and gives a snapshot of what that would look like, stating, "Resilience is rooted in the local community affected by disasters, it involves a wide variety of stakeholders, including the private sector, governments, academic, nonprofit groups-on local, state and national scales."¹⁹⁵ Overall, the report provides six recommendations, but the most

¹⁹⁴ Edson Robert, *Systems Thinking. Applied. A Primer* (Arlington, VA: ASysT Institute, 2008).

¹⁹⁵ Claire B. Rubin, "Report on Reports: Review of Disaster Resilience: A National Imperative," *Environment Magazine* (March–April, 2013).

relevant to the small business incubator model is that “federal, state and local governments should support the creation and maintenance of broad-based community resilience coalitions at the local and regional levels.”¹⁹⁶

2. Next Steps

Reese’s small business incubators suggest some essential issues to consider prior to implementation:

- Financial backing is a key consideration, since most incubators will not be self-sustaining for at least a decade.¹⁹⁷ However, philanthropy and public/private partnerships might be a way for long-term sustainability. Grants, research, and development funds are additional options. Moreover, a unique opportunity exists to put the framework into practice, since as of June 2014, President Obama announced the National Disaster Resilience Competition is allocating \$1 billion to communities that have experienced natural disasters. The “Community Development Block Grant Disaster Recovery” funds will administer the \$1 billion Disaster Relief Appropriations Act of 2013, which accounts for \$820 available to local and state governments that experienced a disaster in 2011–13. The effort is one more example of “increasing the nation’s resilience to disasters.”¹⁹⁸
- External expertise uses the information from community asset mapping and SNA to encompass private sector, academia, and local experts. For instance, the NBEOC can share best practices nationwide through its network of local and state BEOC. Also, large corporate retailers can share best practices with its smaller counterparts.
- Training and education materials created become part of an online library available to share knowledge and best practices in the field. Preparedness training is provided based on areas risk profile.
- The creation of a best practices catalogue with innovative practices and research in the field, to aid jurisdictions select those that fit best for them.

¹⁹⁶ Rubin, “Report on Reports: Review of Disaster Resilience: A National Imperative.”

¹⁹⁷ “Business Incubation FAQs,” accessed September 2014, <http://www.nbia.org/resources/business-incubation-faq>.

¹⁹⁸ “National Disaster Resilience Competition,” accessed September 2014, <https://www.hudexchangeinfo/programs/cdbg-dr/resilient-recovery/>.

3. Customization

Policy guidance dictates that government has three means to intervene in public-private efforts. Government (through policies) can create partnerships, mandate compliance, or offer incentives. The insurance industry and government interaction is interesting. The insurance industry has taken a more active role in preparedness and mitigation activities by creating initiatives and incentives. In some cases, this partnership has reduced deaths and property damage. Sometimes, injuries caused by natural disasters are susceptible to amelioration.

For instance, the Oregon Partnership for Disaster Resilience (OPDR) was based on the outcomes of a successful program in Rhode Island. The Institute for Business & Home Safety had administered that program. An Executive Order was signed in late 2000 to make Oregon a “showcase state for natural disaster risk reduction.” OPDR uses the NFPA 1600 as a benchmark when considering economic resilience designs.

Their fundamental vision is building on the concept of resilience by ensuring that all Oregon communities adapt when confronted with crisis and disasters. The engagement takes place through a partner network to prepare or mitigate disasters through long- and short-term strategies that include the private sector and business continuity planning. However, one of the key features in recovery planning embraced by the OPDR is the holistic approach that features responsibility-sharing between individuals, private industries, and state, municipal, and federal governments.

Furthermore, at the World Economic Forum, “Leveraging Growth for Equitable Progress” East Asia Conference, Adam Garrard, CEO of Willis Asia in Singapore, *discussed how a community-based insurance plan enables recovery by paying members as resilient targets are completed.*¹⁹⁹ This innovative approach was introduced by the insurance industry after many small businesses were unable to operate due to Typhoon Haiyan. At peak density, the typhoon had sustained winds of 195 mph/170 knots with

¹⁹⁹ Brown, *Designing Solutions for Climate and Resource Risk*.

gust to 235 mph/205 knots. Its damaged or swept away more than a million homes with a death toll of more than 6,300 people.²⁰⁰

4. Unknowns

In disaster preparation, as in business planning, understanding relevant processes is most helpful *before* making a decision. Convening a seminar with the stakeholders identified from the Task Force what works needs to be done. Competitive advantages to existing businesses are important to identify; also, how government involvement can help or hinder the maximization of new opportunities. Once a baseline understanding exists, a workshop presentation reviews the plan and scope of work with key partners. Figuring out how to gather the feedback from small business entrepreneurs and loop back to incorporate into the framework so that their needs are met leads to the importance of future research.

5. Future Research

A feasibility study is suggested to assess the market for the model, financial considerations, community buy-in, and additional resources. Based on that information, a pilot phase requires at least a year. This phase will collect sufficient data as to whether the model is helpful, whether the project is creating extra work without tangible benefits, whether a mutual learning experience is involved, and whether the arranged scope of services is appropriate to the needs of small business owners, who are vital members of the community.

²⁰⁰ Brian Lada, "Remembering Haiyan One Year After Landfall," AccuWeather.com, accessed October 10, 2014, <http://www.accuweather.com/en/weather-news/remembering-haiyan-one-year-af/37030167>.

THIS PAGE INTENTIONALLY LEFT BLANK

V. CONCLUSIONS

A. DISCUSSION—CHALLENGES AND AREAS OF CONTENTION

The literature review highlighted the current state of affairs, cross-governmental evolution, and system adaptation to address the growing narrative to enhance the nation's "resilience" through the goals of PPD-8. Considerable federal guidance, philanthropic and state and local efforts working in silos is available to mitigate the effects of disasters in communities.

Yet, with the current declining budgets and competition for resources, small business entrepreneurs (and the communities upon whom they depend) who pivot to more risk-based systems have a better situational awareness of their vulnerabilities and assets. This awareness over-determines their capacities for resilience. It is not a question of "if" a disaster strikes.

This thesis posits that a wrap-around services model is applicable as another tool in the growing resilience posture. Using this writer's hat trick approach (community asset mapping, social network analysis and scenario planning) can enhance planning and mitigation while building greater partnerships across a broad group of stakeholders. The goal, of course, is a more effective recovery thanks to the creation of community resilience. The method is a ground up approach taking into consideration social capital, resources, and a proactive, data-driven pro-planning stance for a more holistic approach to disaster resilience in pre- and post-environments. This added functionality relates directly to guidance from the National Mitigation Framework applying planning while embedding risk assessments to identify vulnerabilities, applying resources and considering economic factors and surrounding health, social services, natural and cultural capital systems.

The hard-earned wisdom that "all disasters are local" is at the heart of this thesis. This writer has observed some disaster effects, and recommends increasing whatever impetus exists to find ways to make capacity building easier while utilizing local resources.

In the recovery phase, product procurement can be augmented following guidance from the NBEOC (from lessons learned both during Hurricanes Isaac and Sandy). Tapping into the local economy, vendors and local chambers of commerce provides resources “from the ground up” by defining the “ground” as the existing commercial environment and ensuring their involvement. The culture chapter examined some of the underlying conditions that might be attributed to processes or may impede small business entrepreneurs’ viable options.

Corporations have embedded proactive analysis as a strategy to mitigate risk. For instance, damages due to natural disasters can be easily insured against, or electrical failures can be mitigated by redundant backup generators. Losses due to lack of preparedness are harder to identify and can result in costly downtime for the business, as well as loss of customer activity, and in the worst cases, closure. Still, preparedness places planning as an individual responsibility is mostly expressed by the 72 hours of self-sufficiency expected by FEMA.

B. POTENTIAL AREAS OF FURTHER INQUIRY AND RESEARCH

As the concept of resiliency expands into the marketplace of ideas, further inquiry on marketing and branding for small business entrepreneurs is needed since the current space lacks significant data. Although the literature suggests a large body of research for larger firms, tailored programs for small business entrepreneurs await future implementation. Through analysis of different aspects of homeland security, a model was advanced and the following recommendations will aid towards those efforts:

1. Recommendation 1

A feasibility study would determine whether the wrap-around services model makes sense. The areas that would be further examined would be organizational, technical, and financial issues involved in the process. For instance, since the Stafford Act (42 USC §§ 5121 et. seq.) governs how the nation responds to disasters and emergencies, several sections are pertinent to the model and could perhaps be used for funding including the following sections.

- § 307 “Local Firms,” this section states in part that local firms would be provided priority. § 315 “Availability of Materials” is relevant due to supply chain management considerations—§§ 307 and 315 could be utilized to strengthen local economies and build upon highly successful “buy local” efforts nationwide by ensuring contracts or agreements with local private entities, and prioritizing a bottom up approach that benefits local efforts. The establishment of agreements with local food chains necessitates identifying vendors to supply equipment, consumable supplies, and related support. In most jurisdictions, these efforts are in tandem with the state agency in charge of commerce/economic development to provide local support. Also, the coordination of the web emergency operations center can aid in the prioritization of resources at the state level while communicating with the federal level through VBEOC. Nevertheless, exclusion and/or policies that diminish competition should be carefully assessed.
- § 629 “Minority Emergency Preparedness Development Program”—fits nicely with local efforts to increase minority participation in minority business enterprises, women and minority business enterprise programs, as well as encompassing services provided by the SBA resource partners (SBDC, CWE & SCORE). The whole community is comprised of a very diverse group, and similar to small business entrepreneurs, an involvement of partners needs to continue, such as local chambers of commerce, ethnic chambers and/or coalitions, such as the Hispanic Chamber of Commerce, African Alliance, Hmong business groups enhancing partnerships with non-traditional stakeholders, and government agencies at the state level to integrate preparedness and mitigation planning efforts better. A strategy that takes into consideration the needs, as well as the assets of the whole community when mapping, can highlight strengths in the different networks. For instance, the integration of small business owners in certain areas that speak the same language can help improve overall communication and resource allocation in an emergency while complying with language from the Act. Furthermore, (NPS) Center for Homeland Defense and Security (CHDS) program and academic institutions are actively studying preparedness and can help in enhancing this model or creating similar structures to help inform operational and strategic planning.

2. Recommendation 2

Online tools—As of the writing of this thesis, a program from Broadband Rhode Island was putting together an Online Business Incubator aimed at providing an online resource for urban entrepreneurs to succeed with three specific goals: (1) growing businesses, (2) mentors and tools, and (3) online feature with a flexible and scalable

model.²⁰¹ These areas build the capacity of the neophyte (or overwhelmed) entrepreneur in specific business content from financial planning, marketing, operations, to resources and a supportive structure linking small business entrepreneurs to more established business sectors. The preparedness and mitigation pieces are the features that would be added to the curriculum for the state's economic development agency to have a more comprehensive approach. However, curriculum development would have to be created and due to its complicated nature, it is beyond the scope of this research. Nevertheless, the aim is to add a cost-effective, workable model to the disaster resilience discussion.

Additionally, to the extent that disasters and mitigation can be modeled by computers, part of a public awareness campaign can include some simulations and dramatizations. Local schools of engineering can create models and landscapes for scenario meetings while marketing programs can assist in creating slogans and informational campaigns.

3. Recommendation 3

The creation of a unique subcommittee that tasks chambers of commerce, emergency management, planning and state actors to conduct a capability and asset assessment is recommended. Capability levels are dynamic, and the working group should plan to conduct future capability assessments and gap analyses, so that progress can be measured over time to improve the understanding of capabilities.

The subcommittee would be structured at the state level under the leadership of the economic development body and/or a government entity that has linkages to municipal and federal agencies. The main goal would be to evaluate how this public private partnership is able to address small business failure and create resilience by quicker restoration of any given business' operational capacity. The policy changes advanced would be incorporated into existing DHS literature, and as part of a broader outreach marketing campaign and with each assessment, more detailed information and data that incorporates more partners from the whole community.

²⁰¹ Stuart Freiman, "BBRI Online Business Incubator Program," Broadband Rhode Island, accessed May, 2014, <http://broadband.ri.gov/OurPrograms/OnlineBusinessIncubator/tabid/192/Default.aspx>.

C. CONCLUSIONS AND REFLECTIONS

The author began the thesis with the simple aim to “move the needle”²⁰² on the high number of small business owners failing due to a lack of post-disaster resilience. Even a small fluctuation in results can motivate and mobilize local, state, and federal entities to make changes to disaster policy. However, circularity seems to occur where government is biased toward large businesses because it favors traditional settings. Large businesses also enjoy access to government policy makers in ways that small businesses do not. The intrinsic value, or foundational assumption, or central principle of the national interest in helping small businesses grow, at any and all times when intersecting with government policy, seems self-evident.

Therefore, a conversation will continue among homeland security practitioners, community stakeholders, and local, state and federal resources on how small business owners can contribute to disaster resilience. The tools explored through the hat trick approach can be added to proactive mitigation efforts while combining preparedness for practitioners and entities. Nevertheless, funding mechanisms will continue to be a challenge.

The writer had a notion that the findings would be a process (as opposed to a product). He also anticipated some non-linear and/or counterintuitive elements since the topic involves many stakeholders, and complexity. Of course, some questions will remain for any community to exercise its own rights of self-determination in answering.

- What is the acceptable level of risk for any given community?
- What is the reasonable return on investment to expect for security measures to mitigate any given risk?
- What is the acceptable number of business failures a community can absorb?

²⁰² And to move that needle “in the right direction.”

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

- Ames, Michael. "Small Business Management." VETBIZ Resource Center. Accessed March 2013. http://www.vetbizresourcecenter.com/transition/Why_Small_Businesses_Fail.html.
- Arup. *City Resilience Framework*. New York: The Rockefeller Foundation, 2014.
- Ayyub, Bilal M., Gerald Galloway, and Angela Bernstein. *Developing Infrastructure & Community Resilience to Natural & Human-Caused Disasters: Shaping a Path to the Future*. College Park, MD: University of Maryland, 2013.
- Bandura, Albert. *Self-Efficacy*. Encyclopedia of Human Behavior. vol. 4. Edited by V. S. Ramachaudran, 1994.
- Beatley, Timothy. *Planning for Coastal Resilience: Best Practices for Calamitous Times*. Washington, DC: Island Press, 2006.
- Bellavita, Christopher. "Changing Homeland Security: What is Homeland Security?." *Homeland Security Affairs* 4, no. 1 (2008).
- Blanchard, B. Wayne. "Theory, Principles and Fundamentals of Hazards, Disasters and U. S. Emergency Management. Draft Sessions 1 and 4." Online Project Course, Federal Emergency Management Agency Higher Education, 2002.
- Blank, Steve. "No Plan Survives First Contact with Customers—Business Plans Versus Business Models." steveblank.com. April 8, 2010. <http://steveblank.com/2010/04/08/no-plan-survives-first-contact-with-customers-%E2%80%93-business-plans-versus-business-models/>.
- Boin, Arjen. "Disaster Research and Future Crises: Broadening the Research Agenda." *International Journal of Mass Emergencies and Disasters* 23, no. 3 (2005): 199–214.
- Brown, Anna. *Designing Solutions for Climate and Resource Risk*. New York: The Rockefeller Foundation, 2014.
- Cabinet Office. "Improving the UK's Ability to Absorb, Respond to and Recover from Emergencies." Gov.UK. Last modified February 20, 2013. <https://www.gov.uk/government/policies/improving-the-uks-ability-to-absorb-respond-to-and-recover-from-emergencies#background>.
- . "Keeping the Country Running Natural Hazards and Infrastructure." Gov.UK. Last modified October 21, 2011. <https://www.gov.uk/government/publications/keeping-the-country-running-natural-hazards-and-infrastructure>.

- . “Resilience in Society: Infrastructure, Communities and Businesses: How Networks and Individuals Can Support the Country’s Emergency Planning, Response and Recovery, and Keep Systems and Services Running.” Gov.UK. Last modified February 20, 2013. <https://www.gov.uk/resilience-in-society-infrastructure-communities-and-businesses>.
- . “Risk Assessment: How the Risk of Emergencies in the UK Is Assessed.” February 20, 2013. <https://www.gov.uk/risk-assessment-how-the-risk-of-emergencies-in-the-uk-is-assessed>.
- . *The Role of Local Resilience Forums: A Reference Document*. London: Civil Contingencies Secretariat, 2013. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/62277/The_role_of_Local_Resilience_Forums-_A_reference_document_v2_July_2013.pdf.
- Cedar Rapids Area Chamber of Commerce, The. *First Business Case Management Program for A Natural Disaster, Iowa*. Cedar Rapids, IA: The Cedar Rapids Area Chamber of Commerce, 2012.
- Centers for Disease Control and Prevention. “Deaths Associated with Hurricane Sandy—October–November 2012.” Accessed October 4, 2013. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6220a1.htm?s_cid=mm6220a1_w#fig.
- Chang, Stephanie E. “Disasters and Transport Systems: Loss, Recovery, and Competition at the Port of Kobe after the 1995 Earthquake.” *Journal of Transport Geography* 8, no. 1 (2000): 53–65.
- Chang, Stephanie E., and Rose, Adam Z. “Towards a Theory of Economic Recovery from Disasters.” Paper 203. *Published Articles & Papers*, 2012. http://research.create.usc.edu/published_papers/203.
- Childs, Donna R. *Prepare for the Worst, Plan for the Best: Disaster Preparedness and Recovery for Small Businesses*. Hoboken, NJ: John Wiley & Sons, Inc., 2008.
- Cline, Seth. “A Decade Later, Nightclub Fire Lives on: No Nightclub Blaze Rivaling the Station Fire has Occurred in the United States since.” *US World News*, February 20, 2013, sec. Press Past.
- Cohan, Peter. “Harvard’s Lion of Entrepreneurship Packs Up His Office.” *Forbes*. Accessed September 15, 2013. <http://www.forbes.com/sites/petercohan/2011/06/15/harvards-lion-of-entrepreneurship-packs-up-his-office/>.
- Committee on Homeland Security and Governmental Affairs, U.S. Senate. *Disaster Recovery: Past Experience of America’s Small Business in Rebuilding Their Communities*. (GAO-08-1120). Washington, DC: U.S. Government Accountability Office, 2008.

- Committee on Homeland Security House of Representatives. *An Assessment of the Post-Katrina Emergency Management*. Washington, DC: Printing Office, 2011.
- Committee on Increasing National Resilience to Hazards and Disasters, Committee on Science, Engineering, and Public Policy, and The National Academies. *Disaster Resilience: A National Imperative*. Washington, DC: National Academies Press, 2012.
- Committee on Increasing National Resilience to Hazards and Disasters; Committee on Science, Engineering, and Public Policy (COSEPUP); Policy and Global Affairs (PGA); and the National Academies. *Disaster Resilience: A National Imperative*. Washington, DC: The National Academies, 2012.
- Committee on Private-Public Sector Collaboration to Enhance Community Disaster Resilience, Geographic Science Committee, National Research Council. *Building Community Disaster Resilience through Private-Public Collaboration*. Washington, DC: The National Academies Press, 2011.
- Corey, Christy, and Elizabeth Deitch. “Factors Affecting Business Recovery Immediately after Hurricane Katrina.” *Journal of Contingencies and Crisis Management* 19, no. 3 (2011): 169–181.
- Cutter, Susan. “Temporal and Spatial Changes to Social Vulnerability to Natural Hazards.” *Proceedings of the National Academy of Sciences* 105, no. 7 (2008): 2301–2306.
- Cutter, Susan, and Mary L. Zoback. “Improving the Nation’s Resilience to Disasters.” *Eos, Transactions American Geophysical Union* 94, no. 9 (2014): 85–89.
- Cutter, Susan, Christopher G. Burton, and Christopher T. Emrich. “Disaster Resilience Indicators for Benchmarking Baseline Conditions.” *Journal of Homeland Security and Emergency Management* 7, no. 1, art. 51 (2010).
- De Mesquita, Bruce Bueno, and Alastair Smith. *The Dictator’s Handbook: Why Bad Behavior Is Almost Always Good Politics*. New York: PublicAffairs, 2011. Kindle edition.
- Dees, J. Gregory. “The Meaning of Social Entrepreneurship.” The Kauffman Center for Entrepreneurial Leadership. Accessed November 16, 2014. http://www.partnerships.org.au/Library/the_meaning_of_social_entrepreneurship.htm.
- Department of Homeland Security. *Homeland Security Policy Directive/HSPD-8, National Preparedness*. Washington, DC: Department of Homeland Security, 2003.

- Department of Housing and Urban Development. "National Disaster Resilience Competition." Accessed September 2014. <https://www.hudexchange.info/programs/cdbg-dr/resilient-recovery/>.
- Donella, Meadows. *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green Publishing, 2008, Kindle edition.
- Dorner, Dietrich. *The Logic of Failure: Recognizing and Avoiding Error in Complex Situations*. New York: Basic Books, 1997. Kindle edition.
- Eggers, William D., and John O'Leary. *If We Can Put a Man on the Moon: Getting Big Things Done in Government*. Boston: Harvard Business Review Press, 2009. Kindle edition.
- Egli, Dane S. "Beyond the Storms: Strengthening Preparedness, Response, & Resilience in the 21st Century." *Journal of Strategic Security* 6, no. 2 (2013): 32–45.
- Escudier, Blake O. "Louisiana Small Business Owner Stated Problems during Recovery from Hurricane Katrina: Outsider Assistance within a Dynamic Environment." Ph.D. diss., Cappella University, 2009.
- Everton, Sean F. *Disrupting Dark Networks (Structural Analysis in the Social Sciences)*. Cambridge, UK: Cambridge University Press, 2012. Kindle edition.
- Federal Bureau of Investigation. "Five New Orleans Police Officers Sentenced on Civil Rights and Obstruction of Justice Violations in the Danziger Bridge Shooting Case." April 4, 2012. <https://www.fbi.gov/neworleans/press-releases/2012/five-new-orleans-police-officers-sentenced-on-civil-rights-and-obstruction-of-justice-violations-in-the-danziger-bridge-shooting-case>.
- Federal Emergency Management Agency. "Business Continuity Plan." Accessed January 31, 2014. <http://www.ready.gov/business/implementation/continuity>.
- . "Disaster Mitigation Act of 2000." Department of Homeland Security. Accessed February 15, 2014. <http://www.fema.gov/media-library/assets/documents/4596>.
- . "Disaster Search Database." Accessed August 31, 2013. <http://www.fema.gov/disasters?action=Reset>.
- . "Mission Areas." Last updated October 2, 2015. <http://www.fema.gov/mission-areas>.
- . "National Business Emergency Operations Center Fact Sheet." Accessed August 24, 2013. <http://www.fema.gov/media-library/assets/documents/28983?id=6437>.

- . *National Mitigation Framework*. Washington, DC: Department of Homeland Security, 2013. http://www.fema.gov/media-library-data/20130726-1914-25045-9956/final_national_mitigation_framework_20130501.pdf.
- . “Protecting Your Business.” Department of Homeland Security. Last updated June 15, 2015. <http://www.fema.gov/protecting-your-businesses>.
- . *Strategic Foresight Initiative. Crisis Response and Disaster Resilience 2030: Forging Strategic Action in an Age of Uncertainty*. Washington, DC: Department of Homeland Security, 2012.
- . *Threat Hazard Identification and Risk Assessment. Comprehensive Preparedness Guide 201*. 2nd ed. Washington, DC: Department of Homeland Security, 2013. http://www.fema.gov/media-library-data/8ca0a9e54dc8b037a55b402b2a269e94/CPG201_htirag_2nd_edition.pdf.
- . “What Is Mitigation?” Department of Homeland Security. Accessed April 15, 2014. <https://www.fema.gov/what-mitigation>.
- Forbes, Nathaniel. “Contingency Planning for Earthquakes in Asia.” *Journal of Business Continuity & Emergency Management* 3, no. 4 (July 2009): 356–367.
- Freiman, Stuart. “BBRI Online Business Incubator Program.” Broadband Rhode Island. Accessed May 2014. <http://broadband.ri.gov/OurPrograms/OnlineBusinessIncubator/tabid/192/Default.aspx>.
- Furman, Phyllis. “Hurricane Sandy, One Year Later: Businesses Struggle to Survive.” *New York Daily News*, 2013.
- Gaskill, LuAnn Ricketts, Howard E. Van Auken, and Ronald A. Manning. “A Factor Analytic Study of the Perceived Causes of Small Business Failure.” *Journal of Small Business Management* 31, no. 4 (October 1993): 18–31.
- Godschalk, David. “Urban Hazard Mitigation: Creating Resilient Cities.” *Natural Hazards Review* 4, no. 3 (August 2004): 136–142.
- Hahn, Daniel. “How to Create a Public-Private Partnership: A Replicable Project Associated with Business Continuity.” *Journal of Business Continuity & Emergency Planning* 4, no. 3 (July 8, 2010): 274–285.
- Hecht, Jared. “Are Small Businesses really the Backbone of the Economy?” *Inc.Com* (December 17, 2014).
- Hilary Inyang, Terezinha Cassia de Brito Galvão, and David Young. “Integrating Hazard Control into Sustainable Development Plans.” *Natural Hazards Review* 4, no. 2 (2003): 57–58.

- Himayatullah, Khan, Laura Giurca Vasilescu, and Khan Asmatullah. "Disaster Management Cycle—A Theoretical Approach." *Management and Marketing Journal* 6, no. 1 (2008): 43–50.
- Hindle, Tim. *The Economist Guide to Management Ideas and Gurus*. Hoboken, NJ: Bloomberg Press, 2008.
- Homeland Security. "Plan and Prepare for Disasters." Accessed February 22, 2014. <https://www.dhs.gov/topic/plan-and-prepare-disasters>.
- Hurricane Sandy Rebuilding Task Force. *Hurricane Sandy Rebuilding Strategy: Stronger Communities, A Resilient Region*. Washington, DC: Department of Housing and Urban Development, 2013. <http://portal.hud.gov/hudportal/documents/huddoc?id=HSRebuildingStrategy.pdf>.
- International Business Innovation Association, The. "What is Business Incubation." Accessed August 30, 2014. http://www.nbia.org/resource_library/what_is/index.php.
- Keats, Barbara W., and Jeffrey S. Bracker. "Toward a Theory of Small Firm Performance: A Conceptual Model." *American Journal of Small Business* 12 (1988): 41–58.
- Keehner Rigas, Laura. *National Advisory a Retrospective: BENS' Impact on Public/Private Partnerships*. Washington, DC: Business Executives for National Security, 2011.
- Kerzner, Harold. *Strategic Planning for Project Management Using a Project Management Maturity Model*. New York: Wiley, 2001.
- Kretzmann, John, and John McKnight. *Building Communities from the Inside Out: A Path toward Finding and Mobilizing a Community's Assets*. Evanston, IL: The Asset-Based Community Development Institute, Institute for Policy Research, Northwestern University, 1993.
- Kroll, Cynthia A., John D. Landis, Qing Shen, and Sean Stryker. *Economic Impacts of the Loma Prieta Earthquake: A Focus on Small Businesses*. Working Paper 91–187. Berkeley, CA: U.C. Transportation Center and the Center for Real Estate and Urban Economics, University of California at Berkeley, 1991.
- Kunreuther, Howard, and Michel-Kerjan Erwann. "Challenge Paper: Natural Disasters." *Center for Risk Management and Decision Processes The Wharton School, University of Pennsylvania*, April 12, 2012. http://opim.wharton.upenn.edu/risk/library/CopenhagenConsensus2012_NaturalDistasters.pdf.

- Lada, Brian. "Remembering Haiyan One Year after Landfall." AccuWeather.com. Accessed October 10, 2014. <http://www.accuweather.com/en/weather-news/remembering-haiyan-one-year-af/37030167>.
- Lahey, Kate, and Booth, Joey. "Lessons from Louisiana, and a New Normal in Disasters." *Australian Journal of Emergency Management* 29, no. 2 (2014): 53–56.
- Lam, Nina S. N., Kelley Pace, Richard Campanella, James LeSage, and Helbert Arenas. "Business Return in New Orleans: Decision Making Amid Post-Katrina Uncertainty." *PLoS ONE* 4, no. 8 (August 26, 2009): e6765. doi:10.1371/journal.pone.0006765.
- Lindell, Michael K., Ronald W. Perry, and Carla Prater. *Introduction to Emergency Management*. Hoboken, NJ: Wiley, 2007.
- Longstaff, Patricia H. "Building Resilient Communities: A Preliminary Framework for Assessment." *Homeland Security Affairs* 6, issue 3 (September 2010).
- Lupo, Mark R. "Challenging the Why of Small Business Preparedness." *Disaster Recovery Journal* 27, no. 4 (2014).
- Magsino, Sammantha L., and National Research Council. *Applications of Social Network Analysis for Building Community Disaster Resilience: Workshop Summary*. Washington, DC: National Academies Press, 2009.
- McKay, Jim. "Chief Resilience Officers: Coming to Your City? Chief Resilience Officers Begin to Guide Cities Toward a Future that's Better Prepared for Physical, Social and Economic Challenges." *Emergency Management*, September 12, 2014.
- McLeod, Saul. "Attribution Theory." *Simply Psychology*. 2010. <http://www.simplypsychology.org/attribution-theory.html>.
- . "Maslow's Hierarchy of Needs." *Simply Psychology*, 2007. <http://www.simplypsychology.org/maslow.html>.
- Mcshane, Larry. "Blizzard of 2010: Forecast Were Fuzzy, Buses Were Bungled, Plows Were Pathetic & Mayor Was Missing." *New York Daily News*, December 30, 2010. <http://www.nydailynews.com/new-york/blizzard-2010-forecasts-fuzzy-buses-bungled-plows-pathetic-mayor-missing-article-1.475326>.
- Menzel Baker, Stacey. "Vulnerability and Resilience in Natural Disasters: A Marketing and Public Policy Perspective." *Journal of Public Policy and Marketing* 28, no. 1 (2009): 114–123.
- Morag, Nadav. *Comparative Homeland Security: Global Lessons* (Wiley Series on Homeland Defense and Security). Hoboken, NJ: Wiley, 2012, Kindle edition.

- Mullen, Corina. "Business Planning for Disaster Survival." *Chamber101.com*. Accessed August 24, 2013. http://www.chamber101.com/2programs_committee/natural_disasters/disasterpreparedness/Forty.htm.
- National Business Incubation Association, The. "Business Incubation FAQs." Accessed September 2014. <http://www.nbia.org/resources/business-incubation-faq>.
- National Fire Protection Academy. *NFPA 1600 Standard on Disaster/Emergency Management and Business Continuity Programs*. 2013 ed. Quincy, MA: National Fire Protection Academy, 2013.
- National Research Council. *Facing the Unexpected: Disaster Preparedness and Response in the United States*. Washington, DC: The National Academies Press, 2001.
- Natural Hazards Center. *Holistic Disaster Recovery, Ideas for Building Local Sustainability after a Natural Disaster*. Boulder, CO: University of Colorado, 2001.
- NetMBA. "Scenario Planning." Accessed September 2014. <http://www.netmba.com/strategy/scenario/>.
- Ostrom, Elinor. *Understanding Institutional Diversity*. Princeton NJ: Princeton University Press, 2005.
- Pan, Qisheng. "Economic Losses from a Hypothetical Hurricane Event in the Houston-Galveston Area." *Natural Hazards Review* 12, no. 3 (2010): 146–155.
- Paton, Douglas, and David Johnston. *Disaster Resilience: An Integrated Approach*. Springfield, IL: CC Thomas, 2006.
- Perry, Ronald W., and Michael K. Lindell. "Preparedness for Emergency Response: Guidelines for the Emergency Planning Process." *Disasters* 27, no. 4 (2003): 336–350.
- Perry, Stephen C. "The Relationship between Written Plans and the Failure of Small Business." *Journal of Small Business Management* 39, no. 3 (2001): 201–208.
- Phelps, Regina. "Lessons Learned from Hurricane Sandy." *Disaster Resource Guide*, 2014.
- Reese, Laura A. "Small Business Incubators." Municipal Economic Development Toolkit. 2008. www.Municipaltoolkit.Org.
- Ressler, Steve. "Social Network Analysis as an Approach to Combat Terrorism: Past, Present and Future Research." *Homeland Security Affairs* II, no. 2 (July 2, 2006). <http://www.hsaj.org/?fullarticle=2.2.8>.

- Ries, Eric. "Introduction." In *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*. 1–11. 1st edition ed. New York: Crown Business New York, 2014.
- . "Welcome to the Success Factory." *Management Today*. April 1, 2012. <http://www.managementtoday.co.uk/features/1124092/welcome-success-factory>.
- Rigby, Darrell. "The Next Best Thing to a Crystal Ball." *Forbes*, 2007.
- Robert, Edson. *Systems Thinking. Applied. A Primer*. Arlington, VA: ASysT Institute, 2008.
- Rogoff, Edward G., Myung-Soo Lee, and Dong-Churl Suh. "'Who Done It?' Attributions by Entrepreneurs and Experts of the Factors that Cause and Impede Small Business Success." *Journal of Small Business Management* 42, no. 4 (October 2004): 364–376.
- Rubin, Claire B. "Report on Reports: Review of Disaster Resilience: A National Imperative." *Environment Magazine*, March–April 2013.
- Runyan, Rodney C. "Small Business in the Face of Crisis: Identifying Barriers to Recovery from a Natural Disaster." *Journal of Contingencies and Crisis Management* 14, no. 1 (2006): 12–26.
- Santa Cruz Public Library. "Remembering the 1989 Loma Prieta Earthquake." 1989. <http://www2.santacruzpl.org/gallery2/v/1989quake/rs007.jpg.html> and <http://www2.santacruzpl.org/gallery2/v/1989quake/Pw-016.jpg.html>.
- SBA Office of Advocacy. "Brochure." 2013. http://www.sba.gov/sites/default/files/files/WEB_11_Advo_Brochure.pdf.
- . "Frequently Asked Questions." September 2012. http://www.sba.gov/sites/default/files/FAQ_Sept_2012.pdf.
- . "Frequently Asked Questions about Small Business Finance." September 2011. <http://www.sba.gov/sites/default/files/files/Finance%20FAQ%208-25-11%20FINAL%20for%20web.pdf>.
- SBA Research and Statistics. "The Small Business Economy 2012, Appendix A." 2012. http://www.sba.gov/sites/default/files/files/Appendix_A_2012.xls.
- Schrank, Holly L., Maria I. Marshall, Adrienne Hall-phillips, Renee F. Wiatt, and Nicole E. Jones. "Small-Business Demise and Recovery after Katrina: Rate of Survival and Demise." *Natural Hazards* 65, no. 3 (February 2013): 2353–2374.

- Sean Wilson, Bethany Temple, Mark Milliron, Calixto Vazquez, Michael Packard, and Bruce Rudy. "The Lack of Disaster Preparedness by the Public and it's Affect on Communities." *The Internet Journal of Rescue and Disaster Medicine* 7, no. 2 (2007). <http://ispub.com/IJRDM/7/2/11721>.
- Sligh, Albert. *Disaster Recovery: Evaluating the Role of America's Small Business in Rebuilding Their Communities*. Washington, DC: Senate Hearing 112-722, 2011.
- Smith, Daniel J., and Daniel Sutter. "Response and Recovery after the Joplin Tornado: Lessons Applied and Lessons Learned." *Social Science Research Network*, 2013. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2261353.
- SPUR. "On Solid Ground, How Good Land Use Planning Can Prepare the Bay Area for a Strong Disaster Recovery." February 2013. http://www.spur.org/sites/default/files/publications_pdfs/SPUR_On_Solid_Ground.pdf.
- White House, The. "Presidential Policy Directive-8, National Preparedness." Accessed October 8, 2014. http://www.dhs.gov/xabout/laws/gc_1215444247124.shtm.
- . *The Federal Response to Hurricane Katrina: Lessons Learned*. Washington, DC: The White House, 2006.
- Tjan, Anthony. "Vulnerability: The Defining Trait of Great Entrepreneurs." *Harvard Business Review*, October 6, 2009.
- U.N. Commission on Sustainable Development. *Natural Disasters and Sustainable Development: Understanding the Links between Development, Environment and Natural Disasters*. New York: U.N. Commission on Sustainable Development, 2002.
- U.S. Economic Development Administration. *Resilience in Economic Development Planning: Colorado Flooding: DR 4145*. Washington, DC: U.S. Economic Development Administration, 2014.
- UCLA Center for Health Policy Research. *Asset Mapping*. Los Angeles, CA: UCLA Center for Health Policy Research, n.d. http://healthpolicy.ucla.edu/programs/health-data/trainings/Documents/tw_cba20.pdf.
- Van der Heijden, Kees. *Scenarios: The Art of Strategic Conversation*. Hoboken, NJ: Wiley, 2011. Kindle edition.
- Waugh, William, and Kathleen J. Tierney. *Emergency Management: Principles and Practice for Local Government*. Washington, DC: International City and County Management Association, 2007.

- Webb, Gary R., Kathleen J. Tierney, and James M. Dahlhamer. "Business and Disasters: Empirical Patterns and Unanswered Questions." *Natural Hazards Review* 1, no. 2 (2000): 83–90.
- . "Predicting Long-Term Business Recovery from Disasters: A Comparison of the Loma Prieta Earthquake and Hurricane Andrew." *Environmental Hazards* no. 4 (2002): 45–58.
- Wilkinson, Angela, and Roland Kupers. "Living in the Futures." *Harvard Business Review* 91, no. 5 (2013): 118–27.
- Xinhua, Ban Wei. "Study Shows Dramatic Rise in Natural Disasters over Past Decade." *SINA English*, January 2010. <http://english.sina.com/technology/p/2010/0128/302222.html>.

THIS PAGE INTENTIONALLY LEFT BLANK

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
Ft. Belvoir, Virginia
2. Dudley Knox Library
Naval Postgraduate School
Monterey, California