HOW DOES FAMILY FIRM STATUS MODERATE THE RELATIONSHIP BETWEEN ORGANIZATIONAL READINESS FOR CHANGE AND ORGANIZATIONAL RESILIENCE IN TIMES OF CRISIS?

by

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A dissertation submitted to the faculty of
The University of North Carolina at Charlotte
in partial fulfillment of the requirements
for the degree of
Doctor of Business Administration

Charlotte

2021

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ABSTRACT

NUBIA A. CASTILLO DE VALLE. How does family firm status moderate the relationship between organizational readiness for change and organizational resilience in times of crisis? (Under the direction of DR.TORSTEN M. PIEPER)

The literature on organizational resilience shows that there has been little research about organizational resilience drivers. This study has two objectives. The first one aims to empirically explore if organizational readiness for change, precisely the three dimensions of organizational readiness for change: appropriateness, management support, and change efficacy (Holt, Armenakis, Feild, & Harris, 2007), as determinants of organizational resilience. The second objective investigates how firms' structure moderates that relationship in the context of change (adoption or usage of technology) in times of COVID-19. SMART-PLS, a statistical technique popular in business and social science, was used to perform the statistical analysis of this research. PLS-SEM measurement model was utilized, and the result suggests that psychometrics scales are reliable and evidence of rational validity. This study will influence organizational resilience research, and it will inform managers practitioners on how to prepare for a catastrophe and build resilient firms. The data was sourced via a survey by Qualtrics for a total sample of 160 companies divided into 80 family firms and 80 non-family firms. The target responders were leaders of those organizations. As this is an empirical cross-sectional study, causality is not inferred and cannot be generalized; furthermore, appropriateness and family firm status (moderation) were not significant. The findings suggest that the three dimensions of organizational readiness for change (appropriateness, management support, and change efficacy) could be critical antecedents of organizational resilience. Keywords: PLS-SEM, Organizational resilience, COVID-19, Firm Structure, Organizational readiness for change.

DEDICATION

This work is dedicated to God for his love and mercy to allow me to achieve this milestone; without him, I could not have done it. My parents: Porfirio Castillo, my fortress, Nubia Molina de Castillo, my mom, my cheerleader, my hero. My husband, Macario Valle, my rock, my love, and my children Perla Margine, Josue Isaac, David Valle Castillo, my sister Carmen Castillo Hinds, my brothers and sisters, nieces, nephews, friends, and cohort- two for sharing the journey. My family is my inspiration, grateful for their love, support, constant encouragement, and patience while I spent endless hours working toward achieving my dream.

ACKNOWLEDGEMENTS

Thank you to my chair, Dr. Torsten Pieper, for his patience, guidance, and willingness to share his knowledge. He kept my focus on the objective with his expertise and generosity in advising, revising, and editing this dissertation. Grateful for his commitment to guide me even when I was discouraged. Grateful to Dr. Kellermanns, who was instrumental in moving me forward when I was stuck. His encouragement was timely and kept me moving in the right direction. And to the following committee members for their generosity, feedback, and expertise. Dr. Laura Stanley, Dr. Chandra Subramaniam, Dr. Reginald Silver. Grateful to the UNC-Charlotte D.B.A. program directors, Dr. Franz Kellermanns and Dr. Reginald Silver created an academically challenging and prestigious program. The D.B.A. program at UNC-Charlotte is a kind for the quality of content, diverse professors, and students enrolled in the program. Special thanks to my classmates for sharing their academic, professional, and life experiences. Every one of you contributed to the learning experience—best of luck in your future endeavors.

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LIST OF ABBREVIATIONS

AVE	Average variance extracted
BRT-53	The Benchmark Resilience Tool
CB-SEM	Covariance based Structural Equation Modeling
CCA	Confirmatory composite analysis
CFA	Confirmatory factor analysis
CR	Composite reliability
COVID-19	Coronavirus Disease 2019
F-PEC	Family Influence through Power, Experience, and Culture
GDP	Gross Domestic Product
HOC	Higher-order components
HTMT	Heterotrait-Monotrait ratio of correlations
IFERA	International Family Enterprise Research Academy
IROC	Individual Readiness for Organizational Change
KMO	Kaiser-Meyer-Olkin
ORIC	Organizational Readiness for Implementing Change
PLS-SEM	Partial Least Squares Structural Equation Modeling
R.B.V.	Resource-Based View
SMART-PLS	Software with Structural Graphical Interface for variance-based structural equation modeling using partial least square (PLS) path model method
SPSS	Statistical Package for Social Sciences
L.O.C.	Lower order components
T.A.M.	Technology Adoption Model
TCU-ORC	Texas Christian University-Organizational

	Readiness for Change
V.I.F.	Variance Inflation Factor
U.S.	United States

CHAPTER 1: INTRODUCTION

1.1 Introduction of Theory and Context.

The year 2020 took the world hostage by a global health crisis.COVID-19 has distressed societies and economies at a level that has not been seen since the last century (World Bank, 2020). The number of small business owners fell from 15 million in February 2020 to 11.7 million in April 2020 (Fairlie, 2020) due to the pandemic. As of April 19, 2020, Yelp, the online reviewer, recorded that more than 175,000 U.S businesses have closed since the beginning of the pandemic (March 1, 2020) (Yelpeconomicaverage, 2020). Smaller, typically family firms and businesses, have been particularly negatively affected, with as many as 83.5% of businesses in the hospitality and foodservice industries reporting negative impacts due to COVID-19 (Buffington, Dennis, Dinlersoz, Foster, & Klimek, 2020). In May 2020, approximately 75% of family firms surveyed showed a decline in operating revenues, equally distributed across industries except for utilities (the difference between the lowest and highest is 20%) (Buffington et al., 2020). The National Academy of Sciences published that the median business in their sample had less than one month of currency reserve, and 75% had funds available for only two months (Bartik et al., 2020).

Family firms are at the forefront of this abrupt economic disruption, one of the worst crises ever experienced in the U.S since the Great Depression (Arthi & Parman, 2020). Astrachan and Shanker (2003) defined a family business as an organizational entity where one family (or several) has effective control over its strategic direction by its ownership and management involvement. The authors found that in the year 2000, according to data from the U.S. Internal Revenue Service, family firms generated up to 89% of business tax returns,

accounted for 62% of the workforce (corresponding to 82 million people), and contributed $5.9 trillion to the G.D.P. of the U.S. economy. The coronavirus pandemic has put family firms at risk of suffering significant losses; some firms have closed permanently, hurting the livelihood of millions of families in America and around the world. In the U.S. alone, 26.5 million jobs were lost (Lambert, 2020) by April 23, 2020, due to the pandemic. Despite the $2 trillion financial stimulus, family 'firms' economic threat continues to be imminent (Emma & Scholtes, 2020). Family firms' survival is critical for the economy; as mentioned before, they generated 89% of business taxes.

Therefore, family firms' resilience is critical in dealing with severe disruptions, such as a pandemic. While no agreed-upon definition of resilience across disciplines (Cahyanto & Pennington-Gray, 2017), Luthar et al. (2002) defined resilience as an iterative process of positive change within the context of a significant catastrophe. However, in the literature, there are three different conceptualizations of resilience: (1) a characteristic of an organization, (2) an outcome of a firm, and (3) a measure of the changes that a firm can experience. All focus on organizational survival in the face of drastic and unplanned change (Ruiz-Martin, López-Paredes, & Wainer, 2018). As informed by the literature, resilience can adjust to abrupt events, remain focused on the objective, allocated, deployed resources, and a rapid change of strategy to meet or exceed demands. The formal definition that for this dissertation is a firm's ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalize on disruptive surprises that potentially threaten organization survival" (Lengnick-Hall et al., 2011, p. 244). Organizational resilience creates the environment to generate innovative solutions for the organization to adjust, survive, and grow

during abrupt internal and external changes (Lengnick-Hall & Beck, 2005). Indeed, resilience has been identified as a crucial capability for organizations to deal with disruptions and uncertain events inherent to pandemics (Maunder et al., 2008; Rodríguez-Sánchez et al., 2019).

Despite decades of research on resilience in various fields, such as psychology (Craciun, 2013; Garmezy, 1993; Luthans et al., 2006; Masten, 2001), ecology (Holling, 1973; Jacob, Manson, Barfknecht, & Fredricks, 2014; Sarker, Wu, Shouse, & Ma, 2019), safety engineering (Hollnagel, Woods, & Leveson, 2006; Sun, Liu, Wang, & He, 2020), organizational studies (Ortiz-de-Mandojana & Bansal, 2016; Poole, 2014; Sutcliffe & Vogus, 2003), and management (Chadwick & Raver, 2020; Stoverink, Kirkman, Mistry, & Rosen, 2020; B. Walker et al., 2002), the COVID-19 pandemic has revealed stark differences among organizations and their respective levels of resilience. According to Luthar et al. (2000), resilience is an iterative series of changes over time and relies on individuals' interactions with their environment. In general, resilience is seen as a desirable attribute at the individual and organizational levels to conquer adversity. However, we often fall into a retrospective bias; that is, the outcome has already occurred. For example, U.S. commercial flights resumed after 9/11 with new methods to mitigate another terrorist attack.

The focus of most current organizational resilience literature has been theoretical (Lengnick-Hall, Beck & Lengnick-Hall, 2011) with relatively few empirical studies (Chowdhury & Quaddus, 2016; McManus, Seville, Vargo, & Brunsdon, 2008). A few case studies (Majchrzak et al., 2007; Perrow, 2011; Stevenson, 2014; Vaughn, 1986) have examined adaptation to catastrophic external events. One school of thought to study organizational resilience is by exploring organizational characteristics conducive to resilience, such as leadership or the ability to make quick decisions (Coutu, 2002; Hafeez, Zhang, & Malak, 2002;

Home III & Orr, 1997). Therefore, resilience scholars and practitioners have a common objective: to understand the challenges of responding to catastrophic, unexpected, disruptive events while keeping an organization competitive and functional to recognize that returning to old standards may no longer be an alternative (Grandori, 2020; Välikangas & Lewin, 2020). The antecedents to resilience, however, remain to be understood (Ruiz-Martin et al., 2018). In the present study, a proposed critical antecedent of organizational resilience to be readiness for change because it indicates an organization's capability and willingness to engage in a future objective.

Indeed, while the pandemic has had severely impacted virtually all businesses across industries and sectors, it seems that some family businesses have weathered the crisis better than other firms (Astrachan et al., 2020). As the present study argues, this discrepancy is impressive due to differences in readiness for change across firms. Weiner et al. (2008, 2009) define organizational readiness for change that organizational members' attitudes and how they are emotionally and cognitively ready to implement change. Readiness for change is proposed as a vital determinant to the successful implementation of change (Shea, Jacobs, Esserman, Bruce, & Weiner, 2014). Today, organizations face more changes than ever before (Wanberg, Hough, & Song, 2002). Firm readiness for change could develop resilience because it enhances firm members' commitment to a common strategy and increases their belief in their collective capabilities (Holt et al., 2007a). Furthermore, readiness for change reduces decisional uncertainty. Quicker response time to a crisis will lead to fewer errors, better damage containment, better resource allocation, and enhanced predictability and influence (Mitroff et al., 1987; Natarajarathinam et al., 2009).

This study focuses on firm status (family or non-family) as a moderator. The literature suggests that family firms, by nature, lack professionalization since they employ family members in leadership positions. Nepotism is the norm, not the exception. Some professionals find it unappealing to work in family firms because the family hierarchy is embedded in the business culture. Decisions are made based on relationships and family objectives, and, usually, there is no formal business process to implement critical decisions. Family firms usually lag in technology because of their risk-averse nature and limited access to capital. However, in times of crisis, the literature suggests that family businesses could respond faster than non-family firms (de Vries, 1993). Nevertheless, how firm status (family or non-family) affects the link between organizational readiness for change during the COVID-19 pandemic and organizational resilience remains unexplored.

Organizational readiness for change helps researchers understand a key potential antecedent of resilience, as readying the organization for change will likely increase resilience. In the present study, change refers to organizational adaptation in the context of the COVID-19. Specifically, I examine how organizations accelerate the adoption and use of digital technology, such as working from home applications (e.g., via Zoom, Google Meet, Microsoft Teams, telemedicine) and changing their business model (e.g., moving to online services, serving customers contact-free, or other new measures) to mitigate transmission of the virus.

The study of organizational responses to COVID-19 is an opportunity to explore how an organization's status (specifically, family or non-family) may affect the link between firm readiness for change and firm resilience. A firm's structure impacts firm behavior, mainly how businesses translate change readiness into resilience (Pal, Torstensson, & Mattila, 2014). Although there is no consistent evidence that family firms are better at coping with crises (Conz

& Magnani, 2020; Revilla, Perez-Luno, & Nieto, 2016; Sullivan-Taylor & Branicki, 2011), some evidence suggests that some family firms survive and become successful during unforeseen events (Miller et al., 2003). Scholars have been calling for more studies and contextualization views of resilience to advance organizational phenomena (Massis et al., 2018). The present study heeds the call for research by investigating how a firm's ownership status may affect the link between an organization's readiness for change and resilience (Kraus et al., 2020).

Prior literature has examined how family and non-family businesses diverge in management strategies (Le Breton-Miller, 2006), financial and legacy objectives (Naldi, Cennamo, Corbetta, & Gomez-Mejia, 2013), strategic programs (Kellermanns & Eddleston, 2006), risk appetite (Zahara, 2005), oversight and accountability (Chrisman, Sharma, Steir, & Chua, 2013), resource distribution (Carnes & Ireland, 2013), and strategic point of view (Marchisio, Mazzola, Sciascia, Miles & Astrachan, 2010). Moreover, scholars have proposed that family firms usually are different from non-family firms in future objectives because of the family firm nature. A critical objective of the family firm’s founder is to pass the firm on to their descendants. More than a financial legacy, the firm is the product of the founder's imagination, hard work, dedication, and life achievement (Lumpkin & Brigham 2011; Lumpkin et al. 2010). Chrisman and Patel (2012) proposed that family firm objectives can influence executive risk appetite. For instance, when attention is focused on future objectives, family firm leaders will be willing to invest in research and development. Family ownership and management control could create conservative governance, limited access to resources, and unrestricted ability to make swift decisions (Carney, 2005) and change's strategic direction (Chrisman & Patel, 2012; Patel & Chrisman, 2013). Hence, the literature is replete with research that differentiates between family and non-family firms and how their characteristics may affect organizational behaviors and

outcomes differently.

This dissertation will explore how differences across family and non-family firms may increase resilience levels and better prepare firms to deal with future crises and disruptions. Specifically, a firm's readiness for change is a crucial predictor of its resilience amid the COVID-19 crisis; this relationship is moderated by its ownership structure (family or non-family). A survey-based quantitative method was employed by SMART-PLS modeling techniques to test hypotheses related to three predictors of organizational resilience: appropriateness, change efficacy, and management support. This study's target population is top managers of family and non-family business; the unit of analysis is at the organizational level.

Despite their destructive nature, from a research standpoint, the disruptive events caused by the pandemic have created ideal conditions under which to investigate organizational adaptations and how firm status (family or non-family) may affect the link between organizational readiness for change and resilience (Bhamra, 2016; Doern, 2016; Fowler et al., 2007; Parnell, 2015).

1.2 Contributions.

The first contribution identifies, theoretically and empirically, a vital antecedent to organizational resilience, namely, readiness for change. The second contribution is studying how firm ownership structure could moderate readiness for change and organizational resilience. The third contribution is validating the theory of organizational readiness for change (Weiner, 2020), adding management support as an essential variable. The fourth contribution is creating a better understanding of how businesses have been adjusting their technologies and business models reaction to COVID-19; for example, working from home using Zoom, Google Meet, and other means; shifting to online shopping; or modifying existing services with contactless technology.

These insights may help explain why and how technology adoption can help firms become resilient in times of crisis.

This study will help understand the drivers of resilience and how family firms may differ from non-family firms and contribute to organizational theory (Dyer Jr, 2003). It will help practitioners design and implement specific strategies to help organizations become more resilient and provide helpful knowledge on remaining competitive even during times of disruption (Chrisman et al., 2005; Tagiuri & Davis, 1992). These insights will help practitioners devise ways to prepare for future pandemics and crisis events, which are bound to become more regular and better understand resilience's antecedents amid chaos. Decision-makers will grow their firms' capabilities, promote change efficacy, and understand how to adjust strategy under adverse conditions, thereby creating more resilient organizations.

The last contribution is to help policymakers prepare for future catastrophic events with low probability and high risk that may cause harm at all levels of society (e.g., earthquakes, hurricanes, tornadoes, terrorist attacks, global health crises) ('t Hart, Rosenthal, & Kouzmin, 1993). Theories of risk reduction through redundancy (Simon, 1969, 1981; Landau, 1991) are generally not popular because they are too costly for low probability events. The concept of resilience has been popular in crisis management literature. This study hopes to contribute to the interdisciplinary literature on resilience.

CHAPTER 2: LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Literature Review.

This chapter reviews the literature on organizational resilience, organizational readiness for change, family and non-family firm status. Emerging literature recognizes the importance of investigating organizational resilience drivers, suggesting that organizational resilience is among the most critical factors for organizational success. Although there has been renewed interest in organizational resilience, considerable research has been descriptive and not generalizable. There was no detailed investigation of the drivers of organizational resilience.

After defining resilience, similar constructs are discussed, such as grit, perseverance, and antifragility, and differentiate them from organizational resilience. I then address the study's independent variable, organizational readiness for change, and differentiate it from neighboring concepts, such as openness to change. The firm status (family and non-family), examine how different businesses may translate organizational readiness into resilience, and conclude by describing the proposed model and hypotheses development.

A wide variety of literature addressing resilience, organizational resilience, organizational readiness for change, family firms, firm governance structure, strategy, organizational change, and COVID-19 crisis was scanned via the U.N.C. Charlotte library's Google Scholar search engine. The search focused on keywords or phrases such as organizational resilience, resilience, organizational readiness for change, family firm structure, non-family firm structure, and COVID-19. The review consisted of searchers by journal type and relevance to the topic to identify the most relevant literature. Of the 571 articles deemed

relevant for this study, a total of 121 articles were selected as the most representative from a variety of journals: *Academy of Management, Journal of Change Management, Journal of Family Business Strategy, Entrepreneurship Theory, and Practice, Journal of Organizational Behavior, Family Business Review, Organizational Research Methods, Journal of Business Research, Journal of Applied Psychology, The Journal of Applied Behavioral Science, Sloan Management Review,* and *Implementation Science*. Please see below the crosstabs from SPSS.

Table 1: Articles Reviewed

	Number of Articles Reviewed					
	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
Journal * YEAR	571	93.3%	41	6.70%	612	100%

Although resilience has been studied in management, ecology, psychology, disaster management, sociology, and engineering, scholars have not agreed upon the definition. Table 1, Appendix 1 summarizes the definitions of resilience from top journals and includes a wide variety of definitions from different fields.

Definition of Resilience.

In 1973, Holling published "Resilience and Stability of Ecological Systems," which considered the foundation for ecological resilience. Holling defined resilience as an estimate of systems persistence and absorbing disturbances and stability as the ability to resume an equilibrium state after a disturbance. The concept of resilience is not only multi-disciplinary but also multi-dimensional, including traits such as temperament and personality and skills such as problem-solving, that allow people to manage traumatic life events (Campbell-Sills, Cohan, & Stein, 2006; Connor & Davidson, 2003; Garmezy, 1985; Garmezy & Rutter, 1985; Seligman &

Csikszentmihalyi, 2000; Werner & Smith, 1992). In the beginning, resilience research focused on individuals' traits; the second phase of research focused on understanding the process through which individuals can 'bounce back; from trauma (Bonanno, 2004). Scholars have explained the construct of resilience according to trait types: resilient, over-controlled, and under-controlled (Asendorpf & van Aken, 1999; Hart, Hofmann, Edelstein, & Keller, 1997; Robins, John, Caspi, Moffitt, & Stouthamer-Loeber, 1996).

However, resilience as a rigid trait does not consider the interaction between individuals and their social networks, such as family, community, and society. Robert and Masten (2004) claim that interaction with the environment plays a vital role in building individual resilience. Luthar et al. (2000) propose resilience as a development process that changes over time and relies on how they interact with their environment. Implied in the construct of resilience are two components: a) awareness of significant risk or severe hardship and b) the attainment of positive adjustment despite major assaults on the systematic process (Luthar, Cicchetti, & Becker, 2000; Luthar & Zigler, 1991; Masten, Best, & Garmezy, 1990; Rutter, 1990; Wermer & Smith, 1982; Werner & Smith, 1992).

There are several definitions of resilience, each modified according to context. Researchers have defined resilience as a personal trait and ability that allows an individual to function successfully amid a catastrophic event or personal tragedy (Connor & Davidson, 2003; Luthar et al., 2000; Masten & Obradović, 2006). Here, the definition of resilience refers to Lengnick Hall et al.'s (2011) as a capacity "derived from a set of specific organizational capabilities, methodologies, and processes by which a firm conceptually orients itself acts to move forward and creates a set of diversity and adjustable integration" (p. 245). Please see Appendix 1, Table 2: Definition of Resilience.

Constructs similar to resilience.

Grit.

It is vital to recognize concepts similar to resilience, such as grit, adaptive capacity, and antifragility. Since only a few scholars have addressed grit, there is a relatively small body of literature on the topic. *Grit* is defined as perseverance toward future objectives and endured commitment toward completing a specific enterprise undeterred by failure, setback, and adversity (Duckworth et al., 2007). Research at the organizational level is still in the early stages (Mallak, 1998; Pal et al., 2014), lacking construct, predictive validity, and methodology. Grit as a construct is similar to resilience; grit is a combination of perseverance and passion that grit adds to the understanding of success (Robertson-Kraft & Duckworth, 2014). Resilience, in general terms, is the capacity to bounce back from adversity, cognitive or otherwise; that is, a positive response to adversity. Grit indicates resilience in the face of failure, adversity, or catastrophe; Grit is an indomitable commitment and determination over time despite setbacks. Grit represents one's passion and determination toward a future objective despite not seeing immediate rewards. It consists of two components: consistency of interests and best effort (Duckworth, Peterson, Matthews, & Kelly, 2007).

The construct of grit is an association of passion and perseverance. Although this definition intuitively makes sense, Duckworth et al.(2007) lack theoretical support because it allows different conceptualizations of how to structure the construct. Scholars propose grit as a more advanced construct formed of two first-order facets: perseverance and passion. What is the logic of combining two distinct constructs into one? It is possible that perseverance and passion are correlated and that other latent variables contribute to that relationship.

Currently, Grit lacks construct validity, discriminant validity, and predictive validity.

There is no empirical support in the literature for grit's concept as the sum of perseverance and passion, nor is there evidence for the assertion that grit contributes to understanding success and performance. Future research should focus on analyzing passion and perseverance individually to create a reliable psychometric of these traits. Future researchers should develop valid measurements, then create a longitudinal study to explore the relationships of previously valid psychological factors and other known psychological factors that directly affect positive performance outcomes. Not until we have better measurements of the individual constructs grit be considered a valid construct to predict positive outcomes (Crede, 2018).

Only a handful of authors have examined grit. Crede et al.'s (2017) meta-analysis focused on grit structure and the link between grit and performance, retention, conscientiousness, cognitive ability, and demographic variables. Scholars suggest that grit is a complex-order construct composed of diligence and constancy. The authors claim that grit scores could be better indicators than cognitive ability to forecast outcomes (Credé, Tynan, & Harms, 2017).

Moreover, grit scores provide information about different individuals striving for excellence in everything they do. Crede et al. (2017) suggest that revising the methodology of studying grit is vital to identifying performance determinants. Their meta-analysis indicates that there is insufficient evidence to assert that grit is a complex construct. They found that combined perseverance and consistency scores into an overall grit score appeared to be a poor predictor of performance. Because perseverance qualifies as a more reliable predictor of performance than consistency or grit, it should be examined separately to determine its value to the literature. Crede et al. (2017) also found that grit's incremental value for predicting performance is limited. Grit scores show strong correlations with conscientiousness and with self-control (ρ=.84), suggesting that grit may be redundant with conscientiousness. The

correlations, including grit, conscientiousness, persistence, and conscientiousness (ρ=.89), are stronger than those commonly found in global conscientiousness measures (ρ=.63; Pace & Brannick, 2010), suggested that grit research measures the same constructs with different names. Scholars need to focus on evidence to address the literature gap.

Adaptive capacity.

Adaptive capacity, another perspective of organizational and inter-organizational change**,** is a changing, iterative process of continuous learning and adaptation, allowing vagueness and confusion. Parsons (1964) defined adaptive capacity as an inquiry process that improves the ability to subsist drastic changes and the capacity to manage unpredictability (Staber & Sydow, 2002). While organizational resilience can experience disturbance while maintaining the same methodology and individuality Walker et al. (2002), organizations with adaptive capacity learn faster.

Similarly, studies on resilience have described organizational members' adaptive capacity as a path to resilience Walker et al.(2004). Individuals influence resilience in their interactions with the system's environmental components Walker et al.*(*2006). Scholars claim that adaptive capacity is a characteristic that can help the transition to a new state. Sometimes the system is resilient but in an undesirable situation (Folke, 2006).

Historically, adaptive capacity is not a new construct; it has been studied in sustainability science and change literature (Engle, 2011). Due to its latent nature, adaptive capacity is difficult to measure until it has occurred. The latency issue involves adaptive capacity assessment (Adger et al., 2007; Ford et al., 2010); measurements vary from surveys to case studies. Although case studies have provided generalizability and policy application, they have failed to establish a framework, as they are context-specific and formed by changing variables that are not

generalizable Brooks et al.(2005). Therefore, the adaptive capacity construct requires further investigation. Adaptive capacity is influenced by organizational theory; it has attracted attention to climate change Pielke et al. (2007). As a characteristic common to vulnerability and resilience, adaptive capacity is often understood as a positive attribute that needs further investigation concerning latency and assessment (Engle, 2011).

Antifragility.

Another construct similar to resilience is *antifragility,* a word coined by Nassim Nicholas in *Antifragile: Things That Gain from Disorder,* which describes systems with the capacity to absorb disturbances and positively change. Similar to the human body, which needs to be susceptible to germs and illness to develop a more robust immune system, the antifragile system adapts and evolves due to stress and changes in the environment. Antifragile systems grow more intelligent and become more resilient every time they fail, thus learning how to respond appropriately to the next disturbance (Taleb, 2012). "Fragile" comes from the Latin, *fragile*, equivalent to frail, easily broken, shattered, delicate, brittle, vulnerable, lacking substance or force, flimsy (Dictionary.com). Resilience is the capacity to absorb a disturbance without breaking and then rebounding to the previous state—antifragile (Blecic & Cecchini, 2017). What is the opposite of fragile? Taleb (2012) argues that it is not resilience; it is antifragile. Antifragility is better than resilience or robustness. Taleb proposed that systems gain from disturbances; they flourish and prosper when exposed to volatility, randomness, disorder, stressors, risk, and unpredictability.

Moreover, as systems rebound and learn from errors, they become better than before. A system is antifragile if it adapts to the ever-changing environment and performs better after being disturbed (Taleb, 2018). Pineda et al. (2018) illustrate using our immune system. When

exposed to viruses as youngsters, our immune system will benefit and develop different capabilities to protect us from future illnesses.

Antifragility is similar to the evolutionary process of natural selection and computer systems of artificial intelligence networks and self-healing networks Levin et al.(2014). Resilience implies bouncing back to the previous state, while antifragility implies gaining new capabilities. There are critical and unique aspects that distinguish resilience from antifragility. First, resilience is a dynamic process occurring under unexpected and adverse conditions Luthar et al. (2000). While both constructs imply absorbing shocks and adapting to new states, antifragility suggests the next step after resilience. Antifragility means learning from failures and becoming more resilient after each failure. At this time, there is no psychometrics to measure antifragility.

Parsons (1964) defined adaptive capacity as an iterative process that enhances the ability to survive when exposed to unalterable features. In contrast, resilience is a dynamic process that includes positive adaptation in the context of severe adversity. Resilience can facilitate the transition or transformation to a new state (Folke, 2006). At the same time, grit has conceptual similarities to resilience. Moreover, there has been no empirical study of grit's discriminant validity from other constructs (Credé et al., 2017). For example, Duckworth et al. (2007) defined grit as "perseverance and passion for long-term goals" (p.1087), which is very close to the definition for the self-discipline facet "capacity to start tasks and remain focus through completion despite lack of interest or distractions" (Cost and McCrae, 1992, p. 789).

Organizational Resilience.

Resilience as a construct has evolved in different research facets (Masten, 2007; Richardson, 2002), focused mainly on a risk mitigation capability. The literature on resilience

has an essential role in child psychology (Anthony, 1974). The study of organizational resilience has gained momentum. For example, Freedman (2004) has performed research on organizations that require employees to risk their lives daily (e.g., firefighters, police officers) (Peres et al., 2011). It is critical for organizations whose employees face such risk to focus on precautionary measures to prevent loss of life and resources. Over the last decade, while the concept of organizational resilience has gained popularity in management and research literature, it has been criticized for lacking a consistent definition (Amann & Jaussaud, 2012; Burnard & Bhamra, 2011; Linnenluecke, 2017). There is a need to define and find scientific consensus on the measurements; the definition must make sense and be applicable across disciplines (Bacharach, 1989; Edwards & Bagozzi, 2000; Podsakoff, MacKenzie, & Podsakoff, 2016). Empirical research is still in its infancy because of a lack of antecedents common to organizational resilience (Mallak, 1998; Pal et al., 2014; Richtnér & Löfsten, 2014).

Organizational resilience research in the management literature has developed different paths. Resilience can be conceptualized in three ways: a) as a characteristic of an organization, b) as an outcome of the organization's activities, and c) as a measure of unplanned and disruptive events that an organization can tolerate (Linnenluecke, 2017; Ruiz-Martin et al., 2018; Vogus & Sutcliffe, 2007). All have similar meanings, with an emphasis on organizational survival and risk. Nevertheless, there is no agreement about understanding risk as a threat or an opportunity to survive if organizations are aware of the risk and if resilience is a positive and aspirational characteristic (Ruiz-Martin et al., 2018).

There are different definitions of organizational resilience (See Table 3). Some authors further divide resilience into different areas, such as operational and strategic (Valinkangas & Romme (2012). Operational resilience is defined as the capacity to recover after a catastrophe.

Strategic resilience refers to recovering from a threat, exploiting the threat, and turning it into a new product/solution. Other scholars propose three areas of resilience: cognitive, behavioral, and contextual. Each contributes to building organizational resilience (Lengnick-Hall & Beck, 2005). For example, cognitive resilience facilitates the organization's imminent threat response. More than survival, it is a creative process of turning the threat into an opportunity to meet a need that none knew existed. Behavioral resilience makes organizations function effectively. There are vital factors for an organization to build adequate behavioral resilience, such as having a culture of sharing information and maintaining good relationships across organizations, teams, and individuals. Furthermore, contextual resilience is the environment where cognitive and behavioral resilience takes place. The traits of contextual resilience are social capital and a diverse resource network.

Resilience can be defined as an organization's outcome; for example, resilience develops by adjusting strategy under crisis. The organization learns, reinvents itself, and emerges stronger, with new knowledge and ready to tackle the next challenge (Sutcliffe & Vogus, 2007). An organization that turns a crisis into an opportunity can achieve high performance under any condition and become a better version of itself (Hilton et al.,2012). Resilience has been characterized as a disturbance unit with inherent traits that allow the organization to absorb shocks and survive (Linnenluecke & Griffiths, 2010). While some scholars refer to resilience as a characteristic of the crisis, which might negatively affect the organization (Tierney, 2003), others consider these changes as opportunities (Ates & Bititci, 2011) that allow resilient organizations to exploit the challenge and turn it into a possibility for growth. A majority of authors refer to resilience as an aspirational characteristic of the organization.

External challenges, such as a global pandemic, globalization, socio-economic

challenges, and the rapid development of new technologies, mean that organizations must become efficient by strategically designing and establishing repetitive and predictable methodologies. Predictability and efficiency imply higher risk because organizations are fixed in their methodologies, which does not allow them to become nimble to prepare for threats. In theory, organizations should assume that uncertainty is the norm, not the exception. As uncertainty becomes routine, organizations become comfortable developing processes and methodologies to assess risk (Bank, 2001). Although organizational resilience has become a popular concept among practitioners and researchers, the construct is hard to define (Amann & Jaussaud, 2012; Brand & Jax, 2007; Gibson & Tarrant, 2010; Linnenluecke, 2017).

At the organizational level, resilience is studied in enterprise risk management, business continuity management, emergency management, crisis management, physical security, and cybersecurity (Braes & Brooks, 2010, 2011; Gibson and Tarrant, 2010). Because organizations cannot anticipate all risks (Fiksel, 2003), they must become resilient so they can manage unforeseen events and the outcomes of those disruptions even when the probability of occurrence is minimal (Ambulkar et al., 2015; Dalziell and Mcmanus, 2004; Kendra and Wachtendorf, 2003). Furthermore, resilient organizations must ensure that their risk model requires adjusting to unforeseen changes, even when their countermeasures are incomplete and their knowledge of safe operations is fragile (Vogus and Sutcliffe, 2007). In comparison, rigid organizations have a culture of "if it is not broken, does not fix it." The absence of failure does not mean that a threat is not present or that corrective actions are appropriate to manage the inconsistency. The literature on resilience states a need for iterative change, continuous improvement, and shorter delivery time, with an ongoing process to change and adapt (Bolton, 2004). Resilience at the organizational level is the preparation or readiness for change by quickly adjusting,

reconfiguring, and redeploying technical and organizational resources to respond rapidly in today's unpredictable, ever-changing world (Vickers and Kouzmin, 2001). Change is still a challenge; studies have shown that two out of three change initiatives fail (Sirkin et al., 2005). See Table 3: Definition of Organizational Resilience.

Definition of Organizational Readiness for Change.

The literature contains conceptual ambiguities of the meaning of organizational readiness for change (Weiner et al., 2008). In everyday language, readiness indicates preparation for a future event. Scholars have defined organizational readiness for change over the years based on readiness psychological construct (see Table 4: Organizational Readiness for Change definitions). The definition of organizational readiness for change has been based on Armenakis, Harris, and Mossholder (1993). Other scholars, however (Armenakis et al., 1993; Holt et al., 2010; Scaccia et al., 2015), claim that readiness as a construct has both psychological and structural dimensions. They argue that even though the definition of organizational readiness for change includes a cognitive component, the specifics of what constitutes this component vary. While change efficacy, the belief in individual or collective capabilities, is a common cognitive component, management support believes that the organization will support changes in resources and people is not a cognitive component. Holt et al. (2006) suggest that change valence, the belief that change has value, is a vital characteristic of organizational readiness for change (Holt, Armenakis, Harris, & Field, 2006). Moreover, there is disagreement about whether readiness incorporates an intention component. An intention is a conviction to behave to achieve the desired objective. Some definitions include intention as part of readiness (Armenakis et al., 1993; Bouchkenooghe, 2010); others suggest change commitment (Weiner, 2009). On the contrary, Raffergy et al. (2013) suggest that it is not appropriate to include

intentions as part of readiness; these authors evaluate readiness as attitudes and behavioral intentions according to the theory of planned behavior; these authors evaluate readiness as attitudes and behavioral intentions; these authors evaluate readiness as attitudes and behavioral intentions (Ajzen, 1991). While most scholars have understood readiness as an attitude, there is disagreement on what constitutes an attitude. Some argue that attitude is an intentional component (Bouckenooghe, 2010); others, such as Rafferty et al. (2013), do not. Thus, there is a lack of agreement on the content of the organizational readiness for change.

Scholars suggest that readiness for change is a multi-level concept applicable to the individual, group, and organizational levels of analysis. While most researchers concentrate on a single level of analysis, scholars agree that readiness can be conceptualized, measured, studied, and influenced at different analysis levels (Holt et al., 2010; Rafferty et al., 2012; Weiner, 2009). The question then becomes, what does readiness mean at different levels? Rafferty et al. (2013) suggest that readiness does not change across levels but is a characteristic shared across teams. According to Vakola (2013), however, readiness has different meanings at different levels. At the firm level, readiness implies the firm's capability of executing change; at a team level, it implies the team's capacity to support change. Moreover, at the employee level, it indicates the employee's perception of readiness for change. Other scholars have characterized readiness as an ongoing process rather than a state (Stevens, 2013).

Weiner (2020) defines organizational readiness for change and develops a theory regarding antecedents and outcomes. Willingness for change exists at all levels of analysis, whether individual, group, unit, department, or organizational. Weimer focuses on organizational readiness for change at a supra-individual level; he proposes that organizational readiness for change is a multi-level and multi-faceted construct. Explicitly, organizational readiness indicates

organizational members' change commitment and change efficacy to implement organizational change (Weiner, Amick, & Lee, 2008; Weiner, Lewis, & Linnan, 2009).

Appendix1: Please Table 4 Definitions of Organizational Readiness for Change.

Organizational Readiness for Change.

Change management scholars have highlighted the importance of organizational readiness for change and have suggested some strategies to define it. Organizational readiness is considered a vital precursor to the successful implementation of change. Some studies suggest that failure to establish sufficient enthusiasm accounts for one-half of all unsuccessful, large-scale organizational change efforts (Kotter, 1995; Weiner, 2020).

In 1951, Lewin proposed a three-stage model of change: unfreeze, move, and refreeze. Change management scholars have recommended various strategies to create change readiness based on this model. The recommendations emphasize the incongruity between current and optimal performance, foster dissatisfaction with the status quo, and encourage the vision that a future condition is within reach (Armenakis and Harris, 2002; Armenakis et al., 1993).

The first step for creating readiness for change in an organization is the message for change, which should include two concepts: a) the need for change; that is, the incongruity between the desired and final state (which must be appropriate for the organization) and the present state (Katz & Khan, 1978), and b) the individual and collective efficacy (i.e., the perceived ability to change) of parties affected by the change effort (Armenakis et al., 1993). The discrepancy part of the message indicates the need for change and should be consistent with contextual factors (e.g., increased competition, changes in governmental regulations, depressed economic conditions). External factors in the environment (e.g., political, market, social) create the need for organizational change (Pettigrew, 1987); these factors affecting an organization's

performance explain its validity. Coach and French (1948) used pricing differences between garments to indicate an organization's underperformance compared to its competitors and the need to increase productivity to promote competitive pricing (Pettigrew, 1987).

Scholars argue that awareness of a discrepancy can drive the realization that something must change (Nadler and Tushman, 1989). The environment for organizational members must be created for the organizational members to feel they are part of something larger than themselves. The organization's failure to change is a threat to its survival. Organizations' resilience will facilitate adjustment to the desired state and execute the necessary process to produce the best outcome (Spector, 1989). Leadership scholars propose the need to explain the organization's vision to gain organizational members' trust and commitment to change and become change agents (Bennis and Nanus, 1985). The second key message is efficacy, which is the perceived ability to change by the organization's members influenced by the change effort (Armenakis et al. (, 1993, 1999). The recognition of discrepancy could become a driver for change. Nadler and Tushman (1989) argue that the awareness of discrepancy can result in negative information, producing defensive responses such as denial, flight, or withdrawal. To counteract this reaction, a leader should raise employees' confidence to assure them they have the capabilities to achieve the objective. Scholars have found that efficacy has a strong influence on thought patterns, actions, and emotional responses. Bandura (1982, 1986) defined confidence as efficacy and suggested that individuals who evade activities feel incapable of performing and undertake ventures. They feel capable of successfully performing. Therefore, a leader who needs to implement organizational readiness for change should increase organizational members' efficacy regarding the changes to minimize discrepancies (Armenakis et al., 1993).

Measures of organizational readiness for change.

Measures of readiness vary in scales and items. Furthermore, the three different measures were evaluated. The TCU-ORC (Lehman et al., 2002), consisting of 18 scales, has been used primarily on substance abuse contexts. In this case, IROC (Holt et al., 2007) has excellent structural validity for groups and exhibits good or excellent reliability. At the same time, TCU-ORC (Lehman et al., 2002) has minimal structural validity. The organizational readiness for implementing change scale (ORIC) (Shea, Jacobs, Esserman, Bruce, & Weiner, 2014) has excellent validity, good known group validity, and excellent reliability.

Antecedents of Organizational Readiness for Change.

Few studies have explored the antecedents of organizational readiness for change (Rafferty et al., (2013). Holt et al. (2006) suggest that readiness is affected by content (i.e., what is being changed), process (i.e., how the change is being implemented), context (i.e., the circumstances under which change occurs), and a person (i.e., the characteristics of those being asked to change).

Concepts Similar to Organizational Readiness for Change

Openness to change.

Openness to change is the first reaction to a planned change effort, although acceptance (Frahm & Brown, 2007) and attitude (Elias, 2009; Lines, 2005) have also been suggested. Openness to change can be damaging, positive, or neutral (Frahm & Brown, 2007, p. 374) or the total positive or negative judgment of a change initiative (Elias, 2009, p. 39). When openness to change is positive, there is a "willingness to advocate for organizational change, and a signal is sent to move the change forward"'(Miller et al., 1994, p. 66). Wanberg and Banas (2000) suggest that openness is a different form of the antecedent of change readiness. In contrast, other schools of thought suggest that these two constructs describe a constructive mindset toward

change (e.g., Herold et al., 2007). Associating commitment and readiness causes disagreement. If readiness is considered an attitudinal construct, then readiness and openness become more similar. Furthermore, constructs are different from commitment; readiness for change and commitment become similar as concepts. They will be different from openness to change (Stevens, 2013).

Another view is that readiness for change has two features: attitudes and intentions. If readiness for change is operationalized as a process rather than a single construct, readiness could take openness at the beginning of the change process. It will be confusing to identify which behaviors are required to support change, removing the potential for forming intentions. However, readiness for change could become commitment as the required behaviors are better understood and executed in the change process. The choice becomes primary; the change construct's willingness fluctuates with the change, making this concept challenging to operationalize (Stevens, 2013).

Family Firm vs. Non-Family Firm Status

Family firms are the most ubiquitous business organization worldwide (Chrisman et al., 2009). While the exact contribution of family businesses to gross world product employment and economies are hard to measure due to country-specific definitions of what constitutes a family business, their contribution to economic growth and societal prosperity is remarkable (IFERA, 2003). In the United States alone, family firms represent approximately 89% of all businesses and 59% of G.D.P. (Astrachan & Shanker, 2003). Two of every three businesses are family-owned or managed (Barnett & Kellermanns, 2006). Family firms are some of the world's oldest organizations (Miller & Le Breton-Miller, 2005; Ward, 2004), having begun in the sixth century and surviving (even thriving) during crises (e.g., wars, plagues, famines) (Landes, 2006). Hence,

family firms are not unfamiliar with major crises and significant disruptions.

Family firms emphasize continuity more than non-family firms (Le Breton-Miller, 2005; Donnelley, 1964; Habbershon & Williams, 1999). Family firms have different objectives, such as the desire for cross-generational sustainability and maintaining their legacy (Chua, Chrisman & Sharma, 1999). Because family firms aim to leave a successful business to family members, they build long-term strategic relationships with external stakeholders to guarantee continuity (Le Breton-Miller & Miller, 2006). Governance facilitates readiness for change depending on market conditions. Family firms can quickly adjust their strategy to remain resilient and guarantee continuity for the next generation. Scholars have attempted to explain family firms' continuity in times of change (Miller, Le Breton-Miller, & Scholnick, 2008). Few studies, however, have addressed family firms (De Massis & Kotlar, 208; Chrisman, Chua, & Steier, 2011), even though resilience is widely recognized as an essential attribute of an organization's continuity (Linnenluecke, 2017). Organizational resilience is key to preserving the family firm for the next generation and ensuring continuity (Chrisman et al., 2011).

Non-family firms focus on short-term financial objectives; their external relationships are transactional and change depending on their business strategy (Westhead, 1997). Family firms facilitate an ongoing conversation about shared values and goals (Chrisman, Sharma, Steier, & Chua, 2013); they manage shareholders' expectations proactively and promote family cohesion and harmony. Because of their nature, family firms have formal and informal communication channels to make decisions under family governance. Family relationships strengthen the commitment across generations to enhance transparency and commitment through frequent communication. Family firms foster ownership competence to achieve family and business success (Salvato & Melin, 2008). According to Chrisman et al. (2003), "The family firms exist

because of the common economic and non-economic value created through family and business systems" (p. 285).

The integration of the two systems leads to unique capabilities of "familiness" that make family businesses particularly suited to endure catastrophes and thrive; Van Essen et al. (2015) found that family firms outperformed non-family firms during the financial crisis (2007-2009) but that there were no significant differences during a stable period (2004-2006). The authors determined that family firms are less likely to downsize their workforce or cut wages during pre-crisis or crisis conditions. According to Miller and Le Breton-Miller (2009), family owners pursue strategies to achieve longevity to transfer their business to the next generation. Their long-term goals are to avoid significant disruptions by creating long-term relationships with stakeholders inside and outside the business to sustain the business and reduce risk.

In some cases, family members may own a significant firm percentage but lack control (Chua et al., 1999). According to Sirmon et al. (2008), family involvement is favorably compared with family control because it avoids the negative results from substantial family control. Family firms facilitate synergy and the ecosystem for economic and non-economic value created by integrating family and business organizations, which implies duplicate capabilities (R.B.V.), referred to as familiness (Chrisman, Chua, & Litz, 2004; Thomas M Zellweger, Eddleston, & Kellermanns, 2010). Additionally, familiness drives strategic behaviors and influences (Ireland et al., 2003) strategic decisions to manage resources to create a long-term strategy (Sirmon et al., 2008; Sirmon and Hitt, 2003).

Family firms focus on the organization's long-term strategy by creating the conditions to build firms more resilient than non-family firms. They have an innate characteristic that protects them from disruptive economic turbulence (Sraer & Thesmar, 2007; Villalonga & Amit,

2010). However, in publicly traded family businesses, when the distance between the family and the business grows, family owners behave like non-family business investors, eager and ready to reap personal rewards at the business's expense (Bertrand and Schoar, 2006; Morck and Yeung, 2003). The literature suggests that these organizations differ in leadership style (Miller & Le Breton-Miller, 2006), financial and non-financial objectives, strategic planning (Kellermanns & Eddleston, 2006), risk-taking (Cannella Jr, Jones, & Withers, 2015), governance (Chrisman et al., 2013), resource allocation (Carnes & Ireland, 2013), and strategic direction (Marchisio, Mazzola, Sciasscia, Miles, & Astrachan, 2010).

Scholars have actively investigated how family firms differ from other organizations. (Chrisman, Chua, & Sharma, 2005). For example, a family firm's definition varies from different perspectives, such as ownership percentage, family engagement, founder member status, generations involved, and governance structure (Sirmon, Arregle, Hitt, & Webb, 2008). This research is inquiring about firm status impacts an organization’s behavior, precisely, how it translates change readiness into resilience. In summary, family firm attributes such as governance, family relations, and commitment, compared to a non-family firm, could be conducive to organizational change and create resiliency to guarantee the firm’s continuity. These differences could positively affect the relationship between organizational readiness for change and organizational resilience.

2.1 Hypotheses Development.

The research model underlying this dissertation explores the gap revealed in the literature review by identifying organizational readiness for change as a critical antecedent of organizational resilience. It is vital to understand the antecedents that allow organizations to thrive. The current COVID-19 crisis represents a new challenge to organizations and an

opportunity to learn what conditions allow some organizations to persist and even thrive, whereas others disappear. Therefore, this study investigates whether organizational readiness for change can explain organizational resilience differences and how this relationship differs between family and non-family firms during a pandemic. This research model intertwines organizational readiness for change with organizational resilience, making predictions on how family firms and non-family firms adjust to a changing environment; that is, the COVID-19 pandemic (see Figure 1, Page 154).

Appropriateness

Appropriateness is one of the three dimensions of change readiness. The concept of readiness implies that individuals are ready for something to happen and indicates preparedness for change (Weiner et al., 2008b). While organizational readiness for change is an intuitive construct, few empirical studies have focused on this phenomenon. As the first dimension of the change readiness construct, appropriateness, which I investigated, can be traced to Kepner and Tregoe (1965). They suggest that the organization's situational characteristics can facilitate an appropriate corrective action if needed to match changing circumstances and any incongruity with the environment. Harrison (1970) explained that change agents should systematically choose the proper depth of organizational development interventions to facilitate such change. As a result, the perception of appropriateness is vital because even if organization members feel that change is needed, they might disagree with the specific change being proposed. Only the perceived appropriateness of the change will likely lead to positive outcomes for the organization.

Thus, this research examines the extent to which appropriateness may be linked to organizational resilience. Organizations with a "buy-in" through appropriateness might become

more resilient when an unforeseen or unplanned event occurs because they find it easier to mobilize resources and people to facilitate the change. Furthermore, the perception of appropriateness will lead to employees' support and joint efforts to eliminate incongruities with the environment (Armenakis & Bedeian, 1999; Armenakis, Bernerth, Pitts, & Walker, 2007; Armenakis, Harris, & Mossholder, 1993). Conversely, when an organization proposes a change that employees feel is inappropriate, they will delay implementing the change (Armenakis & Fredenberger, 1997), making the organization less resilient. Therefore, the following hypothesis is proposed:

Hypothesis 1: Appropriateness is positively related to organizational resilience.

Management Support

Management support is the second of the three dimensions of readiness for change proposed. Holt et al. (2010) define management support as the belief that leaders are dedicated to the success of the change, and that is not a temporary fashion. Social learning theory proposes that organizational members' sense through their interpersonal networks supports their support (Bandura, 1986). Some scholars have pondered a possible link between leadership and resilience. Sutcliffe and Vogus (2003) suggest that organizations can become more effective by building resilience capability. Over fifty years ago, Blumer (1969) defined social contagion as interpersonal communication and interaction; people reflect and behave in unison with others' feelings (Levy and Nail, 1993). The perceiver takes on the other person's state (model) and then acts parallelly. For example, employees perceive the leader's hope; adopting this hopeful state affects their resiliency and overall organization. Furthermore, leaders who feel excited, enthusiastic, and energetic are more likely to energize their followers, while leaders who display negativity will likely create a more negative reaction. In a study of 422

Chinese factory workers, Luthans and Jensen (2005) found that hope was related to optimism and resiliency; followers perceived the leader's state of hope and increased their hope and resiliency.

Moreover, resilience has been recognized in the positive psychology movement (Masten, 2001). Employees will "mirror" the way they are treated. They will become committed to performing excellent work if treated with respect and recognized for their contributions and abilities. Employees who are made to feel and trusted with essential endeavors usually perform to their utmost ability as they do not want to disappoint their managers. Managers who have a clear vision are perceived as fair by doing the right thing for themselves, others, and, therefore, for the business. Employees become empowered, and that sense of empowerment will lead them to become resilient. Managers influence not just because they can promote and provide compensation but also because of the social aspect: the feeling of being understood and the social recognition of a job well done. When these relationships are strong, information flows across the organization and across teams, which will create pathways to innovations. Therefore, management support drives organizations to become more resilient.

There is a famous adage; employees do not leave organizations; they leave managers. Employee retention, knowledge sharing, and knowledge transfer occur when managers are supportive, alert, and recognize employees' intellectual, emotional, social, and financial needs. Even in times of uncertainty, management support can drive organizational resilience. Managers can inspire, challenge, promote, facilitate learning, share knowledge, and collaborate. They remove roadblocks and provide employees with appropriate tools (i.e., social competencies, autonomy, a sense of purpose, training, incentives, process improvements, new methodologies, resources). Management support provides the much-needed human capital to

build resilient organizations. Furthermore, management support is highly influential in creating an environment for emotional safety. As social creatures, we are inter-connected and inter-dependent; we need to belong and be accepted, which spills over to the workplace environment.

Therefore, I propose that management support directly affects organizational resilience by viewing today's harsh changing environments through organizational resilience's positive psychological capacity. Organizational resilience is a "firm's ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalize on disruptive surprises that potentially threaten organization survival" (Lengnick-Hall et al., 2011, p. 244). Therefore, a comprehensive approach is needed to investigate the linkage between management support and organizational resilience.

The concept of social capital is a decisive factor explaining success in many areas. Social capital facilitates inter-unit resource exchange and innovation (Gabbay & Zuckerman, 1998), reduces corporate dissolution rates (Pennings et al., 1998), and strengthens supplier relations (Asanuma, 1985; Baker, 1990; Dore, 1983). Thus, the proposed hypothesis posits that management support positively influences change. It proposes a link between management support and organizational resilience. Therefore, the second hypothesis is proposed:

Hypothesis 2: Management support is positively related to organizational resilience.

Change Efficacy

Change efficacy is the third proposed antecedent of the three dimensions of readiness for change. Most motivation theories address a form of expectancy, with efforts leading to successful accomplishment (Vroom, 1964). To be motivated, individuals must feel that the change is appropriate and possible. An organizational readiness refers to change efficacy as the shared belief and confidence in producing organizational readiness for change. (Bandura, 1986)

demonstrated that people commonly avoid activities that they believe exceed their coping capabilities. The literature on work motivation theories suggests that performance consists of skills and desire (Porter & Lawler, 1968). Skill refers to the knowledge required and ability to perform the task; desire is the willingness and eagerness to perform to the best of one's ability. Both are vital components of change efficacy. The work of evolutionary psychology theory (Nicholson, 1998) reminds us that " in the terrifying conditions of the Stone Age, those who survived surely were those who believed they would survive. Their confidence strengthened and emboldened them, attracted allies, and brought them resources" (p.135). Surprisingly, there is little scholarly work linking change efficacy to resilience. Change efficacy, as utilized here, is the belief of individuals that they have the necessary skills, ability, knowledge, and resources to be successful.

Similarly, high expectancy with a sense of purpose and determination are characteristics of resilience. Individuals will undertake those tasks they judge themselves to be capable of performing. Thus, employees must feel they can execute the new behaviors required by the change initiative. Employees who feel comfortable with their current abilities will believe that a new skill can be mastered; they can regain trust before the change, thus facilitating the change process (Paré, Sicotte, Poba-Nzaou, & Balouzakis, 2011) and contributing to organizational resilience. Organizational members' confidence and belief in their organization, skills, and capabilities may significantly impact organizational resilience. The model proposes that resilience is the outcome of that positive behavior. Thus, the following hypothesis is proposed:

Hypothesis 3: Change efficacy is positively related to organizational resilience.

Moderating Relationships

There are two types of moderating relationships. One is continuous. The other is

categorical (Joseph F Hair Jr, Hult, Ringle, & Sarstedt, 2016). In this case, it is categorical. To screen the data into two sub-samples. Before the question was asked, a family firm was defined as an organization entity where one family or several families effectively control its strategic direction by their ownership and management involvement (Astrachan & Shanker, 2003).

Existing literature suggests that family firms may react faster in crises than family firms (de Vries, 1993; Ward, 1997), possibly because of rapid decision-making abilities arising from innate characteristics to the business(i.e., concentrated ownership, unilateral control). Nevertheless, how firm status (family or non-family) affects the relationship between change readiness in the COVID-19 pandemic and organizational resilience remains unexplored. I argue that firm status moderates the relationship between change readiness (appropriateness, management support, and change efficacy) and organizational resilience.

Family firms are more likely to remain operational and thriving than non-family firms Wilson et al.,(2013). Moreover, board characteristics are critical factors for firm survival. In firms with high family ownership levels, boards help increase formalized crisis procedures (Faghfouri, Kraiczy, Hack, & Kellermanns, 2015). Therefore, it is not surprising that research suggests that family firms outperform non-family firms, as family firms are better prepared for a crisis and place more value on continuity (Miller & Le Breton-Miller, 2005; Anderson & Reeb, 2003; Donnelly, 1964; Habbershon & Williams, 1999; Chua, Chrisman, & Sharma, 1999). Furthermore, family firms are likely better equipped to respond to changes because of their stewardship practices that engage employees and family members in the organization and create an environment of trust among their (family) members (Eddleston, Kellermanns, and Sarathty, 2008). Family firms have reduced agency costs through owner control, favor long-term investment horizons, have increased commitment, experience a higher level of trust, and operate

under a less formalized structure (Zahra et al., 2004), all factors which should strengthen the ability to turn change readiness into organizational resilience.

Appropriateness is one of the three dimensions of readiness positively related to organizational resilience as a moderator of family firms' status and organizational resilience. Family firms may respond better to change because of their stewardship orientation, facilitating a stronger positive link between appropriateness and organizational resilience. Stewardship focuses on the organization's longevity by putting a value on employee well-being and focusing on long-term investments. Family firms invest in a relationship with stakeholders (Thomas M Zellweger & Nason, 2008). Non-financial goals lead to high levels of human capital and organizational processes that will further support family firm objectives (Miller & Le Breton-Miller, 2005). One such goal is to build up long-term, trusted relationships, in particular, with, but not limited to, internal stakeholders (Miller and Le Breton-Miller, 2005). Family firm employees have been labeled a "pseudo-family" (Konig et al., 2013; Tan & Fock, 2001); tenure appears to be longer in family firms compared to non-family firms (Lansberg, 1999). These attributes contribute to a high level of commitment (Donnelley, 1964) and tacit knowledge among employees (Sirmon and Hitt, 2003) in family firms, which facilitate sharing of information and foster collaboration among teams (Bammens, Notelaers, and Van Gils, 2015), thus strengthening the positive effects of change that are perceived as appropriate for the development of organizational resilience.

In addition to stewardship, another characteristic of a family firm is its unique resource orchestration (often referred to as familiness) that can generate advantages (Habbershon & Williams, 1999). Furthermore, the pursuit of non-financial objectives is likely to drive knowledge sharing among family firm members, thus transforming their capability efficiently

over time (Duran, Kammerlander, Van Essen, & Zellweger, 2016) and enabling the firm to better leverage the relationships between appropriateness and organizational resilience. Indeed, family members can do more with less (Duran et al., 2016). Agency cost advantages of family firms facilitate efficient resource allocation (Sirmon & Hitt, 2003), allowing them to turn appropriateness into resilience. Therefore, family firms' innate characteristics can strengthen the link between appropriateness and organizational resilience. Formally stated:

Hypothesis 4: The relationship between appropriateness and organizational resilience is moderated by firm status. Specifically, the relationship is stronger for family firms than for non-family firms.

Agency and stewardship theory examine family involvement. Stewardship theory suggests that external factors define the organization's environment and culture (Davis et al., 1997). Stewardship governance allows staff to have a high level of authority and influence, such as active participation in decision making, which can influence the organization's culture (Davis et al., 1997). Unlike the orthodox mechanism observed in agency theory, stewardship governance champions cooperation, empowers and encourages employees, promotes pro-organizational behaviors, and enhances firm performance (Davis et al., 1997; Eddleston and Kellermanns, 2007; McGregor, 1960). Compared to non-family enterprises, family firms have more stewardship governance, such as an organizational culture that is family-oriented and focuses on collaboration and the importance of long-term relationships with customers, employees, and vendors (Miller et al., 2008). Family firm stewardship governance has been linked to strategic adaptability (Zahra et al., 2008) and cooperating behavior.

The literature states that family firms have three main characteristics different from non-family firms. First, family firm owners have significant power over the firm, often executed

through ownership rights, which grant them power over the firm's strategy and organization structure; they can monitor managers closely and influencing business processes (Carney, 2005; Gedajlovic & Carney, 2010; Gedajlovic, Lubatkin, & Schulze, 2004). Second, many family firm owners' capital is invested in one firm (Anderson, Mansi, & Reeb, 2003). This centralization of wealth informs investment preferences, which are different from non-family firms (Anderson et al., 2003; Anderson & Reeb, 2003, Gomez-Mejia, Larraza-Kintana, & Makri, 2003). Third, the high level of power over the firm and intrinsic relationship between firm and family lead to a socio-emotional endowment (Berrone, Cruz, & Gomez-Mejia, 2012; Thomas M Zellweger et al., 2010; Thomas Markus Zellweger, Nason, & Nordqvist, 2012), which might influence management support across the organizational structure. Therefore, I propose a link between management support and organizational resilience moderated positively by family firms. The more the family is actively engaged in ownership management, the stronger the link to resilience. Therefore, the following hypothesis is proposed:

Hypothesis 5: The relationship between management support and organizational resilience is moderated by firm status. Specifically, the relationship is stronger for family firms than for non-family firms.

Change efficacy is defined as when organizational members feel confident that they have the skills, knowledge, and expertise to respond to an imminent change (Pare et al., 2011). In today's global economy, with shorter business cycles and a diverse workforce, readiness for change is more critical than ever for family firms to be successful (Vago, 2004). Scholars have offered a wide range of dichotomies between family and non-family firms (Johannison, 2002). One term highlighted in the literature is "professionalization" (von Nondenflycht, 2010), which refers to non-family, full-time employees with a degree or equivalent years of experience who

are granted managerial authority (Galambos, 2010). Some family firms have educated leaders, while non-family firms have trained managers utilizing experience as a tool to make decisions. Often, family firms are associated with nepotism (Benedict, 1968, Tsui-Auch, 2004). Professionals are seen as experts in their field who continue to improve their knowledge and capabilities (Hall, 1968; Chittor & Das, 2007). Family firms are usually less formalized and less standardized than non-family firms. Another argument for professionalization is that it is required to manage change competitive ecosystems (Casson, 200; Chandler, 1990, pp. 268, 339; Walsh, 2010) and to explore other business opportunities (Benedict, 1968; Ravasi & Marchisio, 2003; Rondot, Dibrell, & Craig, 2009). Family firms are less process-oriented, however, and professionalization is not the norm. In contrast, non-family firms, with established processes, controls, and a high level of professionalization, can become nimble in times of crisis.

Resilience demands knowledge retention with a flexible workforce, strategic focus, and management support (Levy et al., 2003). The literature states that family firms need to enhance their resilience. Therefore, this study proposes a link between change efficacy and organizational resilience moderated by firm status. The following hypothesis is proposed.

Hypothesis 6: The relationship between change efficacy and organizational resilience is moderated by firm status. Specifically, the relationship is weaker for family firms than for non-family firms.

TABLE 5
Hypotheses

Hyp	Statement
H1	Appropriateness is positively related to organizational resilience.
H2	Management support is positively related to organizational resilience.
H3	Change Efficacy is positively related to organizational resilience
H4	The relationship between Appropriateness and organizational resilience is moderated by family firm status. Specifically, the relationship is stronger for family firms.
H5	The relationship between Management support and organizational resilience is moderated by family firm status. Specifically, the relationship is stronger for family firms.
H6	The relationship between change efficacy and organizational resilience is moderated by family firm status. Specifically, the relationship is weaker for family firms.

CHAPTER 3: METHODOLOGY

3.1 Research Design Overview.

This chapter describes the research design, statistical analysis, and quantitative methodology used to test the hypotheses. It begins with a research design overview followed by a discussion of the sample measures. The objective was to identify the drivers of organizational resilience moderated by firm status (family or non-family) in times of crisis. Qualtrics Experience managers collected the data from a sample size of N=160 (see Appendix). SPSS and PLS-SEM were utilized as analytical and statistical software tools. This research was a cross-sectional, quantitative study consisting of an online survey comprised of 21 items from existing validated psychometrics. Qualtrics Experience Management (XM)™ infrastructure distributed via email the link to the survey. Qualtrics maintains a pool of respondents from traditional, actively managed, double opt-in market research panels; it provides quality by selecting sample partners utilizing deduplication technology to provide the most reliable results and maintain data integrity. Qualtrics have the capabilities to target distinct segments of the market for specific research projects. They have a vast partner network that allows access to hard-to-reach groups. Their profiling attributes include detailed knowledge of respondents. Qualtrics selects their partners based on the project's specific requirements. Panel aggregators direct responders to the survey.

Moreover, Qualtrics' clients are notified that the survey is voluntary, all responses are anonymous and confidential, and data will be utilized only for research purposes. Qualtrics and their partners conduct continuous monitoring and quality control checks to provide quality samples for practitioners and scholars. Qualtrics partners' certifications include ISO 20252 management system standards, Mkt Inc., Media Ratings Council, and other methods (ESOMAR-

Academics, Qualtrics).

3.2 Participants.

The study target participants focused on current and former executives, managers, business owners, and team leaders of family and non-family businesses. APriori Sample Size Calculator determined the sample size for Multiple Regression Power Analysis (additional details in the Appendix), which returned a minimum sample size of N = 160. Because the objective was to understand how firm status affects the proposed relationships, there must be an equal number of target respondents. Respondents must have been employed at least a year in their role to have sufficient experience within their respective firm. At a minimum, respondents should have been or should currently be professional managers, senior management, executives, or business owners.

3.3 Measures.

This section addresses each construct's scales used in this survey, including the independent, dependent, moderating, and control variables. The study utilized established scales for each of the constructs. The target participants were leaders of the family and non-family firms in the context of how their organizations have adopted digital technologies or adjusted their business models in response to COVID-19. For details on the survey items, please see the Appendix.

Independent Variables

Holt et al. (2007) developed a "readiness for organizational change" scale based on psychological and structural dimensions of readiness at the individual and organizational levels. The first dimension is appropriateness (feel a change is appropriate for the right reasons and the correct strategy). The second dimension is management support the change, which indicates that

leaders are committed to the proposed change. The third dimension for readiness for change, change efficacy ability to perform in the context of change. (Holt, Helfrich, Hall, & Weiner, 2010). The last construct is personal valence; that is, the proposed change is beneficial to its members. Holt et al. reported the estimate for internal consistency: coefficient alphas were .94 for appropriateness, .87 for management support, .82 for change efficacy, and .66 for personal valence. This study is at the organizational level of analysis. It includes change efficacy, appropriateness, and management support. It does not include personal valence, which measures the individual level of analysis (Holt et al., 2007).

Another psychometric measure for "readiness for organizational readiness for change was developed by (Shea et al., 2014). They elaborated on four different studies to assess the psychometric properties of "Organizational readiness for implementing Change" (ORIC) based on the following constructs: change commitment (i.e., "we are committed to implementing this change"); change valence (i.e., "we know what it takes to implement this change"); and change efficacy (i.e., the organizational member's belief in their team capabilities to plan and execute the necessary tasks to implement the required changes successfully). These constructs were based on Weimer's (2020) theory of organizational readiness for change. According to ORIC, there was a moderate correlation between change commitment and change efficacy; the differences show inter-rater reliability. Therefore, change commitment is not included.

The independent construct in this research comes from organizational readiness for change (Holt et al., 2007a; Shea et al., 2014a). Organizational readiness for change has three dimensions: appropriateness (Holt et al., 2007a) or change valence (Shea et al., 2014a), management support for change (Holt et al., 2007a), and change efficacy (Shea et al., 2014; Weiner, 2009). When both psychometrics were reviewed, the themes with the highest reliability

and lowest inter-item correlation were the independent variables appropriateness, management support, and change efficacy. Therefore, only these three dimensions are utilized in this research. The survey consisted of 20 items, measured on a 7-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*). Please see Appendix 3, Table 1, for the survey items.

Dependent Variables

The dependent construct was developed by Whitman et al. (2013). The Benchmark Resilience Tool (BRT-53) is an organizational-level resilience measure that assesses the organization's ability to plan and respond to a crisis. The BRT-53 survey consists of 53 items that yielded 13 theoretical constructs. Whitman et al. (2013) developed a shorter, valid, and reliable version BRT-13B. Each construct consists of multiple items. The organizational resilience construct consists of seven items measured using a 7-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*). Please see the Table in the Appendix.

Moderator

The research model in this study hypothesized that firm status (family or non-family) is a moderator that changes the relationship between organizational readiness for change (in terms of appropriateness, management support for change, and change efficacy) and organizational resilience.

Control Variables

The management literature maintains that an essential element in empirical research is the use of control variables. Scholars attempt to organize their research design to rule out threats that may invalidate results. (Cook & Campbell, 1979). The objective is to determine the research model's relationships and minimize the risk of confounded results limiting the model's explanatory power (Kish, 1959; Pedhazur & Schmelkin, 1991). The organization's age could

contribute to resilience development (Burns & Abstey, 2010; Cambell-Sills et al., 2009; Karaimak, 2010). Other studies have suggested that resilience could change depending on the company's age or size (Wiklund & Shepard, 2005). Therefore, this study controlled for these variables to minimize the possibility of confounding effects for significant findings.

Several control variables are included; it is based on previous studies and a few items specific to this study. Studies of risk suggested that demographic variables such as gender, level of education, experience, and industry (Marco, 2012; Rosa, Carter & Hamilton, 1996) could influence resilience (Bonanno, Galea, Bucciarelli, & Vlahov, 2007). Therefore, it seems logical that the absence of those variables could be associated with greater organizational resilience. This study controls for gender, age, and industry.

Gender

The literature shows that gender impacts organizational resilience. Leadership and organizational research have focused on male leaders with command-and-control styles (Calas and Smircich, 2006, 2009, 2014). Historically, male power has been the norm in the workplace (Acker, 1990; Walby, 1989). Today, organizations legitimize the patriarchal identity of dominance and power (Connell and Messershmidt, 2005). Although women achieve leadership and management positions, they do not challenge existing power imbalances (Acker, 1990).

Men and women influence each other at work (Deutsch, 2007). Gender interactions become part of the organization's culture and represent existing power dynamics (Calas and Smircich, 2006). Therefore, it is essential to understand the organization's culture regarding gender, including gender categorizations, and influence organizational resilience (Collinson and Hearn, 2005). Leadership is shared; people have the tools to pursue new opportunities for themselves and the organization (Witmer, 2006). Today, there is little discussion in the body of

literature on organizational resilience and the role of gender. A few empirical studies on gender imply that organizations and institutions are on a level playing field. (Bonanno et al., 2007) found that gender is likely to be a strong predictor of resilience, although they did not find conclusive evidence that female gender is negatively linked to resilience. More in-depth studies are needed to determine what other latent variables could be interacting with the female gender in predicting resilience and understanding resilience from a non-male perspective (Nentwich and Kelan, 2014).

Age

Participants' age is included as part of the demographic information. Previous studies have shown mixed findings of how age influences resilience. Some found younger people to be less resilient (Bonanno & Kaltman, 1999); in contrast, others found that experience and skills acquired through age might help firms become resilient (Bonanno, 2004). The target population of this study consisted of managers and senior leaders. The survey includes age as a control variable for six age groups, ranging from 20 to 61+, in 10-year increments.

Firm size

Scholars suggest that external sources can influence organizational resilience. Therefore, firm size is a control variable since it can influence the strategic direction (Tippins & Sohi, 2003; Chiva & Alegre, 2009a). Usually, larger firms have more capabilities and benefit from economies of scale, which influence organizational resilience. Firm size was classified by the number of full-time employees, ranging from 1-49 to more than 10,000 (a total of eight categories).

Education

Prior studies have shown that education level could be a predictor of resilience (Bonanno,

2004; Bonanno, Galea, Bucciarelli, & Vlahov, 2006; Brewin, Andrews, & Valentine, 2000). There is no current empirical research on how education impacts organizational resilience at the organizational level; according to (Bonanno et al., 2007), a college education was approximately half as likely to indicate resilience as less than high school education. These findings could mean that education impedes resilience. The current literature is contradictory at the individual level. Therefore, scholars are heeded to understand how the level of education impacts organizational resilience. Thus, this research proposes the level of education as a control variable.

Context

Pandemic outbreaks have occurred throughout history. The scientific community has been attempting to predict when the next pandemic will occur (Stöhr & Esveld, 2004). Epidemics are recurring biological events that cannot be avoided (Potter, 2001). As globalization is part of our world, health crises, such as COVID-19, are bound to happen again. It is not easy to calculate and forecast long-term effects; however, it is vital to estimate long-term economic, behavioral, and societal outcomes. Some studies that examined the last millennium found that pandemics are associated with low returns on assets (Jordà, Singh, & Taylor, 2020). Family firm ownership reduces the probability that firms follow crisis procedures (Faghfouri et al., 2015).

Family-owned firms adopt a long-term orientation. During a crisis, they invest for the future or undertake initiatives with high short-term cost" (Miller and Le Breton-Miller 2006, p. 78). Scholars suggest that family firms embrace more meticulous attitudes toward debt. Risk preference varies for family firms and non-family firms (Gomez-Mejia et al. 2007). During a financial crisis, family firms change their traditional debt-related behavior

and acknowledge the need to vary their risk preferences. After the disruptive event has passed, they revert to their previous financial strategy. A contingency-based view suggests the possibility of varied risk preferences (Gomez-Mejia et al. 2007, Abdellatif et al. 2010), such that preserving socio-emotional wealth may be a key goal for a family business. Firms with goals are more likely to perpetuate the owner's direct control over the firm's affairs (Gomez-Mejia et al., 2007), which they cannot do through diversification. However, family businesses are flexible enough to accept changes to their traditional goals temporarily during a crisis. Compared to non-family businesses, they can mobilize their resources and alter or adapt their behavior debt. At the end of the crisis, these businesses still enjoy better performance than non-family companies (Amann & Jaussaud, 2012).

3.4 Common Method Bias.

Common method bias was possible since the model's constructs were designed to measure self-reported scales at a single point in time (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Scholars recommended mitigating this bias by obtaining information from different sources (Podsakoff et al., 2003). However, for this study, this approach was not appropriate the cross-sectional and non-experimental. The survey was built by separating the predictor variables from the endogenous variables and introducing new instructions, including scale types across the different sections (Podsakoff et al., 2003).

Common method variance was tested using the Harman one-factor method (Podsakoff et al., 2003). Exploratory factor analysis was used to produce a single factor solution using all of the study's scale items. The unrotated solution was examined to determine if a single factor accounted for most of the variance in the model. Since a single factor accounted for 25.4% of the variance, which is less than the generallyaccepted 50% threshold, common method variance was

concluded to be of minimal impact.

CHAPTER 4: RESULTS

This study explored how a firm's status (i.e., family vs. non-family firm) moderates the relationship between organizational readiness for change and organizational resilience in times of crisis, specifically, the ongoing COVID-19 pandemic**.** A Swedish econometrician, Herman O. A. Wold (1975, 1982, 1985), developed a statistical method referred to as PLS path modeling (Hair et al., 2011). PLS-SEM calculates partial model structures by integrating principal components analysis with ordinary least squares regressions (Mateos-Aparcio, 2011). PLS-SEM is a well-known regression-based technique utilized in marketing researchers and a social science which estimates relationships in path models with latent and manifest variables (Hair et al., 2017b). PLS-SEM is a causal modeling technique to maximize the dependent latent constructs' explained variance (Hair et al., 2011). Contrary to covariance-based SEM (CB-SEM) (Diamantopoulos & Siguaw, 2006), which was designed for explanatory purposes (Sarstedt, Hair, Ringle, Thiele, & Gudergan, 2016). CB- SEM's objective of reproducing the theoretical covariance matrix without the need to explain the variance. CB-SEM requires a set of assumptions to be met, including the multivariate normality of data, minimum sample size, and so much more (Diamantopoulos and Siguaw, 2000). However, if CB-SEM requirements cannot be achieved, or the research objective is prediction rather than confirmation of structural relationships, variance-based PLS-SEM is the acceptable method. When assumptions are not met, CB-SEM results become imprecise.

PLS-SEM offers more reliable estimations of the structural model (Ringle et al., 2009). SMART-PLS is an appropriate statistical analysis tool for the study because prediction is the primary objective of this research. Conduct exploratory research to contribute to the theory of organizational resilience includes multi-item latent variables. The present research focus

involved a relatively small sample (N=160 firms). Moreover, it intends to maximize the dependent latent constructs; explained variance (Shmueli et al., 2019). PLS-SEM has become widely used, and it supports advanced model designs of higher-order constructs (Ringle et al., 2019). Hierarchical component models in PLS-SEM (Lohmöller, 1989) support researchers to model a construct with an abstract dimension (referred to as a higher-order component) and its objective subdimensions (lower-order components). Therefore, they expand the construct conceptualizations, which usually account for a single layer abstraction. Higher-order modeling has many advantages. Higher-order constructs decrease the number of path model relationships, achieving an optimized model (Edwards, 2001; Johnson et al., 2011; Polites et al., 2012).

The study's conceptual model proposed three dimensions of organizational readiness for change as predictors of organizational resilience; the higher-order construct provides the framework to execute the statistical analysis. The higher-order construct, in this case, was an abstract dimension (Organizational Resilience) with seven concrete subdimensions (lower-order components): Adaptive Capacity Leadership, Adaptive Capacity Innovation, Adaptive Capacity Internal Resources, Planning Effective Partnership, Planning Strategy, Planning Proactive, and Planning Unity of Purpose. Instead of detailing the relationships between multiple exogenous and endogenous constructs in a path model, scholars can summarize the endogenous constructs in a higher-order construct, then the relationship from the lower-order components to the model's dependent constructs obsolete (Hair Jr et al., 2020). Before executing a higher-order construct, scholars have to choose the measurement model specification of the lower-order components and the relationship between the higher-order components and its lower-order components (Jarvis et al., 2003), which could be reflective-reflective, reflective-formative, formative-reflective, and formative-formative (Becker et al., 2012). The proposed model is a hierarchical component

model (HCMs), reflective-reflective with a second-order organizational resilience structure (See Fig.1 and Fig. 2). The following section is the data gathering process.

4.1 Data gathering process.

The first step of the data gathering process was to explore the different options that could facilitate gathering. The target population for the study leaders or managers of family and non-family firms. Qualtrics was the first option I considered because Qualtrics is cited in numerous academic and professional journals as a quality source for empirical data (Hewlin, Dumas, & Burnett, 2017; Koopman, Lanaj, & Scott, 2016; Long, Bendersky, & Morrill, 2011). Qualtrics assigned an academic and research consultant to scope the project, answer questions, provided a quote and necessary documentation for the IRB process. At the same time, other options were considered. Prolific is a management company based in the United Kingdom that enables data collection by connecting people worldwide. However, Prolific did not have family firms' leaders or managers working for a family firm in their pool of responders. The other option was another management company, Centiment Research Service, based in Denver, Colorado. However, Centiment Research Service did not have a history of conducting academic research. Another alternative would have been targeting enterprise centers and soliciting their support and cold-calls non-family businesses based on random internet searches. However, this option would have extended beyond the available time horizon to complete this study.

After considering the options and consultation with dissertation advisors, the committee decided to sign the work with Qualtrics. The Master Services Agreement with Qualtrics included a dedicated project manager, replacing any unusable data, and developing quality checks, including attention filters and survey timings. The final data collected using the Qualtrics panel were divided into Family Business; target responders were Owners/Managers

(80) and Non-family Business Leaders/Managers (80). The final sample was 160. This study was quantitative cross-sectional empirical research that utilized a survey instrument with 44 questions primarily drawn from validated psychometric scales. The survey was distributed electronically through the Qualtrics Experience Management (XM)^{TM} platform to the target audience via email. The length of the survey was about 15 minutes to complete. The responders were executives, managers, or leaders of family firms and non-family firms. The Apriori Sample Size Calculator for Multiple Regression Power Analysis was used to conduct a power analysis to calculate a minimum sample size of N = 160 (See detailed in Appendix 3). However, a recommended research practice accepts a sample size of ten times the number of arrows pointing at the endogenous construct, organizational resilience (Hair, Anderson, Tatham & Black, 1998, p. 99). the study follows the rule of thumb; the minimum sample size would be 60 since six arrows point to the endogenous construct (see Figure 1). This study aimed to test the relationship between three dimensions (Appropriateness, Management Support, and Change Efficacy) of organizational readiness for change and organizational resilience and how a firm's status (family vs. non-family firm) moderates that relationship. Therefore, the total sample (N = 160) consisted of two sub-samples for family and non-family business (N = 80 each). The survey had a screening question, which first had the definition of a family business (Astrachan and Shanker, 2003), then asked if the responder own or work for a family business; in which case the survey was configured to send the responders to additional questions. The responders were limited to individuals who worked in the United States of America to avoid potential confounding effects from different nationalities.

The data gathering process started with a soft launch phase with ten responders. The general response patterns were then assessed, identified any missing data, and any other

misconfigurations in the online survey. SPSS was utilized for this preliminary analysis performing different tests such as descriptive statistics (frequencies, descriptive, and crosstabs). The preliminary tests were also performed after each wave of (N=50). Qualtrics replaced a total of 36 incomplete responses. The other missing data were caused by other expected factors, such as half of the responders were family firm owners or worked for a family firm (family and non-family firm). The missing data were identified in SPSS with a -99 value. Once the data were imported into SMART-PLS, the missing value marker was configured to be -99.

4.2 Sample Characteristics.

The demographic test was done by dividing the sample into the non-family vs. family firm (See Appendix 4 Demographic Tables). Family firm's demographic indicated a 70% male and 30% female compared to Non-Family firm 61.3% male and 36.3 % female. The level of education for non-family firms was 53.8% (Bachelor's and Associate Degree), and Master's degree 21.3%. The non-family firm's responders were executives at 13.8%, senior management at 21.3%, supervisors at 43.80%, and owners at 15% compared to family firm executives at 13%, Senior managers 18.8%, and owners 42.5%. The larger difference was between the family and non-family firms; for family firms s, the owners were approximately 2.5 times more owners than non-family firms. In terms of industry, the non-family firms represented 28.8%, technology 17.5%, and other 46.3%, while the family firm had service 28.75%, technology 32.5%, and other 28.8%. The firm size for non-family firm (1-49)employees represented 48.8% and (50-99) employees 40%. In contrast, the family firm had (1-49) employees, 56.3%, and (50-99) employees, 31.3%. The demographic data showed similar characteristics, and they were all normally distributed. Please see demographic tables on pages (163-164).

Measures. The survey for this study utilized established scales. Some of the items were

adapted to be appropriate for the context of this study. The questionnaire was reviewed and approved by the dissertation committee. Based on their recommendations, appropriateness items were modified to include technology adoption and usage in the context of change during COVID-19. Each scale and its items were described in Appendix 3 (Methodology).

4.3 Quantitative Results.

4.3.1 Reliability and Construct Validity

The data were gathered in four waves. The first wave was a soft launch of N=10 to verify the survey responses, configuration within the Qualtrics platform, and descriptive statistics to find missing data, skewness, kurtosis, and normality with SPPS. The subsequent waves of N=50 each performed Pearson correlations and a two-tailed test of significance.

4.4 Assessment of Measurement Model.

The data were downloaded from SPSS, converted to CSV, and uploaded to the SMART PLS software. The items were reflective because the indicator items were interchangeable; removing any item does not change the construct's nature (Diamantopoulos & Siguaw, 2006). Usually, PLS-SEM assessment is recommended in two facets requiring independent assessments of the measurement models and the structural model (Joseph F Hair Jr et al., 2016). The first step was to measure reliability and validity depending on the given criteria, especially those of a higher-order reflective measurement model (Hair, Ringle, & Sarstedt, 2011).

The first step in PLS-SEM was to create a path model. It connects variables and constructs based on the proposed theory and underlying logic (Hair Jr. et al.,2014). In this model, the independent (predictor, exogenous) variables were Appropriateness, Management Support, and Change efficacy, which was proposed to predict the dependent (endogenous) variable, in this case, organizational resilience. The reflective models were evaluated with the following

measurement (Hair et al., 2011): Internal consistency reliability: Composite reliability should be higher than 0.70 (Hair et al., 2014). Indicator reliability: Indicator loadings should be higher than 0.70. Discriminant Validity: The AVE of each latent construct should be higher than the construct is the highest squared correlation with any other latent construct (Fornell-Larcker criterion). An indicator's loadings should be higher than all of its cross-loadings.

The indicator reliability was estimated by examining the outer loadings for each latent variable. All of the exogenous items (Appropriateness, Management support, and Change Efficacy) outer loadings exceeded the minimum requirement. The moderator variable proposed for this study is family firm status (coded = 1) vs. non-family-firm (coded = 0) status (categorical moderator).

Please see Table 6 with indicators and definitions for organizational resilience. See Table 10, 11-A, and 11-B: Measurement Instrument with exogenous and endogenous indicators.

4.5 Measurement model evaluation (CCA) – Reflective assessment.

Confirmatory composite analysis (CCA) is an approach similar to confirmatory factor analysis (CFA) in covariance-based structural equation modeling. CCA is a preferred method for PLS measurement model evaluation Hair et al. (2020). For reflectively measured constructs as in the present case, CCA requires a seven-step process to assess items' loadings and significance, evaluate indicator reliability, composite reliability, examine average extracted (AVE), confirm discriminant validity using HTMT, asses nomological validity, and evaluate predictive validity, Hair et al. (2020). The following steps were followed to execute a CCA with reflective measurement models. PLS-SEM allows researchers to specify the weighting modes for a construct. In this case, "Mode B" was selected. This mode utilizes the coefficients of a

multiple regression between the latent (i.e., dependent) variable and its indicators (i.e., independent variables) as weights to determine the latent variable scores. Regardless of the measurement model, either reflective or formative, scholars obtain the final outer weights, outer loadings, and structural model relationship (Joe F Hair Jr, Sarstedt, Hopkins, & Kuppelwieser, 2014).

The first step was to assess the indicator loadings and their significance. The standardized loadings should have a value of at least 0.708 and at-statistics above ± 1.96 to be significant for a two-tailed test at a 5% level (Hair, Ringle, & Sarstedt, 2011). The T-statistics in PLS-SEM were calculated by executing bootstrapping. Bootstrapping is a non-parametric procedure that allows testing the statistical significance of various PLS-SEM results. PLS-SEM recommends larger subsamples. In this case, 5,000 subsamples with a two-tailed test (significance level = 0.05) were executed (Hair et al., 2011). Almost all of the items loaded onto their respective constructs above the required threshold level of .704; indicator loadings should be higher than 0.70 (Hair et al., 2011). Therefore, the following items were deleted: Appropriateness_5 (0.355), Management Support_8 (0.286) and Management Support_9 (0.337). The T-statistics results were all above ± 1.96 and significant for a two-tailed at 5% level, and the p-values were significant (Hair, Ringle, & Sarstedt, 2011).

The second step in the CCA was to evaluate the individual indicator loadings, which measured the variance shared between the individual indicator variable and its associated construct, the indicator reliability (Hair, Black, et al., 2019). The following items were removed because they were below the recommended threshold of 0.708 (Hair, Ringle, & Sarstedt, 2011). Items deleted were: Approp_5, Mgm_Supp8, ACIntRsc_1, ACIntRsc3, ACLead_2, ACLead_3, PLNEffect1, PLNEffec5, PLNProactv2, PLNStrag_9. (See Table 7: Measurement Model).

The third step was to assess the construct's reliability, measured in two ways: Cronbach's Alpha and composite reliability (CR). The rule of thumb for both reliability criteria is that they should be above 0.70. It is recommended that composite reliability be more accurate since it is weighted rather than Cronbach alpha (unweighted) (Hair et al., 2019). However, all Cronbach's alpha values were greater than 0.844, which is considered highly reliable (Hair, Black et al., 2019). Composite reliability measures each construct indicators (Hair, Black, et al., 2019). The lowest composite reliability value was 0.906, as shown in Table 10, 11-A, and 11-B, well above the recommended value above 0.70, except for the moderation effects below 0.70.

The fourth step was to assess convergent validity. It is measured by the average variance extracted (AVE). The AVE is calculated by averaging the indicator reliabilities of a construct. It measures the average variance between the construct and its indicators (Hair Jr et al., 2020). This model shows in Table 10, 11-A, and 11-B that AVEs were greater than 0.651 in all the items, well above the AVE criterion of .50 (50%) or higher (Hair, Sarstedt, et al., 2019), which meant that convergent validity was achieved. Please see the table with the measurement model.

The fifth step was to assess discriminant validity. Discriminant validity measures the distinctiveness of a construct. Discriminant validity is assessed when the shared variance within a construct (AVE) exceeds the shared variance between a construct (AVE) exceeds the shared variance between the constructs. There are a couple of methods that can measure discriminant validity. The Heterotrait-Monotrait ratio of correlation (HTMT) has a recommended threshold of 0.85 and 0.90 (Henseler, Ringle, & Sarstedt, 2015). Another measure of discriminant validity is the Fornell-Larcker criterion (Fornell and Larcker 1981a) claim that a latent construct shares more variance with its assigned indicators than with another latent variable in the structural model. Heterotrait-Monotrait is a measure of differences between constructs and is vital for the

scholar to claim measurement distinction for each concept (Hair et al., 2019).

This study used a reflective-reflective, higher-order construct (HO) model. PLS-SEM algorithm uses two different modes to estimates the higher-order constructs. Mode A is used to estimate reflectively measurement models (Becker et al., 2012). Moreover, it is recommended to utilize path weighting as a default setting when estimating higher-order constructs in PLS-SEM. However, when evaluating higher-order constructs require two additional measurement models that the evaluation criteria apply: (1) The measurement models of the lower-order components and (2) the measurement model of the higher-order construct, which appears as the relationships between the higher-order component and its lower-order components (Sarstedt, Hair Jr, Cheah, Becker, & Ringle, 2019).

In order to assess discriminant validity in higher-order constructs requires additional steps. The lower-order components must show discriminant validity and all other constructs in the model except their higher-order component. Thus, higher-order constructs cannot solve discriminant validity in a model; furthermore, the higher-order constructs must have discriminant validity to all other constructs in the models' higher-order component's discriminant validity is assessed by considering its lower-order components as the measurement model of the higher-order component. The following measurement specification of the lower-order components for a reflective model. Lower-order components (LOCs) and HOC (LOCs represent the indicators of the HOC). First, it needs to measure Internal consistency (Cronbach's Alpha, composite reliability, and rho_A). Second, it needs to assess convergent validity (indicator reliability, average variance extracted) and Discriminant validity (Sarstedt et al., 2019). Please see Table 10, 11-A, and 11-B. It meets the requirements for internal consistency. Cronbach's Alpha and composite reliability are >0.7. AVE >0.5 and rho_A >0.7.

In this study, discriminant validity was assessed according to the Heterotrait-Monotrait (HTMT) method using 5000 bootstrapped samples. The HTMT method evaluates discriminant validity by calculating a ratio. The numerator includes the mean of the item correlations between two constructs, whereas the denominator is the mean of item correlations for the intended constructs (Henseler et al., 2015). The results show that Appropriateness has established discriminant validity (HTMT) for the lower order constructs, change efficacy, and management support; however, change efficacy was not confirmed for discriminant validity, a value greater than 0.85 0.90 (Henseler, Ringle, & Sarstedt, 2015). Furthermore, the lower constructs did not establish discriminant validity among themselves. Thus, confidence intervals for HTMT were calculated utilized 97.5% confidence bootstrapping. Only Appropriateness does not violate $HTMT_{.85}$ and $HTMT_{.90}$. The lower-order components must show discriminant validity among each other and all other constructs in the model except their higher-order component because their higher-order components are part of it (Hair et al., 2014). Therefore, the lower-order constructs, change efficacy, and management support violates $HTMT_{.85}$ and $HTMT_{.90}$ (Henseler et al., 2015). Please see table 10, 11-A, and 11-B.

The following assessment for discriminant validity was the Fornell-Larcker Criterion, and they did confirm discriminant validity (Fornell & Larcker, 1981). The rationale was that a constructs should share more variance with its related indicators than with any other construct. The squared correlation between the two constructs should be more significant than any of the two constructs criterion(Hair et al., 2014). The Fornell-Larcker suggests discriminant validity for appropriateness, change efficacy, and management support but does not exhibit discriminant validity among the lower order components. See table 13 Fornell-Larcker criterion.

However,as an additional level of assurance, a construct has discriminant validity if the

outer loadings were higher on the intended construct than any other construct (Hair et al.,2014). Based on the above criteria, the model does exhibit discriminant validity. However, as an additional level of verifying discriminant validity, the outer loadings were higher on the intended construct than any other construct (Hair et al., 2014). Each of the indicator items was appropriately used in each of the latent variables. Therefore, the indicator items suggested discriminant validity.

Confidence Interval at 97.5%. Only Appropriateness indicates discriminant validity. The results underline discriminant validity problems according to HTMT.^{90} criterion (Henseler et al., 2015).

4.6 Structural Model Assessment.

The model's measurement properties established the next step to test the constructs' structural relationships. The following process was utilized to evaluate the structural model. PLS-SEM's main objective was to minimize the unexplained variance (maximize the variance extracted) for all endogenous constructs (Hulland, 1999). PLS-SEM is a non-parametric method that does not require that the data meet certain distributional assumptions (Hair et al., 2011). However, the parametric significance tests (e.g., as used in regression analyses) cannot be applied to test whether coefficients such as outer weights, outer loadings, and path coefficients are significant. Instead, PLS-SEM relies on a non-parametric bootstrap procedure (Davison & Hinkley, 1997; Efron & Tibshirani, 1986) to test the significance of various results such as path coefficients, Cronbach's Alpha, HTMT, and R^2 values (Hair et al., 2016).

In bootstrapping, subsamples are randomly drawn observations from the original set of data (with replacement). The subsample is then used to estimate the PLS path model. This

process is repeated until many random subsamples have been created (e.g., 5,000.). The estimations from the bootstrap subsamples are used to derive standard errors for the PLS-SEM results. With this information, t-values, p-values, and confidence intervals are calculated to assess PLS-SEM results in insignificance (Hair et al., 2017). The process to analyze the structural model consist of six processes that evaluate multicollinearity, path coefficients, and significance, total variance explained by R^2 in the dependent variables, independent variable effect sizes measured by f^2, in-sample prediction measured by Q^2, and out-of-sample prediction assessment derived from the PLS predict procedure (Hair et al., 2020; Shmueli et al., 2019).

Multicollinearity is the assessment of the measurement model that requires evaluating collinearity. Collinearity is evaluated by observing the variance inflation factor (VIF) values. Collinearity is considered problematic if the VIF values are greater than 5 (Hair et al., 2014). Other scholars put the VIF cutoff point to no greater than 10. As illustrated in Tables 23 and 24, three constructs had VIF values greater than five but less than 10. Figure 2 illustrates thefinal outer values for the three constructs of organizational readiness for change. All the indicators were less than five. Moreover, of the inner VIF values, the largest was 4.655 for Change Efficacy and HOC Organizational resilience, which is less than five, suggesting no strong indication of multicollinearity. Please see table 14 for VIF Organizational Resilience.

4.7 Hypotheses Tests.

The total theoretical model was examined with the PLS-SEM method, and all the proposed relationships were included simultaneously. To further test the hypotheses, performed effect size and predictive relevance (See Table 25). Bootstrapping was performed in PLS-SEM to test these hypotheses with indicator weighting mode “B.” The direct effects were significant at a two-tailed significance level of 0.05. The three dimensions of readiness for change

(appropriateness, management support, and change efficacy) are positively related to organizational resilience. The moderation effects were not significant at a two-tailed of 0.05 utilized the calculation method, product indicator. The firm structure did not moderate the relationship between the three dimensions of organizational readiness for change and organizational resilience.

TABLE 16
Direct Relationship for Hypotheses Testing

Hyp	Relationship	Std Beta	Std Error	t-Value	ρ-Value	Significance (ρ<0.05) Decision	f^2	q^2	97.5 % CI LL	97.5 %CI UL
H1	Appropiateness -> Org res	0.163	0.057	2.799	0.005	**Supported**	0.089	2.659	0.053	0.278
H2	Mgm Support -> Org ReS	0.575	0.064	9.119	0.000	**Supported**	0.683	3.033	0.444	0.695
H3	Change Efficacy -> Org Res	0.236	0.068	3.420	0.001	**Supported**	0.122	2.683	0.102	0.369
H4	Mod App- FF vs. NFF	-0.033	0.057	0.946	0.344	**Not Supported**	0.016	2.610	-0.118	0.095
H5	Mod Chg Effc FF vs. NFF	0.014	0.086	1.038	0.299	**Not Supported**	0.057	2.634	-0.126	0.139
H6	Mod Mgmt Supp FF vs. NFF	0.035	0.090	0.591	0.554	**Not Supported**	0.016	2.602	-0.134	0.165

ρ<0.05

R^2 = 0.877 Organizational Resilience

Effect Size impact indicator are according to Cohen (1988), f^2 values: 0.35 (large), 0.15 (medium), and 0.02 (small)

Q^2 . Predictive Relevance (Q^2) of Predictor Exogenous Latent Variables as according to Henseler et al (2009), q^2 values: 0.35 (large), 0.15 (medium), and 0.02 (small).

TABLE 17
Effect Size

Effect Size *(f^2)*

Predictor	**Endogenous**	**R^2 Included**	**R^2Excluded**	**Effect Size**
Appropriateness	Org Res	0.877	0.866	0.089
Mg Support	Org Res	0.877	0.793	0.683
Change Efficacy	Org Res	0.877	0.862	0.122
Mod App- FF vs. NFF	Org Res	0.877	0.875	0.016
Mod Chg Effc FF vs. NFF	Org Res	0.877	0.870	0.057
Mod Mgmt Supp FF vs. NFF	Org Res	0.877	0.875	0.016

TABLE 18
Predictive Relevance

Predictive Relevance (q^2)

Predictor	**Endogenous**	**R^2 Included**	**Q^2Excluded**	**Predictive Relevance**
Appropriateness	Org Res	0.877	0.550	2.659
Mg Support	Org Res	0.877	0.504	3.033
Change Efficacy	Org Res	0.877	0.547	2.683
Mod App- FF vs. NFF	Org Res	0.877	0.556	2.610
Mod Chg Effc FF vs. NFF	Org Res	0.877	0.553	2.634
Mod Mgmt Supp FF vs. NFF	Org Res	0.877	0.557	2.602

TABLE 19
Summary of the Hypotheses Test

Hyp	Statement	Result	Comments
H1	**Appropriateness** is positively related to organizational resilience.	**Supported**	**The third strongest path coefficient (0.160)**, and **significant at two tails, p<.05**, **p-value=0.005**
H2	**Management support** is positively related to organizational resilience.	**Supported**	**The strongest path coefficient of 0.579** and **significant at a two tailed p<0.05**, **p-value=0.000**
H3	**Change Efficacy** is positively related to organizational resilience	**Supported**	**The second strongest path coefficient 0.256** and **significant at a two-tailed p<.05**, **p-value=0.001**
H4	**The relationship between Appropriateness and organizational resilience is moderated by family firm status**. Specifically, the relationship is **stronger** for family firms.	**Not supported**	**Moderation not supported** at p<0.05, **p-value= 0.354** and path coefficient=--.0554
H5	**The relationship between Management support** and **organizational resilience** is **moderated by family firm status**. Specifically, the relationship is stronger for family firms.	**Not supported**	**Moderation not supported at p<0.05, p-value= 0.554** and path coefficient=-0.053
H6	**The relationship between change efficacy and organizational resilience** is moderated by family firm status. Specifically, the relationship is **weaker for family firms**.	**Not supported**	**Moderation not supported at p<0.05**, **p-value= 0.300** and path coefficient=-0.090

As a first step, bootstrapping was executed with a HOC analysis. Please see Figure 2 shows path coefficients for the three endogenous constructs (independent variables), Appropriateness, change efficacy, and Management Support, and indicates a significant relationship with the HOC, Organizational Resilience. Table 20 provides the (adjusted) R-Square values. Figure 2 presents the model with path coefficients, p-value< 0.1, and R-Squares.

As shown in Table 16, Hypothesis 1 proposed a direct and positive effect between Appropriateness and HOC Organizational resilience is not significant because the ρ-value was 0.062 at a two-tailed significance at ρ=0.05. Therefore, Hypothesis 1 is not supported. Hypothesis 2 proposed a direct and positive relationship between Management Support and Organizational resilience. Hypothesis 2 is significant because the ρ-value was 0.000 at a two-

tailed significance at ρ=0.05. Thus, Hypothesis 2 was supported. The third hypothesis proposed a direct and positive effect between Change Efficacy and Organizational resilience. Hypothesis 3 is significant because the ρ-value was 0.001 at a two-tailed significance at ρ=0.05; consequently, H3 is accepted.

Moderation is discussed in the following sections.

The next step was to assess the sample prediction, in this case, the items for organizational resilience based on R-Square of the exogenous variables (Appropriateness, Management Support, and Change Efficacy). The R-Square value suggests the percentage of total variance predicted in the endogenous construct (Hair et al., 2010) or the variables combined effect on the endogenous variable. R^2 values of 0.25, 0.50, and 0.75 for the endogenous latent variable are weak, moderate, and high (Hair et al., 2011). The R^2 is a measure of the model's predictive accuracy. Please see table 20 below.

TABLE 20
R^2

	R^2	R^2 Adjusted
HOC Org Resilience	0.877	0.871
LOC1 ACLead	0.845	0.844
LOC2 ACInv	0.841	0.840
LOC3 PLNEffc	0.759	0.758
LOC4 ACIntRsc	0.579	0.576
LOC5 PLNUnty	0.895	0.895
LOC6 PLNPrct	0.904	0.903
LOC7 PLNStrag	0.891	0.891

The next step is to assess the dependent constructs in-sample prediction based on the effect size (f^2). The effect size f^2 assesses how strongly one exogenous construct contributes to

explaining a specific endogenous construct in R^2. $f^2 = (R^2\text{included} - R^2\text{excluded})/(1 - R^2\text{included})$, R^2 included and R^2 excluded are the R^2 values of the endogenous latent variable when a selected exogenous latent variable is included or excluded from the model. The change in the R^2 value is calculated by estimating the PLS path model twice. The exogenous latent variables included (yielding R^2 included) and the second time with the exogenous latent variable excluded (yielding R^2 excluded). The rules of thumb are: $0.02 \leq f^2 < 0.15$: weak effect, $0.15 \leq f^2 < 0.35$:moderate effect, and $f^2 \geq 0.35$: strong effect (Cohen, 1998). Please see above that the effect size is weak for Appropriateness (0.089) and Change efficacy (0.122) and strong effect size for Management Support (0.683). Analogous to the effect size f^2, the effect size q^2 allows assessing each exogenous construct predictive relevance for a certain endogenous construct $q^2 = (Q^2\text{included} - Q^2\text{excluded})/(1 - Q^2\text{included})$. The rules of thumb are: $0.02 \leq Q^2 < 0.15$: weak effect, $0.15 \leq Q^2 < 0.35$:moderate effect, and $Q^2 \geq 0.35$: strong effect size. The predictive relevance of each exogenous construct, appropriateness (2.659), management support (3.033), change efficacy (2.683) were all strong. This means a strong likelihood that the three dimensions of readiness for change are predictors of organizational resilience. However, the effect size, two were weak, and one effect size was strong. Thus, it could mean a larger sample size needs to be assessed to generalize it.

4.8 Moderation.

SMART PLS has the option to assess moderation. The moderator variable included in the model, path coefficients, and T-statistics were used to explain the interaction effect. Please see Table 16. None of the moderators had a significant effect. Therefore, Hypotheses 4, 5, and 6 were rejected. The calculation method was product indicator (mainly for nominal; binary coding 0,1) unstandardized (calculation of the product terms of the interaction effect) (Ringle, Wende, &

Becker, 2015).

4.9 Control Variables.

Some scholars include control variables in their research. Control variables are usually utilized to measure an independent variable's level of influence and beyond other independent "variables' influences (Bauman, Sallis, Dzewaltowski, & Owen, 2002). In the PLS-SEM model, control variables are recommended when the theory suggests that control variables might significantly predict the dependent variable. Control variables are configured as antecedent in the PLS-SEM model (Hair, Money, et al., 2016). In this study, the following control variables were added: Male, Female, Industries (Manufacturing, Services, Technology), Position within the organization, number of full-time employees, and Level of education. Bootstrapping with 5,000 samples was performed. No significance was found at p=0.05 for any of the control variables. Please see below Figure 3 with Control Variables (Path Coefficients and P-Values).

In conclusion, the control variables were not significant for this study. Future studies need to address this gap.

4.10 Common Method Variance.

Common method bias was possible since the ''model's constructs were designed to measure self-reported scales at a single point in time (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Scholars recommended mitigating the bias by obtaining information from different sources (Podsakoff et al., 2003). However, for this study, this approach was not feasible given time constraints. Instead, the survey was built by separating the predictor variables from the endogenous variables and introducing new instructions, including scale types across the different sections (Podsakoff et al., 2003) and by randomizing the questions. Furthermore, the questionaries had attention checkers and time monitors to ensure the responders focused on the

survey.

Moreover, SPSS evaluated the Kaiser-Meyer-Olkin (KMO) criterion. SPSS provides an option for exploratory factor analysis to produce a single factor solution using all of the study's scale items, and the unrotated solution was examined. Each item was evaluated with the KMO measure of sampling adequacy total variance explained, rotated component matrix, and commonalities. The KMO value was .981, which is greater than .60, and had a statistical significance at ρ=0.05 for Bartlett's Test of Sphericity. Thus, the items were retained for the final instrument (Hair, Black, Babin, & Anderson, 2010).

4.11 Conclusion.

This study's objective twofold — the first was to identify the relevant drivers of Organizational Resilience. The proposed drivers (predictors) of Organizational Resilience were Appropriateness, Management Support, and Change Efficacy (Holt et al., 2007; Weiner et al., 2020;). The second objective was to test whether firm status (family vs. non-family firm) moderates the relationship between Appropriateness, Management Support, and Change Efficacy and Organizational Resilience. The PLS-SEM results suggest that the first three hypotheses were supported in the present sample: Appropriateness, Management Support, and Change Efficacy are significant predictors of Organizational Resilience. The path coefficients show that the most critical predictor of organizational resilience is Management Support (0.579), the second most important is Change Efficacy (0.233), and the third is Appropriateness (0.160). The three dimensions of readiness for change were significant at a p-value of 0.05. This a contribution to organizational resilience literature since the literature lack to identify the drivers of organizational resilience. Future studies need to be done since this a cross-sectional research, and it can not infer causality. The geographic location of this study is that the U.S. only.

Therefore, there is no ability to generalize it.

The other three hypotheses, assessing whether firm status (family vs. non-family firm) moderates the relationship between Appropriateness, Management Support, and Change Efficacy and Organizational Resilience, were not supported. In other words, in the sample underlying this study, whether a firm was a family firm or a non-family firm affected (i.e., neither strengthened nor weakened) the relationship between Appropriateness, Management Support, and Change Efficacy and Organizational Resilience. The section discusses the implications of the findings for management theory and practice, acknowledges the study's limitations, and presents future research suggestions on the topic.

CHAPTER 5: DISCUSSION

5.1 General Discussion.

Sometimes, even in research, antecedent and outcomes are not taken seriously in concept analysis. However, determinants might be a tool to investigate the social context of a construct and its applications. Thus, antecedents are incidents that develop due to the construct's action (De Jong & Ferguson-Hessler, 1996; L. O. Walker & Avant, 2005). The resilience literature suggests three themes: readiness and preparedness, response and adaptation, and recovery (Ponomarov & Holcomb, 2009). The resilience construct in the business and management literature can be found in two influential papers (Staw, Sandelands, & Dutton, 1981) and (Meyer, 1982). Staw et al. (1981) proposed that when events are frame negatively, it leads to risk avoidance, and the outcome is framed from a closed mindset in the form of "threat-rigidity effects," which produced an outcome based on previous experiences when facing a disruption, instead of an out of box, creative and flexible outcome. Meyer (1982) frames the study of resilience from the perspective that the organizations can respond in two ways when a threat occurs. They can absorb the impact (resilience) or adopt new methods (double-loop learning or retention). Both propositions are still debated today. How organizations avoid threat-rigidity and 'activate' resilience in response to threat, and how resilience can be built in a multi-level analysis. (Linnenluecke, 2017). The literature reviewed shows that previous studies have utilized a retrospective analysis to predict how an organization can become resilient. However, scholars have yet to identify the predictive factors of what are the determinants of organizational resilience.

The twenty-first century is complex, volatile, and yet the most innovative in the world's history. Surprisingly, there is no more research on understanding drivers' drivers with all the

challenges we face today. It is vital to understand what the determinants of resilience are. There has been little empirical research in this regard. There is no consensus on the drivers of resilience, on the definition of resilience as a multidisciplinary concept; therefore, there is no resilience theory(Lengnick-Hall, Beck, & Lengnick-Hall, 2011).

The present study was designed to empirically explore the three dimensions of organizational readiness for change (i.e., appropriateness, management support, and change efficacy) as drivers of organizational resilience in crisis times. The second aim of this study was to examine how firm ownership status (i.e., family or non-family firm) moderates the relationship between the three dimensions of organizational readiness for change and organizational resilience. A quantitative assessment was utilized to test these relationships via an online questionnaire completed by critical decision-makers of 160 companies (80 family firms and 80 non-family firms) based in the United States. The survey questionnaire was adjusted from existing psychometrics and employed a cross-sectional design using 'organizations' adoptions or increased digital technology usage in response to the current COVID-19 pandemic as change (crisis) context. It could be that organizations that are ready to change are the ones that become resilient in the face of extreme events. Since this is an empirical cross-sectional design, it has limitations, it does not infer causality, and cannot be generalized.

To date, scholars have yet to unify the concept of organizational resilience and its determinants. (Ruiz-Martin et al., 2018; Sutcliffe & Vogus, 2003). The findings of this study contribute to the extant literature in several ways. At the heart of this research is a question that I have pondered throughout my professional career. Why do some organizations thrive whereas others do not? What differentiates organizations that thrive despite the internal or external risk market, economic, industry, or otherwise? Organizations need to be successful despite

disruptions. In other words, disruption and change are a constant instead of a future event. The answers to those questions are increasingly important since we live in a world that is in constant change, and the likelihood of catastrophes is increasing steadily; we do not know when, but they are bound to occur. Despite the importance of resilience, empirical research is still limited to examining the antecedents and outcomes of resilience (Bonanno et al., 2007; King, Newman, & Luthans, 2016; Linnenluecke, 2017; Luthar et al., 2000; Ruiz-Martin et al., 2018).

Existing organizational theory has yet to answer these questions, and a theory of organizational resilience needs to be unfolded to contribute not just to the strategic management literature but also to organizational and managerial practice across firms, institutions, and industries.

5.2 Research contributions.

The proposed research model investigates the three dimensions of organizational readiness for change. It is a multi-dimensional construct influenced by a change that is appropriate for the organization (i.e., appropriateness), leaders of the organization are committed to the proposed change by providing tangible support in the form of resources and information (i.e., management support) and employees' beliefs that they can implement a change (i.e., change efficacy) (Holt et al., 2007; Weiner, 2020). The organizational member must believe that a proposed change is needed and appropriate in response to a situation. If employees support change, they must also believe that the specific change will target the discrepancy. If employees interpret the proposed changes as not the correct ones to pursue the objective, they might not cooperate to make it work (Paré et al., 2011). This study proposes the direct effect. Appropriateness, management support, and change efficacy are positively related to

organizational resilience. The statistical analysis shows the relationships were significant at ($p <$ .05) (Please see Figure 2).

One of the more significant findings to emerge from this study is that the three dimensions of organizational readiness for change are vital predictors of organizational resilience. The principal theoretical implication of this study is that it identifies organizational readiness for change (appropriateness, management support, and change efficacy) as a significant antecedent to organizational resilience. The findings reported here shed new light on the determinants of organizational resilience. These results add to the rapidly expanding field of resilience and contribute to future research on resilience as a theory. The empirical findings of this study provide a new understanding of organizational resilience. The second contribution is to the technology adoption model. Appropriateness questionnaire asked about organizational adoption and usage of digital technology in response to COVID-19. These insights might help explain why and how technology adoption can help firms become resilient in times of crisis. As appropriateness construct is significant, it contributes to the technology adoption model. It implies that technology usage and adoption are crucial for organizations to be resilient in times of crisis. Technology has allowed us to continue business as close as usual during an unprecedented modern time, pandemic. The U.S. and most developed countries had the technology infrastructure in place before COVID-19. However, in some cases, it had to become more robust to support working from home, video calling, and the development of existing platforms (e.g., zoom, google meets, and others) had to be fine-tuned to rapidly been consumed at a scale not seen before. This study is a one-time study; the items would have to be tested again in a longitudinal study to generalize it with a larger sample size. Appropriateness is a significant construct at a p-value of 0.005, significant at $p<0.05$, and the third-largest coefficient

of 0.160. Before this research, no empirical research had connected a possible direct effect of appropriateness to organizational resilience.

The second proposed hypothesis states that management support is positively related to organizational resilience. The literature on organizational readiness for change suggests that principal support is one of five beliefs of change message (i.e., discrepancy, appropriateness, efficacy, principal support, and personal valence) (Armenakis & Harris, 2009; Holt et al., 2007). Scholars and practitioners agreed that senior management support is fundamental for organizations to be successful. Quinn (2004) estimated that 50% of all change efforts fail, often lacking the appropriate leadership support. Further, Kotter and Cohen (2002) suggested that the failure is usually not technical but lacks leadership support. Often, employees view change with cynicism, adjudicating the reason for change as the latest management attempts to cover their previous errors (Reichers et al., 1997). The leader's relationship with the employee creates a culture of trust, resulting in reciprocity. Thus, the change processes a greater likelihood of gaining support across the work-group members (Duarte et al., 1993). Management support assesses that the organization will provide all the necessary tangible resources and information to overcome the challenges.

The second major finding was that find evidence that management support was a significant antecedent for organizational resilience. The results suggest a positive path coefficient of 0.599, a *p-value* of 0.000 ($p < .05$), and a T-value of 7.295. The resilience literature offers a wide range of studies to measure resilience with no consensus about organizational resilience's consistent psychometric scale. A literature review on resilience assessment summarized the measurements as follows: using indicators (McManus et al. (2007); Seville (2009); Whitehorn (2010) with factors such as situation awareness, management of

vulnerabilities, and adaptive capacity. The literature reviewed informed that none has done an empirical model that includes management support as a driver of organizational resilience. The measurement for management support was adapted from Holt et al. 2007); see methodology section for more information.

The third proposed hypothesis stated that change efficacy is positively related to organizational resilience. Weiner's (2020) organizational readiness for change theory includes change efficacy as a component of readiness for change (i.e., willingness and ability to act; Weiner's (2020) defined change efficacy as the organization members' shared belief in their collective capabilities to organize and perform the strategy to a successful implementation. Weiner proposed that change efficacy is a function of "organizational member's cognitive assessment of three crucial implementation capabilities: task demands, resource availability, and situational factors" (Gist et al., 1992:189). Change efficacy is higher when people believe that collectively they can tackle the disruption because they can organize and execute (Weiner, 2020).

In contrast, Legnick-Hall (2005) defined three organizational resilience components: cognitive, behavioral, and contextual, Legnick-Hall et al. (2005:751). Organizational resilience is a group effort derived from its beliefs and capabilities. The definition of organizational resilience is the capacity that originates from the organizations' capabilities, methodologies, and the process by which a firm aligns its strategy and creates a new actional, iterative and flexible short- and long-term strategy (Lengnick Hall et al., 2011). Organizational members can quickly adjust the course of action to meet the challenges and move the organization forward in the business cycle. Thus, change efficacy and organizational resilience are conceptually interrelated because their belief and capabilities are crucial components to deliver positive outcomes. The

statistical analysis showed a significant relationship with a positive path coefficient of 0.256, a p-value of 0.00, at a two-tailed significance level of 0.05 ($p < .05$), and a T-value of 2.912. Both constructs share organizational member's cognitive and behavioral assessment of their capabilities. The prior literature review did not show any studies that linked change efficacy as an antecedent of organizational resilience. The result of this investigation shows that change efficacy is a significant antecedent of organizational resilience.

This investigation aimed to assess if firm ownership status (i.e., family or non-family firm) moderates the relationship between the three dimensions of organizational readiness for change and organizational resilience. The statistical analysis found no support for moderation. The family firm literature supported these moderation hypotheses since family firms have existed for thousands of years and continue to thrive worldwide (La Porta, Lopez-de-Salinas, & Shleifer, 1999). Research has shown that family firms have a history of longevity and a significant contribution to the economy (Bertrand & Schoar, 2006). Moreover, some other firms become family firms as part of the business cycle (Chua, Chrisman, & Chang, 2004). Consequently, it appears to be evidence that family firms are resilient.

On the other hand, the findings could be the result of a sampling issue. The responders self-identified as someone who works for a family firm or owns the family firm. No family firms' measurements were included in this model. Another possibility could be that there is no difference between family and non-family firms in how resilient an organization can be. A longitudinal study would have to be done to confirm it. It could mean that regardless of firm ownership status, change efficacy and management support are the drivers of organizational resilience. However, this assessment will have to be done later in a longitudinal study with a larger data sample. These findings have significant implications for the understanding of

organizational resilience. The results suggest that organizational readiness for change (appropriateness, management support, and change efficacy) are key predictors of organizational readiness for change. It could mean that future studies could utilize these findings to continue investigating organizational resilience and eventually propose a theory of organizational resilience. These findings suggest that readiness for change theory (Weiner's 2020) is the primary driver of organizational resilience. The findings of this research provide insight into the context of "change." Appropriateness, management support, and change efficacy as antecedents of organizational resilience were supported in adopting or using new technology in crisis time, COVID-19. The findings could contribute to future research on the adoption acceptance model (TAM), which has become the role model to understand predictors of human behavior and the acceptance or rejection of new technology (Lee, Kozar, & Larsen, 2003)

5.3 Practitioner contributions.

The findings also have some important implications for managerial practice. Any firm affected during COVID-19or those seeking to be prepared for a crisis or any disruption. Today, It is well known that organizational resilience is an essential practice for an organization's success in the world (Britt, Shen, Sinclair, Grossman, & Klieger, 2016). This study found two drivers of organizational resilience. The first one is that appropriateness is a significant antecedent of organizational resilience. Holt et al. (2007) define it as a unitary construct comprised of discrepancy and organizational valence. Appropriateness means the belief that a change is necessary and beneficial for the organization and organizational members. The second proposed driver of organizational readiness for change, management support. The results suggest that management supports a significant antecedent of organizational resilience. Management support believes that the organizational leaders are committed to the change (Holt

et al., 2007). In these times of constant change, employees need to feel supported by their leadership. Organization leaders need to develop trust, treat employees with respect, promote social support, perform feedback with financial incentives, promote paths, and be ethical in their business endeavors, leading to employee loyalty and job satisfaction (Hind et al., 1996).

The third proposes an antecedent of organizational resilience, change efficacy, organizational members' shared belief in their collective capability to implement change (Weiner et al. (2009).

Practitioners could apply the constructs of appropriateness, management support, and change efficacy to build organizational resilience. Appropriateness is the belief that change is needed, and it is done for the right reasons, at the right time. When employees agreed that the change is appropriate, it propels them to build a resilient organization because they are committed to the change and will work around any challenges that will arise due to the change plan or unplanned. Change efficacy, defined by Holt et al. (2007), is that individuals have the necessary skills, ability, knowledge, and resources to tackle any new challenge. Employees who feel comfortable with their current abilities will believe that they can acquire a new skill. Thus they can regain trust in themselves when managers practitioners put into practice change efficacy (Gist & Mitchell, 1992) examined efficacy as a perceived capability to perform a task. They suggest that to create change-efficacy, organizational members should consider the following: Do we know what it will take to execute this change? Do we have the resources to perform this change? Can we effectively execute this change given the current environment? Organizations assess whether they have in-house expertise, financial, material, and informational resources necessary to execute the change successfully (Weiner, 2020).

Finally, organizations should consider other internal factors such as whether sufficient

time is available for a successful implementation or other competitive initiatives threaten a successful deployment whenever organizational members have a shared vision, mission, knowledge of the task. Moreover, they know of the available resources. They will be ready to conquer any challenges. Then, change efficacy is high, and they are on the path to building resilient organizations. At any time, organizational resilience is critical to understand to build those types of organizations amid catastrophes.

Nonetheless, during these unprecedented times of COVID-19, organizations need to be strengthened to develop their full capabilities and be ready for change. Although this study is cross-sectional and the findings cannot be generalized, it provides some evidence for future research on resilience drivers. This study suggests that firm status (family or non-family firm) does not moderate the relationship between organizational readiness for change and organizational resilience. Again, it is an opportunity for further research to perform a longitudinal study with a more extensive set of industries, including a larger set of top managers. Because resilience makes or breaks an organization. It could strengthen the theory of resilience at the individual level.

None of the control variables significantly correlated the relationship between organizational resilience and organizational readiness for change. Various permutations were performed with bootstrapping at 500 samples, then at 5,000 samples, and different significance levels from $\rho=0.05$ to $\rho=0.1$. None of the control variables have significance, including the organization's size. Therefore, this study found no evidence that organizations can improve organizational resilience by changing their demographics or types.

5.4 Limitations and Future Research.

This study has several limitations common to a cross-sectional survey. It cannot be generalized. No causality can be performed. A longitudinal study should be performed to verify these findings, including why there was no significance on any control variables.

A common factor variance is typically introduced in a single survey study because responses for the predictor and criterion variables are collected simultaneously, survey-based method bias (Podsakoff et al., 2003). The latter recommendation was not possible to implement for this study; common factor bias may be part of this research (Peterson, 2002) because this study was collected via a survey at one point in time and in a cross-sectional manner. Therefore, it can no claim causality. Another risk to the validity of this study could be the sourcing of the target respondents through Qualtrics. Researchers have no way of verifying the 'respondents' identity, reliable on Qualtrics knowledge and their third-party panels' management. The quality of their responses is not guaranteed that the responders meet the acceptance criteria to answer the surveys with adequate experience and knowledge. Qualtrics implemented a screening process including multiple attention check items, minimum duration time, and randomization throughout the survey. The previous strategies were implemented during the three-week data collection process, but data analysis found missing data. Those items were replaced (36) responders with missing items.

This study measured the firm status dichotomously (Family vs. Non-Family Firm). The objective was to understand if the firm status moderated the relationship between the three dimensions of organizational readiness for change and organizational resilience. The results were not significant. Future studies might want to look at family influence (F-PEC) to measure family engagement continuously. Another limitation of this study is that I could only survey

firms that have survived the pandemic. It is still preliminary, not easy to know what firms were operational and failed due to COVID-19. This study is based in the U.S only, and it is not generalized to other geographic locations.

Future research should be a longitudinal study design targeting a large multi-industry population and collect data from diverse populations, including employees, leaders, and others across many organizations, including non-profit, small, medium business owners, family firms, government, and other institutions such as Universities. The study should be at a multi-level analysis (individual and organizational to investigate whether there is a relationship between the unit-level variables correlated with the organization-level analysis. Another future study could have a qualitative method to compare both studies and find stories to understand the drivers of organizational resilience in areas that might not measure in a quantitative study because of its nature.

5.5 Conclusion.

The last two years have been unprecedented in the history of the modern world. The world has experienced social and economic distress touching all levels of society from developed countries to the world's most remote areas, such as the Amazons in Brazil, states' leaders, and noble family members. None has been immune to the COVID-19 crisis. As of today, Spring of 2021, there is no way to assess the global damage. Data is spread, and it is still early to claim victory over the virus in the U.S. alone, with more than 569,401 death due to COVID-19 and more than 31.8 million COVID cases in the U.S.(coronavirus.jhu.edu/map.html). Recently, the U.S.A started the vaccination process, and as of April 2021, 24% of the U.S population have been vaccinated (coronavirus.jhu.edu/vaccines/us-states). The consequences can be significant when considering that 26.5 million jobs were lost (Lambert, 2020) by April 23, 2020, due to the

pandemic. Despite the $2 trillion financial stimuli and in 2021, the recent stimulus of $1.9 trillion.

Therefore, identifying the predictors of organizations' resilience is crucial to organizations and society at large. This quantitative research identified relationships between organizational readiness for change and organizational resilience. Specifically, three dimensions of organizational resilience: appropriateness, change efficacy, and management, support as vital determinants of organizational resilience. This study found no evidence of the type of industry as moderator of organizational resilience, which could lead us to infer that future studies need to validate that change efficacy and management support could be the antecedents of organizational resilience regardless of the firm's structure. Of course, to be able to generalize the previous statements. A longitudinal study with a large set of target industries and responders should be designed and implemented.

This research contributes to the scholarly knowledge of organizational resilience concerning what drives organizational resilience, which generates implications for the theory that needs to be further developed and tested. Additionally, it provides some knowledge to practitioners to work with their respective organizations in the quest for success during a pandemic.

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FIGURE 1.
Research Model: Drivers of Organizational Resilience moderated by Firm Status.

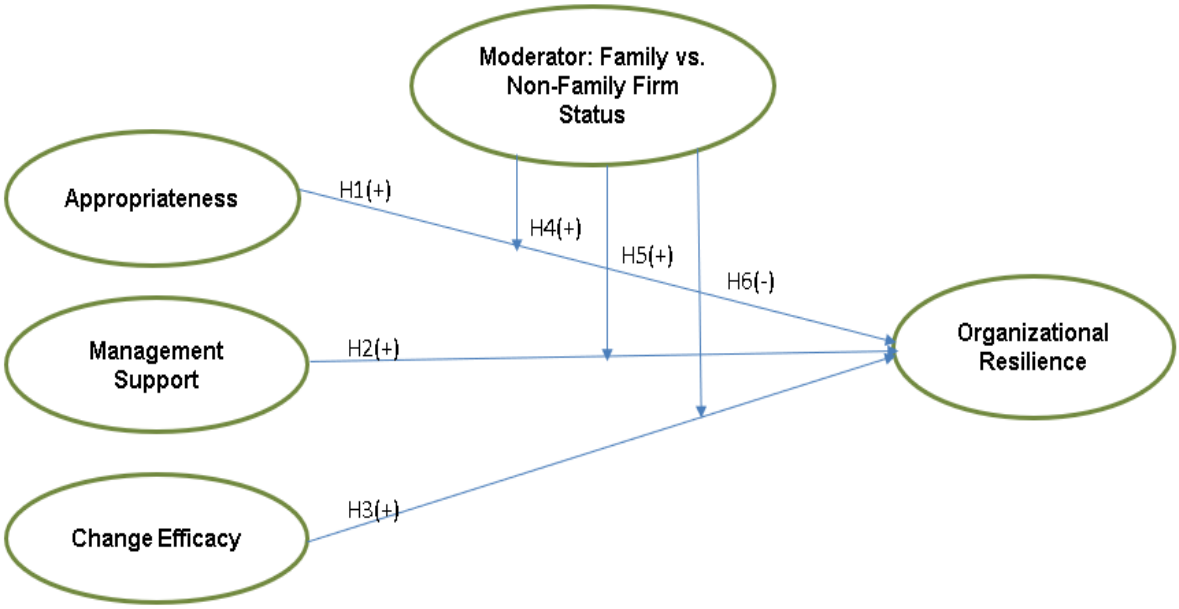


FIGURE 2.
Organizational Resilience Model. Inner Model: Path Coefficients and P-Value<0.05. Two-tailed significance level at 0.05

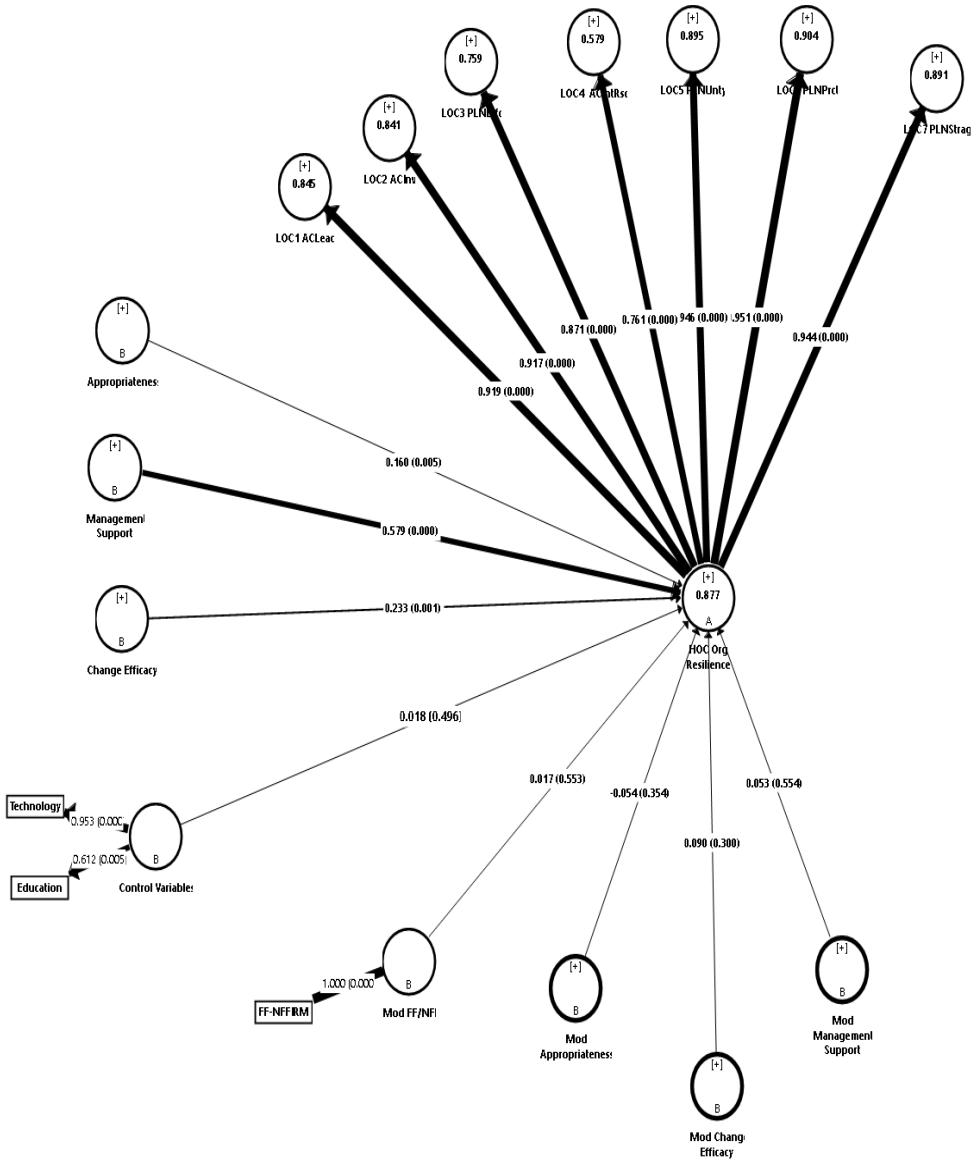


FIGURE 3.
Organizational Resilience Model. Inner Model: Path Coefficients and P-Value<0.1. Two-tailed significance level at 0.1

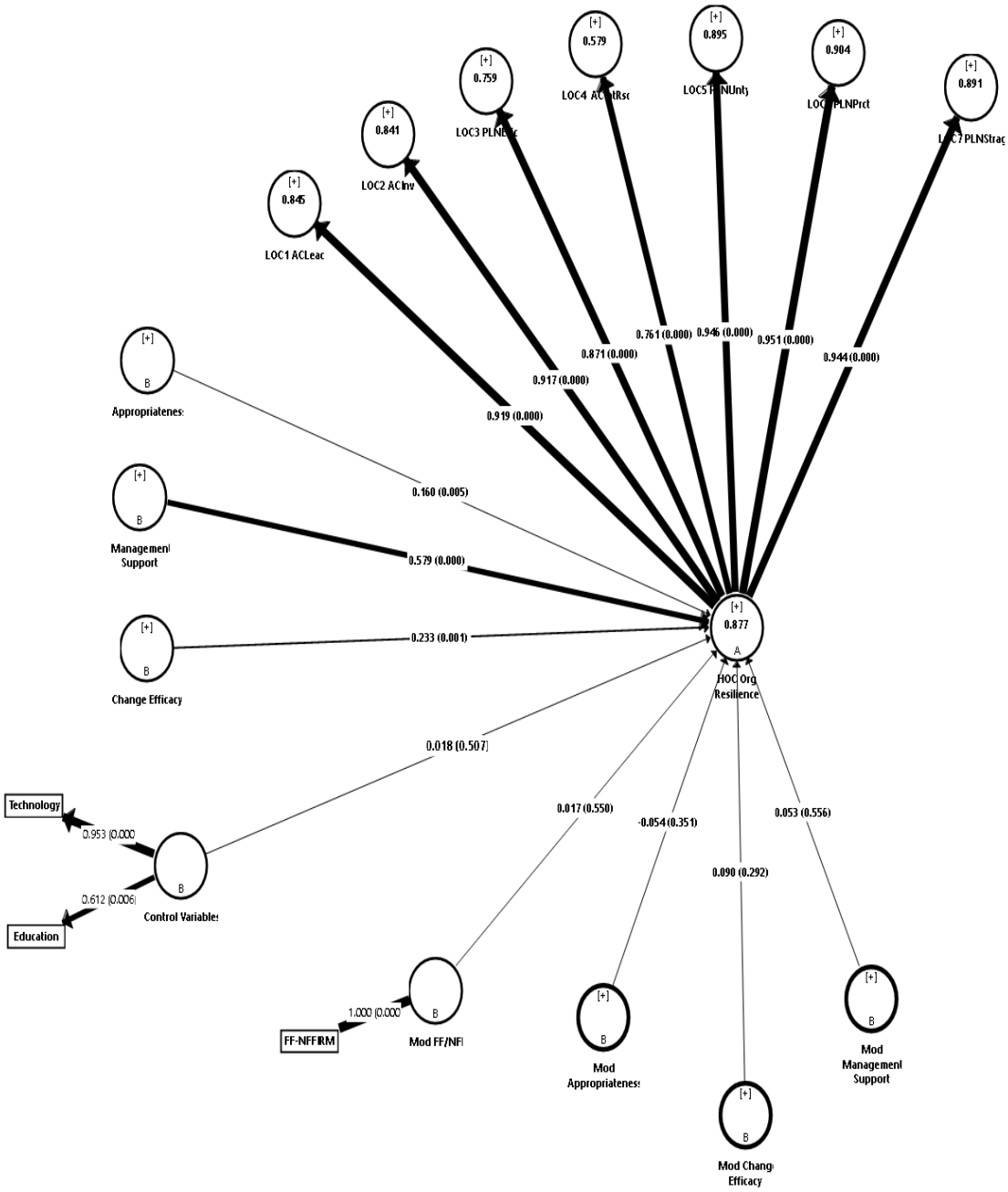
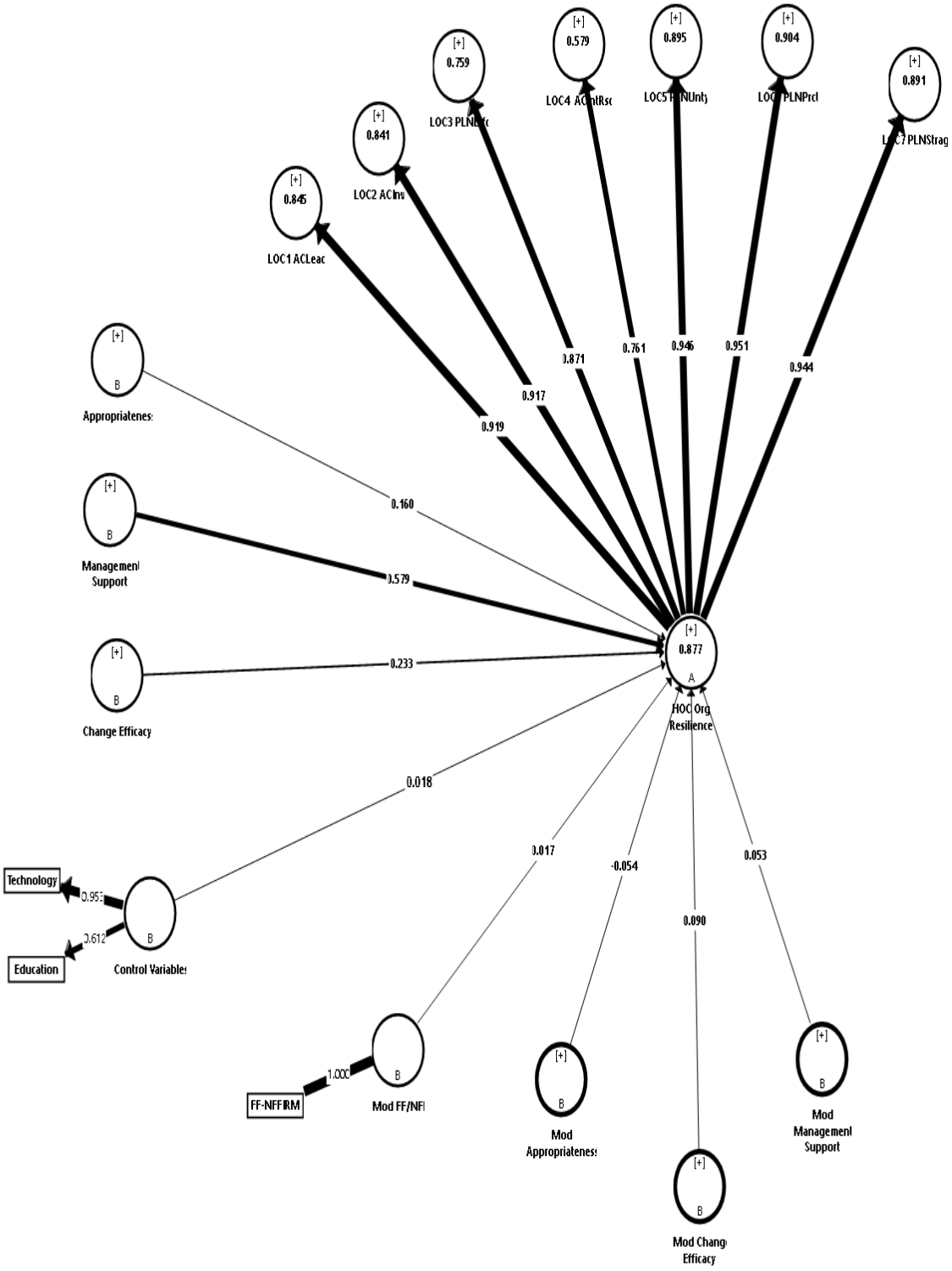


FIGURE 4.
Organizational Resilience Model (Inner Path Coefficients s and Outer Model: Outer Weights/Loadings and Constructs R^2.



APPENDIX 1: Literature Review

Table 2A: Definition of Resilience

Author	Field of study	Level of Analysis	Definition
Holling, 1973	Ecological Systems	Ecosystems	Resilience could be defined as measuring the persistence of systems and their ability to absorb change and disturbance. Moreover, it still maintains the same relationships between populations or state variables.
Alsberg & Day, 1976	Computer Science	Systems	Dependable computing systems. Equivalent to fault tolerance. Ignores the unexpected aspect of the phenomena the systems may have to face.
Anderson, 1985	Computer Science	Systems	Resilience has two key attributes: dependability and robustness. A robust system retains its ability to deliver service in conditions beyond its normal operation domain. Moreover, Fault-tolerant systems exhibit robustness concerning fault and error handling for the task that exceeds their design and specifications.
Rutter, 1985	Psychiatric	Individual	Resilience is the ability to bounce back or cope successfully despite substantial adversity.
Tilman and Dowing, 1994	Ecological Systems	Ecosystems	The speed at which a system returns to a single equilibrium point following a disruption
Engle et al. (1996)	Social Science and Human Resources	Individual	In child psychology and psychiatry refers to living and thriving when facing adversity.
Horne and Orr, 1998		Organizational	Resilience is crucial to respond to drastic changes that disrupt an anticipated event without introducing adverse outcomes for an extended time.
Gunderson and Holling, 2002	Ecological Systems	Ecosystems	The magnitude of disturbance that a system can absorb before its structure is redefined by changing the variables and processes that control the behavior
Paton et al.,2000	Disaster Management	Organizational	Resilience describes an active process of self-righting, learned resourcefulness, and growth -the ability to function at a higher level psychologically given an individual's capabilities and previous experiences.
Dunning, 1999	Organizational/ Police Trauma	Organizational	Resilience is an active process of self-righting, learned resourcefulness, and growth-the ability to function psychologically at a level far more significant than expected given the individual's capabilities and previous experiences.
Holling, 2001	Ecological Systems	Ecosystems	Quantitative Property that changes throughout ecosystem dynamics and occurs on each level of an ecosystem's hierarchy
Luthar et al. (2002)	Psychology	Individual	Resilience refers to a dynamic process encompassing positive adaptation within the context of significant adversity. "Resilience" should always be used when referring to the process or phenomenon of competence despite adversity, with the term 'resiliency' used when referring to a specific personality trait. Techniques that alter the effects of hardship, the words "protective" and "vulnerability" should describe overall results that are beneficial versus detrimental.
Carpenter et al. (2001)	Socio-ecological systems	Ecosystems	The magnitude of disturbance that a system can tolerate before it transitions into a different state controlled by a different set of processes.
Walker et al. (2002)	Socio-ecological	Organization	Resilience is the capacity of a system to experience shocks while retaining essentially the same function, structure, feedback, and identity.
Coutu (2002)	Sociological	Individual	Individuals' have three common characteristics: acceptance of reality, a strong belief that life is meaningful, and the ability to improvise.

Table 2B: Definition of Resilience

Author	Field of study	Level of Analysis	Definition
Bruneau et al. (2003)	Risk Management	Systems and Community	Resilience could be a preventive measure to mitigate hazard-related damage and losses and post-event strategies to cope with and minimize disaster impacts.
Walker et al. (2006)	Socio-ecological systems	Systems	The capacity of a system to experience shocks while retaining essentially the same function, structure, feedbacks, and therefore identity
Hamel and Valinkangas (2003)	Business Management	Organizational	Resilience refers to the capacity for continuous reconstruction to reinvent a business model to meet the new market demands.
Folke et al. (2004)	Systems Ecology	Systems	There are four aspects of Resilience: Lattitude (width of the domain), Resistance (height of the domain), Precariousness, and cross-scale relations.
Avizienis et al. (2004)	Computer Systems	Computer Systems	Resilience can be defined as the persistence and consistency of service delivery that can justifiably be trusted when facing changes.
Bodin and Wiman Luthans et al. (2006)	Ecological Systems Psychology	Systems Organizational	The velocity at which a system returns to equilibrium after displacement, irrespective of oscillation, Resilience is the capacity to respond and prosper from negative or positive stressful events—the ability to rebound from adversity.
Masten and Reed, 2002	Psychology	Individual	Resiliency is "a class of phenomena characterized by patterns of positive adaptation in the context of significant adversity or risk." Two critical criteria define Resilience: Risk (disturbances). What challenges are threatening the system? Cumulative risk and adversities. Adaptation: How well is the system doing?
McDonald (2006)	Business Management	Organizational	Resilience can adapt to the requirements of the environment and manage the changes in the settings.
Hollnagel et al. (2006)	Engineering	Organizational	The ability to sense, recognize, adapt, and absorb changes, disturbances, abrupt disruptions, and catastrophes. Resilience could help to anticipate risk changes before damage occurrence.
Cumming et al. 2005	Social and Ecological sciences	Systems	The ability of the system to maintain its identity in the face of internal change and external shocks and disturbances
Adger 2000	Economic and Social	Organizational	The ability of groups or communities to cope with external stresses and disturbances as a result of social, political, and environmental change
Brocke et al., 2002	Economic and Social	Systems	Transition probability between states as a function of the consumption and production activities of decision-makers.
Perrings 2006	Ecological-economic	Systems	The system's ability to withstand either market or environmental shocks without losing the capacity to allocate resources efficiently.
Adger et al., 2005	Social-ecological	Systems	Resilience has the capacity of social-ecological systems to absorb recurrent disturbances. Furthermore, to retain essential structures, processes, and feedbacks.
Pickett et al. 2004	Metaphoric	Normative concept	Flexibility over the long term
Ott and Doring, 2004	Sustainability	Normative concept	Maintenance of natural capital in the long run

Table 3: Definition of Organizational Resilience

Author	Definition
Ruiz-Martin, López-Paredes, & Wainer (2018)	Organizational resilience is the measurable combination of characteristics, abilities, capacities, or capabilities that allows an organization to withstand known and unknown disturbances and still survive.
Meyer (1982)	Organizational resilience is the ability to absorb a discrete environmental jolt and restore prior order.
Coutu (2002)	It indicates that resilience is a critical capability for success. Focusing on resilience as a distinctive organizational capability
Gittell, Cameron, Lim, and Rivas (2006: 303)	It is a dynamic capacity of organizational adaptability that grows and develops over time.
Stoltz (2004)	It is vital to develop a long-term strategic plan and to produce better than less resilient competitors.
Lengnick-Hall and Beck (2005: 750)	A capacity: "a unique blend of cognitive, behavioral, and contextual properties that increase a firm's ability to understand its current situation and to develop customized responses that reflect that understanding."
Beck, and Lengnick-Hall (2011: 244)	A firm can effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalize on disruptive surprises that potentially threaten organization survival.
Beermann (2011)	Resilience is "an analytical category for building corporate adaptation strategies."
Sullivan-Taylor and Wilson (2009)	Resilience as "a solution to organizations facing high levels of threat in all aspects of their operating environment
Sun et al. (2011)	Organizational resilience is a set of adaptive capacities to a positive trajectory of entrepreneurial functioning after a crisis, disturbance, or challenge.
Burnard and Bhamara (2011)	Organizational resilience is a "means to develop organizational systems capable of overcoming this complexity within turbulent environmental conditions."
Reinmoeller and van Baardwijk (2005)	The capability to self-renew over time through innovation".
Hamel and Valikangas (2003)	The ability to systematically redesign business models and strategies as circumstances change". Organizational resilience refers to the capacity to iterative design business processes.
Lengnick-Hall et al. (2011)	Organizational resilience has specific organizational capabilities, routines, practices, and processes by which firms orient themselves, act to move forward, and create a set of diverse, adjustable integration.
Sutcliffe & Vogus (2003)	Bouncing back from setbacks or challenges
Weick et al. (1999)	Positively adjusting in the face of adversity
Bunderson & Sutcliffe(2002); Edmondson(1999)	It is the capacity to adjust and maintain desirable functions under challenging or straining conditions.
Gittell et al. (2006: 303); Walker et al.(2004)	Adapting through "processes that help organizations retain resources in a form sufficiently flexible, storable, and malleable to avert maladaptive tendencies" in dealing with the unexpected
(Williams, Gruber, Sutcliffe, Shepherd, & Zhao, 2017)	It is how an actor builds and uses its capability endowments to interact with the environment and positively adjusts and maintains functioning before, during, and following adversity.
Luthans (2002b)	'Resiliency is the positive psychological capacity to rebound, to "bounce back" from adversity, uncertainty, conflict, failure or even positive change, progress, and increase responsibility."
Horne and Orr (1998)	Organizational resilience is the fundamental quality to respond productively to significant change that disrupts the event expected pattern without introducing an extended period of regressive behavior.
McDonald (2006)	Organizational resilience conveys the properties of adapting to the requirements and managing the variability of the environment.
(Annarelli & Nonino, 2016)	The organization can face disruptions and unexpected events in advance thanks to strategic awareness and linked operational management to internal and external shocks.
Hamel and Valikangas (2003)	Resilience is not just an active component of recovery, flexibility, or crisis preparedness. It is also a distinct source of sustainable competitive advantage.
Wildavsky (1988)	Organizational resilience is a dynamic capacity of organizational adaptability that grows and develops over time.

Table 4. Definitions of Organizational Readiness for Change.

Author	Definition	Antecedents
Weiner et al. (2008) and Weiner (2009)	Organizational readiness for change refers to the organizational members' change commitment and self-efficacy to implement organizational change.	Change commitment and Change efficacy
Holt et al. (2010)	Readiness for change consists of psychological and structural factors. The extent to which the organization and its members are willing to accept and adopt a new strategy to change the status quo (p. 551).	Organizational psychological factors (e.g., collective commitment, collective efficacy). Organizational structural elements (e.g., discrepancy, support climate, facilitation strategies)
Rafferty et al. (2013)	Readiness is a belief and intention about what needs to change in an organization and its capacity to engage in the required changes (p.111) successfully.	Cognitive (need for change, efficacy, personal valence); emotional responses to a change event
Scaccia et al. (2015)	Readiness indicates the need for an organization to be willing and able to implement an innovation.	Motivation, general capacity, innovation-specific capacity

Appendix 2: Methodology

Table 6: BRT-13b item list with corresponding indicator code organizational resilience (Whitman et al., 2013)

Factor	Indicator	Indicator code	Indicator definition
Planning	Proactive Posture	PLNProactv	A strategic and behavioral readiness to early warning signals of change in the organization's Internal and external environmental.
	Unity of Purpose	PLNUnty	An organization-wide awareness of what the organization's priorities would be following a crisis, defined attThe organization levels.
	Planning Strategies	PLNStrag	The development and evaluation of plans and strategies to manage vulnerabilities about the business environment and its stakeholders.
	Effective Partnerships	PLNEffect	An understanding of the relationships and resources the organization might need to access from other organizations during a crisis and planning and management to ensure this access.
Adaptive Capacity	Leadership	ACLead	Strong crisis leadership to provide good management and decision-making during times of crisis, as well as continuous evaluation of strategies and work programs against organizational goals.
	Innovation and creativity	ACInnv	Innovation and creativity of staff are encouraged and rewarded for using their knowledge in novel ways to solve new and existing problems and for utilizing innovative and creative approaches to developing solutions
	Internal Resources	ACIntRsc	The management and mobilization of the organization's resources to ensure its ability to operate during business as usual, as well as being able to provide the extra capacity required during a crisis.

Table 7: Measurement Instrument for organizational resilience (Whitman et al., 2013) (55 items)

Constructs	Variable	No. of Items	Indicators	Adopted from
Organizational Readiness for Change	Appropriateness	6 items	Approp_1, Approp_2, Approp_3, Approp_4, Approp_5, Approp_6,	(Holt et al., 2007)
	Management Support	5 items	Mgmt_Supp1, Mgmt_Supp2, Mgmt_Supp3, Mgmt_Supp4, Mgmt_Supp5	(Holt et al., 2007)
	Change Efficacy	5 items	ChgEffic_1, ChgEffic_2, ChgEffic_3, ChgEffic_4 ChgEffic_5,	(Shea et al., 2014) `
Organizational Resilience	Adaptive Capacity Leadership	6 items	ACLead_1, ACLead_2, ACLead_3, ACLead_4, ACLead_5, ACLead_6,	(Whitman et al., 2013)
	Adaptive Capacity Innovation	3 items	ACInnv_1, ACInnv_2, ACInnv_3	
	Adaptive Capacity Internal Resources	3 itmes	ACIntRsc_1, ACIntRsc_2, ACIntRsc_3	
	Planning Effective Partnership	3 items	PLNEffect_1, PLNEffect_2 PLNEffect_3, PLNEffect_4 PLNEffect_5	
	Planning Unity of Purpose	5 items	PLUnty_1, PLNUnty_2, PLUnty_3, PLNUnty_4, PLUnty_5	
	Planning Proactive Posture	8 items	PLNProactv_1,PLNProact_2, PLNProactv_3,PLNProact_4, PLNProactv_5,PLNProact_6, PLNProactv_7, PLNProact_8	
	Planning Strategies	9 items	PLNStrag_1, PLNStrag_2, PLNStrag_3, PLNStrag_4, PLNStrag_5, PLNStrag_6, PLNStrag_7, PLNStrag_8, PLNStrag_9	

Appendix 3: Results

Demographic Tables

Table 8: Summary of Demographics Family Firms

Attributes	Characteristic	Frequency	%
Age	21 to 30	8	10.0
	31 to 40	26	32.5
	41 to 50	13	16.3
	51 to 60	6	7.5
	61+	26	32.5
Gender	Male	56	70.0
	Female	24	30.0
Education	BAC +		
	Associate	27	33.8
	Master's Degree	39	48.8
Position	Executive	11	13.8
	Senior Management	15	18.8
	Supervisors	11	13.8
	Owner	34	42.5
	Service	23	28.8
Industry	Manufacture	8	10.0
	Technology	26	32.5
	Other	23	28.8
Full-Time Employees	1 to 49 employees	45	56.3
	50 to 99 employees	25	31.3
	1,000 to 2,499 employees	4	5.0

Table 9: Summary of Demographics of Non- Family Firms

Attributes	Characteristic	Frequency	%
	21 to 30	7	8.8
Age	31 to 40	12	15.0
	41 to 50	13	16.3
	51 to 60	12	15.0
	61+	35	43.8
Gender	Male	49	61.3
	Female	29	36.3
Education	BAC + Associate	43	53.8
	Master's Degree	17	21.3
Position	Executive	11	13.8
	Senior Management	17	21.3
	Supervisors	35	43.8
	Owner	12	15.0
	Service	23	28.8
Industry	Manufacture	6	7.5
	Technology	14	17.5
	Other	37	46.3
Full-Time Employees	1 to 49 employees	39	48.8
	50 to 99 employees	32	40.0
	1,000 to 2,499 employees	2	2.5

Table 10. Measurement Model Exogenous Variables

Latent Variable	Indicators	Convergent Validity		Internal Consistency Reliability				Discriminant Validity
		Loadings	Indicator Reliability	AVE	Cronbach's Alpha	Composite Reliability	Rho_A	
		>0.70	>0.50	>0.50	0.60-0.90	0.60-0.90		HTMT confidence interval does not include 1
Appropriateness	Approp_1	0.709	0.503	0.700	0.929	0.920	0.858	0.772
	Approp_2	0.780	0.608					
	Approp_3	0.803	0.645					
	Approp_4	0.917	0.841					
	Appropr_6	0.951	0.904					
Mgmt Support	Mgmt_Sp1	0.868	0.753	0.720	0.939	0.947	0.978	0.713
	Mgmt_Sp2	0.887	0.787					
	Mgmt_Sp3	0.900	0.810					
	Mgmt_Sp4	0.771	0.594					
	Mgmt_Sp5	0.871	0.759					
	Mgmt_Sp6	0.839	0.704					
	Mgmt_Sp7	0.795	0.632					
Change Efficacy	ChgEffic_1	0.895	0.801	0.747	0.917	0.937	0.949	0.866
	ChgEffic_2	0.875	0.766					
	ChgEffic_3	0.868	0.753					
	ChgEffic_4	0.855	0.731					
	ChgEffic_5	0.828	0.686					

Items removed: App5, Mgm_Supp8, Mgm_Supp9, ActIntRsc1 ActIntRsc3, ACLead_2, ACLead_3
All item loadings >0.5 indicate indicator reliability (Hulland, 1999, p. 198).
All constructs' average variance extracted (AVE) >0.5 indicates convergent reliability (Bagozzi & Yi, 1988; Fornell & Larcker , 1981).
All constructs' Cronbach's Alpha>0.7 indicates indicator reliability (Nunnally, 1978).
All constructs' composite reliability (CR) >0.7 indicates internal consistency (Gefen et al., 2000).
All Rho A >0.7

Table 11-A: Measurement Model Endogenous Variables

		Convergent Validity			Internal Consistency Reliability			Discriminant Validity
Latent Variable	Indicators	Loadings	Indicator Reliability	AVE	Cronbach's Alpha	Composite	Rho_A	
Org Resilience		>0.70	>0.50	>0.50	0.60-0.90	0.60-0.90	>0.7	HTMT confidence interval does not include 1
Planning Effect	PLNEffect_	0.798	0.518	0.688	0.885	0.917	0.894	0.957
	PLNEffect_	0.827	0.64					
	PLNEffect_	0.901	0.621					
Planning Proactv	PLNPrctv1	0.84	0.704					
	PLNPrctv3	0.766	0.588	0.707	0.94	0.951	0.944	0.936
	PLNPrctv4	0.817	0.666					
	PLNPrctv5	0.793	0.63					
	PLNPrctv6	0.841	0.711					
	PLNPrctv7	0.831	0.691					
	PLNPrctv8	0.848	0.723					
Planning Strategy	PLNStrag_1	0.795	0.632	0.693	0.944	0.953	0.947	0.89
	PLNStrag_2	0.775	0.605					
	PLNStrag_3	0.857	0.736					
	PLNStrag_4	0.773	0.598					
	PLNStrag_5	0.835	0.65					
	PLNStrag_6	0.829	0.706					
	PLNStrag_7	0.757	0.694					
	PLNStrag_8	0.758	0.575					
Planning Unity	PLNUnty_1	0.834	0.696	0.737	0.911	0.933	0.914	0.913
	PLNUnty_2	0.884	0.781					
	PLNUnty_3	0.743	0.552					
	PLNUnty_4	0.804	0.646					
	PLNUnty_5	0.781	0.61					

Items removed: App5, Mgm_Supp8, Mgm_Supp9, ActIntRsc1 ActIntRsc3, ACLead_2, ACLead_3
All item loadings >0.5 indicate indicator reliability (Hulland, 1999, p. 198).
All constructs' average variance extracted (AVE) >0.5 indicates convergent reliability (Bagozzi & Yi, 1988; Fornell & Larcker , 1981).
All constructs' Cronbach's Alpha>0.7 indicates indicator reliability (Nunnally, 1978).
All constructs' composite reliability (CR) >0.7 indicates internal consistency (Gefen et al., 2000).
All Rho A >0.7

Table 11-B: Measurement Model Endogenous Variables

Latent Variable	Indicators	Convergent Validity: Loadings	Convergent Validity: Indicator Reliability	Convergent Validity: AVE	Internal Consistency Reliability: Cronbach's Alpha	Internal Consistency Reliability: Composite Reliability	Rho_A	Discriminant Validity: HTMT confidence interval does not include 1
		>0.70	>0.50	>0.50	0.60-0.90	0.60-0.90	>0.7	
Org Resilience	ACInnv_1	0.851	0.724	0.763	0.844	0.906	0.851	0.935
Adaptive	ACInnv_2	0.817	0.667					
Capacity Inv	ACInnv_3	0.729	0.531					
Adaptive Capacity Int Rsc	ACIntRsc_2	0.761	0.579	1.000	1.000	1.000	1.000	0.748
Adaptive Capacity Lead	ACLead_1	0.798	0.637	0.685	0.906	0.928	0.919	0.984
	ACLead_4	0.865	0.748					
	ACLead_5	0.788	0.621					
	ACLead_6	0.838	0.702					

Items removed: App5, Mgm_Supp8, Mgm_Supp9, ActIntRsc1 ActIntRsc3, ACLead_2, ACLead_3
All item loadings >0.5 indicate indicator reliability (Hulland, 1999, p. 198).
All constructs' average variance extracted (AVE) >0.5 indicates convergent reliability (Bagozzi & Yi, 1988; Fornell & Larcker , 1981).
All constructs' Cronbach's Alpha>0.7 indicates indicator reliability (Nunnally, 1978).
All constructs' composite reliability (CR) >0.7 indicates internal consistency (Gefen et al., 2000).
All Rho A >0.7

Table 12: Reliability and validity statistics

HOC Organizational Resilience and LOC

	Cronbach's Alpha	rho_A	Composite Reliability	AVE
HOC Org Resilience	0.981	0.982	0.982	0.651
LOC1 ACLead	0.920	0.921	0.943	0.806
LOC2 ACInv	0.844	0.851	0.906	0.763
LOC3 PLNEffc	0.885	0.894	0.917	0.688
LOC4 ACIntRsc	1.000	1.000	1.000	1.000
LOC5 PLNUnty	0.911	0.914	0.933	0.737
LOC6 PLNPrct	0.940	0.944	0.951	0.707
LOC7 PLNStrag	0.944	0.947	0.953	0.693

Note: Italics used for higher-order construct values

Table 13: Fornell-Larcker Criterion

	Appropriateness	Change Efficacy	HOC Org Resilience	Management Support	Mod Appropriateness	Mod Change Efficacy	Mod FF/NFF	Mod Management Support
Appropriateness	0.837							
Change Efficacy	0.743	0.864						
HOC Org	0.738	0.862	0.807					
Management	0.675	0.855	0.908	0.849				
Mod	-0.286	-0.266	-0.295	-0.266	0.354			
Mod Change	-0.123	-0.161	-0.273	-0.248	0.253	0.465		
Mod FF/NFF	0.049	0.131	0.108	0.084	-0.002	0	1	
Mod	-0.21	-0.251	-0.276	-0.272	0.253	0.236	0.001	0.512

The Square Root of AVE is reported on the diagonal, and the latent variable correlation is under the diagonal. The AVE's square root is always higher than the correlation between the constructs to establish discriminant validity.

Table 14: VIF Organizational Resilience

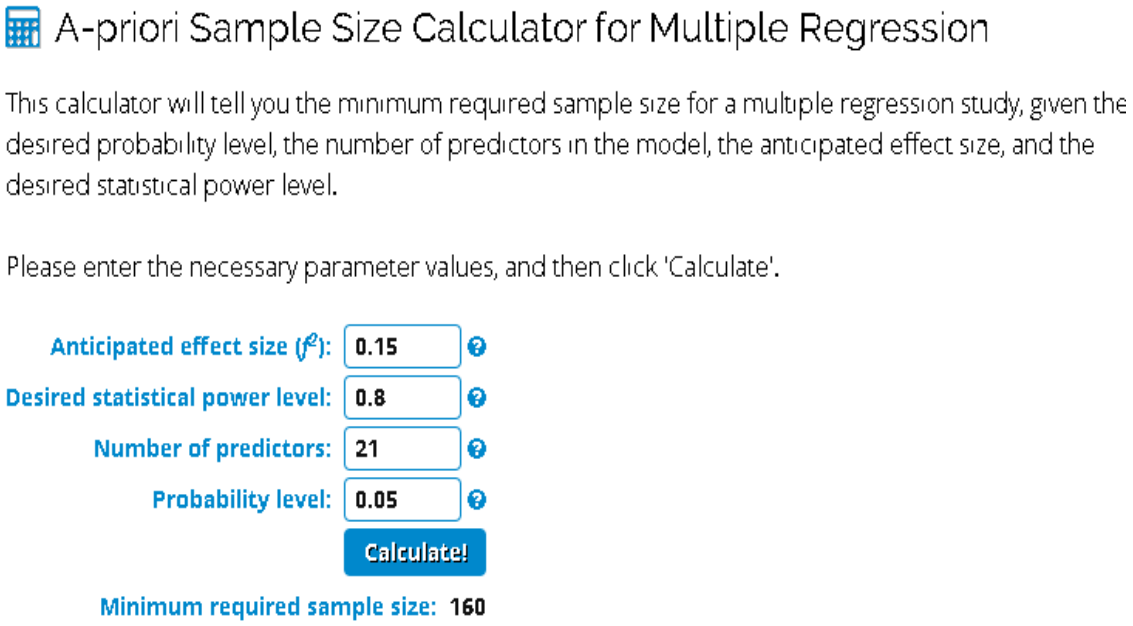
Org Resilience Adaptive Cap Innv		Adaptive Cap Int Res		Adaptive Cap Leader		Planning Effective Partnerships	
Indicators	**VIF**	**Indicators**	**VIF**	**Indicators**	**VIF**	**Indicators**	**VIF**
ACInnv1	5	ACIntRsc1	1.848	ACLead1	4.4	PLNEffect1	2.168
ACInnv2	3.423	ACIntRsc2	2.869	ACLead2	1.654	PLNEffect2	3.411
ACInnv3	3.034	ACIntRsc3	1.527	ACLead3	1.764	PLNEffect3	3.961
				ACLead4	6.387	PLNEffect4	4.345
				ACLead5	3.697	PLNEffect5	1.747
				ACLead6	4.64		
Planning Proactive		**Planning Strategy**		**Planning Unity of purpose**			
Indicators	**VIF**	**Indicators**	**VIF**	**Indicators**	**VIF**	**Indicators**	**VIF**
PLNProactv1	5.16	PLNStrag1	2.371	PLNUnty1	3.14		
PLNProactv2	2.069	PLNStrag2	3.421	PLNUnty2	3.612		
PLNProactv3	3.436	PLNStrag3	4.089	PLNUnty3	3.298		
PLNProactv4	2.868	PLNStrag4	4.174	PLNUnty4	2.623		
PLNProactv5	3.7	PLNStrag5	3.745	PLNUnty5	3.737		
PLNProactv6	3.382	PLNStrag6	5.548				
PLNProactv7	4.04	PLNStrag7	3.037				
PLNProactv8	4.245	PLNStrag8	2.94				
		PLNStrag9	2.028				

Table 15: VIF Organizational readiness for change

Org Readiness for Change					
Appropriateness		**Management Support**		**Change Efficacy**	
Indicators	**VIF**	**Indicators**	**VIF**	**Indicators**	**VIF**
Approp_1	2.275	MgmSup1	3.155	ChgEffic_1	3.084
Approp_2	3.661	MgmSupp2	3.676	ChgEffic_2	3.37
Approp_3	4.944	MgmSupp3	3.397	ChgEffic_3	2.981
Approp_4	4.039	MgmSupp4	2.729	ChgEffic_4	2.139
Approp_6	2.611	MgmSupp5	3.768	ChgEffic_5	2.324
		MgmSupp6	2.646		
		MgmSupp7	2.972		

Appendix 4: Power Analysis Result

The A-priori sample size calculator for Multiple Regression Power Analysis (**https://www.danielsoper.com/statcalc/calculator.aspx?id=1**) was utilized to calculate the minimum sample size for this study. In order to identify a moderate effect size of 0.20 with a probability of 0.05, a statistical power level of 80%, and 21total predictors and interactions terms, thus the minimum required sample size is 160.



Appendix 5: Instructions and Scales

Summary of Exogenous and Endogenous Variables

Variables	**Scale**
Exogenous/Independent	
Appropriateness	6-items , Appropriateness scale (adapted) utilized a 7-point Likert-scale (1=Strongly disagree; 7= Strongly agree), **Shea et al. (2014)**
Change Efficacy	5-items, Change Efficacy (adapted) utilized a 7-point Likert-scale (1=Strongly disagree; 7=Strongly agree) **Shea et al. (2014)**
Management Support	9-items, Management Support (adapted) utilized, **Holt et al. (2007)**
Endogenous/Dependent Variables	
Organizational Resilience	**Adapted, Whitman et al.(2013)**
Proactive Posture	8-items, Factor(Planning). Likert-scale (1=Strongly disagree; 7= Strongly agree)
Unity of Purpose	5-items- Factor(Planning). Likert-scale (1=Strongly disagree; 7= Strongly agree).
Planning Strategies	9-items-Factor(Planning), Planning Strategies(adapted). Likert-scale (1=Strongly disagree; 7= Strongly agree).
Leadership	6-items-Factor. Adaptive Capacity. Likert-scale (1=Strongly disagree; 7= Strongly agree).
Staff Engagement	3-items-Factor. Adaptive Capacity. Likert-scale (1=Strongly disagree; 7= Strongly agree).
Effective Partnerships	5-items-Factor. Adaptive Capacity. Likert-scale (1=Strongly disagree; 7= Strongly agree).
Internal Resources	3-items-Factor. Adaptive Capacity. Likert-scale (1=Strongly disagree; 7= Strongly agree).
Unity of Purpose	5-items-Factor. Adaptive Capacity. Likert-scale (1=Strongly disagree; 7= Strongly agree).
Leadership	6-items, Leadership (adapted) utilized a 7-point Likert-scale (1=Strongly disagree; 7=Strongly agree) (Whitman et al. (2013)

Summary of Control Variables

Variables	Scale
Control	
Gender	Male, Female, Binary/Gender non-conforming, Prefer not to answer
Age	20 or under, 21-30, 31-40, 41-50, 51-60, 61+ Years old
Full time employees 2020 and 2021	(1-49), (50-99), (100-499), (500-999), (1,000-2,499), (2,500-4,999), (5,000-9,999), (More than 10,000) employees.
Education	High-school Graduate, Some College education, Associate Degree, Bachelor Degree, Professional Degree, Master's Degree, Doctorate Degree
Sector	Services, Technology, Manufacturing, Other
Position in organization	Executive, Senior Management, Middle Management, Supervisor/Team Leader, Owner
Time in organization	Input number of years

Instructions and Scales

Organizational Readiness for Change Psychometric Scale: Instructions and Scales

Instructions**: I am interested in your opinion on your organization's adoption of digital technologies in response to COVID-19. Please indicate your level of agreement with each statement below (1 = Strongly disagree; 7= Strongly agree).**

Appropriateness (Shea et al. 2014)
1. Our organization has adopted new digital technologies or significantly expanded the use of digital technologies in response to COVID-19.
2. The digital technologies we use in response to COVID-19 match our organizational priorities.
3. The digital technologies we use in response to COVID-19 are helping our organization survive.
4. The digital technologies we use in response to COVID-19 have made our organization better equipped to meet our customers' needs.
5.The digital technologies we use in response to COVID-19 have resulted in our organization losing some valuable assets.
6.The digital technologies we use in response to COVID-19 will help our organization get to where it is trying to go.

Instructions: I am interested in your opinion on your organization members' confidence in the organization's collective capabilities required to successfully implement a change in response to COVID-19. Please indicate your level of agreement with each statement below (1 = Strongly disagree; 7= Strongly agree).

Change Efficacy (Shea et al. 2014)
1. People who work here feel confident that they handled the challenges that arose due to COVID-19.
2. People who work here feel confident that they tracked the progress in implementing the changes necessary in response to COVID-19.
3. People who work here feel confident that they coordinated tasks so that changes in response to COVID-19 went smoothly.
4. People who work here feel confident that the organization supported people as they adjust to changes in response to COVID-19.
5. People who work here feel that they managed the politics of implementing changes in response to COVID-19.

Instructions: How do you feel about the readiness of your organization's leadership to the adoption and use of digital technologies in response to the COVID-19 pandemic? Please

indicate your level of agreement with each statement below (1 = Strongly disagree; 7= Strongly agree).

Management Support (Holt et al. 2007)
1. Management sends a clear signal to this organization about the changes necessary in response to COVID-19.
2. I believe management is doing a great job bringing about the strategic changes necessary in response to COVID-19.
3. The senior leaders serve as role models for the ongoing changes necessary in response to COVID-19.
4. Our organization's top decision-makers fully supported the adoption and use of digital technologies in response to COVID-19.
5. This organization's most senior leader is committed to the strategic changes necessary in response to COVID-19.
6. Every senior manager stresses the importance of the changes necessary in response to COVID-19.
7. Our senior leaders encourage all members of the organization to embrace the adoption and use of digital technologies in response to COVID-19.
8. The organization's senior leadership is not personally involved with the implementation of digital technologies in response to COVID-19.
9. We spend a lot of time adopting new digital technologies when the senior managers were not ready to implement the latest technologies necessary in response to COVID-19.

Section 2: Organizational Resilience

(Whitman, Kachali, Roger, Vargo, & Seville, 2013)

Instructions**:** In this section, I am interested in learning how you feel about the organization's leadership to build a resilient organization in response to COVID-19. Please indicate your level of agreement with each statement below (1 = Strongly disagree; 7= Strongly agree).

Leadership (Whitman et al. (2013)
1. There was good leadership from within our organization when COVID-19 struck us.
2. At the beginning of COVID-19, the staff accepted that management needed to make some decisions with little consultation.
3. At the beginning of COVID-19, our managers monitored staff workloads and reduced them when they became excessive.
4. Our management thinks and acts strategically to ensure that we are always ahead of the curve, even during COVID-19.
5.Management in our organization has been leading by example during COVID-19
6. Our organization regularly re-evaluates what it is we are trying to achieve during COVID-19.

Instructions: In this section, I am interested in learning staff engagement who understand the organization's long-term objective. Please indicate your level of agreement with each statement below (1 = Strongly disagree; 7= Strongly agree).

Staff Engagement (Whitman et al. (2013)
1. Staff is actively encouraged to challenge and develop themselves through their work during COVID-19.
2. We know how to use our ability and knowledge in novel ways during COVID-19.
3. Staff is rewarded for "thinking outside of the box" during COVID-19.

Instructions: In this section, I am interested in learning how your organization accesses its network and partners during COVID-19. Please indicate your level of agreement with each statement below (1 = Strongly disagree; 7= Strongly agree).

Effective Partnerships (Whitman et al. (2013)
1. During the times of COVID-19, we have made business agreements with other organizations to fill the new business requirements due to COVID-19.
2. We plan for what types of support we could provide to the community during COVID-19.
3.We build relationships with co-workers while working through COVID-19.
4.We understand how we connect to other organizations and actively manage those links during COVID-19.
5. We understand how Government actions affect our ability to respond to COVID-19.

Instructions: In this section, I am interested in learning about your organization's ability to mobilize internal resources before and during COVID-19. Please indicate your level of agreement with each statement below (1 = Strongly disagree; 7= Strongly agree).

Internal Resources (Whitman et al. (2013)
1.We had sufficient internal resources to operate successfully before COVID-19.
2.Our organization maintains sufficient resources to absorb during COVID-19.
3. When a problem occurs, it is easier now to get approval for additional resources to get the job done than in non-pandemic times.

Instructions: In this section, I am interested in learning about your organization's priorities after COVID-19. Please indicate your level of agreement with each statement below (1 = Strongly disagree; 7= Strongly agree).

Unity of Purpose (Whitman et al., (2013)
1. We have clearly defined priorities for what is essential during and after the pandemic.
2. Our priorities for recovery are sufficient to provide direction for employees during the pandemic.
3. We understand the minimum level of resources our organization needs to operate during the pandemic.
4. We are mindful of how our organization impacts others during the pandemic.
5. Our organization consistently demonstrates a commitment to its values during the pandemic.

Instructions: **In this section, I am interested in learning about your organization's proactive measures to respond to COVID-19. Please indicate your level of agreement with each statement below (1 = Strongly disagree; 7= Strongly agree).**

Proactive Posture (Whitman et al. (2013)
1. We focus on being able to respond to the pandemic.
2. We collaborate with others in our industry to manage unexpected challenges arising from the pandemic.
3. We shift rapidly from business-as-usual to respond to the pandemic.
4.Whenever our organization suffers a close call during the pandemic, we use it for self-evaluation rather than confirmation of our success.
5. In industry and sector groups, we are regarded as an active participant during the current pandemic.
6. Our organization readily responds to changes in our business environment during the pandemic.
7. During the pandemic, we look for opportunities for our organization.
8. We are optimistic and found positives from most situations during the

Instructions: In this section, I am interested in learning about your organization's strategies to manage vulnerabilities during COVID-19. Please indicate your level of agreement with each statement below (1 = Strongly disagree; 7= Strongly agree).

Planning (Whitman et al. (2013)
1. During the pandemic, we plan for the medium and short-term.
2. During the pandemic, we plan our strategy carefully before acting.
3. Given how others depend on us, the way we plan during the pandemic is appropriate.
4.We are mindful of how the pandemic could and has affected us.
5.We actively plan with our suppliers on how to manage the pandemic.
6.We actively plan with our customers how to manage the pandemic.
7.We actively plan how to support our staff during the pandemic.
8.We understand how pandemic impacts the community.
9.The pandemic impact of the community influences our business strategies.

Appendix 6: Informed Consent Notification

Consent to participate in this research.

The survey was distributed by Qualtrics Experience Management (XM)^{TM} platform.

Title of the Project: How Does Family Status Moderate the Relationship between Organizational Readiness for Change and Organizational Resilience in Times of Crisis?

Principal Investigator: Nubia A. Castillo de Valle, UNC Charlotte

Study Sponsor: Advisor: Dr. Torsten Pieper

Duration: Max 20 minutes

You are invited to participate in a research study. Participation in this research study is voluntary. The information provided is to help you decide whether or not to participate. If you have any questions, please ask.

Important Information You Need to Know

The purpose of this study is to explore how family status moderates the relationship between organizational readiness for change and organizational resilience in times of crisis. We ask managers, executives, and family business owners or managers who work for a family business aged 18 and older to complete several questionnaires about organizational resilience and how they prepare for change. However, this research is a single study. We will ask questions about your organization process, technology usage, and adoption during the COVID-19 crisis and your family business structure if applicable.

Please read this form and ask any questions you may have before deciding whether to participate in this research study.

Why are we doing this study?

This study aims to understand better the relationships of organizational readiness for change and organizational resilience moderated by firm status.

Why are you being asked to be in this research study?

You are being asked to be in this study because you are a leader in your industry with experience in organizations or family business.

What will happen if I take part in this study?

If you choose to participate, you will complete questionnaires online. The questionnaires will ask you questions about your background (age, sex, and years of experience) and your organization.

Your total time commitment if you participate in this study will be one to eight minutes.

What benefits might I experience?

You might not benefit directly from being in this study. Others might benefit because it is

essential to understand the relationship or organizational readiness for change and organizational resilience and how firm status moderates that relationship.

What risks might I experience?

The questions we will ask you are personal questions and organizational and family business questions. For example, we will l ask you about your organization's use and adoption of technology in times of COVID-19. We do not expect the questions to be risky for your health.

How will my information be protected?

Qualtrics will anonymously administer the questionnaire. While the study is active, all data will be stored in a password-protected database that the primary researcher can access via Drop-Box at the University of North Carolina at Charlotte. Only the research team will have routine access to the study data. Other people with approval from the Investigator may need to see the information we collect about you. Including people who work for UNC Charlotte and other agencies as required by law or allowed by federal regulations.

How will my information be used after the study is over?

After this study is complete, study data may be shared with other researchers for use in other studies or needed as part of publishing our results. The data we share will NOT include information that could identify you.

Will I be paid for taking part in this study?

You will be compensated the amount you agreed upon before you entered into the survey.

What other choices do I have if I do not take part in this study?

You do not have to be part of this research if you do not want to.

What are my rights if I take part in this study?

It is up to you to decide to be in this research study. Participating in this study is voluntary. Even if you decide to be part of the study now, you may change your mind and stop at any time. You do not have to answer any questions you do not want to answer.

Who can answer my questions about this study and my rights as a participant?

For questions about this research, you may contact Nubia Castillo at ncastil1@uncc.edu and faculty advisor Dr. Torsten Pieper at tpieper@uncc.edu.

If you have questions about your rights as a research participant, wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Office of Research Protections and Integrity 704-687-1871 or uncc-irb@uncc.edu.

Consent to Participate.

Please print the screen if you want to have the consent for your records. Suppose you agree to be in this study. Make sure you understand what the study is about before you agree to continue with the survey. If you have any questions about the study, you can contact the study team using the above information.

I understand what the study is about, and my questions so far have been answered. I agree to take part in this study.

Please click "Agree" or "Continue" if you wish to participate.

Thank you.