2019

Strategies to Mitigate Supply Chain Disruptions in Grocery Businesses

Gift Wilford Bondwe
Walden University

Walden University

College of Management and Technology

This is to certify that the doctoral study by

Gift Wilford Bondwe

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Janet Booker, Committee Chairperson, Doctor of Business Administration Faculty

Dr. Jorge Gaytan, Committee Member, Doctor of Business Administration Faculty

Dr. Judith Blando, University Reviewer, Doctor of Business Administration Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2019

Abstract

Strategies to Mitigate Supply Chain Disruptions in Grocery Businesses

by

Gift Wilford Bondwe

MBA, Tennessee State University, 2010

BA, Tennessee State University, 2008

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

June 2019

Abstract

Supply chains have become more complex in the global economy, which has made supply chain disruptions inevitable. Disruptions can cause loss of profitability and hinder business growth. The goal of this multiple case study was to explore strategies to mitigate the effects of disruption in grocery store supply chains. The conceptual framework for this study was the resource dependency theory, which stipulates that firms rely on other businesses in the external environment for critical resources to create a competitive edge. Four purposively selected participants from 4 grocery store businesses in Northwest Arkansas participated in semistructured interviews and provided organizational documentation for this study. The participants were supply chain managers who had knowledge about disruptions and had successfully mitigated disruptions in their grocery stores' supply chains. Yin's 5-step process was used to analyze data, which involved compiling the database, disassembling data, reassembling data, interpreting data, and making a conclusion. Four themes emerged from the data analysis: supply chain partners' collaboration, multiple supply base and supplier qualification, inventory management, and information technology and communication. The uninterrupted flow of grocery merchandise to the community could result in a positive social change by helping to ensure that community members have timely access to food.

Strategies to Mitigate Supply Chain Disruptions in Grocery Businesses

by

Gift Wilford Bondwe

MBA, Tennessee State University, 2010

BA, Tennessee State University, 2008

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

June 2019

Dedication

The completion of this dissertation has been possible because of my Lord and Savior, Jesus Christ. Through His power, grace, and reassurance He made me stay focused, and I pressed on to the finish line. I would like to dedicate this dissertation to my wife, Tisamalane Bondwe, and my children, Takondwa Gift Bondwe Jnr., Tayamika Xavier Bondwe, Tamanda Prince Bondwe, Vinjero Tonia Bondwe, and Taonga Lisa Bondwe for their encouragement, patience and support throughout my doctoral journey. Their unconditional love, sacrifices, and understanding throughout the doctoral study encouraged me to complete this doctoral study. I would also like to dedicate this study to my father, Hon. Mr. William Dunstan Bondwe, and my mom, Mrs. Cecilia Evelyn Bondwe (Nee Mtambo) for their unwavering support through prayers, words of encouragement, and wisdom. Thank you, mom and dad. I would also like to dedicate this study to my pastor, Pastor Sam Adelusimo of Redeemed Christian Church of God, Chapel of Praise Northwest Arkansas for praying for me and with me during the entire course of my study. Thank you, Pastor Sam Adelusimo.

Acknowledgments

I want to express my sincere gratitude to all the faculty members of Walden University who have helped me achieve this goal. I would like to acknowledge the unwavering support and guidance from my chair, Dr. Janet Booker. Your help and availability whenever I needed guidance from the beginning until the end has been remarkable. I would also like to acknowledge my second chair, Dr. Jorge Gaytan for the advice and guidance throughout my doctoral journey. Your insights have made me a better student and person. I would also like to acknowledge my URR, Dr. Judy L. Blando for the support and guidance in this doctoral program.

I would also like to acknowledge all family and friends for support and guidance. I acknowledge more sincerely, Mr. Glen Kruger and Mrs. Cheryl Kruger for moral support, prayers, and guidance throughout my doctoral study. Your unconditional love for my family and me throughout this doctoral journey was phenomenal.

Table of Contents

List of Tables

Section 1: Foundation of the Study

Supply chains have a significant role in the performance and success of any business. Supply chain disruptions could adversely affect the performance of an organization (Ali, Rahman, Tumpa, Moghul Rifat, & Paul, 2018). Disruption in the supply chain could also negatively affect the stock market returns of an organization (Liu, Sarkar, Kumar, & Jin, 2018). In this study, I worked to identify supply chain strategies that could mitigate the effect of disruptions in grocery stores' supply chains. The complexity of supply chains makes supply chain disruption inevitable, and supply chain managers must proactively identify strategies to minimize the risks of disruption (Srivastava, Chaudhuri, & Srivastava, 2015). Supply chain managers can use simulation, optimization tools, and statistics to identify and understand the characteristics and nature of the supply chains to create appropriate strategies to mitigate supply chain disruptions (Blackhurst, Rungtusanatham, Scheibe, & Ambulkar, 2018). The results of this study could provide essential insights and information for supply chain managers in the grocery store industry on how to mitigate the effects of disruption in their supply chains.

Background of the Problem

Globalization has resulted in an increase in the international trade because the relationships between countries have significantly improved (Xiaosong & Lijun, 2017). Organizational leaders can source and access resources overseas at low prices to have a competitive advantage over their competition (Tate & Bals, 2017). However, as the goods move from the source to the consumer, that movement is prone to disruption. The causes of supply chain disruptions may include natural disasters, labor strikes, shortage of

resources, and supplier incapability that can lead to the decline of sales, increase in operational costs, and delivery of poor customer service in an organization (Park, Min, & Min, 2016). Moderate to severe disruption in the supply chain can lead to as much as a 107% drop in the operating income in an organization (Alcantara, 2015). The 9.0 magnitude earthquake that hit Japan in 2011 disrupted the supply chains of Sony and Toshiba, companies whose recovery and reconstructions cost 12 trillion Japanese Yen (Youyu et al., 2017). The disruption in the supply chain may be a result of poor planning and management of resources, which could potentially reduce the profitability of the company (Liu et al., 2018).

Disruptions in supply chains could provide rich experiences that could help company managers develop disruption mitigation strategies (Revilla & Saenz, 2017). Some of the strategies that organizational leaders could use to minimize disruptions in the supply chain include supplier selection, demand allocation, and capability development (Kamalahmadi & Parast, 2017). Rezapour, Farahani, and Pourakbar (2017) postulated that supply chain managers could also mitigate disruption by storing emergency stocks at the retailer, multiple sourcing, and reserving the backup capacity at the supplier.

Problem Statement

A significant problem for supply chain managers is disruptions in the supply chain (Sarkar & Kumar, 2016; Ye, Xiao, & Zhu, 2015). Disruption in the supply chain can cause, on average, a 2.88% and 1.13% loss of shareholder's wealth in companies in India and the United States, respectively (Kumar, Liu, & Scutella, 2015). The general business problem is that some supply chain managers lack business strategies to mitigate

disruptions in the supply chain. The specific business problem is that some supply chain managers in the grocery store industry lack strategies to mitigate the effects of disruptions in their companies' supply chains.

Purpose Statement

The purpose of this qualitative multiple case study was to explore strategies that grocery store supply chain managers used to mitigate the effects of disruptions in their companies' supply chains. The research population consisted of four supply chain managers from grocery stores in Northwest Arkansas with successful experience in mitigating the effects of disruptions in their companies' supply chains. The positive social change implication pertains to the uninterrupted flow of food to the community at the right price for customers' consumption and nourishment. Increased efficiency by grocery store supply chain managers may attract new grocery store investments that could create job opportunities for the Northwest Arkansas community. The potential new jobs could improve the standard of living of the people in Northwest Arkansas.

Nature of the Study

The qualitative method relates to applied and theoretical discoveries that center on research questions developed to address an underlying research problem (Park & Park, 2016). The qualitative method was appropriate for this study. I used qualitative methodology because I sought to explore strategies that grocery store supply chain managers used to mitigate effects of disruptions in their companies' supply chains. The quantitative method involves the use of statistical analysis to examine relationships or differences among variables (Nunez Ramirez, Wendlandt Amezaga, & Alvarez Medina,

2016). The quantitative research method was not appropriate for this study because I did not need to examine variables' relationships or differences. Researchers use mixed-methods to integrate qualitative and the quantitative methodology in the same study to understand complex phenomena (Molina-Azorin, Bergh, Corley, & Ketchen, 2017). Mixed-methods research was not appropriate for my study because I did not need to employ the quantitative method to study the subject phenomenon. Furthermore, Tunarosa and Glynn (2017) postulated that mixed-methods research is ideal for researchers interested in identifying a connection among or within phenomena. I did not seek the connection between the phenomena but rather sought to find strategies that grocery store supply chain managers used to mitigate the effects of disruptions in their companies' supply chains.

De Vos, De Hauw, and Willemse (2015) postulated that the use of multiple case studies allows the researcher to collect different perspectives from different organizations regarding the phenomenon under study. A multiple case study design was appropriate for this study, and I used it to help garner in-depth knowledge of the strategies through which different grocery store supply chain managers mitigate disruptions in the supply chain. Cappellaro (2017) posited that the ethnographic design is a robust tool to methodically observe a group's cultural patterns where interviews and other data gathering methods are not appropriate. Ethnography was not suitable for this study because the objective was not to observe and study people's cultures in their social settings. Researchers use phenomenological research design to understand a phenomenon through exploring the meanings of individuals' lived experiences of a specific incident (Harrison, Burress,

Velasquez, & Schreiner, 2017). I did not use the phenomenological research design because my focus was not on exploring the meanings of individuals' lived experiences.

Research Question

What strategies do grocery store supply chain managers use to mitigate the effects of disruptions in their companies' supply chains?

Interview Questions

1. What strategies does your organization have in place to mitigate the effects of disruptions in the supply chain?
2. How did your employees respond to those strategies?
3. How were strategies to mitigate the effects of disruptions in the supply chain communicated throughout the organizational ranks and among stakeholders?
4. What modifications did you apply to any strategy to improve its effectiveness in mitigating the effects of disruptions in the supply chain?
5. What policies and processes have you used to mitigate the effects of disruptions in your organization's supply chain?
6. What were the principal barriers to implementing your strategies for mitigating disruptions in the supply chain?
7. How did you address key barriers to implementing your organization's strategies for mitigating disruptions in the supply chain?
8. How did you assess the effectiveness of your strategies for mitigating disruption in the supply chain?

9. What other information would you like to share concerning the strategies you developed and implemented to mitigate the effects of supply chain disruption in your organization?

Conceptual Framework

The resource dependency theory (RDT) served as the conceptual framework for this multiple case study. Pfeffer and Salancik (1978) developed the RDT in 1978. According to the RDT, leaders of firms rely on other businesses in the external environment for critical resources to create a competitive edge (Wu & Zhao, 2015). Another key tenet of the RDT is that the staff of an organization must take control of critical resources and secure the resources of companies in the external environment (Wolf, 2014).

Schnittfeld and Busch (2016) concluded that the RDT has its foundation in three concepts: organizational effectiveness, interdependence, and external control. The RDT was suitable for understanding the results from my study because as goods and services pass through the supply chain from the source to the consumer, the interdependence of companies' resources has a significant role in facilitating the delivery of those goods and services. Pfeffer and Salancik (2003) posited that establishing relationships with other organizations in the supply chain could help company managers acquire the needed resources to minimize uncertainty and dependency. In addition, the interdependence of companies promotes collaboration in the supply chain, and managers can share and utilize information to mitigate the effects of disruptions in the supply chain.

Operational Definitions

Bullwhip effect: Bullwhip effect is the variability of demand in the supply chain caused by unreliable forecast resulting in the reduction of inventory planning efficiency, and logistic systems (Vokhmyanina, Zhuravskaya, & Osmolski, 2018).

Global supply chain: The global supply chain includes the supply network opportunity that span across the borders of a country to allow managers of companies' source best goods and services in foreign markets at best prices (Kim, Park, Jung, & Park, 2018).

Information sharing: Information sharing is the process by which firms that are partners in the supply chain share vital information about the goods and services in the supply chain to ensure business continuity (Zhang & Cao, 2018).

Supply chain collaboration: Supply chain collaboration is the inter-organizational relationship whereby two or more supply chain partners that form a long-term relationship to share resources, information, and best practices to create synergy and competitive edge over their competition (Ralston, Richey, & Grawe, 2017).

Supply chain disruption: Supply chain disruption is an unexpected event that disrupts the movement of goods and services from source to the consumer and negatively impact the supply chain companies and consumers (Chavez, Castillo-Villar, Herrera, & Bustos, 2017).

Supply chain management: Supply chain management is the management of the movement of goods and services from the source to the consumer, facilitated by

producers, transporters, wholesalers, processors, retailers, customers and information exchange (Fatemi et al., 2018).

Supply chain resilience: Supply chain resilience is the company leader's ability to formulate strategies that enable an organization to respond and survive unexpected changes and disruptions in the supply chain (Jain, Kumar, Soni, & Chandra, 2017).

Supply chain risk management: Supply chain risk management is a proactive approach that business managers use to identify, monitor, and mitigate risk to ensure business continuity (Qazi, Quigley, Dickson, & Ekici, 2017).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are ideas that researchers deem true to explain a phenomenon but do not have empirical proof to support such ideas (Schoenung & Dikova, 2016). In addition, assumptions are uncertain and subjective (Yang, Liang, & Avgeriou, 2018). An assumption for my study was that the information provided by the grocery store supply chain managers during interviews was honest and accurate. The second assumption was that the participants had adequate knowledge of strategies to mitigate disruption in the grocery stores' supply chains. The third assumption was that the grocery store supply chain managers provided accurate documents that showed the management of disruptions in their companies. To ensure the validity of these assumptions, I triangulated data from interviews and document reviews.

Limitations

Limitations are weaknesses of a study that negatively affect the study's generalizability, reliability, and validity (Marshall & Rossman, 2016). The primary limitation of this study was that the grocery store supply chain managers were from Northwest Arkansas and not the entire United States. The second limitation was that the grocery stores' supply chain managers had busy schedules that limited their attention to the details of the questions asked in the interviews. The third limitation was that the sample included just four supply chain managers from four different grocery stores. A larger sample may have provided different results. According to Meyvis and Van Osselaer (2018), increasing the sample size of a study increases the power of the research. The fourth limitation was that even though the participants were willing to grant interviews, they may have been cautious about providing extensive information that could benefit the competition.

Delimitations

Delimitations are the boundaries of a study that a researcher sets to limit the scope of the research project (Marshall & Rossman, 2016; Putan, Ivan, & Tamas, 2017). I delimited the study to the perceptions of the grocery store supply chain managers who have had experiences in implementing strategies for mitigating the effects of disruptions in grocery store supply chains. Another delimitation was that I used four participants who worked as supply chain managers in the grocery store businesses in Northwest Arkansas. The grocery store supply chain managers who worked in the grocery store businesses outside Northwest Arkansas were not eligible for my study.

Significance of the Study

Disruption of supply chains is a global problem that could negatively affect companies' performance and financial standing (Clemons & Slotnick, 2016). Therefore, my research was significant because I explored strategies and processes that could mitigate the effects of disruptions in grocery stores' supply chains. The mitigation of disruptions in the supply chain could reduce costs and improve business performance (Vahid Nooraie & Parast, 2016). Supply chain managers in Northwest Arkansas and the grocery store industry more generally could benefit from the implementation of the mitigation strategies identified in this study because these strategies could help improve businesses' performance. Additionally, the reduction of supply chain costs resulting from effective mitigation strategies could result in lower prices and improved services to the customer in the community, therefore effecting a positive social change.

Contribution to Business Practice

The knowledge I gained about disruptions and results of post-disruption analyses and the strategies managers implemented could assist others in efficiently managing future disruptions (Birkie, Trucco, & Fernandez Campos, 2017). Business managers in Northwest Arkansas and beyond could use this study to learn how to mitigate the effects of disruptions in the supply chain and ensure business efficiency and continuity. Grocery store supply chain managers could use the strategies outlined in this study to develop operational business plans that would mitigate the effects of disruption in the supply chain. According to Durach, Glasen, and Straube (2017), lack of trust and sharing of information between suppliers and buyers significantly contributes to disruptions in the

supply chain. Therefore, robust planning, collaboration with suppliers, and efficient management of information between the upstream and downstream partners in the supply chain could reduce operational costs and increase profits.

Implications for Social Change

The uninterrupted flow of goods from the source to the consumer could improve the lives of the people in communities. Managers could use strategies and processes identified in this study to ensure business continuity and more promptly fulfill customers' needs. The uninterrupted flow of grocery merchandise to the community could result in a positive social change by helping to ensure that community members have timely access to food. Kauppi, Longoni, Caniato, and Kuula (2016) postulated that the risk mitigation strategies could improve the operational performance of companies. The higher efficiencies could lead to reduced costs for the consumers. Furthermore, the improved performance could yield profits for the grocery store businesses, which could entice the owners to open more businesses, creating employment for people in communities.

A Review of the Professional and Academic Literature

The purpose of this qualitative multiple case study was to explore strategies that grocery store supply chain managers use to mitigate the effects of disruptions in the grocery stores' supply chains. The research question was: What strategies do grocery store supply chain managers use to mitigate the effects of disruptions in their companies' supply chains? The purpose of the literature review was to garner information and knowledge about the overall research topic and build a logical foundation for the study.

Researchers review the literature to identify the characteristics and key tenets of the phenomenon under study (Somapa, Cools, & Dullaert, 2018).

In the literature review, I focused on understanding the causes and effects of the supply chain disruptions and the effective strategies for preventing and mitigating the effects of disruptions in the supply chain. The key subjects of the literature review include the RDT, supply chain disruptions, supply chain management, and prevention and mitigation strategies including (a) supply chain collaboration, (b) supply chain design, (c) supply chain sustainability, (d) supply chain technology, (e) supply chain risk management, (e) supplier relationship management, and (f) resilient supply chains. I used Google Scholar and the Walden University library to search the following academic d databases including Business Source Complete, ABI/INFORM Complete, ProQuest, SAGE Premier, Emerald Management Journals, Taylor and Francis, and Science Direct. The key search words included *supply chain management, risk mitigation strategies, preventing disruptions, supply chain disruptions, business continuity, supply chain collaboration, global supply chains, technology,* and *supply chains.* The study includes 361 peer-reviewed references and nine books, with 347 references published within 5 years of the completion of the study (2015 – 2019), and 23 references published in 2014 or earlier. That is, 94% of peer-reviewed articles were published within 5 years of my study's completion.

Resource Dependency Theory

Pfeffer and Salancik's (1978) RDT served as the underlying framework for this study. I used the RDT because managers of an organization must understand that their

organization's ability to acquire critical resources in the supply chain could help mitigate disruptions in it. Supply chain managers' goal is to ensure that goods and services move from source to the consumer with zero or minimal disruption in the supply chain. Unforeseeable circumstances such as resource scarcity, demand fluctuations, natural disasters, and labor strikes could disrupt the flow of goods and services (Das, 2018). The supply chain partners would need to work together to mitigate or minimize such disruptions. The RDT can play a vital role in identifying the interdependences of organizations in the supply chain.

The RDT's central focus is that the leaders of an organization must work with supply chain trading partners by interchanging resources to manage the uncertainty in the supply chain (Zhou, Chong, Zhen, & Bao, 2018). Zhou et al. (2018) empirically explored the adoption of the electronic supply chain by suppliers in the electronics industry. Zhou et al. used the RDT to understand the relationship between buyers and suppliers in the supply chain. The researchers collected and analyzed data from 122 companies in the electronics industry in Malaysia. Using the regression model for data analysis, the found that a robust buyer-supplier relationship could facilitate the adoption of the electronic supply chain by the buyers. Suppliers and buyers must trust each other and form a partnership to share resources and information to ensure smooth adoption of the electronic supply chain and business continuity (Zhou et al. 2018). Laihonen and Pekkola (2016) postulated that inter-organization knowledge transfer and shared learning improves the performance of partners in the supply chain, concurring with Zhou et al. regarding resource sharing. Coupet and McWilliams (2017) posited that the scarcity of

resources in the environment causes uncertainty in organizations. Company leaders could mitigate resource scarcity in two ways, which include creating diverse interlinkages with the organization's environment to minimize the dependence on one source, and strengthening the relationship with the current environment and facilitating mutual dependence (Pfeffer & Salancik, 2003).

The RDT could promote the sharing of resources between organizations. Companies strive to mitigate disruptions, create sustainable solutions, and make profits to remain competitive. O'Keeffe (2016) postulated that companies could acquire and integrate with other companies to share resources and mitigate disruptions in the supply chain. Some firms could acquire their suppliers to ensure minimal disruption to their businesses. Schnittfeld and Busch's (2016) study also solidify the RDT. Schnittfeld and Busch postulated that companies must share sustainability strategies with their suppliers to ensure business continuity. They also marked the importance of collaboration in the supply chain and the importance of businesses relationships to remain competitive in the market. Jajja, Kannan, Brah, and Hassan (2017) concurred with O'Keeffe and Schnittfeld and Busch, and they indicated that RDT theorists that companies lack resources on their own to achieve goals and need other firms to supplement the resources to attain the desired outcome. A robust relationship between a supplier and a buyer could promote robust communication, encourage sharing of resources, and help in mitigating disruptions in the supply chain.

In a study on innovation based on RDT, Lii and Kuo (2016) stated that when a firm cannot fend resources for itself, it must search for resources in the external

environment and create relationships with other businesses. Supply chain integration is vital to the survival of firms because sharing of resources and financial burden may create a competitive advantage. The findings of the study indicated that innovation positively affects supply chain integration. Innovation facilitates supply chain integration and improves a company's performance. Lii and Kuo's study may be useful to supply chain managers because the authors explained the importance of innovation and supply chain integration with the members of the value chain to sustain a company competitiveness. Innovations could help supply chain companies reduce waste in the supply chain and minimize disruption. Innovation and supply chain integration could help companies respond to customer needs faster than the competition.

Xia, Wang, Lin, Yang, and Li (2018) postulated that the market logic of RDT is that if a company is deeply dependent on a particular market, the market constraints could negatively impact the company's success. Xia et al. indicated that companies must form alliances in the supply chain and share resources to mitigate unforeseeable circumstances and improve performance in the market. The researchers posited that a firm's resource dependence determines its market behavior and that the company leaders must focus on the firm's dependent market to create alliances that could mitigate uncertainties in business. Malik, Ngo, and Kingshott (2018) studied the influence of organizational resources on quality and company performance. They found that resource dependence and vendor resources and capabilities fortifies the quality of a relationship and improves company performance, concurring with Xia et al. Malik et al. indicated that RDT is critical to any organization because a firm cannot survive on its resources alone

but must depend on internal and external resources to ensure business continuity. Kalaitzi, Matopoulos, Bourlakis, and Tate (2018) posited that the increased demand for resources leads to a shortage of resources and companies must work to share resources to survive and ensure business continuity, concurring with Malik et al.'s and Xia et al.'s studies. Additionally, Kalaitzi et al. (2018) established that a firm's ability to work closely with the vendors and share necessary resources could mitigate disruption in the supply chain.

AbouAssi and Tschirhart (2018) studied organizational responses to volatile demand. According to AbouAssi and Tschirhart, RDT facilitates a link between a company and its providers, and the greater the dependence of the organization on the provider, the more influential the provider can become. The criticality of the provider resources dictates the resource dependency of the firm (AbouAssi & Tschirhart, 2018). To succeed in a volatile market and to avoid unnecessary disruption in the supply chain, firms must share resources. As for the case of nonprofit organizations (NPO), they depend highly on donors who may have interest in ensuring the NPO carters to the stakeholders or customers (AbouAssi & Tschirhart, 2018). According to Dong, Gao, Sun, and Liu (2018), RDT can facilitate international trade. Countries could partner with other countries to move resources such as copper from source to consumer by sharing the supply chain network infrastructure (Dong et al., 2018). Dong et al. (2018) postulated that the countries' dependence on each other's key resources can minimize disruption in the supply chain, concurring with AbouAssi and Tschirhart. In addition, Xia et al. (2018) postulated that companies form alliances to overcome resource challenges and stabilize

the flow of resources between partners to ensure business continuity, concurring with Dong et al. and AbouAssi and Tschirhart.

Qiu (2018) conducted a study of 92 suppliers in the food industry to understand how the supplier manages relationships with multiple buyers. The RDT anchored Qui's study, with results indicating that the robust dependence relationships and the fair business policies and procedures between partners in the supply chain could foster a strong relationship. The robust relationship between buyers and suppliers builds trust and makes it easy for partners to share resources and risk in the supply chain. Pfeffer and Salancik (1978) postulated that any firm's survival on the market depends on the robust relationship between the partners in the supply chain, concurring with Qui's study. Additionally, Kanyoma, Agbola, and Oloruntoba (2018) utilized RDT to find the internal and external linkages within a three-tier supply chain in Malawi that included the supplier, manufacturer, and retailer. Kanyoma et al. found that the firms with robust intra-firm resources did not show interest in supply chain integration with the external firms. According to Kanyoma et al., lack of trust and corrupt sourcing strategies hindered the progress of Malawian firms in utilizing supply chain integration and improving business performance. Kanyoma et al. showed the critical need for relationships and independence of firms to succeed in the market, concurring with Qui, and Pfeffer and Salancik.

To understand the factors that affect the performance of cloud service providers and the relationship of small and medium-sized enterprises and cloud service providers, Gupta, Misra, Kock, and Roubaud (2018) used RDT. Gupta et al. surveyed 208

companies and found that the RDT contributed to the success of electronic resource planning (ERP) implementation because the small and medium-sized enterprises utilized the extrinsic factors such as compliance, network, and information security. The ERP implementation required the firm to work with the partners in the supply chain to resolve any compliance issues with the cloud vendor (Gupta et al., 2018). Additionally, the ERP implementation requires network configuration that needs partners in the supply chain to share resources and to maintain information security, and a security vendor would need to share resources with the firm (Gupta et al., 2018).

Cho, Ryoo, and Kim (2017) studied interorganizational dependence, transparency of information, and supply chain performance. Their findings indicated that sharing of resources such as information between supply chain firms is critical to the success of the firms in the supply chain, concurring with Gupta et al. Collaborative planning and forecasting activities between partners are important in the supply chain. According to Krolikowski and Yuan (2017), supply chain partners in the resource dependency relationship sometimes may have customers with high bargaining power that could influence demand and create the inequitable business. The partners in the resource dependency relationship must ensure fair trade to be competitive in the market.

Petersen, Brockhaus, Fawcett, and Knemeyer (2017) conducted a study to understand the joint development of sustainable products. Petersen et al. posited that the lack of collaboration between trading partners regarding the necessary resources needed by the firm could cause companies to mismanage the resources. Further, they postulated that companies depend on each other’s resources to succeed, and managers must pay

attention to the management of the resource dependency phenomenon. Company leaders must collaborate with partners in the supply chain to reduce the threat of resource dependency (Petersen et al., 2017). The company leaders must engage the partners to successfully accommodate the right amount of resources needed to mitigate the disruption of services to the consumer and ensure business continuity.

Wang, Wang, Jiang, Yang, and Cui (2016) conducted a study of buyer and supplier relationship using the RDT. Wang et al. posited that the long-term buyer and supplier collaboration and connection depends on resource dependency because partners in the relationship exchange resources to succeed. The researchers noted that the imbalance of power in the relationship between the buyer and supplier could cause the relationship to fail. Additionally, the sharing of information between partners is critical to the success of the relationship (Wang et al., 2016). According to Jones, Edwards, Bocarro, Bunds, and Smith (2017), RDT has a critical role in inter-organizational partnerships and relationships because company leaders could acquire resources that independently could have eluded them. For example, business partners could share larger production costs that could be difficult for each partner to finance alone. Jones et al. concurred with Wang et al. and Petersen et al. that robust relationships and partnerships can increase the pool of resources and minimize disruption to the businesses.

According to Pfeffer and Salancik (1978), one of the RDT's tenet is that managers of firms strive to acquire external resources owned by others to gain control in the market and minimize their dependences on other firms' resources. Andrews and Beynon (2017) posited that company managers have control over external resources in the market to

ensure that their companies are immune from the external attacks, concurring with Pfeffer and Salancik. According to Andrews and Beynon, company managers must network with the stakeholders within the business environment to ensure a smooth resource acquisition. The networking involves the company managers networking with other managers in the external environment to attract talent to work together on a project or service in their company. Booth-Bell (2018) also posited that RDT facilitates the corporate board desire in acquiring critical resources for the firm in its environment. According to Booth-Bell, company managers seek to acquire critical resources from the environment to ensure business continuity and control over the environment resources, concurring with Andrews and Beynon. To facilitate the resource acquisition in the environment, the company leaders assemble corporate board members that would be a valuable strategic resource and link the firm to the external resources in the environment (Booth-Bell, 2018). Reimann and Ketchen (2017) postulated that RDT promotes firms to be competitive in the market, and the managers of the firm must acquire resources on that market that they do not have direct control, concurring with Booth-Bell. The acquisition of the critical resources could prevent the business from experiencing unnecessary disruption. Additionally, Reimann and Ketchen said that managers of companies must maintain good relationships in the supply chain to ease the exchange of resources whenever necessary.

Contrasting Theories

The contrasting theories researchers explored in studies relating to mitigation of supply chain disruptions included the normal accident theory (NAT), and contingency

theory of fit (CTF). According to Yang and Yang (2010), the key tenet of the NAT is that organizations and their complex systems are susceptible to unexpected and inevitable normal accidents. The focus of CTF is that there must be a fit between organization resources and the environment to improve the organization's performance (Mann, Byun, & Li, 2015).

Normal accident theory. The supporters of NAT stipulate that accidents are unavoidable when systems become more complex and tightly coupled (Perrow, 1999). Perrow (1999) posited that the failure of one part of the system could have a ripple effect and spread to other systems causing disruptions to the other parts of the system. Scheibe and Blackhurst (2018) postulated that NAT is another line of understanding the disruptions in the supply chain. The supply chain consists of three significant members that include the supplier, manufacturer, and the customer; and the disruption at the supplier base could disrupt the entire supply chain (Scheibe & Blackhurst, 2018).

According to NAT, the theorists postulated that decreasing the level of interactive complexity could minimize disruption in the supply chain (Marley, Ward, & Hill, 2014). The low operational levels managed by supply chain managers could make the disruptive problems more visible resulting in less disruption in the supply chain (Marley et al., 2014). According to Nunan and Di Domenico (2017), one could mitigate the disruption by not only addressing another disruption but also addressing the fundamental organizational context in which normal accidents occur.

Contingency theory of fit. Van de Ven and Drazin introduced the CTF in 1985. The fundamental tenet of the CTF is the fit of organizational resources and the

organization performance (Hallavo, 2015). According to Hallavo (2015), the perfect fit between the operational effectiveness of the external and internal environment leads to improved performance. Supply chain managers could use the CTF by examining alternative supply chain mitigation risk strategies and applying them according to the structure or type of risk (Chang, Ellinger, & Blackhurst, 2015). Matching the resources to the risk encountered could minimize disruption in the supply chain and ensure business continuity.

Supply Chain and Supply Chain Management

Supply chain management is the phenomenon that includes planning and management of the movement of goods and services from the upstream to the downstream. The supply chain management involves the entities in the supply chain such as suppliers, manufacturers, warehouses, retailers, transporters, and customers (Azimian & Aouni, 2017). The supply chain management team of any company aims to ensure that the company makes a profit by efficiently managing the movement of goods from source to customer (Azimian & Aouni, 2017). The supply chain management has evolved because managers of companies are now not only ensuring that products and services reach the customer but also ensuring that the supply chains are efficient to create a competitive advantage over their competition (Nguyen, Nguyen, & Bosch, 2017). Companies in the supply chain must share performance information to improve supply chain managers' awareness of the shared targets and operations of the supply chain networks (Laihonen & Pekkola, 2016). The phenomenon would help supply chain

managers improve the supply chain overall performance and mitigate any challenges that may occur in the supply chain.

Supply chain management involves supply chain managers devising supply chain practices to ensure the efficient movement of goods from supplier to the consumer (Kumar & Kushwaha, 2018). The practices may include (a) customer relationship, (b) information sharing, (c) information technology, (d) quality of information sharing and (e) supply chain integration. According to Kumar and Kushwaha (2018), supply chain management practices could improve the financial and operational performance of an organization. Odongo, Dora, Molnar, Ongeng, and Gellynck (2016) concurred with Kumar and Kushwaha regarding the effect of supply chain management practices on the operational performance of an organization. Odongo et al., using a quantitative survey, collected data from 150 agribusiness companies in the maize supply chain in Uganda and found out that supply chain management practices have a positive impact on the operational performance of an organization. Supply chain managers must implement the supply chain management practices to ensure they have a competitive edge over the competition. Olah, Zeman, Balogh, and Popp (2018) concurred with Kumar and Kushwaha regarding information sharing. Olah et al. posited that information sharing of quality information improves supply chain managers' ability to make the informed decision and improves the efficiency of the supply chains. In addition, supply chain managers must develop resource indicators, devise agile production systems and supply chain management practices to improve resource efficiency and remain competitive in the market (Matopoulos, Barros, & Van Der Vorst, 2015).

In contrast, Shobayo (2017) examined the effect of supply chain management on the organization's operational performance and found out that supply chain management does not have a significant impact on the organization operational performance. Shobayo posited that managers of the organization must focus on the financial and overall performance of their organizations and devise strategies that are effective in managing their company's supply chains.

According to Gawankar, Kamble, and Raut (2017), the supply chain management is the foundation of the retail industry's success. The retail businesses provide a mechanism of interaction between the customers and the manufacturers by allowing customers to have access to the manufacturers' products at a price. The complexity of the retail supply chain due to a large number of stock keeping units could have retail supply chain managers involved in managing multiple supply chains to ensure that products are available to the consumer at the right time and place (Gawankar et al., 2017). The complexity of the supply chains requires supply chain managers to devise supply chain management practices to ensure smooth operation of the businesses. Gawankar et al. conducted a study of 213 operations and supply chain heads of Indian retail firms to find the relationship between supply chain management practices and supply chain performance measures. The results indicated that supply chain management practices have a positive effect on the supply chain performance measures and can lead to overall improvement of an organization. Sundram, Chandran, and Bhatti (2016) also studied the relationship between the various components of the supply chain management practices and the performance of the supply chain. Sundram et al. conducted a study of 156

electronic firms in Malaysia by using the survey. The results of the study indicated that supply chain practices such as supplier strategic partnership, information sharing, agreed on vision and goals, risk and rewards sharing are vital practices employed to improve supply chain management performance, concurring with Gawankar et al.

Globalization has made the supply chain complex because business managers must develop international supply chain networks to facilitate the movement of goods from source to the consumer (Kavilal, Prasanna Venkatesan, & Harsh Kumar, 2017). According to Kavilal et al. (2017), the supply chain complexities can result in adverse consequences on customer service, reputation, and cost. After studying manufacturing companies in the India, Kavilal et al. indicated that the supply base and internal manufacturing complexities are the major complexities in the supply chain management of the manufacturing industry. Supply chain managers must ensure that the supply base is thoroughly vetted to minimize the complexities. Gerschberger, Manuj, and Freinberger (2017) postulated that supplier-induced complexity could be devastating to the company's supply chain, concurring with Kavilal et al. Supply chain management involves the selection and the management of suppliers which is a critical part of the supply chain management. Managers must identify critical suppliers in the supply chain and monitor them to minimize disruption to the supply chains. In addition, supply chain managers must devise robust supplier selection and sustainable supplier management methodologies to ensure business continuity.

The supply chain management also involves the management of variation of demand in the supply chain. The variation of demand in the supply chain could lead to a

bullwhip effect that could cause unnecessary disruption in the supply chain. According to Klug (2016), the bullwhip effect is a variation in demand as the order information passes through the value chain. Jin, DeHoratius, and Schmidt (2017) postulated that the bullwhip effect is the small variation in the demand at the downstream of the supply chain that causes significant demand variations in the upper stream as supply chain managers place orders to upstream suppliers. In addition, Li, Yu, Wang, and Yan (2017) stated that the bullwhip effect is a demand distortion whereby orders to the vendor tend to have a more substantial variance than sales to the buyer. The bullwhip effect is a phenomenon in the supply chain that must be mitigated. The authors of the three articles concurred that bullwhip effect can cause additional commitment of resources in the value chain that creates waste. Li et al. posited that the bullwhip could be categorized twofold, bullwhip and anti-bullwhip. The two phenomena can occur concurrently, and supply chain managers can mitigate them by using an integrated model whose components include demand, forecasting, time delay and ordering policy to explain the phenomena. The model encompasses consumer demand process, constant lead time, order up to plan, and a minimum mean squared error forecast approach. Klug posited that bullwhip occurs because of the availability of capacity in the supply chain, and the new technique could analyze the behaviors in the supply chain.

Jin et al. (2017) postulated that to mitigate bullwhip effect in the supply chain, supply chain managers must categorize the bullwhip into three intra-firm bullwhips which include shipment bullwhip, manufacturing bullwhip and order bullwhip. Jin et al. elaborated that supply chain managers can mitigate the bullwhip in four ways. First, the

supply chain managers must measure the three components of the bullwhip in their study to minimize the phenomenon. Second, supply managers must track the intra-flow of specific goods. Third, supply managers must understand the drivers of shipment, manufacturing, and order bullwhip. Fourth, the supply managers must choose an appropriate time to measure the bullwhip to yield robust results that can help in decision making.

Supply Chain Collaboration

Salam (2017) defined the supply chain collaboration as the process where two or more members work together by sharing information, jointly making decisions, and sharing benefits to remain competitive in the market. Salam explored the relationship between trust, technology, and supply chain collaboration how the phenomena affects the firm's performance. Salam conducted research in Thailand. The research findings included information about technology and the priority of implementation when creating collaborative relationships. The results of the study also indicated the analytical association of trust and technological capabilities with improved levels of collaboration. The electronic data interchange technology (EDI) will help facilitate information sharing and eventually build trust (Salam, 2017). In addition, Banchuen, Sadler, and Shee (2017) examined the appropriate choice of collaboration that will ensure companies in the supply chain have a competitive edge. Banchuen et al. suggested that the manufacturing choice strategies and supplier collaboration could enhance the business outcomes. Banchuen et al. posited that manufacturers must also purposely invite external suppliers to collaborate to win in the current market. The collaboration benefits might include (a) achievement of

low distribution cost, (b) meeting schedules with speed and accuracy, (c) manufacturing of reliable and durable products, and (d) quick reaction to the customer changing needs (Banchuen et al., 2017).

To explore the problem solving and joint planning roles that could establish the collaborative culture between the organization, Kumar, Banerjee, Meena, and Ganguly (2017) collected data through a questionnaire from 812 organizations in India. The findings indicated that that joint planning for executing schedule (JPES) and the joint planning for increasing market share (JPIMS) are significant antecedents for creating a collaborative environment. Viewing interorganizational collaboration under the social network theory lens, Ekanayake, Childerhouse, and Sun (2017) found out that individual boundary spanners are critical to ensuring collaboration objectives gets achieved. The social relationship at a personal level brings synergy to the collaboration of firms (Ekanayake et al., 2017). Wu and Chiu (2018) postulated that leaders of companies must invest in social resources, appropriate information technology and understand the justice issues when dealing with network resources to have effective collaboration in the supply chain, concurring with Ekanayake et al.

Collaboration is a phenomenon that most leaders of organization use to reduce uncertainty and ensure business success (Aggarwal & Srivastava, 2016). Globalization and the turbulent business environment have made organization leaders collaborate with partners in the supply chain to provide the consumer with a variety of products with the shorter life cycle (Zhang & Cao 2018). Collaboration in the supply chain allows managers of the firms in the supply chain to share vital information, resources, retain

what the company possesses, and gain what is needed by the company to provide the goods and services with minimal disruption (Kumar et al., 2017). According to Kumar et al. (2017), collaboration has advantages that include (a) reduction in inventory, (b) improved lead time, (c), increased profits and market share, and (d) customer satisfaction.

Collaboration in the supply chain is vital to the success of the businesses. Collaboration can include the sharing of resources between supply chain partners or internal business partners. According to Zhu, Krikke, Caniels, and Wang (2017), collaboration could help mitigate disruption in the supply chain caused by the disaster, legal changes, sociotechnical accidents, or natural disasters. Additionally, collaboration in the supply chain could assist supply chain managers to operate their businesses efficiently when they share resources and information. Zhu et al. concurred with Lier, Caris, and Macharis (2016) regarding the collaboration of organization's internal supply chain processes. Lier et al. studied the collaboration effort between distribution centers in the form of cross-docking and found out that cross-docking could help companies reduce both internal and external transportation costs to ensure business continuity. High supply chain costs can cause a company to fold and disrupt the flow of goods to the customers in the communities. Kumar et al. (2017) concurred with Zhu et al. and Lier et al. about the collaboration phenomenon. Kumar et al. established that companies' functions must not work in isolation but collaborate with other functions to have a competitive edge over their competitors. In addition, Kumar et al. established that joint planning and problem solving with supply chain partners will reduce costs and foster business continuity.

Supply chain collaboration is beneficial to any business that embraces the phenomenon if managed well. Saban, Mawhinney, and Drake (2017) postulated that human collaboration between companies in the supply chain could ensure achievement of strategic supply chain goals. Saban et al. indicated that the collaborative companies could share resources that may include people, technology, and processes. Pradabwong, Braziotis, Tannock, and Pawar (2017) concurred with Saban et al. that interorganizational collaboration could improve business performance. In addition, the business process management which ensures continuous process improvement in firms has a positive impact on supply chain collaboration (Pradabwong et al., 2017). Fawcett, McCarter, Fawcett, Webb, and Magnan (2015) posited that every business in the supply chain has complementary capabilities that could be beneficial to every member of the supply chain. All three articles indicated that collaboration could reduce costs and ensure business continuity. Additionally, Fawcett et al. indicated that there are resistors that prevent collaboration to take effect. The resistors include (a) territoriality-conflicting goals, (b) strategic misalignment, (c) lack of leadership, (d) resistance to change, (e) low level of trust, (f) poor systems connectivity, (g) information hoarding, (h) relationship intensity-lack of buying power, (i) complexity management, and (j) lack of collaboration skill set. Supply chain managers must be cognizant of the listed resistors and address them to ensure business continuity.

Supply chain collaboration is a critical business tactic in the current business environment because collaboration could reduce unnecessary inefficiencies in the supply chain. Lehoux, LeBel, and Elleuch (2016) postulated that higher collaboration and

coordination of supply chain operations between the five sawmill companies in their study resulted in reduced costs that translated into the profitability of the companies. The supply chain managers of the companies under study used the collaborative planning forecasting and replenishment technique to improve the accuracy of the forecast and planning of materials in the supply chain. Lack of collaboration and information sharing could lead to bullwhip effect, which is the variability of orders in the supply chain (Cannella, Framinan, Bruccoleri, Barbosa-Povoa, & Relvas, 2015). Cannella et al. (2015) aimed to understand the impact of the inventory record inaccuracy (IRI) in a collaborative supply chain. Cannela et al. used the mathematical model known as replenishment order quantity to understand the phenomenon. The findings indicated that the errors in the inventory records hinder the bullwhip prevention efforts in the supply chain. Additionally, the supply chain performance at each level of the supply chain dwindles when the IRI increases. The IRI can erode the benefits of the supply chain information sharing and the connectivity. Cannela et al. posited that the costly audits would help to reduce the IRI. The conjoint approach of prevention and integration could also reduce the IRI.

Mirkovski, Lowry and Feng (2016) posited that enhanced collaboration in the supply chain that is facilitated by the information and communications technology (ICT) could reduce the coordination costs in the supply chain. Xu, Dong, and Xia (2015) concurred with Mirkovski et al. about communication in the collaboration environment. Xu et al. postulated that the supply chain planners could benefit from inter-organizational collaboration because of the vital information that could be used to plan for the customer

demand. Xu et al. said that information technology facilitates the use of the collaborative planning, forecasting, and replenishment by companies. Xu et al. aimed at exploring the two mechanisms that include collaborating too early with limited information and collaborating late with more information. Xu et al. used a demand collaboration model to study the collaborative planning, forecasting, and replenishment of a manufacturer and a supplier. The findings indicated that a too early collaboration led to stable production schedule with no adjustments when more information was available. The late collaboration allowed the flexibility in the production when the company experiences high demand.

In the current market environment, customers continue to demand high quality, lower cost and fast to market products. Organizational leaders must create agile supply chain network to meet the customer demand. Organization leaders must collaborate in new product development, and innovation to ensure reduced cost, reduced lead time and high-quality products (Soosay & Hyland, 2015). The ability of managers to initiate innovative ways of doing business with partners like suppliers in the supply chain could improve the agility of the supply chain. Supplier involvement is vital to the process of innovation in the supply chain because suppliers have substantial knowledge and capabilities about their products in the supply chain (Kim & Chai, 2017).

Collaboration, when managed correctly, could yield positive results in new product development. The mixture of different suppliers could bring synergy in devising robust product in the supply chain. Ates, Van den Ende, and Ianniello (2015) investigated the inter-organizational patterns between the buying firm, design firm and a component

supplier in new product development (NPD). The case study methodology involved five design agencies, two buying firms, and two suppliers in Italy and Netherlands. Ates et al. observed seven new product development projects in this study. The findings indicated that multiple suppliers with distinct roles in new product development could effectively work together and deliver robust results. In addition, Ates et al. discovered that the NPD team could adopt four inter-organizational coordination approaches could to succeed. The approaches include (a) buyer as a mediator, (b) buyer-designer partnership, (c) designer as an integrator, and (d) team design approach. Ates et al.'s study also showed the significance of having one party to lead the collaborative efforts among the organizations. Collaboration in the NPD can include multiple part suppliers that are experts in their field of research. The experts could contribute ideas to create a robust product with minimal recalls, which would avoid disruption to the customer. Bao, Li, Pang, Bao, and Yi (2017) postulated that product innovation is an important phenomenon in the supply chain as manufacturers find the right suppliers to collaborate in new product development. The successful collaboration requires the providers and manufacturers to share resources. According to Bao et al., the manufacturers must first ensure that the supplier whom they enter into a contract possess an intermediate level of resource difference to avoid innovation failures. Secondly, manufacturers must leverage the high trust with its suppliers to integrate the complementary resources into the new product development. Additionally, the manufacturer should carefully draft contracts to avoid any misunderstanding with the supplier's tasks and roles. Any misunderstanding between partners of collaboration could cause a product disruption in the supply chain.

Despite all the studies that discuss the benefits of collaboration in the supply chain, collaboration does not always bring efficiency or performance improvement (Yan & Kull, 2015). According to Yan and Kull, the supplier opportunism could damage the product development process because of the uncertainties in the buyer-supplier collaboration. Supply chain managers must be cognizant of the existence of supplier opportunism that may hinder the benefits of the collaborative efforts of partners in the supply chain.

Supply Chain Innovation and Information Technology

Information technology provides leaders and managers of supply chain organizations with ways to efficiently transfer goods from the supplier to the consumer (Fuchs, Beck, Lienland, & Kellner, 2018). Fuchs et al. (2018) collected data from 343 managers of automotive first tier companies to find the relationship between the information technology (IT) capabilities, supply chain capabilities, and supply chain performance in the automotive industry. The findings indicated that there is a strong relationship between the three phenomena. The IT enhances the firms' data capabilities and supply chain performance resulting in information being transferred quickly from consumer to the supplier. The IT could enable the supply chain partners to receive information and act on it faster, the phenomenon that could minimize disruption in the supply chain. The information technology is a vital tool in the supply chain as it can also aid in reducing production costs, improve the quality of the products and services, and create a competitive edge over the competition (Iveroth, 2016). Additionally, IT can assist in providing delivery lead time flexibility, volume management, inventory

management and capacity management in the supply chain (Obayi, Koh, Oglethorpe, & Ebrahimi, 2017). Managers of companies must invest in (a) absorptive capacity, (b) transactive memory systems, and (c) organizational interoperability to improve on supplier-buyer relationship flexibility in the supply chain (Obayi et al., 2017). The three phenomena could assist retail managers to plan and control inventory by establishing robust long-term contracts with suppliers. In addition, the absorptive capacity, transactive memory systems, and organizational interoperability could provide the flexibility of switching suppliers to provide business continuity.

Innovation and the supply chain management are critical phenomena in business. Innovation can improve the movement of goods from source to the consumer. Brunswicker and Vanhaverbeke (2015) and Roldan Bravo, Ruiz Moreno and Llorens-Montes (2016) discussed the advantages of open innovation. Open innovation allows companies to freely utilize internal and external knowledge and ideas to advance the company goals. In addition, Lii and Kuo (2016) posited that open innovation facilitates the supply chain integration and improves the company performance. Supply chain integration of customers and suppliers enhanced by innovation can help company managers to devise solutions to problems encountered in the supply chain. All the authors of the three-studies support the notion that knowledge sharing can increase innovation and collaboration in the value chain, which eventually could minimize disruption in the supply chain. Additionally, Yunis, El-Kassar, and Tarhini (2017) posited that ICTs are essential for companies to have a competitive edge over their competition. Yunis et al. studied the relationship between the use of ICT and organizational performance in the

Lebanese market while considering the entrepreneur involvement. The findings indicated that the ICT alone could not improve the organization's performance, but the combination with robust entrepreneur capabilities could improve the organizational performance. Entrepreneurs must know the best ICT that could create the competitive advantage for their company.

To remain competitive in the market, supply chain managers must quickly respond to customer demands. The company's supply chain must be agile to meet the ever-changing customer needs (Tarafdar & Qrunfleh, 2017). Tarafdar and Qrunfleh (2017) investigated the mediation effect of supply chain practices on the relationship between the supply chain agility and supply chain performance; and effect of information systems on the agility and performance of the supply chain. Tarafdar and Qrunfleh surveyed executives and senior managers from 205 logistics and supply chain firms in the United States of America. The findings indicated that the supply chain practices and procedures plus information technology could effect a positive relationship between the agile supply chain and supply chain performance. Tarafdar and Qrunfleh posited that the company's ability to quickly adjust the tactics and operation helps the firm to manufacture high-quality products during sudden changes in customer needs.

In the modern supply chain, Enterprise Resource Planning (ERP) systems facilitate the communication and information sharing in companies. Enterprise Resource Planning is an information technology platform that enables managers in an organization to manage and integrate critical components of an organization to help improve the organization performance and innovation (Badewi, Shehab, Zeng, & Mohamad, 2018).

ERP system has a vital role in supply chain management. Basaez, Aranda, Djundubaev, and Montesinos (2014) posited that adding extensions such as customer service management (CRM) and supplier relationship management modules to the ERP would improve the flow of goods and services in the supply chain and eliminate waste. Hwang and Min (2015) concurred with Basaez et al. that ERP could enhance company's internal capabilities and supplier relationship that could minimize disruption in the supply chain. According to Hwang and Min, ERP ensures that every company in the supply chain gets the reliable order information, which improves on-time delivery time and reduces pipeline inventory. In addition, the ERP system could ensure the reliability and stability of the buying firm's supply base because of the buying firm's access to supplier information and process improvement of the suppliers (Hwang & Min, 2015). Additionally, Saade and Nijher (2016) postulated that companies must ensure that the ERP package would be compatible with the suppliers' and other supply chain partners' systems before implementation. Saade and Nijher indicated that a thorough study of company's needs before implementation would ensure full utilization of the ERP system. In contrast, Babaian, Xu, and Lucas (2018) postulated that even though ERP provides unique benefits in the supply chain, its complexity could hinder worker productivity. Babaian et al. indicated that the intricacies of the ERP task pages pose a challenge to most ERP users, which may result in reduced productivity.

To further illustrate the importance of ERP technology in managing the supply chain, Bejger (2016) analyzed the supply chain of disposable medical kits (DMK) that are important in the health sector. Bejger posited that the DMK products are manufactured

and designed for a specific type of surgery, and the supply chain of the product must be nimble to ensure customer satisfaction. The purpose of the study was to understand manufacturer's ways of managing DMK product and the supply chain. Bejger interviewed the personnel of DMK manufacturers in the polish market. The findings indicated that the use of ERP II systems that link the internal processes and the external environment processes could minimize the disruption of DMK products in the medical industry. Bejger stipulated that ERP systems would help managers instantly communicate demand data to all departments in the company and the suppliers of the manufacturer. The manufacturers could use the materials resource planning module in the ERP system to ensure optimal materials are available.

Information technology improves the way people in the supply chain communicate within and outside the organization. An employee can email or text another employee within or outside the organization and disseminate critical information such as changes in the customer demand within a short period and prevent unnecessary disruption costs. Information technology could enable efficiency in the supply chain (Thoni & Tjoa, 2017). In addition, information technology facilitates the flexibility of operations in the supply chain to ensure the robust management of resources and company performance improvement. According Arnold, Benford, Canada, and Sutton (2015), enterprise risk management (ERM) had become a significant part of business operations in many companies due to the volatility and uncertainty of the marketplace. Arnold et al. interviewed 155 chief executives that understood the risk management processes and had at least 10 years of experience indicated that information technology such as ERM

enhances flexibility and solidifies the relationship between flexibility and performance. The information technology (IT) enhancements allow other systems to integrate with the company's ERM providing flexibility in the organization processes. The ERM helps to monitor the internal and external activities of the business to ensure quick response to the market needs. Chi, Zhao, George, Li, and Zhai (2017) concurred with Arnold et al. that firms are leveraging information technology (IT) to provide flexibility of processes in the multi-firm environment. Chi et al. postulated that IT could promote flexibility and standardization of processes to ensure operational efficiency and effectiveness in a multi-firm environment. Evans and Bosua (2017) also concurred with Arnold et al. and Chi et al. regarding the importance of IT. Evans and Bosua explored the ways that the small and medium enterprises could use to survive and innovate in the current business environment. The findings indicated that the business owners of small and medium-sized enterprises must acquire talent that could innovate their current business processes. Additionally, the business owners must invest in information technology that could provide flexibility in the business operation and attain a competitive edge in the market.

Technology is a phenomenon that is continuously changing as developers continue to improve the status quo of conducting business. Technological trends such as vendor managed inventory, the cloud, biometrics, electronic data interchange, and other technologies advances are used by company managers to have a competitive edge in the market (Caputo, Marzi, & Pellegrini, 2016). Supply chain leaders could use radio frequency identification (RFID) tag system to reduce production lead time and order processing time to improve their company's supply chain performance in garment

manufacturing (Choi, Yeung, Edwin Cheng, & Yue, 2018). The reduction of lead time and order processing time could result in increased profitability of the company (Choi et al., 2018). Supply chain leaders use RFID to manage inventory in the stores and warehouses (Choy, Ho, & Lee, 2017). The use of RFID technology helps supply chain managers to place the inventory at the appropriate designed location. The RFID also helps managers easily locate and pick the inventory from that designated area. The RFID also improves the order fill rate because when the inventory gets pulled out of the warehouse or store and sold, the inventory system automatically creates an order to replenishment such inventory (Tao, Fan, Lai, & Li, 2017). In addition, the RFID tag system helps to minimize the shrinkage and misplacements in the retail stores (Tao et al., 2017).

Additionally, Rathore, Thakkar, and Jha (2017) posited that the food supply chain is vulnerable to many severe environmental and social issues. The authors suggested that the Indian food supply chain has a significant number of nodes in the supply chain, which could lead to food shortages. To study and develop a risk assessment for the food supply chain in India, Rathore et al. used a grey analytical hierarchy process and grey technique to analyze the collected data. The findings indicated that supply chain managers must first use RFID tags to monitor goods in real time. Second, the supply chain managers must have advanced warehouse capabilities to keep some buffer stocks in their companies. Green, Zelbst, Sower, and Bellah (2017) posited that the primary benefit of RFID system is its ability to capture accurate data that can provide real-time information to the supply chain managers, concurring with Rathore et al. In addition, Green et al.

postulated that managers could trace products as they move through the supply chain when supply chain managers embed the RFID tags in the products or pallets. Supply chain managers can locate and remove tainted products from the supply chain by using RFID technology and save lives (Wowak, Craighead, & Ketchen, 2016). To examine how RFID-enabled visibility could improve store execution, Goyal, Hardgrave, Aloysius, and DeHoratius (2016) conducted three field experiments in collaboration with executives from two Fortune 500 companies. The findings indicated that the implementation of RFID tag systems reduced stockouts of inventory in the backroom as well as on the sales floor and inventory record inaccuracy. Gaukler, Ketzenberg, and Salin, (2017) also indicated that RFID and related sensors could help manage perishable goods in stores as they could provide detailed information about the life and the temperature of the product. The RFID technology could help managers set correct expiration dates of products as they arrive at the store (Gaukler et al., 2017).

Cloud computing refers to the web-based technology through which leaders and managers of organization can store information in servers and access it on demand by a software as a service (SaaS) (Raut, Gardas, Jha, & Priyadarshinee, 2017). Innovation and information technology in the recent years has been used to improve supply chain collaboration (Gonul Kochan, Nowicki, Sauser, & Randall, 2018). Gonul Kochan et al. (2018) in their study explored electronic supply chain management system that improve collaborative information sharing in a multi-echelon supply chain of the hospital. The findings indicated that cloud-based sharing of information increases visibility in the hospital supply chain, which improves hospital's personnel responsiveness to fluctuations

of in-patient demand and supply lead times. To understand the effect of adopting cloud-based services on organizational flexibility, Lal and Bharadwaj (2016) studied 21 Indian firms by interviewing company information technology executives. The results of the study indicated that all cloud-computing platforms affect organizations' flexibility. The cloud-computing platforms include (a) software-as-a-service (SaaS), (b) platform-as-a-service (PaaS), or (c) infrastructure-as-a-service (IaaS). Comparing traditional IT to cloud computing, cloud computing has special topographies that include (a) pay per use, (b) resource sharing, (c) elasticity, (d) low cost, and (e) data concentration (Liu, Yang, Qu, & Liu, 2016). Supply chain managers must implement cloud computing in their organizations to ensure agility to market changes.

The continuous market changes and globalization phenomena caused the rise of electronic business (e-business) (Milovanovic, Milovanovic & Spasic, 2016). Milovanovic et al. (2016) postulated that e-business entails all transactions and information sharing between companies that use information and communication technology. The information and communication technologies include the internet, extranet, and electronic data interface. Another form of e-business that supply chain managers use in the modern economy is the e-procurement tool. The e-procurement tool improves the inter-organizational process efficiency and involves managers of companies to collaborate by establishing closer links between customers and suppliers, and companies (Power & Gruner, 2015). Yu, Mishra, Gopal, Slaughter, and Mukhopadhyay (2015) conducted a study to investigate e-procurement systems benefits in regard to the procurement of maintenance, repair, and operating (MRO) goods. Yu et al. surveyed 193

service organizations and found out that e-procurement use within the procurement function improved the MRO procurement process, concurring with Power and Gruner (2015). In addition, Ibem, Aduwo, Tunji-Olayeni, Ayo-Vaughan, and Uwakonye (2016) in quest of finding the factors that influence companies to adopt e-procurement tools in their organizations, conducted a study of 213 building companies in the building industry in Nigeria. The findings indicated that companies adopt the e-procurement technology tools because the technology (a) enhances efficiency in project delivery, (b) removes geographical barriers, and (c) promotes effective communication between project team members. Supply chain managers must critically evaluate their company's procurement tools and implement the e-procurement functions to ensure business continuity.

Additionally, e-collaboration is a phenomenon that supply chain managers could also use to improve communication and improve performance in the supply chain. E-collaboration can reduce uncertainty in the supply chain as supply chain managers can share critical information virtually (Aggarwal & Srivastava, 2016). The supply chain managers could use collaborative tools such as Google drives and box notes to communicate with the counterparts in the supply chain quickly. To understand how e-alignment impacts e-collaboration capabilities and improves firm performance, Chi, Zhao, and George (2015) surveyed 145 Chinese corporations. The results indicated that there is a positive relationship between e-alignment and e-collaboration. In addition, there is a positive relationship between e-collaboration capabilities and performance. Supply chain managers must be strategic in aligning e-business with e-collaboration capabilities to ensure business performance improvements.

Supply chain technology risks. The security of information is critical to all partners in the supply chain. According to Haddud, DeSouza, Khare, and Lee, (2017) information technology provides substantial benefits in the supply chain, which include (a) reduction of operational costs, (b) improved flow of goods from source to the consumer, (c) supply chain flexibility, (d) transparency and visibility, and (e) the availability of real-time information. Although the benefits of information technology exist, there are also risks associated with the phenomenon. The information technology risks include data and information breaches, software attacks, and technical failures (Huong Tran, Childerhouse, & Deakins, 2016; Vincent, Higgs, & Pinsker, 2017).

Radio frequency identification tag technology is beneficial to many companies in the supply chain. Walmart Corporation loses $3 billion every year due to theft and RFID tag technology could mitigate such a problem by providing visibility to the goods at any point in time in the supply chain (Liu et al., 2017). According to Liu et al., the RFID tag technology also has challenges that include first, low bandwidth which can cause a severe signal collision and yield to small throughput in information transfer. Second, the RFID tag system lifetime gets limited by a small battery embedded in the tag. In addition, Jannati and Bahrak (2016) postulated that RFID tag search protocol has been used to locate a tag in large warehouses but the tag search protocol can breach the tag's privacy as an attacker can trace the tag and replace it with another bogus tag.

Technological risks can cause companies to lose a substantial amount of money. Each year cyber-attacks cost the global economy about $445 billion (Samtani, Chinn, Chen, & Nunamaker, 2017). The IT risk can cause the loss of market share, shareholder's

wealth, profitability and credibility (Huong Tran et al., 2016). Most company managers realize aftermath that their company was cyber-attacked, a phenomenon that has made executives and managers of companies devise cyber threat intelligence to circumvent the attacks (Samtani et al., 2017). According to Munkhdorj and Sekiya (2017), the cyber-attacks have become a social problem, and company managers are employing resources to predict cyber-attacks using the social data analysis. The security experts in companies continue to monitor the cyber threats and devise the countermeasures to minimize the disruption caused by them (Munkhdorj & Sekiya, 2017). Company leaders must continue to employ resources to prevent the cyber-attacks to avoid disruption and ensure business continuity.

Supplier Relationship Management

Supply chain managers' challenge in the current economy is the uncertainty of the business environment (Wieteska, 2016). Suppliers in the supply chain play a vital role in the success of every business. According to Wieteska (2016), suppliers in the supply chain must be flexible and adaptive to market changes to minimize disruption in the supply chain. Supply chain managers must ensure that their company suppliers are well vetted to avoid unnecessary disruption in the supply chain. Supplier relationship management is vital for all firms in the supply chain. The robust buyer-supplier relationship could help mitigate disruption in the supply chain. The buyer-supplier relationships allow the parties to share robust strategies of how to manage supply chain portfolios efficiently. According to Saghiri and Hill (2014), supplier relationship could ensure buyer's competitive edge over its competition. The collaboration between the

buyer and supplier in delaying the design initiatives to ensure supply chain managers obtain correct information about the demand is a phenomenon that could satisfy customer needs. In addition, Mizgier, Pasia, and Talluri (2017) posited that buyers must develop suppliers to ensure the supply base is capable and efficient of handling the buyer's demand, which could mitigate disruption in the supply chain. Wieteska concurred with Mizgier et al. because Wieteska stipulated that buyer-supplier partnership could help mitigate disruption in the supply chain in the volatile market. The buyer-supplier relationships could facilitate robust information sharing between companies and mitigate disruption in the supply chain.

In addition, integration between local and global suppliers is an important phenomenon that companies must always consider when creating sourcing strategies. The integration of local and global integration suppliers can lower the supply costs (Straube, Durach, & Phung, 2016). Straube et al. (2016) posited that compay managers must conduct total cost ownership (TCO) to compare costs of doing business between local and global suppliers. Companies must select low-cost suppliers without compromising on quality. Straube et al. explored and developed a model that would analyze the impact of supplier selection decisions on the total procurement costs. Straube et al. postulated that supplier selection is vital to the success of the business. Straube et al. also postulated that knowing the total landed cost (TLC) of any materials helps supply chain managers to make an informed decision on the selection of suppliers. Straube et al. studied the supplier selection of four Chinese companies in the steel industry. Straube et al. conducted face-to-face and telephone interviews with procurement managers to collect

data. The analysis includes the separation of three costs of quality, material, and delivery. The study findings indicated that Chinese companies that replaced global companies with local suppliers showed 30% lower purchasing costs. One can conclude that establishing local suppliers can reduce the risk of business disruption.

Straube et al. (2016) concurred with De Castro Moura Duart, De Souza, Romero Macau, and De Souza (2017) that adding a secondary supplier to the supply chain could reduce costs and increase the competition. Khan, Sinkovics, and Lew (2015) postulated that when companies acquire suppliers, the global suppliers expect the technological advancements and knowledge transferred to them so that they can be competitive in the market. Khan et al. concurred with Leguizamon, Selva, and Santos (2016) about knowledge transfer. Leguizamon et al. posited that Walmart Corporation transferred necessary technology and knowledge to support the local farmers (suppliers) to cultivate crops according to the Walmart's standards. Rugraff and Sass (2016) postulated that when the crisis hits a country, local and global supplier react differently. For example, local suppliers might work with other local suppliers to remain competitive in the market while global suppliers may invest in the research and development (Rugraff & Sass, 2016). The integration between local and global suppliers is successful when information and technology are transferred and shared in the value chain.

Supplier relationship management involves selection of suppliers that would minimize disruption in the supply chain and provide business continuity. Zhao and Cao (2015) posited that power asymmetry between supplier and manufacturer would affect the risk occurrence in the joint product development efforts because of the complexity of

fulfilling tasks independently. Supply chain managers should consider power asymmetry when selecting suppliers. According to Hou, Wei, Li, Huang, and Ashley (2017), coordination in the supply chain is vital to the success of any business. The companies that have robust relationships in their supply chain coordinate the movement of goods from source to the consumer with minimal disruption problems. Hou et al. focused on the three echelons, the manufacturer, the distributor, and the retailer plus the effect of the revenue sharing contracts on their relationship and performance. The study also revealed that a leader-follower game decentralized three-echelon supply chain could be coordinated through revenue contracts and yield optimal supply chain performance. According to Hou et al., the revenue sharing contracts are the agreements between the retailer and the manufactures whereby the manufacturer agrees to sell to the retailer merchandise at a lower price than the market price. In this scenario, the retailer agrees to share some agreed revenue of the merchandise with the manufacturer.

To investigate the relationship between sustainable supplier management methodologies and buyer-supplier performance, Yang and Zhang (2017) collected and analyzed data from 256 manufacturers in China. Yang and Zhang found that sustainable selection of suppliers, monitoring of suppliers and sustainable supplier collaboration have positive relationships with buyer-supplier performance. Successful supplier or partnership selection minimizes the risk of selecting a supplier with an opportunistic behavior but instead creates a potential collaboration synergy (Mitrega, Forkmann, Zaefarian, & Henneberg, 2017). Mitrega et al. (2017) postulated that supply chain managers must use various information sources to find and vet suppliers to be successful

in business. Once the right suppliers are identified, supply chain managers can create a robust relationship with the key suppliers to ensure business continuity by collaborating and sharing of vital information in the supply chain (Teller, Kotzab, Grant, and Holweg, 2016). Xiaoming, Olorunniwo, Chunxing, and Jolayemi (2016) concurred with Teller et al. (2016) that supplier relationship management with the supplier of the suppliers could improve the firm's performance. If the supply chain managers of a firm engender lower tier visibility in the supply chain, the lower-tier suppliers will ensure to comply with the procurement standards of the buying firm and mitigate business disruptions (Xiaoming et al., 2016). Additionally, the firm's ability to have visibility to the lower tiers would improve product quality and ensure customer satisfaction. Forkmann, Henneberg, Naudé, and Mitrega (2016) posited that supplier relationship management has a positive impact on the supply base. Oghazi, Rad, Zaefarian, Beheshti, & Mortazavi (2016) also postulated that the supply chain managers' access to many suppliers could provide them with leverage to choose the best suppliers that could perform well for the company.

Yang, Lai, Wang, Rauniar, and Xie (2015) posited that strategic alliances with supply chain partners could improve performance in the supply chain. The Yang et al. investigated the antecedents of strategic alliances and the alliance effect on innovation capabilities in the manufacturing firms of China. The findings indicated that communication is vital antecedents before companies form strategic alliances. The effective communication can create a robust relationship between supply chain partners and improve innovative capabilities and performances in the supply chain.

Supplier selection is critical to the success of any supply chain. Supply chain managers must devise a supplier selection process that is robust to ensure the improvement of quality, delivery performance, responsiveness, and reduction of costs in the supply chain (Famiyeh & Kwarteng, 2018). Asadabadi (2017) studied supplier selection process and postulated that supply chain managers must consider customer needs as a deciding factor in selecting a supplier. Asadabadi said that suppliers that can fulfill the changing-priorities of customer needs in the volatile market would be the best supplier for any company as they would improve customer satisfaction. Yadav, Sharma, and Singh (2018) concurred with Famiyeh and Kwarteng (2018), and Asadabadi that robust supplier selection is vital to the success of the purchasing firms in the supply chain. Yadav et al. posited that the fuzzy Technique for Order Performance by Similarity to Ideal Solution (TOPSIS) method could be used to solve supplier selection opportunities. Yadav et al. postulated that criteria that could be used to rate suppliers when using TOPSIS method might include (a) quality, (b) service, (c) delivery, (d) price, and (e) environmental responsibilities.

Supply Chain Risk Management

Supply chain risk management (SCRM) is a process that supply chain managers of organizations use to proactively devise strategies that would help identify and manage any form of disruption (Cagnin, Oliveira, Simon, Helleno, & Vendramini, 2016). In their study to understand the proactive approach to risk management, Kırılmaz and Erol (2017) stipulated that even though popular trends like just in time, lean manufacturing, short product life cycle, and transportation networks reduce lead times, they increase the

supply chain risk. Supply chain managers must devise robust procurement strategies to ensure business continuity. Kırılmaz and Erol stated that proactive assessment of suppliers helps eliminate risky suppliers. In addition, Kırılmaz and Erol postulated that the world economic forum classified risk into economic risk, environmental risk, geopolitical, societal risk, and technological risk. Kırılmaz and Erol performed risk analysis in different stages that included (a) risk identification, (b) risk measurement, (c) risk evaluation, (d) risk mitigation, and (e) risk monitoring, and control. Kırılmaz and Erol then used linear programming to minimize the cost and identify the correct number of suppliers to support the business. Kırılmaz and Erol revealed that risk mitigation strategies include (a) avoidance, (b) control, (d) cooperation, and (e) flexibility.

Li, Fan, Sun, and Cheng (2017) posited that SCRM had attracted much attention because of the severe consequences of the supply chain risks to businesses. Li et al. postulated that supply chain risks could include natural disasters, disruptive technologies, and exchange rates fluctuations, which could adversely affect the business operations of firms. Li et al. indicated that information sharing, risk analysis and assessment, and risk sharing could help a firm create a robust information system process to minimize supply chain risk. Li et al. used information processing theory to understand how companies process their information. Truong Quang, and Hara (2018) said that the supply chain has several risks that include financial risks, time risks, demand risk, supply risks, operations risks, information risks, and external risks which can negatively affect supply chain performance, concurring with Li et al. (2017). The collaborative risk management phenomenon could help mitigate supply chain risks when supply chain partners share risk

information, make the decision jointly, and integrate processes (Friday, Ryan, Sridharan, & Collins, 2018). The advantages of collaborative risk management include (a) increased visibility in the supply chain, (b) creates a well-designed risk mitigation culture, and (c) the effective use of information technology (Friday et al., 2018).

Revilla and Saenz (2017) explored SCRM regarding internal operations and the external collaboration with other companies. The robust SCRM strategies would minimize the disruption in the supply chain (Revilla & Saenz, 2017). Revilla and Saenz gave an example of Apple Inc. that launched Ipad2 just two hours after the Tsunami of 2011. The Tsunami disrupted many companies' supply chain and caused companies to shut down. If there was robust communication with the external partners about the Tsunami, Apple could have postponed the launch. Revilla and Saenz's study findings indicate that companies that collaborate with their suppliers by sharing information are less prone to disruptions. In addition, if the internal processes of the company are too lean, the company may fail to minimize risk effectively. Revilla and Saenz surveyed managers of 908 firms representing 69 countries. Chaudhuri, Boer, and Taran (2018) concurred with Revilla and Saenz in regards the effect of internal and external collaboration on supply chain risk management. Chaudhuri et al.'s study revealed that internal integration has a positive effect on the flexibility performance in an organization, while external integration did not have a positive effect on the flexibility performance. Supply chain managers must devise different SCRM tactics to ensure that external integration does not negatively affect the performance of the supply chains (Chaudhuri et

al., 2018). According to Zeng and Yen (2017) collaborative risk management initiatives could also create resilient supply chains.

Wang, Tiwari, and Chen (2017) postulated that globalization and complex interrelationships between entities makes it harder for the supply chains to run efficiently. To understand an integrated model that incorporates multiple risks and helps in making a robust mitigation decision Wang et al. used a case study to evaluate alternative risk management strategies. Wang et al. interviewed various managers of the company including the general manager to understand the strategies used to mitigate supply chain risks. The findings indicated that the fuzzy Delphi method, a flexible technique to explore new concepts could be valuable in finding mitigation strategies. The TOPSIS method is a multi-criteria decision analysis method that would also be useful to finding and analyzing mitigation strategies. Supply chain managers could also use Petri net and Triangularization Clustering Algorithm that can identify supply chain weaknesses, which can help the managers identify appropriate SCRM strategies (Blackhurst et al., 2018). In addition, supply chain managers could use the top-down approach of Fault Tree Analysis (FTA) that identifies performance indicators first and then connect them to risks (Qazi, Dickson, Quigley, & Gaudenzi, 2018). The approach provides supply chain managers an opportunity to prioritize the risk behaviors mitigate them to ensure business continuity. Supply chain managers must continue to stay engaged in the supply chain community to learn different ways of managing risks. Knowledge is a critical resource in the supply chain. To examine the factors that affect supply chain manager's risk mitigation competency Ambulkar, Blackhurst, and Cantor (2016) surveyed 203 supply chain

managers. The findings indicated that supply chain managers with vast knowledge of mitigation risks have higher absorption capacity that enhances the supply chain risk mitigation competency.

The SCRM is an essential phenomenon in supply chain management. Risk management in the supply chain ensures business continuity; supply chain managers must ensure that robust strategies and tools are in place to ensure supply chain resilience. Riley, Klein, Miller, and Sridharan (2016) posited that information sharing, internal integration, and training could minimize disruption in the supply chain. Additionally, Rathore, Thakkar, and Jha (2017) postulated that the use of RFID tag technology, collaboration with supply chain partners and warehouse capabilities could minimize the risk of supply chain disruption in the supply, concurring with Riley et al. To further stress the importance of SCRM in the supply chain, Andjelkovic (2017) collected data from executives in Serbian companies to understand their level of proactive SCRM initiatives. The results indicated that companies with proactive supply chain risk management initiatives could increase their resilience in the supply chain. Andjelkovic noticed that executives in Serbian companies were not familiar with the importance of supply chain risk management initiatives. The disruptions in the supply chain significantly affected the Serbian companies.

Supply Chain Resilience

Supply chain resilience is the endurance of unforeseeable changes and disruption in the supply chain through preparedness that ensures a robust response to such changes and disruptions (Li, Wu, Holsapple, & Goldsby, 2017). A resilient supply chain can

withstand disruption and ensure business continuity. Li et al. (2017) postulated that companies must invest in resources, risk prevention, and innovative response practices to ensure a competitive advantage over their competition. The fewer the customers that are inconvenienced by disruption, the more goodwill attained in the community. In addition, Li et al. posited that the three-supply chain resilience dimensions that include supply chain preparedness, supply chain alertness and supply chain agility could significantly impact the company's financial well-being. Supply chain managers must be proactive in ensuring the existence of supply chain resilience techniques in the supply chain. Golgeci and Ponomarov (2015) concurred with Li et al. that to have a resilient supply chain companies must invest in innovation because it positively affects the supply chain resilience. Additionally, Botes, Niemann, and Kotze (2017) postulated that collaboration between supply chain partners could help minimize risk and disruption in the supply chain. However, the collaboration between buyers and suppliers does not directly lead to supply chain resilience but drives visibility, velocity, and flexibility, that enable supply chain resilience (Botes et al., 2017). Collaboration could indirectly enable supply chain resilience (Botes et al., 2017).

Supply chain resilience is an integral part of supply chain management. Supply chain managers must devise robust plans to prevent disruptions in the supply chain. Das (2018) established that the fundamental ways to contain disruption include (a) supplier flexibility, (b) supply location flexibility, and (c) reliability of the supplier. Supplier flexibility strategy must include an increase of suppliers; supplier location strategy involves procuring materials from multiple networks; and supplier reliability entails

supply chain managers replacing underperforming suppliers to ensure business continuity (Das, 2018). Lucker and Seifert (2017) posited that there are three crucial operational risk measures, which include (a) risk mitigation inventory (RMI), (b) dual sourcing and (c) agility capacity. In analyzing the relationship between the three criteria, Lucker and Seifer found out that when dual-sourcing is not available, RMI and agility capacity could act as substitutes. In addition, whenever dual-sourcing is available the agility capacity and dual-sourcing act as the substitutes. Lucker and Seifert concurred with Das (2018) that having multiple suppliers provides the needed flexibility should one supplier fold. In addition, to find intra and inter-organizational factors that could assist in building resilience in the perishable product supply chains. Ali, Nagalingam, and Gurd (2017) conducted a semistructured interview of 30 managers of perishable product supply chain companies in Australia. Ali et al. found out that globalization, proper business certifications, multi-sourcing, vertical integration, training and development, quality management, and responsiveness to customer needs could help businesses build a resilient supply chain.

Using nonlinear control theory Spiegler, Potter, Naim, and Towill (2016) investigated the resilient dynamics in the grocery supply chain. Spiegler et al. tested the distribution center systems of a large retailer using the shock and filter lenses. The results indicated that inventory drift under demand uncertainty could minimize resilience performance. Spiegler et al. suggested that inventory and goods in transit (GIT) should be a variable that is a function of demand and lead time. Another finding is that supply chain managers must always revisit trade off priorities of production, inventory, and

transportation costs to increase resilience in the supply chain. In addition, supply chain managers must group inventories with similar demands to ensure right quantities are ordered and boost supply chain resilience. Trading partners in the supply chain can achieve supply chain resilience when they share information, which could build trust between companies (Jain et al., 2017).

Globalization allows companies to trade or buy materials all over the world and supply chain complexities are inevitable. To understand the supply chain resilience phenomenon in developing countries, Tukamuhabwa, Stevenson, and Busby (2017) researched supply network of 20 manufacturing firms in Uganda by conducting interviews with 45 company executives. The findings indicated the interconnectedness of disruption threats, strategies, and the outcomes. Some of the threats are the side effects of the created strategies. Tukamuhabwa et al. posited that when building resilience supply chain managers must understand the consequences of each strategy to avoid a more severe disruption in another area of the supply chain network.

Cheng and Lu (2017) studied 297 senior managers of Taiwanese manufacturing firms to understand the influence of frontier, trajectory, and absorptive capacity on reactive and proactive effects of supply chain resilience of the supply chain. The findings included leaders of companies in the supply chain that stayed engaged and assisted when disruption occurred (Cheng & Lu, 2017). Second, the trajectory has a positive effect on inter-organizational supply chain resilience because the phenomenon helps supply chain partners to accommodate facilitation of supplier integration (Cheng & Lu, 2017). Third, the absorptive capacity has a positive influence on inter-organizational supply chain

resilience as leaders of manufacturing firms could acquire and exploit supply chain partner's knowledge to improve organizational capabilities. Cheng and Lu study indicated the importance of partnerships and collaboration in the supply chain to ensure supply chain resiliency. Concurring with Cheng and Lu (2017), Zeng and Yen (2017) postulated that due to significant risks in the global supply chain managers of companies are incentivized to work together to form a more resilient supply chain network and minimize disruption. The supply chain managers must ensure that the partnership relationships in the supply chain are robust to ensure business continuity as partners could devise excellent strategies that would promote supply chain resilience. Namdar, Xueping, Sawhney, and Pradhan (2018) posited that single sourcing has its benefits in the supply chain but can increase disruption risks. Managers must consider multiple sourcing to reduce supply chain risk and make the supply chain resilient (Namdar et al., 2018).

Supply Sustainability

Leaders of organizations continue to strive for excellence in the field of environmental and social sustainability as the phenomena play a significant role in the way managers conduct business in the current market (Sodhi & Tang, 2018). To survive in the current business environment for a long-term, managers must ensure that sustainability is a top priority of their companies (Katiyar, Meena, Barua, Tibrewala, & Kumar, 2018). Katiyar et al. (2018) postulated that supply chain managers must be compliant with the stakeholder requirements to see improvement in sustainability performance as well as supply chain performance. Gold and Schleper (2017) concurred with Kativar et al.'s assertion about the importance of stakeholders in sustainability

improvement. Gold and Schleper posited that stakeholder pressures drive most sustainability initiatives in companies and to avoid stakeholder pressures supply managers must devise true sustainability initiative plans. Gold and Schleper also stated that a significant way to integrate sustainability into the business is by taking on a risk-based perspective and monitoring the stakeholder pressure. Additionally, Silvestre (2016) postulated that risks and opportunities that companies face could influence supply chain managers' sustainability initiatives, concurring with Gold and Schleper statement about risk-based perspective. To understand the sustainability efforts of companies, managers could use an exergy analysis tool that can identify and measure inefficiencies in the industrial processes (Jawad, Jaber, & Nuwayhid, 2018). Using the tool, managers can improve the sustainable efforts and ensure all processes in a company are sustainable. Another tool used to measure sustainability efforts is known as multiobjective mixed integer linear programming model (Mota, Gomes, Carvalho, & Barbosa-Povoa, 2018). The model integrates all strategic decisions such supplier selection, capacity and location (Mota et al., 2018).

Sustainable supply chain management has been a topic that has gained grounds in this century because the industrial development of the past two centuries that caused unintended ecological deterioration (Paulraj, Chen, & Blome, 2017). Company leaders are continually finding ways of improving sourcing processes to ensure products are sourced most sustainably in the supply chain (Akhavan & Beckmann, 2017). To understand how managers of multinational corporations manage sustainability issues in a multi-tier supply base, Gong, Jia, Brown, and Koh (2018) conducted 43 semistructured

interviews with managers of focal companies in China. The findings indicated that managers of multinational corporations devise internal and external to work with first tier and subsequent tier suppliers on sustainable programs. Managers for focal companies train the first-tier suppliers on sustainable ways that in turn train and educate the lower tier suppliers. The focal company managers also use the third-party organizations to assist in training the lower tier suppliers the sustainable ways of managing products and services in the supply chain. Mani, Gunasekaran, and Delgado (2018) in their study explored the relationship between social sustainability and supply chain performance. The results showed a positive correlation between supplier social sustainability and supply chain performance. Supply chain managers must ensure that the sustainability initiatives are in place to ensure excellent supply chain performance.

Wilhelm, Blome, Wieck, and Xiao (2016) postulated that managers in procurement firms must ensure that sustainability initiatives in their companies are monitored because the stakeholder might hold them accountable. Wilhelm et al. posited that the sustainability issues occur at the supplier level henceforth procurement managers must engender lower tier supplier visibility. The lower-tier suppliers often have unsustainable activities that could negatively affect the brand. Wilhem et al. explored the sustainability management strategies that procurement firms use to mitigate sustainability issues in lower-tier suppliers. Wilhem et al. analyzed seven large multinational companies and utilized semi-interview structure to collect data. The findings indicated that procurement firms have varied strategies for managing the sustainability issues. First, managers of businesses employ horizontal complexity whereby tier one supplier

facilitates the delegation of sub-supplier sustainability management responsibilities whenever the institutional distance is low. Second, the buying firms exercise control to the second-tier suppliers and ensure that the sustainability efforts are observed by allowing the collaborative environment between the parties. Similarly, the government can also put pressure on suppliers by imposing tariffs on goods from unregulated countries to ensure that supply chain sustainability initiatives get followed (Zhou, Huang, Gong, & Peters, 2017). In addition, major retailers play a vital role in ensuring suppliers comply with the sustainability initiatives. For example, Walmart, a dominant retailer mandated its suppliers such as Clorox, Mattel, and Kimberly-Clark to reduce their packaging material, chemicals, and conserve water to have a sustainable supply chain (Gielens, Geyskens, Deleersnyder, & Nohe, 2018). The suppliers comply with the requests to stay in business.

Procurement managers in the current market ensure their suppliers are continually devising global supply chain initiatives that can sustain the environment and the communities. Company managers realize that sustainability can provide a competitive edge in the market. Busse, Schleper, Niu, and Wagner (2016) postulated there are sometimes slow implementations of sustainability efforts in the global supply chains. Busse et al. identified five barriers to supplier development for sustainability. The barriers include (a) complexity of sustainability concept, (b) social and economic differences that make it difficult for suppliers to set challenging goals, (c) spatial distance, (d) linguistic distance, and (e) cultural differences. In addition, Kim and Davis (2016) postulated after section 1502 of the Dodd-Frank Act of 2010 was enforced,

companies failed to identify whether or not their company's products came from conflict minerals. Lack of company managers' interest in the lower tier suppliers can also derail the sustainable initiatives in the supply chain. Kashmanian (2017) concurred with Kim and Davis that spatial distance could slow the sustainability efforts. Kashmanian posited that stakeholders require more transparency in dispersed supply chains to ensure that distant companies follow the needed sustainability methods and processes. Kashmanian stated that companies could build transparency in the supply chain by ensuring that the companies publish their sustainability efforts for accountability purposes and stakeholders to see. In addition, the collaboration of companies in the supply chain could help advance sustainability efforts (Kashmanian, 2017).

According to Choi, Min, Joo, and Choi (2017), green supply chain management presents some benefits that include (a) reduction in greenhouse gases, (b) greater use of innovative technology that help production of environmentally friendly products, (c) reduction in costs as companies may use fewer materials, (d) reduced violation penalties, and (e) creation of a positive corporate image. According to Madani and Rasti-Barzoki (2017), the increase of government subsidy rates on green products increases profits for companies creating an opportunity for company leaders to invest more money in environmentally friendly products, concurring with Choi et al. Xia, Zu, and Shi (2015) stipulated that proactive social responsibility and sustainable supply chain initiatives could bring competitive advantage and economic benefits to a company, agreeing with Madani and Rasti-Barzoki, and Choi et al.

Supply Chain Disruptions

Disruptions in the supply chain are inevitable, and supply chain managers must ensure that they have strategies in place to mitigate the disruptions. Disruptions could include natural disasters, and supplier inability to fulfill orders, which could be a result of low supplier capacity and capabilities (Wang, Craighead, & Li, 2014). Wang et al.'s study indicated that supplier-buyer trust is vital in the supply chain. The study also revealed that most disruptions in the supply chain were caused by (a), supplier delay in delivering the product, (b), supplier's failure to deliver sufficient quantities, and (c) the supplier's product defects. Wang et al. (2014) also noticed that the trust between buyer and supplier damaged by supplier induced disruption could be salvaged by supplier's genuine commitment to fulfill the disrupted products as well as willingness to improve its supply processes. Sarkar and Kumar (2015) postulated that sharing of disruption information by the upstream partners such as manufacturers could reduce unnecessary disruption in the downstream supply chain. Sharing of information could also reduce the bullwhip effect in the supply chain. In addition, Kumar, Liu, and Scutella (2015) posited that disruption in the supply chain could be devastating to companies but the proper planning of the mitigation strategies could reduce disruption effect on the company's financial standing and shareholder's wealth. Kumar et al. indicated that disruption in the supply chain could yield a 2.88% loss of shareholder's wealth in Indian firms.

To investigate causes of disruption in the supply chain for western buying firms in the Chinese market, Durach et al. (2017) interviewed 42 executives from Western buying firms. The findings indicated that there are several causes of disruptions in the supply

chain that include first, cultural differences between western and Chinese companies. The miscommunication due to cultural differences could result in (a), missed deadline and extended lead-times, (b), the legal and law enforcement because of the different understanding of the supply chain laws, and (c) the lack of transportation infrastructures that pertains to routes and transportation equipment. Fourth, the poor supplier selection; the western firms fail to identify suppliers that could provide robust product and capacity. Durach et al. also identified mitigation strategies that include fostering supplier relationships. In addition, Durach et al. indicated that encouraging supplier relationships tactics such as joint product design, supplier plant visits, developing suppliers, offering long-term relationships, conducting supplier training could help mitigate disruption in the supply chain.

The relationship between supply chain partners has a significant role in mitigating disruption in the supply chain. Loh, Thai, Wong, Yuen, and Zhou (2017) indicated lack of port-centric supply chain disruptions threats plan may cause delays at the ports and disrupt the supply chain. Loh et al. postulated that robust relationships between the managers of the buying firms and the operators of the port could mitigate disruption in the supply chain, concurring with Durach et al. (2017). Sawik (2017) posited that robust relationship with suppliers and supply chain partners could help minimize disruption in the supply chain, concurring with Durach et al. and Loh et al. Sawik also postulated that to minimize the effect of disruptions to companies, firms must keep buffer inventory; have alternative suppliers, and help the main suppliers recover more quickly. Helping the supplier recover from a disruption, the company reduces the recovery time and ensures

continuity of business (Sawik, 2017). Additionally, supply chain process becomes inefficient when the leaders of retailers and manufacturers maximize profits separately instead of building relationships and working together to ensure the primary and the backup suppliers gets utilized effectively during a disruption (Giri & Bardhan, 2015). According to Giri and Bardhan (2015), robust relationships of supply chain partners are critical to the success of any supply chain, concurring with Sawik, Durach et al., and Loh et al.

Schmitt, Kumar, Stecke, Glover, and Ehlen (2017) discussed the severity of disruptions in the supply chain. Schmitt et al. stated that the Tsunami that occurred in Japan in 2011 was the most expensive natural disaster disruption in history. The disruption cost was $350 billion. Schmitt et al. based their study on multi-echelon inventory systems. Schmitt et al. believe that base-stock policies are optimal in different supply chains. The companies that implement robust stock ordering policies might experience minimal disruptions in the supply chain. In addition, Schmitt et al. investigated the system performance with a disruption, system performance under expediting, dynamic order policy applicability, and the global search versus the line search. Some supply chain managers may think that when a disruption occurs companies must expedite the orders to ensure continuity of business, but Schmitt et al. claims that systems inventory increases due to expedited orders and cause variability in order quantity levels that can be costly.

Supply chain disruption can negatively affect the global economy as well as a company's financial standing. The explosion at a BASF facility on 17 October 2016 in

Ludwigshafen in Germany caused the disruption of raw materials such as methanol and naphtha to the entire supply chain (Dolgui, Ivanov & Sokolov, 2018). BASF lost 10-15% in revenue compared to the previous year (Dolgui et al., 2018). In addition, the strike at the Hyundai plants affected the 130,000-car production (Dolgui et al., 2018). The volcano that erupted in Iceland in 2010 caused a global loss of $5 billion in the air travel sales (Konig & Spinler, 2016). In addition, Konig and Spinler (2016) postulated that the volcano disrupted the shipments to companies in Iceland. The 2011 Tsunami earthquake in Japan caused the production of Japanese transportation equipment industry (TEI) to drop by 50% between February 2011 and April 2011 (Arto, Andreoni, & Rueda Cantuche, 2015). In addition, a deep-water oil well explosion in New Mexico in 2010 disrupted the supply of oil to the region causing a financial impact of $40 billion (Chakravarty, 2013). Multisourcing, backup sourcing could mitigate these disruptions in the supply chain, and emergency purchases to ensure business continuity (Tang, Gurnani, & Gupta, 2014). He, Huang, and Yuan (2016) posited that supply chain managers could manage supply risks by using emergency procurement strategies, concurring with Tang et al. (2014). Disruption is an unforeseeable event that occurs in the supply chain and negatively affects the business continuity (Pariazar & Sir, 2018). According to Pariazar and Sir (2018), issues such as (a) natural disasters, (b) production problems, (c) accidents, (d) labor availability, (e) terrorist attacks, (f) unexpected and sudden shocks, (g) economic crises, and (h) war can cause a disruption. Han and Shin (2016) also postulated different events that include terrorism or political volatility, natural disasters, and unexpected equipment failures could cause supply chain risk, and disruption, concurring

with Pariazar and Sir. Food recalls can cause a disruption in the supply chain. Food recalls are costly and deprive the consumers the ability to buy products from the retailers. In 2009 Peanut butter recall cost Kellog $70 million in lost sales (MacKenzie & Apte, 2017).

Akkermans and Van Wassenhove (2018) posited that poor management decisions could disrupt the supply chain. Managers must be vigilant and quickly address any grey swan events to ensure business continuity. According to Akkermans and Van Wassenhove, grey swan events are those events that are managers know would eventually cause disruption but neglects to address them promptly. To find the relationship between major sources of risks and the disruption impact on the agri-food supply chain performance, Nyamah, Jiang, Feng, and Enchill (2017) collected data through a questionnaire from supply chain executives in Ghana. The findings indicated that performance of the agri-food supply chain negatively correlates with disruption such as interest/exchange rate policies and volatility in customer demand. In addition, Nyamah et al. posited that supply chain managers must continuously assess risk effectively and make right decisions to mitigate disruption in the agri-food supply chain, concurring with Akkermans and Van Wassenhove (2018) that poor decision making can cause disruptions. In addition, managers must be proactive and have a pre-programmed response to any supply chain risks to ensure business continuity, failing to do so could have a negative effect on the company's supply chain (Srinivasan & Tew, 2017).

Transition

In Section 1, I introduced a general scope and background of the study. Section 1 includes the background of the problem; problem and purpose statements; nature of the study; research and interview questions; description of the conceptual framework; definition of key terms; assumptions, limitations, delimitations; and significance of the study. Additionally, I included a review of the literature related to the research study. Section 2 consists of my documentation of the reasons for using the multiple qualitative case studies to explore the strategies that supply chain managers use to prevent and minimize disruptions in Northwest Arkansas. Section 2 also includes the purpose of the study, my role as a researcher, participants, research method and design, population and sampling, ethical research, data collection instruments, data collection technique, data organization technique, data analysis, reliability and validity, and transition and summary. In Section 3, I present study findings; discuss the study's application to professional practice; and provide the implication for social change, recommendation for actions, recommendations for future research, reflections, and conclusion.

Section 2: The Project

Section 2 of this study includes the purpose statement, and discussions of my role as a researcher, participants, research method and design, population and sampling, ethical research, data collection instruments, data collection technique, data organization technique, data analysis, and reliability and validity. Section 3 includes the presentation of study findings, discussion of the study's application to professional practice, implication for social change, recommendation for actions, recommendations for future research, reflections, and conclusion.

Purpose Statement

The purpose of this qualitative multiple case study was to explore strategies that grocery store supply chain managers use to mitigate the effects of disruptions in their companies' supply chains. The research population consisted of four supply chain managers from four grocery stores in Northwest Arkansas with successful experience in mitigating the effects of disruptions in their companies' supply chains. The positive social change implication pertain to the uninterrupted flow of food to the community at the right price for customers' consumption and nourishment. Increased efficiency by grocery store supply chain managers may attract new grocery store investments that could create job opportunities for the Northwest Arkansas community. The potential new jobs would improve the standard of living of the people in Northwest Arkansas.

Role of the Researcher

A qualitative researcher strives to provide an in-depth understanding of the issues that are related to people, organizations, and the environment (Barnham, 2015).

According to Rich and Misener (2017), researchers are typically the primary data collection instrument. In this study, I served as a primary instrument for collecting data. In my role as researcher, I collected data through face-to-face semistructured interviews and company documentation, analyzed the data, and presented it objectively. In qualitative research, a researcher must have integrity and avoid biases when researching to achieve truthful and robust research results (Shaw & Satalkar, 2018). According to Anderson (2017), a researcher must understand the importance of reflexivity, correct methodology, member checking, and situational ethics to have rigorous research. To obtain non-biased and objective results, I used open-ended interview questions during the interview process (see Appendix A). I also avoided indicating that there was a correct answer when asking questions. Additionally, I maintained a neutral stance in the data collection process, and I allowed the participants to review their answers to my interview questions before including their responses in my report to ensure accurate capture of their views. After completing my final report, I asked a colleague to review it and identify any bias that may have existed.

According to Marshall and Rossman (2016), a researcher should disclose the experiences, biases, and any assumptions that may affect the study negatively. The researcher must ensure that such issues get addressed to have reliable and valid research. I have had practical experience in managing grocery store businesses for over 10 years. In addition, working for a major retailer for the past 8 years in the supply chain field granted me the opportunity to manage the company's suppliers and service providers, making decisions regarding the retailer's supply chain to ensure business continuity. My

experiences did not impede my research when I interviewed the participants, as I did not reflect my own experiences but only listened to the interviewees provide their experiences and strategies they used in their companies to mitigate supply chain disruptions. To further mitigate against biases and integrity issues, I recruited only participants who I did not know prior to my study. Ross, Iguchi, and Panicker (2018) stated that a researcher must hold paramount the protection of the human research participants' rights. As a researcher, I protected the rights of participants by respecting their values. In addition, I followed *The Belmont Report's* ethical guidelines stipulating that a researcher must treat participants with respect, fairness, and beneficence (National Commission for the Protection of Human Subjects of Biomedical & Behavioral Research, 1979). I asked each participant the same set of interview questions to ensure consistency. I upheld the participants' confidentiality agreement to the highest standards, allowing the participants to take part in the research freely without fear of retribution from anyone. I used alphanumeric codes P1, P2, P3, and P4 to identify my four participants.

Before collecting data, I sought approval from Walden's Institutional Review Board (IRB). The approval number is 01-29-19-0657276. Once I was approved, I collected data through face-to-face semistructured interviews. Arsel (2017) posited that a qualitative researcher must have an outline of the interview listing essential points and planned probes and transitions. I used an interview protocol document (see Appendix B) to ensure that I asked the necessary questions that would bring value to the study. The interview protocol also helped me to be consistent with all the participants in regard to the questions that I asked. Sorsa, Kiikkala, and Astedt-Kurki (2015) noted that qualitative

researchers use the bracketing method to mitigate preconceived ideas that could negatively affect a research study. I used the bracketing method by maintaining reflective research journals and memos when collecting and analyzing data to avoid biases.

Participants

Effective participant selection is critical to getting robust results in any qualitative study (Yin, 2018). I used purposive sampling to select four participants. Purposive sampling helps the researcher select participants who have experience, knowledge, and understanding of the research question (Imani-Nasab, Seyedin, Yazdizadeh, & Majdzadeh, 2017; Megheirkouni & Roomi, 2017). Peloquin, Doering, Alley, and Rebar (2017) conducted a study about disparities in health perspectives between indigenous and non-indigenous population and recruited participants who were interested in the topic under study. Similarly, I selected participants who showed interest in my study to ensure that they could provide robust information and knowledge about the study topic. The criteria for selecting participants for my study were that they (a) must have served as a senior supply chain manager, (b) must have had extensive information about disruptions, and (c) must have had experience in implementing successful strategies for preventing disruptions in the grocery store supply chain.

The process of gaining access to the participants started with the IRB approval. Gaining access to the participants can be challenging given that executives and managers may be busy managing their businesses, leaving little time to sit down with the researcher (Maramwidze-Merrison, 2016). According to Goldman and Swayze (2012), the process of gaining access to the participants starts with the researcher first contacting the

prospective senior leaders at the prospective organizations, then contacting the participants and gaining commitment (Maramwidze-Merrison, 2016). Once I obtained IRB approval, I reached out to the businesses' leaders and the participants to introduce myself and gain their commitment by obtaining a signed letter of cooperation. To build a relationship with the owners of the organization and the participants, a researcher can meet those leaders and the participants face-to-face for an introduction and establish rapport and trust before conducting the research (Grothe-Hammer, 2017; Newington & Metcalfe, 2014).

To succeed in research, a researcher must build robust relationships with the participants (Yin, 2018). I built the trust and relationship with the participants by maintaining consistently respectful communication with them. Additionally, a researcher must ensure that the information provided by the participants gets used appropriately and not against them and that the participants' names remain anonymous (Celestina, 2018). Researchers tend to use email, telephone, and face-to-face as a means of communication with the participants to encourage two-way communication and build a working relationship (Yang, Kang, & Cha, 2015). I used email, telephone, and face-to-face communication in my study to build a good working relationship with the study participants.

Research Method and Design

Research Method

The qualitative method was appropriate for my study. Using qualitative methodology, a researcher can garner a deep understanding of a phenomenon by utilizing

open-ended discovery methods and contextualizing description from each source of information (Levitt et al., 2018). Qualitative research involves interpretive, naturalistic, and holistic inquiry into a phenomenon in a natural setting (Anderson, 2017; Boardman & McCormick, 2018). Additionally, a researcher can gain a deeper understanding of individual experiences and real-life experiences of the phenomenon by using qualitative methodology (Barnham, 2015; Roberts & Struckmeyer, 2018). My use of qualitative methodology was appropriate because I explored and gained an in-depth understanding of how grocery store supply chain managers mitigated the effects of disruptions in their companies' supply chains.

Quantitative research is the empirical study of a phenomenon that involves the accumulation of facts and causes of behavior by using numerical data and variables to predict the behavior over time (Park & Park, 2016). Zapkau, Schwens, and Kabst (2017) indicated that a researcher could use the quantitative method to understand whether one variable has a significant influence on the outcome of the phenomenon or incident. Additionally, McCusker and Gunaydin (2015) postulated that a researcher uses the quantitative method to test hypotheses, study variables, and analyze numerical data to understand the phenomenon. A quantitative methodology was not appropriate for this study because I did not test hypothesis or examine variable relationships; instead, I explored strategies to mitigate the effects of disruptions in the grocery supply chain.

Mixed-methods research involves integrating qualitative and quantitative methodologies in a study to address the research question (Feldon & Tofel-Grehl, 2018; Plano Clark & Ivankova, 2016). According to Schoonenboom (2018), mixed-methods

involve the combination of two or more strands of other methodologies such as quantitative and qualitative in one study. Researchers mixed-methods to capture the breadth and depth of phenomena under investigation by integrating different data sources and types into a study (Archibald & Gerber, 2018). The mixed-methods approach was not appropriate for this study because my research question did not include variables to compare. Additionally, this research did not require a combination of qualitative and quantitative methodology for any data collection techniques because qualitative techniques such as semistructured interviews were sufficient to explore the strategies used by grocery store supply chain managers to mitigate disruption in their companies' supply chains.

Research Design

In my study, I considered three qualitative research designs: ethnographic, case study, and phenomenological. I chose a multiple case study research design for this study. The case study design was appropriate for an in-depth understanding of a real-life phenomenon in its environmental setting (Ridder, 2017; Yin, 2018). A case study design is appropriate when a researcher has some control of the events and seeks answers to why, what, and how questions in a real-life context of the phenomenon (Villarreal Larrinaga, 2017). According to Udekwe and La Harpe (2017) and Yin (2018), a researcher can use multiple case study to compare different cases and develop a deep understanding of the phenomenon. The qualitative multiple case study was appropriate for my study because it enabled me to identify strategies that grocery store supply chain managers used to mitigate the effects of disruptions in their companies' supply chains.

Researchers use ethnographic research design to collect valid, deep, rich, and reliable psychological data by entering into participants' setting for a sustained period (Mhizha, Tandire, Muromo, & Matika, 2016). Additionally, researchers use the ethnographic research design to explore culture characteristics of a selected community over time (Jemielniak, 2016). To understand the culture or subculture of a particular group of people the researcher uses ethnographic research design by immersing oneself in the society and have an active involvement in the culture while researching with the participants (Ulusoy & Schembri, 2018). The focus of this study was not to gain an understanding of cultural beliefs or characteristics of grocery store supply chain managers but to rather explore how grocery store supply chain managers successfully mitigated disruptions in their companies' supply chain.

Researchers use the phenomenological approach to understand and garner the knowledge of the individuals' lived experiences of the phenomenon (Gauche, de Beer, & Brink, 2017). In phenomenological research, researchers aim to get an in-depth understanding of individuals experienced during a phenomenon occurrence so that the researchers could draw informed conclusions (Wiles & Crawford, 2017). Phenomenological researchers garner knowledge of the participants lived experiences through interviews, observations and documents analysis (Truong & Hallinger, 2017). The phenomenological design was not appropriate for my study because the focus of this study was not to interpret supply chain managers' lived experiences but rather gain supply chain managers' knowledge of how to successfully prevent and mitigate disruption in the grocery store supply chain.

In a qualitative study, the researcher gathers enough data to validate the research (Emerson, 2015). The qualitative researchers can validate the study by increasing the sample size to reach data saturation (Boddy, 2016). The researcher can collect data through the semistructured interview and could validate the qualitative study by interviewing more people until reaching data saturation (Hsieh, Sonmez, Apostolopoulos, & Lemke, 2017; Jin, Pang, & Smith, 2018). In this study, I reached data saturation by continuing to interview supply chain managers until no new insights or data emerged.

Population and Sampling

The population of this study consisted of four supply chain managers in Northwest Arkansas with successful experience in mitigating grocery stores' supply chain disruptions. I used purposive sampling to identify and select participants with the most knowledge about preventing and mitigating disruptions in the grocery store supply chain. Researchers use purposive sampling to select participants with relevant experience and expertise of the phenomenon under study and collect necessary data (Bachman et al., 2017; De Andrade, Spotswood, Hastings, Angus, & Angelova, 2017; Tsun-lok & Pik-Ching, 2017). Purposive sampling is the most popular and convenient method of sampling used by qualitative researchers to identify and select samples that would provide rich information about the phenomenon under study (Palinkas et al., 2015; Siew Khoon Khoo, & Saleh, 2017).

Fugard and Potts (2015) postulated that a sample size selection in an important stage in the planning of the study as the sample size could vary between 2 to 400 and to find the number in between would depend on the phenomenon under study. Rasila and

Jylha (2015) indicated that large sample sizes sometimes might not yield an in-depth understanding of the phenomenon. A qualitative researcher must ensure that the correct effective sample size is selected to get robust results. Qualitative researchers strive to understand the right sample size for their study, and according to Boddy (2016), a researcher that aims at positivism may require a larger sample size than a researcher conducting an in-depth qualitative study. Additionally, Boddy posited that a sample size as low as one could be appropriate for a study. In this study, I interviewed four supply chain managers meeting the following three criteria: (a) must have served as a senior supply chain manager, (b) must have had extensive information about disruptions, and (c) must have successfully prevented and mitigated disruptions in the grocery supply chain of their companies.

Data saturation is a phenomenon that compliments the data sampling, as the qualitative researcher must collect data from the participants or other records until no new information, themes, and codes emerge, which may increase or decrease the sample sizes (Shams, Sari, & Yazdani, 2016). The qualitative researcher ensures that the data collected are valid and accurate by continuing to collect data until achieving data saturation, which means that no new themes or codes emerge (Fusch & Ness, 2015; Joubert & Loggenberg, 2017). In my data collection, I continued to interview the supply chain managers of grocery stores using the same interview questions, and in the same timeframe, until I reached data saturation, which meant no new information, code, and themes emerged. According to Yin (2018), case studies provide a researcher the

opportunity and flexibility to achieve data saturation by conducting in-depth interviews with the participants.

Ethical Research

Protecting participants of the research study is a fundamental ethical research standard, and the researcher must protect the well-being of the participants by minimizing risks of harm and maximizing any potential benefits to them (Hunter et al., 2018; Ross, Iguchi, & Panicker, 2018). According to Hammersley (2015), a researcher must act equitably, minimize harm, respect autonomy, and preserve the privacy of the participant to have a valid and acceptable ethical research. Additionally, the researcher must ensure that the participants are selected based on the purpose and outcome of the research, and no participant must be selected based on easy availability or manipulability (Ross et al., 2018). According to Martha et al. (2017), some researchers may give incentives to the participants of the study, a phenomenon that continue to be under ethical consideration. Martha et al. did not give financial incentives to the participants to ensure ethical results. To maintain ethical results, I did not provide incentives to the participants for them to participate in the research but provided them with a summary of my research findings and conclusions. Thorpe (2014) postulated that the participants have the right to withdrawal from the research study anytime without any consequences even though their action may adversely affect the researcher. The participants in my study had a right to withdraw from the study at any time either by written or verbal notice without any negative consequences.

Researchers use the informed consent form to ensure that participants of the research are protected and not harmed in any way (Lie & Witteveen, 2017). All participants signed an informed consent form before participating in the study. The consent form contained the (a) background information on the research topic and purpose of the study (b) research procedures, (c) voluntary nature of the study, (d) risks and benefits of being in the study, and (e) confidentiality and safety procedures. Uneke, Sombie, Lokossou, Johnson, and Ongolo-Zogo (2017) postulated that a consent form is critical to the research study because the researcher uses it to maintain the privacy of participants and ensure confidentiality of the study findings wherever applicable. I adhered to the informed consent form principles and the purpose of my study and explained to the participants the research benefits and risks, and the extent of confidentiality protections.

After I obtained IRB approval (approval number 01-29-19-0657276), I included the approval number on the informed consent form and emailed it to the participants well ahead of the interviews to ensure they made an informed decision. A researcher must obtain an IRB approval before commencing any study that involves humans to ensure adherence of the ethical standards (Bierer, Barnes, & Fernandez Lynch, 2017; Blackwood et al., 2015; McEvoy, Enright, & MacPhail, 2017). Blackwood et al. (2015) posited that the IRB approval criteria include (a) ensuring minimal risks to subjects, (b) ensuring reasonable risks to subjects relative to anticipated benefits, (c) ensuring equitable subject's selection, (d) seeking voluntary informed consent, and (e) having the appropriate documentation of informed consent.

Protection of participants in this study was vital. To ensure privacy and confidentiality, I did not include the names of the participants and their organization in the study. Instead, I assigned a letter and a number, such as P1, P2, P3, and P4 for identification. According to Lahat, Adali, and Jutten (2015), a researcher can improve the study's credibility and efficiency by organizing data. Additionally, Hiriscau, Stingelin-giles, Stadler, Schmeck, and Reiter-theil (2014), stated that in an informed consent process, researchers must indicate how they will securely store the confidential information provided during the research. I locked up all the materials related to the study including audio recordings, interview transcriptions, and company documentations in a single key file cabinet accessible only by me. I will dispose of the materials after 5 years from the completion of my study. Disposing of materials will include shredding all documents and erasing any electronic data from my thumb drive.

Data Collection Instruments

Data collection is a process that allows participants involved in the study to help answer the overarching research question and achieve the objectives of the research (Dlodlo & Hamunyela, 2017). The data collection process involves interaction with the participants and building trust with them to yield robust results (Celestina, 2018; Myers, 2015). The participants have the power to decide the type of information they may disseminate and building trust with them is critical to a study to ensure more information gets collected during the study (Celestina, 2018). In qualitative research, a researcher is the primary data collection instrument (Rich & Misener, 2017), and must remain unbiased when collecting data. During interviews, the researcher must pose a non-leading

question to the participants to minimize biases about the way the researcher asks the questions (Watts et al., 2017). Additionally, the researcher must sample data directly from the population of interest and not mostly rely on secondary data to strengthen the inferences drawn from the population (Watts et al., 2017). I served as a primary data collection instrument and I used a professional recording device to capture the participant's responses during interviews. In addition, I reviewed the archival, company documentation related to company policy and business procedures as another source of information. According to Yin (2018), qualitative researchers use documents to support the evidence collected from other sources. Marshal and Rossman (2016) posited that researchers must diligently peruse through documents that would support the research study. Felype Neis, Fernandes Pereira, and Antonio Maccari (2017) conducted a study about strategic planning process and organizational structure, and used documentary research a secondary data collection instrument to semistructured interviews. Similarly, Southcott and Joseph (2017) used documentary sources, such as annual reviews to understand the connection between social entrepreneurship, corporate philanthropy, and community engagement.

Researchers use semistructured interviews to understand and explore the subject's lived experiences of the phenomenon under study (De Saeger, Bartak, Eder, & Kamphuis, 2016; Levitt, Pomerville, Surace, & Grabowski, 2017). To understand the effects of a decade-long HIV/AIDS financial aid influx from donor countries to southwest Nigeria, Adefemi, Yates, Awolaran, and Bakare (2017) conducted a semistructured interview with twelve senior healthcare professionals. Similarly, Geelan

and Hodder (2017) used in-depth semistructured interviews to examine a new UK-based organization, the Union Solidarity International's (USI) influence on trade unions beyond the United Kingdom borders. I used semistructured interview questions to explore the strategies that grocery store supply chain managers use to mitigate the effects of disruptions in their companies' supply chain (see Appendix A). I also asked each participant for the company's documentation and records about mitigation strategies.

Researchers conduct semistructured in-depth interviews according to a defined protocol (Golik, Blanco, & Czikk, 2018). An interview protocol is a guide with a question that aims to collect information about the phenomenon under study (Cho et al., 2017). According to Marshall and Rossman (2016), the qualitative researcher uses the interview protocol to focus on the inquiry during the interview. Additionally, Yin (2018) posited that the interview protocol must contain (a) research study overview, (b) data collection procedures, and (c) the interview questions. In my study, I used the interview protocol (see Appendix B).

To enhance the veracity, validity, and credibility of the data collection process, qualitative researchers use member checking (Liao & Hitchcock, 2018). Member checking is when the researcher paraphrases the participant's responses for each question into the researchers' own words, and then researcher asks the participant to ensure that the researcher accurately interpreted participant's intended message for each question (Korstjens & Moser, 2018; Randall et al., 2016). According to Yin (2018), qualitative researchers use member checking to enhance quality and data credibility. After conducting interviews, I gave participants my interpretation of their responses to

interview questions and asked participants to check for any errors to ensure validity and credibility.

Data Collection Technique

According to Brooks and Normore (2015), researchers and scholars use interviews, observations, and documents to explore the research question. To have successful interviews, researchers use semistructured interview schedule and predetermined questions as a guide to ensure a natural flow of the interviews (Gupta & Pathak, 2018). For this study, I used semistructured interviews and review company documents as data collection techniques. I conducted a face-to-face interview with the participants of this study by using the interview protocol (see Appendix B). I reviewed documents related to supply chain disruptions to gain knowledge of how grocery store supply chain managers mitigated and prevented disruptions in the supply chain. I triangulated all information obtained from the interviews with the information collected from the documents and review to see if there is corroboration. The triangulation of the two sources of information would show the comprehensiveness of the case study (Yin, 2018). I conducted the interviews at a place that was convenient for the participants. Researchers use semistructured interviews to gain an in-depth understanding and nuanced account of a phenomenon (Murtagh, Achkar, & Roberts, 2018; Pandey & Chawla, 2016). Researchers utilize a semistructured interview technique to explore and gain an understanding of the real-life experiences of the participants to answer the research question (Ramji & Etowa, 2018). Additionally, researchers use the scripted open-ended

questions to elicit in-depth answers to the research question (Huynh, 2018). Similarly, for this study, I used the open-ended questions listed in Appendix A.

Semistructured interviews provide the researcher with rich and detailed information about participant's explanations, opinions, and perceptions of the phenomenon under study (Agboola & Scofield, 2018). Additionally, Agboola and Scofield (2018) posited that semistructured interviews allow the researcher to probe issues in-depth, clarify precise meanings, and reduce ambiguity. By using semistructured interviews, a researcher can fully capture the experiences and practices of the participants in regard to the phenomenon under study. The semistructured interviews have some disadvantages that include (a) bias because of poorly articulated questions, (b) researcher interpretation bias, and (c) interviewees memory relapse of past events (De Massis & Kotlar, 2014). To mitigate bias in data collection De Massis and Kotlar (2014) suggested that researchers must use different and well-informed interviewees that view the research question from different perspectives. I interviewed well-informed and knowledgeable supply chain managers from four different grocery stores for this study.

After receiving IRB approval, I contacted potential interviewees through email and included the informed consent form for them to sign. I reached out to each participant and scheduled the appropriate time for the face-to-face interviews. During the interview, I audio recorded the interviews as well as wrote notes. Upon the completion of the interviews, I transcribed the audio recordings. I also used member checking to ensure that I captured the participants' views correctly. Member checking is an important quality control process that researchers use to verify interview information with the participants

to improve the quality and credibility of data (Yin, 2018). According to Debono et al. (2017), member checking is a process of providing the participants the study's findings to get their feedback on the interpretations to establish their credibility and accuracy. To validate the findings of the study, researchers also use member checking by allowing the participants to validate the findings' accuracy (Wang, Duan, & Yu, 2016).

Gebauer, Haldimann, and Saul (2017) postulated that some researchers could conduct a pilot study to build the legitimacy of the study. Additionally, Cohen, Darnon, and Mollaret (2017) conducted a pilot study of understand the relevance of the phenomenon understudy before delving deeper into other sections of the research study. Yeardley (2017) also posited that some researchers conduct pilot studies to establish a benchmark of the research to follow. For this study, I did not conduct a pilot study because I had the right set of participants that provided legitimate responses to my research question and create credibility.

Data Organization Technique

The researchers are responsible for data organization and must ensure that data organization is consistent to avoid researchers from having to spend time harmonizing the data later and uphold the data integrity (Broman & Woo, 2018). Broman and Woo (2018) encouraged researchers to use a single common value for the subjects under study. According to Almutairi, Gardner, and McCarthy (2014), data organization is the phenomenon that involves classifying and assigning file names for stored research data with identifiable content. In a qualitative study, researchers use research logs to keep track of all the research processes and produce a log, a journal, a story that describes and

reflects on that process (Fluk, 2015). I used the research log to keep track of all research activities for this study. I also used alphanumeric codes for each of the participants to maintain privacy. An example of an alphanumeric code format is P1.

Yin (2018) postulated when conducting research project, a researcher must create a secure data repository for the information gathered. To store transcribed interview data, I used a thumb drive. I saved the transcribed data of each participant by using the alphanumeric codes. I used the digital audio recorder to capture the interviews of the participants. According to Johnson (2014), researchers must safeguard the participant's raw data and identity to uphold the privacy and confidentiality. According to Ellis (2016), researchers could use a computer that is password protected to ensure no one has access to the information but the researcher. To safeguard the thumb drive, audio recorder, and back up disks of the separate participants' word files, I stored them in a locked and secure file cabinet. I also have research study files stored on my computer, which can be only accessible to me and protected by a secure password. Additionally, some researchers use NVivo to store and organize electronic data for easy retrieval (Mertens & Hesse-Biber, 2015). I also used NVivo 12 plus software to organize and store data for easy access to them. All the information about this study will also be kept in the cabinet and secured location for 5 years. After the 5 years, I will destroy the information by deleting the files from the computer and shredding all paper documents related to the study.

Data Analysis

Qualitative data analysis is a systematic review of data elements that involves data interpretation to discover the underlying meaning (Carter, Bryant-Lukosius, DiCenso,

Blythe, & Neville, 2014). In this study, I used Yin's 5-step process to analyze data, which involved compiling the database, disassembling data, reassembling data, interpreting data, and conclusion (Yin, 2018). I collected the data, stratified the data, reassembled data, interpreted the data, and provided a conclusion. According to Shaw and Satalkar (2018), data analysis involves transcribing and coding data using software to come up with themes by using deductive analysis. Qualitative researchers may also use ATLAS.ti software program to analyze the transcripts (Wyte-Lake & Griffin, 2018). Additionally, Wyte-Lake and Griffin (2018) posited that the content analysis technique helps the researcher to conduct data analysis by using the preliminary codes built on the interview guides and come up with themes. Damani et al. (2018) in their study indicated that researchers could use standard qualitative thematic analysis to analyze the data and come up with codes and themes. Damani et al. also utilized NVivo software for the data analysis. I used NVivo 12 plus software to analyze the data for this study and deduct the codes and themes.

In a qualitative study, researchers use multiple sources of data to ensure the validity of the research (Ghadge, Fang, Dani, & Antony, 2017). Researchers may use any of the four triangulation types when conducting research, which are (a) data triangulation, (b) investigator triangulation, (c) theory triangulation, and (d) methodological triangulation (Yin, 2018). Researchers use more than one sources of data as a form of data triangulation to avoid biased analyses and maintain accurate analyses (Da Silva, De Resende Melo, Esteves, & Gomes, 2016; Yin, 2018). According to Krichanchai and Maccarthy (2017) researchers conduct data triangulation by using semistructured

interviews and document analysis, a phenomenon that enhances the study's reliability and validity. For this study, I used semistructured interviews and document analysis to fulfill methodological triangulation.

Buljan, Barac, and Marusic (2018) posited that data analysis process includes (a) coding of the transcripts, (b) categorizing the initial codes, and (c) generating themes and patterns. Sousa and Figueiredo (2014) identified sequential steps of data analysis that include (a) cleaning and organizing the data, (b) coding the data, (c) identifying emerging patterns and themes, (d) interpreting the data, and (e) evaluating results. Coding is a critical part of the data analysis process because it provides the context from which the major themes of the study could be generated (Fletcher, 2017). Once I obtained the approval from the IRB to collect data, I collected data through interviews, cleaned and organized them, and applied necessary codes helped me deduce critical themes for this study.

According to Paulus, Woods, Atkins, and Macklin (2017), qualitative data analysis software has been vital to researchers when analyzing data. Qualitative data analysis software has several advantages that include (a) improves quality over the manual process, (b) handles large datasets, and (c) enhances the trustworthiness by providing a transparent audit trail. NVivo is one the computer-aided qualitative data analysis software that can analyze the qualitative data and develop codes and theme quicker than a manual process. NVivo software can be used to analyze interview data and create codes and themes for the study (Ruggunan, 2016). I used NVivo 12 plus software to analyze data that I collected from the participants through semistructured interviews

and reviewed of company documents. Bryman and Bell (2015) posited that researchers could use interview process and code each interview separately to choose a common framework. I transcribed the audio recordings from each of the interviews and saved them in a Microsoft word files then I uploaded the transcriptions into the NVivo software to identify the themes. According to Abro, Khurshid, and Aamir (2015), data integration from multiple sources provides a better picture of the study than one source of information. After identifying themes using NVivo software, I correlated the key themes with the literature review findings, including the new studies published after writing my doctoral study, and the conceptual framework. I was guided by the RDT when interpreting the data and making conclusions.

Reliability and Validity

Reliability

A qualitative researcher addresses the reliability of the study by ensuring the accuracy and consistency of the documentation of the procedures and results (Yin, 2018). According to Ma, Lund, Nielsen, Aamand, and Su (2015), a researcher can show reliability by providing the objectivity and replicability of collected data and consistent results. To establish the trustworthiness of the study, the researcher must ensure that all the components of the research such as the research question, the literature review, methodological choices, and the theoretical interpretation of the findings are consistent (Cuervo-Cazurra, Andersson, Brannen, Nielsen, & Rebecca Reuber, 2016). Reliability of the research means that the research results are stable and that another researcher could replicate the study (Hatamleh, Hiyassat, Sweis, & Sweis, 2018). In this study, I ensured

that all the contextual components were consistent to establish reliability. Researchers also conduct audit trail, member checking, review transcripts, and use interview protocol to increase the reliability of the research (Yin, 2018). To increase the study's reliability, I paraphrased the participant's responses for each question into my own words and then asked the participants to ensure that I accurately interpreted the intended message for each question. I audited the research steps taken in my study from start to finish and ensured that I followed the correct steps to enhance reliability. Additionally, I used interview protocol to gain a deeper understanding of the phenomenon from the participants and enhanced the reliability of the study.

Researchers can achieve reliability in the study through member checks and data triangulation (Bizri, 2017; Liao & Hitchcock, 2018; Ramji & Etowa, 2018). In my study, after conducting the interviews and document reviews, I gave participants my interpretation of their responses to the interview questions and asked participants to check for any errors to ensure reliability. Additionally, I used semistructured interviews as well as the company's archive documents to triangulate data and ensure reliability. According to Fusch and Ness (2015), data saturation also helps to ensure the dependability of the study. Researchers can achieve data saturation by continuing to interview participants until they cannot obtain any new information (Joubert & Loggenberg, 2017). During the data collection phase of my study, I continued to interview the grocery store supply chain managers in Northwest Arkansas until I did not get any new information.

Validity

Qualitative researchers strive to have rigorous and trustworthy research to ensure research validity (Le Roux, 2017). According to Leung (2015), the validity pertains to the appropriateness of the research tools, processes, and data. The researchers must ensure that credibility of the research by thoroughly capturing the details of events such as interview proceedings and verifying details with the participants (Pandey & Chawla, 2016). The validity of research signifies the accuracy and trustworthiness of the instrument used and that the research results have minimal systematic errors (Chander, 2018). To ensure the integrity of the research study, the researcher must understand the research in the lens of credibility, dependability, confirmability, and transferability (Cope, 2014). After conducting research, I sent the analyzed data to the participants to validate them and ensure the data accuracy.

The credibility of research is critical to the overall study and researchers must ensure the believability of the research results through the lens of the participants (Elo et al., 2014). To establish the credibility of their study of professional socialization of nursing students, Gibbon and Crane (2018) returned transcripts to the participants to ensure the coded themes truthfulness to the participant's views. Cope (2014) postulated that the credibility of the research study is enhanced through a researcher’s ability to verify the research findings with the research participants. According to Korstjens and Moser (2018), researchers use (a) prolonged engagement, (b) persistent observation, (c) triangulation, and (d) member check to establish credibility in the study. I conducted member checking, returned my interpretation of participants’ responses to interview

questions to participants for verification, and triangulated the interview data and the archival document data sources to establish credibility.

Confirmability of the study pertains to the ability of other researchers to confirm the study and ensure that the study's findings are derived from the data and not the researcher's imaginations (Korstjens & Moser, 2018). Lyons, Karkou, Roe, Meekums, and Richards (2018) posited that when researchers avoid biases in the data, they will achieve research confirmability. According to Cypress (2017), qualitative researchers achieve confirmability by maintaining a reflective journal to keep notes and documentation of the study's process. Additionally, researchers use the reflexivity and bracketing method to guard their biases (Cypress, 2017). For this study, I kept a reflective journal to record the daily activities from the start of the data collection until project completion to combat biases.

Researchers achieve the transferability when they provide a detailed description of the research study participants and processes used when researching so the reader can decide whether to use the study or not as per their setting (Korstjens & Moser, 2018). According to Abdalla, Oliveira, Azevedo, and Gonzalez (2018), the researcher must ensure that the research study has sufficient information, such as time, place, and individuals for the reader to determine whether to use the study findings. To enhance transferability, researchers can provide detailed documentation of data collection methods and analyses, and ensure data saturation (Noble & Smith, 2015; Yin 2018). For this study, I provided a detailed description of data collection tools and procedures,

participants, and research findings. Additionally, I reached data saturation in my data collection.

Transition and Summary

In Section 2, I present the justification for selecting a qualitative multiple case study to explore strategies that grocery store supply chain managers use to mitigate the effects of disruptions in their companies' supply chain in Northwest Arkansas. Section 2 of the study includes the purpose statement, the role of the researcher, the research participants, research method and design, population and sampling, ethical research, and data collection instruments. Additionally, Section 2 includes data collection and organization technique, data analysis, and reliability and validity. In Section 3, I present the findings from the interviews and documents analyses; discuss how the results of the findings apply to professional practice; and provide the implications for social change, recommendation for actions, recommendations for future research, reflections, and conclusion.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative multiple case study was to explore strategies that grocery store supply chain managers use to mitigate the effects of disruptions in their companies' supply chains. The population included four participants from four different grocery stores in Northwest Arkansas. The participants were grocery store supply chain managers who (a) served as senior supply chain managers, (b) had extensive information about disruptions, and (c) had experience in implementing successful strategies for preventing disruptions in the grocery store supply chain. Other sources of information included company policy documents and procedural manuals and business continuity plans. The findings from the in-depth interviews and company documents and policies review revealed four themes that included (a) supply chain partners' collaboration, (b) a multiple supply base and supplier qualification, (c) inventory management, and (d) information technology, and communication.

Presentation of the Findings

The overarching question for this study was: What strategies do grocery store supply chain managers use to mitigate the effects of disruptions in their companies' supply chains? I used semistructured interviews and open-ended questions to collect information on how grocery stores' supply chain managers mitigated and reduced disruption in the supply chain. Within 5 days after each interview, I summarized the interview responses for each participant and conducted member checking to ensure the validity and accuracy of the results. All the participants indicated that my summaries

were a true reflection of their answers in the interviews. After completing the member checking, I used NVivo 12 plus software to sort, code, and analyze the data. The four themes that emerged from the data analysis are presented in Table 1.

Table 1

Themes and Occurrences

Name of the theme	*N = 4*	% of theme occurrence
Supply chain partners' collaboration	16	24%
Multiple supply base and supplier qualification	14	21%
Inventory management	24	36%
Information technology and communication	13	19%

Theme 1: Supply Chain Partners' Collaboration

The first theme that emerged from the interviews and review of organizational documents was collaboration among supply chain partners to mitigate disruption in the supply chain. All four participants indicated that collaborating with partners in the supply chain by sharing information, such as forecasts and future critical events, helped managers mitigate disruption in the supply chain. P1 stated,

> One of our hot commodities is the African yam, that come from Ghana. So, we have to know the specific quantity to order because they are perishables. So, we have not been able to find a balance whether to order a hundred this month or two hundred. This item is also seasonal, so you have to really know whether they are fresh yams that will stay longer on the shelf or old yams that will spoil quicker.

> Also, the temperature on the ship and how long will last on the ocean. These are all barriers that we sometimes have control over them and sometimes we do not have control over them by the time they get here, and how we track them in. So it's a moving target. However, by sharing forecasting, demand information and collaborating with the wholesalers and other logistical companies in the supply chain, we have been able to minimize the disruption of the yam in the supply chain. The wholesalers provide us critical information on when to order to minimize risk of business interruption.

P2 said,

> We share our forecasts for critical items in the store with our distributors in the supply chain to ensure business continuity. Most of the times the distributor will let us know of the market trends for the products and may tell us to increase our orders to avoid a disruption.

P3 stated that "we continuously share inventory forecasts with our suppliers and when they ship the items, they provide the information of the carrier and we can track the goods online." While P4 said,

> In grocery store business you must talk to the partners in the supply chain to unveil critical information about a product, because some of the product we sell can be discontinued by the wholesaler or distributor. Once we share critical information with our partners, we can find alternative supply source or order substitutes to the product.

All four participants indicated that information sharing and collaborating with other partners in the supply chain is critical to business continuity. The four participants concurred with Raweewan and Ferrell (2018) who posited that the benefits of collaboration in the supply chain by sharing information outweighs the risk.

I reviewed P4, P2, and P1's weekly minutes found in log books that included the forecast and delivery information that was shared with their distributors and wholesalers, indicating collaboration between the grocery stores and the distributors and wholesalers. This type of collaboration enabled grocery stores' supply chain managers to know the quantity of items expected and when to expect them. The collaboration among the grocery store supply chain partners is a critical strategy in avoiding disruption in the supply chain. Zhu et al. (2017) posited that by having a good relationship and connections with the supply chain partners and collaborating in many ways helps to mitigate disruption in the supply chain. Concurring with Zhu et al., P4 stated, "I have very close connections with the distributors and all my other suppliers and that helps me get my grocery items quickly and with minimal disruption." One of the tenets of the RDT is that organizational leaders must work with supply chain trading partners by interchanging resources to mitigate uncertainty in the supply chain (Zhou et al., 2018), concurring with the responses from all four participants regarding collaboration in the supply chain.

Another intriguing collaboration strategy that emerged from the interviews was that P1, P2, and P4 work together with other grocery stores in their areas to mitigate disruption in the supply chain. P1 said,

> The other goods that we tend to have challenge with is goat meat. Goat meat is one of the unique items that we sell in our grocery store and this is sourced from Australia and sometimes we have difficulties maintaining inventory. So, we found out that a local Hispanic grocery store has the meat, so we place a bulk order with their supplier and share the cost and that is one strategy we are employing to mitigate disruption in the supply chain.

P2 remarked,

> We have many other different grocery stores in general that if we would need like let's say special type of meat that we don't have, and another grocery store have it, we can just run to that grocery store really quick and borrow it since we are all in a local community. Or we just buy from them depending on how much is needed and resale it here at our store to minimize disruption to our customer.

Additionally, P4 observed,

> I have some families that also have grocery stores around this area, and I utilize them in order to get goods from them that I may be running out or when my order is delayed. And it works both ways, they need something from me they come or contact me, and if I need something from them I contact them, and we just help one another. You know what, you cannot do it all yourself, we have to help each other out in this business.

P1, P2, and P4 indicated that it is not all about competition but ensuring that their customers are happy; therefore, they work together with other grocery store businesses to minimize disruption to their customers. This phenomenon further validated my use of the

RDT for this study because according Malik, Ngo, and Kingshott (2018), the RDT logic is that firms do not exist in a vacuum but rely on other firms' resources in the environment. P1, P2, and P4 worked together with other grocery store businesses in their environment by sharing resources to ensure business continuity.

Theme 2: Multiple Supply Base and Supplier Qualification

The second theme that emerged from the analyzed data was the multiple supply base and supplier qualification. All four participants stated that having a multiple supply base is one of the strategies that they use to mitigate disruption in the supply chain. Namdar et al. (2018) postulated that single sourcing has some benefits such as stronger relationships and reduced administration costs; however, when there is a disruption in the supply chain the negative effects are high. According to Fan, Schwartz, and VoB (2017), supply chain managers utilize a multiple supply base to provide a more resilient supply chain for their company and mitigate disruption in the supply chain. Supply chain managers must utilize a multiple supply base to mitigate disruption in the supply chain. Concurring with Fan et al., Sabouhi, Pishvaee, and Jabalameli (2018) postulated that using multiple suppliers enhances resilience in the supply chain. P4 said, "The best thing I can say is that don't ever just have one source of supply. You need to have multiple suppliers and different connections to mitigate disruption in the supply chain." Concurring with P4, P1 said,

> We have had to rely on multiple suppliers instead of depending on one major supplier. We have had to have multiple just in case we are unable to find our product from our key supplier then we now have multiple suppliers that we go to.

Additionally, P1 indicated that the supply chain managers also utilized a local Sam's Club to mitigate disruption in the supply chain. Concurring with P1 and P4, P3 said, "So we utilize other vendors that are available with the same product or same product with a different brand name to minimize disruption in the supply chain." P3 also noted that for some products, such as snacks and chips, if there is a disruption in the supply chain, the associates can make them in the restaurant, which P3 also owns. After making the products the associates can put the grocery store's brand name and introduce the products to the market. P2 concurred with P1, P4, and P3 said,

> We have many distributors that when one fails us, we can go to the next one. And there are some local and there some that are out of town as well. We have some in Oklahoma, and some come from Dallas, Texas. Also, we have a local Sam's club, if everything fails, we have Sam's club that is very close to us, where we can run to and pick up everything we need.

Additionally, P1 and P4 indicated that having a multiple supply base in the supply chain is an excellent idea, but the supplier must be qualified by the grocery store's supply chain managers before being part of the supply chain base. According to Ojadi, Tickle, Adebanjo, Laosirihongthong, and Boon-itt (2017), supply chain managers must qualify suppliers before selecting them. Ojadi et al. posited that supplier performance and capacity should be among the qualifications criteria of a supplier. P1 said that "we vet suppliers to know whether they have capacity to perform, deliver on time, have good pricing, excellent quality products and meet our requirements," concurring with Ojadi et al. In addition, P4 concurred with P1 and said,

> I make sure that whenever I am vetting the suppliers that they need to have capital. I need to make sure that they have the capacity to provide the grocery items, the manpower, good price, quality products and just everything in order for me to do business with them, because if they have everything set up, it is going to be a lot easier on me. And I just don't want to go mom and pop shop and start from there, I need someone that has the capital, the manpower and the resource to provide what I need.

P1 and P4 provided documentation that showed the criteria used to qualify and select suppliers. My analysis of P1's document revealed a grocery items list and their preferable lead times as criteria used. There was also space on the document where the prospective supplier would fill in their lead times of the listed grocery items. Additionally, my analysis of P1's document revealed excellent quality and pricing as some of the criteria used to vet suppliers. After reviewing P4's document, I noticed that capacity, product's quality, and financial stability were the critical elements that P4 requires from the suppliers. P4 showed no interest in doing business with a company that could easily fold. All four participants indicated that they strive to have good relationships with their supply base to ensure business continuity. P2 noted that some suppliers have suggested items that do well in other areas to try and sell them in the store. P2 said that, without an excellent relationship, such suggestions would not occur. P4 also cherished the excellent relationship with the suppliers and supply chain partners who help to keep inventories up to date and fully stocked. Aharonovitz, Vidal Vieira, and Suyama (2018) indicated that maintaining excellent relationships with the suppliers and supply

chain partners can reduce inventories, improve lead times, and improve efficiency among supply chain partners, concurring with what P2 and P4 had stated.

Research findings from the literature review support the study results that the use of multiple supply base mitigated disruption in the grocery store's supply chain. Lucker and Seifert (2017) posited that having multiple suppliers provided the needed flexibility should one supplier fold. Similarly, Ali, Nagalingam, and Gurd (2017) postulated that the use of multiple supply base helps to build a resilient supply chain and to mitigate disruption in the supply chain. Additionally, Das (2018) established that the fundamental ways to contain disruption include (a) supplier flexibility, (b) supply location flexibility, and (c) reliability of the supplier confirming the results and findings from my study.

According to the RDT, the organization's survival depends on its ability to acquire critical resources from its external environment (Pfeffer & Salancik, 2003). Disruption in the supply chain can cause companies to fold. The four participants in this study indicated that having a relationship with multiple supply base would mitigate the disruption in the supply chain and ensure business continuity. The RDT aligns with the findings from this study because the participants' initiative of creating multiple supply-base relationships in the environment indicates the dependency of companies on other companies' resources in the environment to mitigate disruption in the supply chain. Pfeffer and Salancik (2003) postulated that company leaders could mitigate the resource scarcity by creating diverse interlinkages with the organization's environment to minimize the dependence on one source. Company leaders could also mitigate resource scarcity in the supply chain by establishing and strengthening the relationship with the

current environment and facilitating mutual dependence (Pfeffer & Salancik, 2003). The participants' efforts to qualify suppliers ensure the critical need of selecting the right partners in the environment to ensure business continuity and meet customer expectations.

Theme 3: Inventory Management

All participants indicated that managing their inventory was critical piece to their business. They all indicated that they keep safety stocks of the critical items in the backroom to avoid stockouts during a disruption. P1 said,

> When we buy critical products from our suppliers, we buy in bulks to have backup inventory and the cost is much lower to us than when we buy from local suppliers as we pay more, and it impacts our profitability.

P1 explained that, in the past, when they had a disruption, they sourced from the local suppliers, which cost them more money than buying from their normal suppliers. P1 indicated that having a safety stock has mitigated the unnecessary high cost payments for items and minimized the disruption of those items. P1 also said,

> To better manage our inventory, we also have triggers for certain levels of the inventory for some products such as red, yellow and green: For critical items, we have a report that managers produce at the end of every shift which has color code beside each critical item. Red means item has run out, yellow the item is about to run out and green means the item is fully stocked. We strive not to have a red code, as such would signal a disruption to the customer.

P1 showed me the coded reports that shift managers produced for the past two weeks. My analysis of the reports did not show any red-coded items but yellow and green. P2 said, “sometimes when you source goods locally, the suppliers would increase the price because they know you are in need of them. Therefore, we ensure to have reasonable inventory levels in the backroom to avoid some of these costs.” P2 also indicated that the company uses vendor managed inventory system. P2 said,

> There are couple things that we get from the distributor that we don’t pay for them till they are sold, so if it goes out of date and it’s not sold, they just come and exchange them. The distributor comes anytime and monitors the stock levels to ensure, we are fully stocked.

P2 indicated that the vendor-managed inventory system reduces unnecessary costs. According to Wang et al. (2018), vendor managed inventory is an efficient inventory management system whereby a supplier has access to the critical sales and inventory information of the buyer and ensures inventory replenishment cycles are managed well. Concurring with Wang et al., Verma and Chatterjee (2017) postulated that in the vendor managed inventory, the suppliers take control of the replenishment of the critical items in a business to ensure business continuity. The phenomenon aligns this study with the RDT because companies in the supply chain rely on each other’s resources to mitigate disruption in the supply chain. P2 also said that shift managers conduct a daily inventory walk through and log the items that are running out in the log book for the supply chain manager to order. P2 showed me the log book confirming what P2 had said during the interview.

P3 indicated that the company uses an inventory management system called *shopventory* which helps managers with the management of the grocery store's inventory. P3 said,

> See what I always do is that I have a tool in place to track my inventory which is called *shopventory*, that by using it, I can pull different varied reports, like inventory turnover of certain products. I can know the how much turnover monthly, quarterly, semiannually, and annually. And depending on the reports, I will try to maintain backup always.

P3 showed me the monthly, quarterly, semiannually and annual reports and data from *shopventory*, aligning with what was said in the interview. P4 also indicated that it was critical to have safety stock for his business and said, "I always like to have a little bit of an overstock for popular items, I always like to have popular inventory in stock overstocked incase anything happens that I can't get them right away." According to Chaturvedi, Martínez, and deAlbéniz (2016), most businesses carry extra safety stock to minimize the uncertainty of demand and supply and avoid stockouts, concurring with P1, P2, P3, and P4. Olbert, Protopappa, and Thonemann, (2016) posited that, to avoid disruption in the supply chain and maintain customer service levels, supply chain managers must ensure to have safety stock, concurring with P1, P2, P3, P4 and Chaturvedi et al. P4 also said,

> Some of the problems I have faced in the past were stockouts, so apart from having over stock, another thing I did to fix the problem is that I implemented the auto reorder system with the supplier here in Springdale. The supplier has access

to my inventory management system and monitors important items in my grocery store.

In addition, the responses from P1, P3, and P4 regarding the importance of an inventory management system confirmed the information found in the literature review that information technology can assist supply chain managers to better manage the inventory in their businesses (Obayi et al., 2017). Theme 3 related to RDT because, when supply chain disruption occurs, supply chain managers would depend on the backup inventory sourced from the environment in anticipation of the shortage of resources in the supply chain. Pfeffer and Salancik (1978) postulated that, managers of firms must acquire critical resources in the supply chain to help mitigate disruptions in the supply chain. RDT helps managers to understand the need to control and manage inventory resources in the environment to avoid disruption and ensure business profitably and continuity. Lii and Kuo (2016), in their study based on RDT, indicated that when a firm cannot find resources for itself, it must search for resources in the external environment and create relationships with other businesses. Managers must search for resources in the external environment for their firms and keep enough inventory in stock to mitigate supply chain disruptions.

Theme 4: Information Technology and Communication

According to Tkalac Vercic and Poloski Vokic (2017), internal communication can increase employee engagement in an organization and eventually improve production. All four participants indicated that internal and external communication played a vital role in mitigating disruption in the supply chain. P1 said that the strategies

to mitigating disruption in the supply chain were communicated to the employees and managers through meetings and bulletin board. P1 said,

> We communicated through meetings and also through a bulletin board. On the bulletin board we post the top ten items that employees must always keep an eye on, as another way of ensuring we don't run out of critical items.

P1 also indicated that the use of WhatsApp technology enabled P1 to connect to the suppliers all over the world and check on orders at a minimal cost. P2 said "to communicate the mitigation strategies to our employees we held meetings and used face-to-face interaction and explained what strategies were in place." To further signify the importance of communication, P2 said,

> If the other manager ordered the merchandize and did not communicate with me, then I would order more and create unnecessary overstock or if he did not communicate the right amount, I could order less. To me our communication has been a biggest thing for us.

Additionally, P2 indicated that they communicate regularly with the distributors to ensure they have up to date inventory and to avoid stockouts in the grocery store. P2 also used telephone calls and emails to communicate with the distributors and wholesalers. P3 communicated strategies to the employees through meetings and reiterated the strategies through face-to-face interactions. P4 said, "communication is a big part of making a business successful." P4 also communicated the strategies to mitigate disruption in the supply chain through meetings with the employees and also by interacting with them to ensure that they have full comprehension of the strategy. P4 also

communicated with shift managers via text to ensure quick response to a need in the store or a strategy that needed to be implemented quickly. In addition, P4 communicated with the suppliers and distributors through text, email, and telephone. P4 said, “I like texting to my suppliers because I get a quick response. The suppliers or distributors always text me as well to let me know of future events that may impact my business.” Aggarwal and Srivastava (2016) postulated that electronic communication can improve collaboration between buyers and suppliers to ensure business continuity, aligning with the responses from P1, P2, P3, and P4. Aligning with P1, P2, P3, and P4, in the literature review, Mirkovski et al. (2016) posited that enhanced collaboration in the supply chain is facilitated by the information and communications technology.

Schnittfeld and Busch (2016) indicated RDT has its foundation in three concepts that include organizational effectiveness, interdependence, and external control. Theme 4 related to RDT because inter-organizational communication about disruption in the supply chain can be facilitated by information technology and communication. Supply chain managers can share critical information about a looming disruption among supply chain partners quickly and mitigate the disruption in the supply chain. Additionally, IT leaders can facilitate the communication of critical information within the organization, help mitigate the supply chain disruption, and improve organizational effectiveness. Managers within the organization can communicate inventory numbers using information technology and place correct order quantities with suppliers. Supply chain managers can use IT to facilitate payments to the suppliers and avoid disruption. According to Pfeffer and Salancik, RDT stipulates that companies must work with other organizations in the

environment to obtain scarce resources. The RDT is critical to this study. The movement of goods from the source to the consumer depends on information technology and communication between supply chain partners to ensure minimal disruption in the supply chain.

Applications to Professional Practice

According to Azimian and Aouni (2017), supply chain management involves the partners in the supply chain, such as suppliers, manufacturers, warehouses, retailers, transporters, and customers. Each partner in the supply chain plays a vital role to ensure the efficient movement of goods from supplier to consumer with minimal disruption. Disruption in the supply chain can negatively affect the financial state of the firm due to loss of sales and customer loyalty, and it is critical for firms to have mitigation strategies to minimize disruptions (Sawik, 2019). Concurring with Sawik (2019), Bode and Macdonald (2017) indicated that supply chain disruptions could cause stock outs and loss of sales for businesses. Finding supply chain mitigation strategies that grocery store supply chain managers use to mitigate disruption in their supply chain can improve business performance and ensure business continuity.

I conducted a qualitative multiple case study with grocery store supply chain managers in Northwest Arkansas who had experienced supply chain disruptions and successfully managed the effects of the disruptions in their supply chain. From my study with the grocery store supply chain managers, four themes emerged that include, (a) supply chain partners' collaboration, (b) multiple supply base and supplier qualification, (c) inventory management, and (d) information technology and communication. The

study findings could contribute to improving business practice by providing critical information on how to mitigate the effects of disruption in the supply chain. Additionally, the themes and the shared responses from the participants could help sustain other businesses and help reduce the impact of supply chain disruptions.

Based on the responses of the grocery store supply chain managers, the collaboration of supply chain partners was one of the significant strategies that supply chain managers used to mitigate disruption in the supply chain. Revilla and Saenz (2017) postulated that companies that collaborate by sharing vital information in the supply chain are less likely to be hit hard by a disruption. Additionally, Revilla and Saenz indicated that collaboration in the supply chain improves the business performance of all the partners in the supply chain. Concurring with Revilla and Saenz, Colicchia, Creazza, Noe, and Strozzi (2019) posited that collaboration among supply chain partners involves sharing of information that can be leveraged to mitigate disruption and increase resilience in the supply chain. The grocery stores' supply chain managers in this study attested that by collaborating with the suppliers, distributors and wholesalers in the supply chain helped to mitigate disruptions in the supply chain.

The grocery stores' supply chain managers could use this study to implement and improve strategies of mitigating disruption in the supply chain by using strategies such as collaboration, multiple supply base, inventory management, and information technology and communication. The results for this study may add to the existing body of literature covering topics that include, effects of disruptions in the supply chain, strategies to mitigate disruptions, and supply chain resilience.

Implications for Social Change

The goal of every grocery store business manager or owner is to meet and satisfy customer needs. The business owners who meet the customer demands and needs by providing the needed merchandize on shelves would see an increased customer base, which could translate into more sales and perhaps profits. However, the turbulent global environment has made the disruption in the supply chain inevitable, as companies are exposed to myriad internal and external risks (Wieteska, 2018). Supply chain managers must strive to achieve customer demand and order fulfillment to ensure customer satisfaction and business continuity (Shamout & Emeagwali, 2016).

The findings from this study could help me to provide positive social change, as the strategies used to mitigate disruption in the supply chain could help reduce the supply chain costs. The reduction in supply chain costs could improve the cash flow of the businesses whose owners could invest in more grocery stores and create jobs for the people in the community. Additionally, the collaborative partnership of the supply chain partners could mitigate any disruption in the movement of goods from the supplier to the customer. The uninterrupted flow of grocery merchandise to the community could result in a positive social change by helping to ensure that community members have timely access to food. The reduction in supply chain costs could also translate to lower grocery prices that would benefit the community and have a positive social impact.

Recommendations for Action

Disruption in the grocery store supply chain can be devastating to the business and supply chain manager must have robust supply chain mitigation strategies to build a

more resilient supply chain and ensure business continuity (Behzadi, Olsen, & Zhang, 2018; Ivanov, 2018). The business problem addressed in this study was that some supply chain managers in the grocery store industry lack strategies to mitigate the effects of disruptions in their companies' supply chain. I found that grocery store supply chain managers could successfully use different strategies to mitigate the effects of disruption in the supply chain. The strategies include (a) supply chain partners' collaboration, (b) multiple supply base and supplier qualification, (c) inventory management, and (d) information technology and communication. Based on the review of findings from his study, I recommend the following actions:

1. Adopt a systematic approach to mitigating disruption risk in the supply chain. The supply chain managers should critically assess the risk sources, and the level of impact, monitor the risk drivers and select the appropriate mitigation strategy.
2. The supply chain managers must develop and establish strategic relationships with financial institutions that may help finance their grocery stores on capital investments and emergency financial needs to ensure business continuity.
3. The supply chain managers should develop and train employees on inventory controls to ensure business continuity.
4. The supply chain managers should form strategic, win-win relationships with the local suppliers and agree on better pricing for both businesses.
5. The supply chain managers should create a strong line of communication with external supply chain partners by establishing quarterly meetings and

conference calls to discuss market conditions, key performance indicators, and prospective disruptions if known or discuss a post-disruption phenomenon.

6. The supply chain managers must formulate a written step-by-step process and protocol on what to do when a disruption event occurs. The protocol should be known by all the employees to ensure business continuity.

The results from this study may contribute to the body of knowledge related to the supply chain disruptions. The findings and recommendations from this study could be critical to all supply chain managers in all industries, organizational leaders, researchers, and scholars. I will disseminate the information through multiple stakeholders, such as conferences, training seminars, and professional development workshops.

Recommendations for Further Research

In this qualitative multiple case study, I explored how grocery store supply chain managers successfully employed strategies to mitigate disruption in the grocery store supply chain. I chose a multiple case study design and used semistructured interviews and organizational documentation to collect data. This research study was limited to grocery store supply chain managers in Northwest Arkansas. Future researchers could use the quantitative methodology to compare the relationships and effectiveness of different strategies used to mitigate disruption in the grocery store supply chain. Additionally, future researchers could identify disruption precursors in the grocery store supply chain that could help in mitigating disruption in the supply chain. Knowing the disruption precursors could help minimize the effects of disruption in the grocery store supply chain.

The primary limitation of this study was that the grocery store supply chain managers were from Northwest Arkansas and not the entire United States. Future researchers could expand the geographical area of study and perhaps include the entire country and find ways in which the grocery store supply chain managers mitigate the effects of disruption in the supply chain. The second limitation was that the supply chain managers' busy schedules could make it difficult to find the appropriate time to meet and conduct semistructured interviews. Future researchers could utilize technology and send email or text message reminders to the prospective participants a week in advance to ensure that the participants can allocate appropriate time for the interviews. The third limitation was that the sample size of the study consisted of four grocery store supply chain managers from four different grocery stores. Future researchers could increase the sample size. Meyvis and Van Osselaer (2018) posted that increasing the sample size of the study increases the power of the research.

Reflections

The focus of this study was to explore successful strategies that grocery store supply chain managers use to mitigate disruptions in their companies' supply chain. Before starting this study, I had no preconceived ideas of the strategies used in the grocery store supply chain to mitigate disruption. Before my current job, I managed grocery businesses in Nashville, Tennessee. However, I had not experienced a major disruption during my tenure to know the strategies used to mitigate the effects of disruption. However, after conducting a comprehensive literature review, I noticed excellent strategies that supply chain managers use to mitigate disruption in the supply

chain. When I conducted this research study, I was careful not to be biased or provide strategies during interviews. I gained much knowledge from the interviews and organizational documents. It was intriguing to know that all the grocery store supply chain managers that I interviewed use global supply chain to supply goods to their businesses. The grocery store businesses' supply chain managers in Northwest Arkansas are not limited to the borders but source grocery merchandises overseas as well. Globalization has played a vital role in the supply chain of most companies.

In this research study, I received cooperation from five grocery store businesses, and I interviewed four grocery store supply chain managers and reached data saturation. The fifth participant had a death in the family and I could not get an interview set up because the participant was in bereavement. The participants that I interviewed gave candid responses to the interview questions, and I gained an in-depth understanding of the phenomenon under investigation to answer the study's overarching research question. The participants allowed me to review some company documents to garner more information about supply chain mitigation strategies. Coding the themes was an excellent exercise, and I enjoyed it. I used NVivo 12 plus software to create codes. Reflecting on the research results, I was intrigued to learn that grocery store businesses shared inventory, information, and collaborated to mitigate disruption in the supply chain. The supply chain managers of businesses did not see each as competitors but partners in ensuring customer satisfaction. Additionally, the use of information technology by the supply chain managers was impressive and helped mitigate disruption in the supply

chain. I am thankful for the research as it has helped me understand the grocery store supply chain mitigation strategies.

Conclusion

The purpose of this qualitative multiple case study was to explore strategies that grocery store supply chain managers use to mitigate the effects of disruptions in their companies' supply chain. Upon completion of this study, I found that grocery store supply chain managers could mitigate the effects of disruption in the grocery stores' supply chain effectively by collaborating with supply chain partners, utilizing multiple supply base and qualifying suppliers, managing the inventory, utilizing information technology, and improving communication in the supply chain. The grocery store supply chain managers must first critically assess the disruption sources and their level of impact, monitor the risk drivers, and select the appropriate mitigation strategy. Additionally, I found that, by applying the strategies that emerged from the responses of the participants, grocery store supply chain managers could improve their businesses and ensure business continuity.

Disruption in the supply chain can increase the cost of doing business and negatively affect the profitability of the company (Chunhua Tang, Honglin Yang, Erbao Cao, & Kin Keung Lai, 2018). The useful application of the strategies from this study by the grocery store managers could improve performance, customer satisfaction, and create a competitive edge, which could lead to the profitability of the business. I recommend that grocery store supply chain managers, scholars, and researchers use the findings and

recommendations of this study to gain new insights and knowledge of mitigating the effects of disruption in the grocery store's supply chain.

References

Abdalla, M. M., Oliveira, L. L., Azevedo, C. F., & Gonzalez, R. K. (2018). Quality in qualitative organizational research: Types of triangulation as a methodological alternative. *Administraçao: Ensino E Pesquisa, 19*, 66-98. doi:10.13058/raep.2018.v19n1.578

AbouAssi, K., & Tschirhart, M. (2018). Organizational response to changing demands: Predicting behavior in donor networks. *Public Administration Review, 78*, 126-136. doi:10.1111/puar.12786

Abro, M. M. Q., Khurshid, M. A., & Aamir, A. (2015). The use of mixed methods in management research. *Journal of Applied Finance and Banking, 5*, 103-108. Retrieved from http://www.scienpress.com

Adefemi, K., Yates, C., Awolaran, O., & Bakare, J. (2017). Effects of donor HIV/AIDS funding on primary healthcare delivery in southwest Nigeria: Evidence from hospital administrators. *International Journal of Healthcare Management, 10*, 160-166. doi:10.1080/20479700.2016.1229900

Agboola, A. O., & Scofield, D. (2018). Time to completion in the Lagos commercial real estate market: An examination of institutional effects. *Journal of Property Research, 35*, 164-184. doi:10.1080/09599916.2018.1436582

Aggarwal, S., & Srivastava, M. K. (2016). Towards a grounded view of collaboration in Indian agro-food supply chains. *British Food Journal, 118*, 1085-1106. doi:10.1108/BFJ-08-2015-0274

Aharonovitz, M. C. S., Vidal Vieira, J. G., & Suyama, S. S. (2018). How logistics performance is affected by supply chain relationships. *International Journal of Logistics Management, 29*, 284–307. doi:10.1108/IJLM-09-2016-0204

Akhavan, R. M., & Beckmann, M. (2017). A configuration of sustainable sourcing and supply management strategies. *Journal of Purchasing & Supply Management, 23*, 137-151. doi:10.1016/j.pursup.2016.07.006

Akkermans, H. A., & Van Wassenhove, L. N. (2018). A dynamic model of managerial response to grey swan events in supply networks. *International Journal of Production Research, 56*, 10-21. doi:10.1080/00207543.2017.1395492

Alcantara, P. (2015). Measuring the influence of industry sector membership on supply chain disruption reporting. *Journal of Business Continuity & Emergency Planning, 8*, 299-306. Retrieved from: https://www.theicor.org/jbcep.html

Ali, I., Nagalingam, S., & Gurd, B. (2017). Building resilience in SMEs of perishable product supply chains: Enablers, barriers and risks. *Production Planning & Control, 28*, 1236-1250. doi:10.1080/09537287.2017.1362487

Ali, S. M., Rahman, M. H., Tumpa, T. J., Moghul Rifat, A. A., & Paul, S. K. (2018). Examining price and service competition among retailers in a supply chain under potential demand disruption. *Journal of Retailing & Consumer Services, 40*, 40-47. doi:10.1016/j.jretconser.2017.08.025

Almutairi, A. F., Gardner, G. E., & McCarthy, A. (2014). Practical guidance for the use of pattern-matching technique in case-study research: A case presentation. *Nursing & Health Sciences, 16*, 239-244. doi:10.1111/nhs.12096

Ambulkar, S., Blackhurst, J. V., & Cantor, D. E. (2016). Supply chain risk mitigation competency: An individual-level knowledge-based perspective. *International Journal of Production Research, 54*, 1398-1411. doi:10.1080/00207543.2015.1070972

Anderson, V. (2017). Criteria for evaluating qualitative research. *Human Resource Development Quarterly, 28*, 125-133. doi:10.1002/hrdq.21282

Andjelkovic, A. (2017). Proactive supply chain risk management approach:The case of Serbia. *Ekonomski Anali/Economic Annals, 62*, 121-137. doi:10.2298/EKA1714121A

Andrews, R., & Beynon, M. (2017). Managerial networking and stakeholder support in public service organizations. *Public Organization Review, 17*, 237-254. doi:10.1007/s11115-015-0340-0

Archibald, M. M., & Gerber, N. (2018). Arts and mixed methods research: An innovative methodological merger. *American Behavioral Scientist, 62*, 956-977. doi:10.1177/0002764218772672

Arnold, V., Benford, T., Canada, J., & Sutton, S. G. (2015). Leveraging integrated information systems to enhance strategic flexibility and performance: The enabling role of enterprise risk management. *International Journal of Accounting Information Systems, 19*(1), 1-16. doi:10.1016/j.accinf.2015.10.001

Arsel, Z. (2017). Asking questions with reflexive focus: A tutorial on designing and conducting interviews. *Journal of Consumer Research, 44*, 939-948. doi:10.1093/jcr/ucx096

Arto, I., Andreoni, V., & Rueda Cantuche, J. M. (2015). Global impacts of the automotive supply chain disruption following the Japanese earthquake of 2011. *Economic Systems Research, 27*, 306-323. doi:10.1080/09535314.2015.1034657

Asadabadi, M. R. (2017). A customer based supplier selection process that combines quality function deployment, the analytic network process and a Markov chain. *European Journal of Operational Research, 263*, 1049-1062. doi:10.1016/j.ejor.2017.06.006

Ateş, M. A., Van den Ende, J., & Ianniello, G. (2015). Inter-organizational coordination patterns in buyer-supplier-design agency triads in NPD projects. *International Journal of Operations & Production Management, 35*, 1512-1545. doi:10.1108/IJOPM-01-2013-0036

Azimian, A., & Aouni, B. (2017). Supply chain management through the stochastic goal programming model. *Annals of Operations Research, 251*, 351-365. doi:10.1007/s10479-015-2007-1

Babaian, T., Xu, J., & Lucas, W. (2018). ERP prototype with built-in task and process support. *European Journal of Information Systems, 27*, 189-206. doi:10.1057/s41303-017-0060-3

Badewi, A., Shehab, E., Zeng, J., & Mohamad, M. (2018). ERP benefits capability framework: Orchestration theory perspective. *Business Process Management Journal, 24*, 266-294. doi:10.1108/BPMJ-11-2015-0162

Bachman, S. S., Wachman, M., Manning, L., Cohen, A. M., Seifert, R. W., Jones, D. K., Riley, P. (2017). Social work's role in medicaid reform: A qualitative study. *American Journal of Public Health, 107,* S250-S255. doi:10.2105/AJPH.2017.304002

Banchuen, P., Sadler, I., & Shee, H. (2017). Supply chain collaboration aligns order-winning strategy with business outcomes. *IIMB Management Review (Elsevier Science), 29,* 109-121. doi:10.1016/j.iimb.2017.05.001

Bao, Y., Li, Y., Pang, C., Bao, Y., & Yi, X. (2017). Do resource differences between manufacturers and suppliers help or hinder product innovation of manufacturers? The moderating role of trust and contracts. *Industrial Marketing Management, 64,* 79-90. doi:10.1016/j.indmarman.2017.02.004

Barnham, C. (2015). Quantitative and qualitative research. *International Journal of Market Research, 57,* 837-854. doi:10.2501/IJMR-2015-070

Basaez, M. O., Aranda, D. A., Djundubaev, R., & Montesinos, F. S. (2014). The role of CRM-SRM bolt-ons in enterprise resource planning system: Toward a customer-oriented supply chain. *Strategic Change, 23,* 389-400. doi:10.1002/jsc.1984

Behzadi, G., O, S. M. J., Olsen, T. L., & Zhang, A. (2018). Allocation flexibility for agribusiness supply chains under market demand disruption. *International Journal of Production Research, 56,* 3524–3546. doi:10.1080/00207543.2017.1349955

Bejger, S. (2016). The specifics of supply chain of medical kits product group in the context of using enterprise resource planning class systems. *Ekonomia I Prawo, 15*, 419-438. doi:10.12775/EiP.2016.028

Bierer, B. E., Barnes, M., & Fernandez Lynch, H. (2017). Revised 'common rule' shapes protections for research participants. *Health Affairs, 36*, 784-788. doi:10.1377/hlthaff.2017.0307

Birkie, S. E., Trucco, P., & Fernandez Campos, P. (2017). Effectiveness of resilience capabilities in mitigating disruptions: Leveraging on supply chain structural complexity. *Supply Chain Management, 22*, 506-521. doi:10.1108/SCM-01-2017-0009

Bizri, R. M. (2017). Refugee-entrepreneurship: A social capital perspective. *Entrepreneurship & Regional Development, 29*, 847-868. doi:10.1080/08985626.2017.1364787

Blackhurst, J., Rungtusanatham, M. J., Scheibe, K., & Ambulkar, S. (2018). Supply chain vulnerability assessment: A network based visualization and clustering analysis approach. *Journal of Purchasing & Supply Management, 24*, 21-30. doi:10.1016/j.pursup.2017.10.004

Blackwood, R. A., Maio, R. F., Mrdjenovich, A. J., VandenBosch, T. M., Gordon, P. S., Shipman, E. L., & Hamilton, T. A. (2015). Analysis of the nature of IRB contingencies required for informed consent document approval. *Accountability in Research: Policies & Quality Assurance, 22*, 237-245. doi:10.1080/08989621.2014.956866

Boardman, R., & McCormick, H. (2018). Shopping channel preference and usage motivations. *Journal of Fashion Marketing & Management, 22*, 270-284. doi:10.1108/JFMM-04-2017-0036

Boddy, C. R. (2016). Sample size for qualitative research. Qualitative market research: *An International Journal, 19*, 426-432. doi:10.1108/QMR-06-2016-0053

Bode, C., & Macdonald, J. R. (2017). Stages of supply chain disruption response: Direct, constraining, and mediating factors for impact mitigation. *Decision Sciences, 48*, 836–874. doi:10.1111/deci.12245

Botes, A., Niemann, W., & Kotze, T. (2017). Buyer-supplier collaboration and supply chain resilience: A case study in the petrochemical industry. *South African Journal of Industrial Engineering, 28*, 183-199. doi:10.7166/28-4-1736

Booth-Bell, D. (2018). Social capital as a new board diversity rationale for enhanced corporate governance. *Corporate Governance: The International Journal of Effective Board Performance, 18*, 425-439. doi:10.1108/CG-02-2017-0035

Brooks, J. S., & Normore, A. H. (2015). Qualitative research and educational leadership: Essential dynamics to consider when designing and conducting studies. *International Journal of Educational Management, 7*, 798. doi:10.1108/IJEM-06-2015-0083

Broman, K. W., & Woo, K. H. (2018). Data organization in spreadsheets. *American Statistician, 72*, 2-10. doi:10.1080/00031305.2017.1375989

Brunswicker, S., & Vanhaverbeke, W. (2015). Open innovation in small and medium-sized enterprises (SMEs): External knowledge sourcing strategies and internal

organizational facilitators. *Journal of Small Business Management, 53*, 1241-1263. doi:10.1111/jsbm.12120

Bryman, A., & Bell, E. (2015). *Business research methods*. United Kingdom: Oxford University Press.

Buljan, I., Barac, L., & Marusic, A. (2018). How researchers perceive research misconduct in biomedicine and how they would prevent it: A qualitative study in a small scientific community. *Accountability in Research: Policies & Quality Assurance, 25*, 220-238. doi:10.1080/08989621.2018.1463162

Busse, C., Schleper, M. C., Niu, M., & Wagner, S. M. (2016). Supplier development for sustainability: Contextual barriers in global supply chains. *International Journal of Physical Distribution & Logistics Management, 46*, 442-468. doi:10.1108/IJPDLM-12-2015-0300

Cagnin, F., Oliveira, M. C., Simon, A. T., Helleno, A. L., & Vendramini, M. P. (2016). Proposal of a method for selecting suppliers considering risk management. *International Journal of Quality & Reliability Management, 33*, 488-498. doi:10.1108/IJQRM-11-2014-0172

Cannella, S., Framinan, J. M., Bruccoleri, M., Barbosa-Póvoa, A. P., & Relvas, S. (2015). The effect of inventory record inaccuracy in information exchange supply chains. *European Journal of Operational Research, 243*, 120-129. doi:10.1016/j.ejor.2014.11.021

Cappellaro, G. (2017). Ethnography in public management research: A systematic review and future directions. *International Public Management Journal, 20*, 14-48. doi:10.1080/10967494.2016.1143423

Caputo, A., Marzi, G., & Pellegrini, M. M. (2016). The internet of things in manufacturing innovation processes. *Business Process Management Journal, 22*, 383-402. doi:10.1108/BPMJ-05-2015-0072

Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. J. (2014). The use of triangulation in qualitative research. *Oncology Nursing Forum, 41*, 545-547. doi:10.1188/14.ONF.545.547

Celestina, M. (2018). Between trust and distrust in research with participants in conflict context. *International Journal of Social Research Methodology, 21*, 373-383. doi:10.1080/13645579.2018.1427603

Chakravarty, V. (2013). Managing a supply chain's web of risk. *Strategy & Leadership, 41*(2), 39-45. doi:10.1108/10878571311318231

Chander, N. (2018). Study validity. *Journal of Indian Prosthodontic Society, 18*, 1-2. doi: 10.4103/jips.jips_322_17

Chang, W., Ellinger, A. E., & Blackhurst, J. (2015). A contextual approach to supply chain risk mitigation. *International Journal of Logistics Management, 26*, 642 656. doi:10.1108/IJLM-02-2014-0026

Chaturvedi, A., & Martínez, deAlbéniz, V. (2016). Safety stock, excess capacity or diversification: Trade-offs under supply and demand uncertainty. *Production & Operations Management, 25*, 77–95. doi:10.1111/poms.12406

Chaudhuri, A., Boer, H., & Taran, Y. (2018). Supply chain integration, risk management and manufacturing flexibility. *International Journal of Operations & Production Management, 38*, 690-712. doi:10.1108/IJOPM-08-2015-0508

Chavez, H., Castillo-Villar, K. K., Herrera, L., & Bustos, A. (2017). Simulation-based multi-objective model for supply chains with disruptions in transportation. *Robotics & Computer-Integrated Manufacturing, 43*, 39-49. doi:10.1016/j.rcim.2015.12.008

Cheng, J., & Lu, K. (2017). Enhancing effects of supply chain resilience: Insights from trajectory and resource-based perspectives. *Supply Chain Management, 22*, 329-340. doi:10.1108/SCM-06-2016-0190

Chi, M., Zhao, J., & George, J. F. (2015). Mediation and time-lag analyses of e-alignment and e-collaboration capabilities. *Industrial Management & Data Systems, 115*, 1113-1131. doi:10.1108/IMDS-01-2015-0016

Chi, M., Zhao, J., George, J. F., Li, Y., & Zhai, S. (2017). The influence of inter-firm IT governance strategies on relational performance: The moderation effect of information technology ambidexterity. *International Journal of Information Management, 37*, 43-53. doi:10.1016/j.ijinfomgt.2016.11.007

Cho, B., Ryoo, S., & Kim, K. (2017). Interorganizational dependence, information transparency in interorganizational information systems, and supply chain performance. *European Journal of Information Systems, 26*, 185-205. doi:10.1057/s41303-017-0038-1

Cho, Y., Park, J., Han, S., Ju, B., You, J., Ju, A., ... Park, H. Y. (2017). How do South Korean female executives' definitions of career success differ from those of male executives? *European Journal of Training & Development, 41*, 490-507. doi:10.1108/EJTD-12-2016-0093

Choi, T., Yeung, W., Edwin Cheng, T. C., & Yue, X. (2018). Optimal scheduling, coordination, and the value of RFID technology in garment manufacturing supply chains. *IEEE Transactions on Engineering Management, 65*, 72-84. doi:10.1109/TEM.2017.2739799

Choi, S., Min, H., Joo, H., & Choi, H. (2017). Assessing the impact of green supply chain practices on firm performance in the Korean manufacturing industry. *International Journal of Logistics: Research & Applications, 20*, 129-145. doi:10.1080/13675567.2016.1160041

Choy, K., Ho, G., & Lee, C. (2017). A RFID-based storage assignment system for enhancing the efficiency of order picking. *Journal of Intelligent Manufacturing, 28*, 111-129. doi:10.1007/s10845-014-0965-9

Chunhua Tang, Honglin Yang, Erbao Cao, & Kin Keung Lai. (2018). Channel competition and coordination of a dual-channel supply chain with demand and cost disruptions. *Applied Economics, 50*, 4999–5016. doi:10.1080/00036846.2018.1466989

Clemons, R., & Slotnick, S. A. (2016). The effect of supply-chain disruption, quality and knowledge transfer on firm strategy. *International Journal of Production Economics, 178*, 169-186. doi:10.1016/j.ijpe.2016.05.012

Cohen, J., Darnon, C., & Mollaret, P. (2017). Distinguishing the desire to learn from the desire to perform: The social value of achievement goals. *Journal of Social Psychology, 157*, 30-46. doi:10.1080/00224545.2016.1152216

Colicchia, C., Creazza, A., Noè, C., & Strozzi, F. (2019). Information sharing in supply chains: a review of risks and opportunities using the systematic literature network analysis (SLNA). *Supply Chain Management, 24*, 5–21. doi:10.1108/SCM-01-2018-0003

Cope, D. G. (2014). Methods and meanings: Credibility and trustworthiness of qualitative research. *Oncology Nursing Forum, 41*, 89-91. doi:10.1188/14.ONF.89-91

Coupet, J., & McWilliams, A. (2017). Integrating organizational economics and resource dependence theory to explain the persistence of quasi markets. *Administrative Sciences (2076-3387), 7*, 1-13. doi:10.3390/admsci7030029

Cuervo-Cazurra, A., Andersson, U., Brannen, M., Nielsen, B., & Rebecca Reuber, A. (2016). From the editors: Can I trust your findings? Ruling out alternative explanations in international business research. *Journal of International Business Studies, 47*, 881-897. doi:10.1057/s41267-016-0005-4

Cypress, B. S. (2017). Rigor or reliability and validity in qualitative research: Perspectives, strategies, reconceptualization, and recommendations. *Dimensions of Critical Care Nursing, 36*, 253-263. doi:10.1097/DCC.0000000000000253

Damani, Z., MacKean, G., Bohm, E., Noseworthy, T., Wang, J. H., DeMone, B., ... Marshall, D. A. (2018). Insights from the design and implementation of a single-entry model of referral for total joint replacement surgery: Critical success factors

and unanticipated consequences. *Health Policy, 122*, 165-174. doi:10.1016/j.healthpol.2017.10.006

Das, K. (2018). Integrating resilience in a supply chain planning model. International *Journal of Quality & Reliability Management, 35*, 570-595. doi:10.1108/IJQRM-08-2016-0136

Da Silva, T. M., De Resende Melo, P. L., Esteves, K., & Gomes, G. (2016). Franchisee association and its mediation of relationship. *Revista De Administração Mackenzie, 17*, 138-165. doi:10.1590/1678-69712016/administracao.v17n5p138-165

De Andrade, M., Spotswood, F., Hastings, G., Angus, K., & Angelova, N. (2017). Emotion in the ANDS (alternative nicotine delivery systems) market: Practice-theoretical insight into a volatile market. *Social Business, 7*, 391-418. doi:10.1362/204440817X15108539431569

Debono, D., Greenfield, D., Testa, L., Mumford, V., Hogden, A., Pawsey, M., ... Braithwaite, J. (2017). Understanding stakeholders' perspectives and experiences of general practice accreditation. *Health Policy, 121*, 816-822. doi:10.1016/j.healthpol.2017.05.006

De Castro Moura Duart, A. L., De Souza, R. B., Romero Macau, F., & de Souza, L. J. (2017). Supply Strategy: A quasi-experiment on the number and location of suppliers. *Brazilian Business Review (Portuguese Edition), 14*, 528-543. doi:10.15728/bbr.2017.14.5.5

De Massis, A., & Kotlar, J. (2014). The case study method in family business research:

Guidelines for qualitative scholarship. *Journal of Family Business Strategy, 5*, 15-29. doi:10.1016/j.jfbs.2014.01.007

De Saeger, H., Bartak, A., Eder, E., & Kamphuis, J. H. (2016). Memorable experiences in therapeutic assessment: Inviting the patient's perspective following a pretreatment randomized controlled trial. *Journal of Personality Assessment, 98*, 472-479. doi:10.1080/00223891.2015.1136314

De Vos, A., De Hauw, S., & Willemse, I. (2015). An integrative model for competency development in organizations: The Flemish case. *International Journal of Human Resource Management, 26*, 2543-2568. doi:10.1080/09585192.2014.1003078

Dlodlo, N., & Hamunyela, S. (2017). The status of integration of health information systems in Namibia. *Electronic Journal of Information Systems Evaluation, 20*, 61-75. Retrieved from www.ejise.com

Dolgui, A., Ivanov, D., & Sokolov, B. (2018). Ripple effect in the supply chain: An analysis and recent literature. *International Journal of Production Research, 56*, 414-430. doi:10.1080/00207543.2017.1387680

Dong, D., Gao, X., Sun, X., & Liu, X. (2018). Factors affecting the formation of copper international trade community: Based on resource dependence and network theory. *Resources Policy, 57*, 167-185. doi:10.1016/j.resourpol.2018.03.002

Durach, C. F., Glasen, P. C., & Straube, F. (2017). Disruption causes and disruption management in supply chains with Chinese suppliers. *International Journal of Physical Distribution & Logistics Management, 47*, 843-863. doi:10.1108/IJPDLM-07-2017-0228

Ekanayake, S., Childerhouse, P., & Sun, P. (2017). The symbiotic existence of interorganizational and interpersonal ties in supply chain collaboration. *International Journal of Logistics Management, 28*, 723-754. doi:10.1108/IJLM-12-2014-0198

Ellis, P. D. (2016). *The essential guide to effect sizes: Statistical power, meta-analysis, and the interpretation of research results*. New York, NY: Cambridge University 89 Press.

Elo, S., Kaariainen, M., Kanste, O., Polkki, T., Utriainen, K., & Kyngas, H. (2014). Qualitative content analysis: A focus on trustworthiness. *SAGE Open, 4*(1), 1-10. doi:10.1177/2158244014522633

Emerson, R. W. (2015). Convenience sampling, random sampling, and snowball sampling: How does sampling affect the validity of research? *Journal of Visual Impairment & Blindness, 109*(2), 164-168. Retrieved from http://http://www.afb.org/jvib/jvib_main.asp

Fan, Y., Schwartz, F., & VoB, S. (2017). Flexible supply chain planning based on variable transportation modes. *International Journal of Production Economics, 183*, 654–666. doi: 10.1016/j.ijpe.2016.08.020

Famiyeh, S., & Kwarteng, A. (2018). Supplier selection and firm performance. *International Journal of Quality & Reliability Management, 35*, 690-710. doi:10.1108/IJQRM-06-2016-0091

Fatemi, M., Azadi, H., Rafiaani, P., Taheri, F., Dubois, T., Van Passel, S., & Witlox, F. (2018). Effects of supply chain management on tomato export in Iran: Application of structural equation modeling. *Journal of Food Products Marketing, 24*, 177-195. doi:10.1080/10454446.2017.1266552

Feldon, D. F., & Tofel-Grehl, C. (2018). Phenomenography as a foundation for mixed models research. *American Behavioral Scientist, 62*, 887-899. doi:10.1177/0002764218772640

Felype Neis, D., Fernandes Pereira, M., & Antonio Maccari, E. (2017). Strategic planning process and organizational structure: Impacts, confluence and similarities. *Brazilian Business Review (English Edition), 14*, 479-492. doi:10.15728/bbr.2017.14.5.2

Fletcher, A. J. (2017). Applying critical realism in qualitative research: Methodology meets method. *International Journal of Social Research Methodology, 20*, 181-194. doi:10.1080/13645579.2016.1144401

Fluk, L. R. (2015). Foregrounding the research log in information literacy instruction. *Journal of Academic Librarianship, 41*, 488-498. doi:10.1016/j.acalib.2015.06.010

Forkmann, S., Henneberg, S. C., Naudé, P., & Mitrega, M. (2016). Supplier relationship management capability: A qualification and extension. *Industrial Marketing Management, 57*, 185-200. doi:10.1016/j.indmarman.2016.02.003

Friday, D., Ryan, S., Sridharan, R., & Collins, D. (2018). Collaborative risk management: a systematic literature review. *International Journal of Physical Distribution & Logistics Management, 48*, 231-253. doi:10.1108/IJPDLM-01-2017-0035

Fugard, A. J., & Potts, H. W. (2015). Supporting thinking on sample sizes for thematic analyses: A quantitative tool. *International Journal of Social Research Methodology, 18*, 669-684. doi:10.1080/13645579.2015.771005453

Fuchs, C., Beck, D., Lienland, B., & Kellner, F. (2018). The role of IT in automotive supplier supply chains. *Journal of Enterprise Information Management, 31*, 64-88. doi:10.1108/JEIM-03-2017-0038

Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *Qualitative Report, 20*, 1408-1416. Retrieved from http://www.nova.edu/ssss/QR

Ghadge, A., Fang, X., Dani, S., & Antony, J. (2017). Supply chain risk assessment approach for process quality risks. *International Journal of Quality & Reliability Management, 34*, 940-954. doi:10.1108/IJQRM-01-2015-0010

Gauche, C., de Beer, L. T., & Brink, L. (2017). Managing employee well-being: A qualitative study exploring job and personal resources of at-risk employees. *South African Journal of Human Resource Management, 15*(1), 1-13. doi:10.4102/sajhrm.v15i0.957

Gaukler, G., Ketzenberg, M., & Salin, V. (2017). Establishing dynamic expiration dates for perishables: An application of RFID and sensor technology. *International Journal of Production Economics, 193*, 617-632. doi:10.1016/j.ijpe.2017.07.019

Gawankar, S. A., Kamble, S., & Raut, R. (2017). An investigation of the relationship between supply chain management practices (SCMP) on supply chain performance measurement (SCPM) of Indian retail chain using SEM. *Benchmarking: An International Journal, 24*, 257-295. doi:10.1108/BIJ-12-2015-0123

Gebauer, H., Haldimann, M., & Saul, C. J. (2017). Service innovations breaking institutionalized rules of health care. *Journal of Service Management, 28*, 972-935. doi:10.1108/JOSM-04-2017-0090

Geelan, T., & Hodder, A. (2017). Enhancing transnational labour solidarity: The unfulfilled promise of the Internet and social media. *Industrial Relations Journal, 48*, 345-364. doi:10.1111/irj.12190

Gerschberger, M., Manuj, I., & Freinberger, P. (2017). Investigating supplier-induced complexity in supply chains. *International Journal of Physical Distribution & Logistics Management, 47*, 688-711. doi:10.1108/IJPDLM-07-2016-0185

Gibbon, B., & Crane, J. (2018). The impact of 'missed care' on the professional socialisation of nursing students: A qualitative research study. *Nurse Education Today, 66*, 19-24. doi:10.1016/j.nedt.2018.04.002

Gielens, K., Geyskens, I., Deleersnyder, B., & Nohe, M. (2018). The new regulator in town: The effect of walmart's sustainability mandate on supplier shareholder value. *Journal of Marketing, 82*, 124-141. doi:10.1509/jm.16.0276

Giri, B. C., & Bardhan, S. (2015). Coordinating a supply chain under uncertain demand and random yield in presence of supply disruption. *International Journal of Production Research, 53*, 5070-5084. doi:10.1080/00207543.2015.1030469

Gold, S., & Schleper, M. C. (2017). A pathway towards true sustainability: A recognition foundation of sustainable supply chain management. *European Management Journal, 35*, 425-429. doi:10.1016/j.emj.2017.06.008

Goldman, E. F., & Swayze, S. (2012). In-depth interviewing with healthcare corporate elites: Strategies for entry and engagement. *International Journal of Qualitative Methods, 11*, 230-243. Retrieved from https://journals.library.ualberta.ca/ijqm/index.php/IJQM/index

Golgeci, I., & Ponomarov, S. Y. (2015). How does firm innovativeness enable supply chain resilience? The moderating role of supply uncertainty and interdependence. *Technology Analysis & Strategic Management, 27*, 267-282. doi:10.1080/09537325.2014.971003

Golik, M. N., Blanco, M. R., & Czikk, R. (2018). On the trail of line managers as talent spotters. *Human Resource Development International, 21*, 232-253. doi:10.1080/13678868.2017.1385195

Gong, Y., Jia, F., Brown, S., & Koh, L. (2018). Supply chain learning of sustainability in multi-tier supply chains. *International Journal of Operations & Production Management, 38*, 1061-1090. doi:10.1108/IJOPM-05-2017-0306

Gonul Kochan, C., Nowicki, D. R., Sauser, B., & Randall, W. S. (2018). Impact of cloud-based information sharing on hospital supply chain performance: A system

dynamics framework. *International Journal of Production Economics, 195*, 168-185. doi:10.1016/j.ijpe.2017.10.008

Goyal, S., Hardgrave, B. C., Aloysius, J. A., & DeHoratius, N. (2016). The effectiveness of RFID in backroom and sales floor inventory management. *International Journal of Logistics Management, 27*, 795-815. doi:10.1108/IJLM-03-2015-0051

Green, K. W., Zelbst, P. J., Sower, V. E., & Bellah, J. C. (2017). Impact of radio frequency identification technology on environmental sustainability. *Journal of Computer Information Systems, 57*, 269-277. doi:10.1080/08874417.2016.1184029

Grothe-Hammer, M. (2017). Preparing for the field by topics: A systems theory inspired strategy for improving social access. *Systems Research & Behavioral Science, 34*, 41-50. doi:10.1002/sres.2393

Gupta, S., Misra, S. C., Kock, N., & Roubaud, D. (2018). Organizational, technological and extrinsic factors in the implementation of cloud ERP in SMEs. *Journal of Organizational Change Management, 31*, 83-102. doi:10.1108/JOCM-06-2017-0230

Gupta, S., & Pathak, G. S. (2018). Virtual team experiences in an emerging economy: a qualitative study. *Journal of Organizational Change Management, 31*, 778-794. doi:10.1108/JOCM-04-2017-0108

Haddud, A., DeSouza, A., Khare, A., & Lee, H. (2017). Examining potential benefits and challenges associated with the internet of things integration in supply

chains. *Journal of Manufacturing Technology Management, 28*, 1055-1085. doi:10.1108/JMTM-05-2017-0094

Hallavo, V. (2015). Superior performance through supply chain fit: A synthesis. *Supply Chain Management, 20*, 71-82. doi:10.1108/SCM-05-2014-0167

Hammersley, M. (2015). On ethical principles for social research. *International Journal of Social Research Methodology, 18*, 433-449. doi:10.1080/13645579.2014.924169

Han, J., & Shin, K. (2016). Evaluation mechanism for structural robustness of supply chain considering disruption propagation. *International Journal of Production Research, 54*, 135-151. doi:10.1080/00207543.2015.1047977

Harrison, A., Burress, R., Velasquez, S., & Schreiner, L. (2017). Social media use in academic libraries: A phenomenological study. *Journal of Academic Librarianship, 43*, 248-256. doi:10.1016/j.acalib.2017.02.014

Hatamleh, M. T., Hiyassat, M., Sweis, G. J., & Sweis, R. J. (2018). Factors affecting the accuracy of cost estimate: Case of Jordan. *Engineering Construction & Architectural Management (09699988), 25*, 113-131. doi:10.1108/ECAM-10-2016-0232

He, B., Huang, H., & Yuan, K. (2016). Managing supply disruption through procurement strategy and price competition. *International Journal of Production Research, 54*, 1980-1999. doi:10.1080/00207543.2015.1074297

Hiriscau, I. E., Stingelin-giles, N., Stadler, C., Schmeck, K., & Reiter-theil, S. (2014). A right to confidentiality or a duty to disclose? Ethical guidance for conducting

prevention research with children and adolescents. *European Child & Adolescent Psychiatry, 23*, 409-416. doi:10.1007/s00787-014-0526-y

Hou, Y., Wei, F., Li, S. X., Huang, Z., & Ashley, A. (2017). Coordination and performance analysis for a three-echelon supply chain with a revenue sharing contract. *International Journal of Production Research, 55*, 202-227. doi:10.1080/00207543.2016.1201601

Hunter, R. F., Gough, A., O'Kane, N., McKeown, G., Fitzpatrick, A., Walker, T., ... Kee, F. (2018). Ethical issues in social media research for public health. *American Journal of Public Health, 108*, 343-348. doi:10.2105/AJPH.2017.304249

Huong Tran, T. T., Childerhouse, P., & Deakins, E. (2016). Supply chain information sharing: challenges and risk mitigation strategies. *Journal of Manufacturing Technology Management, 27*, 1102-1126. doi:10.1108/JMTM-03-2016-0033

Huynh, T. T. (2018). Exploring factors influencing technology transfer capability: Constructing a model through grounded theory. *International Journal of Technology Management & Sustainable Development, 17*, 49-64. doi:10.1386/tmsd.17.1.49_1

Hwang, D., & Min, H. (2015). Identifying the drivers of enterprise resource planning and assessing its impacts on supply chain performances. *Industrial Management & Data Systems, 115*, 541-569. doi:10.1108/IMDS-10-2014-0284

Hsieh, Y., Sönmez, S., Apostolopoulos, Y., & Lemke, M. K. (2017). Perceived workplace mistreatment: Case of Latina hotel housekeepers. *Work, 56*, 55-65. doi:10.3233/WOR-162467

Ibem, E. O., Aduwo, E. B., Tunji-Olayeni, P., Ayo-Vaughan, E. A., & Uwakonye, U. O. (2016). Factors influencing e-procurement adoption in the Nigerian building industry. *Construction Economics & Building, 16*, 54-67. doi:10.5130/AJCEB.v%25vi%25i.4984

Imani-Nasab, M. H., Seyedin, H., Yazdizadeh, B., & Majdzadeh, R. (2017). A qualitative assessment of the evidence utilization for health policy-making on the basis of support tools in a developing country. *International Journal of Health Policy & Management, 6*, 457-465. doi:10.15171/ijhpm.2016.158

Ivanov, D. (2018). Revealing interfaces of supply chain resilience and sustainability: a simulation study. *International Journal of Production Research, 56*, 3507–3523. doi:10.1080/00207543.2017.1343507

Iveroth, E. (2016). Strategies for leading IT-enabled change: Lessons from a global transformation case. *Strategy & Leadership, 44*, 39-45. doi:10.1108/SL-06-2015-0050

Jajja, M. S., Kannan, V. R., Brah, S. A., & Hassan, S. Z. (2017). Linkages between firm innovation strategy, suppliers, product innovation, and business performance. *International Journal of Operations & Production Management, 37*, 1054-1075. doi:10.1108/IJOPM-09-2014-0424

Jain, V., Kumar, S., Soni, U., & Chandra, C. (2017). Supply chain resilience: Model development and empirical analysis. *International Journal of Production Research, 55*, 6779-6800. doi:10.1080/00207543.2017.1349947

Jannati, H., & Bahrak, B. (2016). Security analysis of an RFID tag search protocol. *Information Processing Letters, 116*, 618-622. doi:10.1016/j.ipl.2016.05.001

Jawad, H., Jaber, M. Y., & Nuwayhid, R. Y. (2018). Improving supply chain sustainability using exergy analysis. *European Journal of Operational Research, 269*, 258-271. doi:10.1016/j.ejor.2017.10.007

Jemielniak, D. (2016). Wikimedia movement governance: The limits of a-hierarchical organization. *Journal of Organizational Change Management, 29*, 361-378. doi:10.1108/JOCM-07-2013-0138

Jin, M., DeHoratius, N., & Schmidt, G. (2017). Want to reduce the bullwhip? Measure it. Here's how. *Supply Chain Management, 22*, 297-304. doi:10.1108/SCM-02-2017-0088

Jin, Y., Pang, A., & Smith, J. (2018). Crisis communication and ethics: The role of public relations. *Journal of Business Strategy, 39*, 43-52. doi:10.1108/JBS-09-2016-0095

Johnson, B. (2014). Ethical issues in shadowing research. *Qualitative Research in Organizations and Management: An International Journal, 9*, 21-40. doi:10.1108/QROM-09-2012-1099

Jones, G. J., Edwards, M., Bocarro, J. N., Bunds, K. S., & Smith, J. W. (2017). Collaborative advantages: The role of interorganizational partnerships for youth sport nonprofit organizations. *Journal of Sport Management, 31*, 148-160. doi:10.1123/jsm.2016-0118

Joubert, Y. T., & Loggenberg, B. (2017). The impact of changes in labour broking on an integrated petroleum and chemical company. *Acta Commercii, 17*(1), 1-9. doi:10.4102/ac.v17i1.441

Kalaitzi, D., Matopoulos, A., Bourlakis, M., & Tate, W. (2018). Supply chain strategies in an era of natural resource scarcity. *International Journal of Operations & Production Management, 38*, 784-809. doi:10.1108/IJOPM-05-2017-0309

Kamalahmadi, M., & Parast, M. M. (2017). An assessment of supply chain disruption mitigation strategies. *International Journal of Production Economics, 184*, 210-230. doi:10.1016/j.ijpe.2016.12.011

Kanyoma, K. E., Agbola, F. W., & Oloruntoba, R. (2018). An evaluation of supply chain integration across multi-tier supply chains of manufacturing-based SMEs in Malawi. *International Journal of Logistics Management, 29*, 1001-1024. doi:10.1108/IJLM-10-2017-0277

Kashmanian, R. M. (2017). Building greater transparency in supply chains to advance sustainability. *Environmental Quality Management, 26*(3), 73-104. doi:10.1002/tqem.21495

Katiyar, R., Meena, P. L., Barua, M. K., Tibrewala, R., & Kumar, G. (2018). Impact of sustainability and manufacturing practices on supply chain performance: Findings from an emerging economy. *International Journal of Production Economics, 197*, 303-316. doi:10.1016/j.ijpe.2017.12.007

Kauppi, K., Longoni, A., Caniato, F., & Kuula, M. (2016). Managing country disruption risks and improving operational performance: Risk management along integrated

supply chains. *International Journal of Production Economics, 182*, 484-495. doi:10.1016/j.ijpe.2016.10.006

Kavilal, E., Prasanna Venkatesan, S., & Harsh Kumar, K. (2017). An integrated fuzzy approach for prioritizing supply chain complexity drivers of an Indian mining equipment manufacturer. *Resources Policy, 51*, 204-218. doi:10.1016/j.resourpol.2016.12.008

Khan, Z., Sinkovics, R. R., & Lew, Y. K. (2015). International joint ventures as boundary spanners: Technological knowledge transfer in an emerging economy. *Global Strategy Journal, 5*, 48-68. doi:10.1002/gsj.1089

Kim, B., Park, K. S., Jung, S., & Park, S. H. (2018). Offshoring and outsourcing in a global supply chain: Impact of the arm's length regulation on transfer pricing. *European Journal of Operational Research, 266*, 88-98. doi:10.1016/j.ejor.2017.09.004

Kim, M., & Chai, S. (2017). The impact of supplier innovativeness, information sharing and strategic sourcing on improving supply chain agility: Global supply chain perspective. *International Journal of Production Economics, 187*, 42-52. doi:10.1016/j.ijpe.2017.02.007

Kim, Y. H., & Davis, G. F. (2016). Challenges for global supply chain sustainability: Evidence from conflict minerals reports. *Academy of Management Journal, 59*, 1896-1916. doi:10.5465/amj.2015.0770

Kırılmaz, O., & Erol, S. (2017). A proactive approach to supply chain risk management: Shifting orders among suppliers to mitigate the supply side risks. *Journal of Purchasing & Supply Management, 23*, 54-65. doi:10.1016/j.pursup.2016.04.002

Klug, F. (2016). Analysing bullwhip and backlash effects in supply chains with phase space trajectories. *International Journal of Production Research, 54*, 3906-3926. doi:10.1080/00207543.2016.1162342

Konig, A., & Spinler, S. (2016). The effect of logistics outsourcing on the supply chain vulnerability of shippers. *The International Journal of Logistics Management, 27*, 122-141. doi:10.1108/IJLM-03-2014-0043

Korstjens, I., & Moser, A. (2018) Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice, 24*, 120-124. doi:10.1080/13814788.2017.1375092

Krichanchai, S., & Maccarthy, B. L. (2017). The adoption of vendor managed inventory for hospital pharmaceutical supply. *International Journal of Logistics Management, 28*, 755-780. doi:10.1108/IJLM-01-2015-0010

Krolikowski, M., & Yuan, X. (2017). Friend or foe: Customer-supplier relationships and innovation. *Journal of Business Research, 78*, 53-68. doi:10.1016/j.jbusres.2017.04.023

Kumar, A., & Kushwaha, G. S. (2018). Supply chain management practices and operational performance of fair price shops in India: An empirical study. *Logforum, 14*, 85-99. doi:10.17270/J.LOG.2018.237

Kumar, G., Banerjee, R., Meena, P., & Ganguly, K. K. (2017). Joint planning and problem solving roles in supply chain collaboration. *IIMB Management Review (Elsevier Science), 29,* 45-57. doi:10.1016/j.iimb.2017.03.001

Kumar, S., Liu, J., & Scutella, J. (2015). The impact of supply chain disruptions on stockholder wealth in India. *International Journal of Physical Distribution & Logistics Management, 45*, 938-958. doi:10.1108/IJPDLM-09-2013-0247

Lahat, D., Adali, T., & Jutten, C. (2015). Multimodal data fusion: An overview of methods, challenges, and prospects. IEEE Explore, 103(9), 1449- 1477. doi:10.1109/JPROC.2015.2460697

Laihonen, H., & Pekkola, S. (2016). Impacts of using a performance measurement system in supply chain management: A case study. *International Journal of Production Research, 54,* 5607-5617. doi:10.1080/00207543.2016.1181810

Lal, P., & Bharadwaj, S. S. (2016). Understanding the impact of cloud-based services adoption on organizational flexibility. *Journal of Enterprise Information Management, 29,* 566-588. doi:10.1108/JEIM-04-2015-0028

Leguizamon, F., Selva, G., & Santos, M. (2016). Small farmer suppliers from local to global. *Journal of Business Research, 69,* 4520-4525. doi:10.1016/j.jbusres.2016.03.017

Lehoux, N., LeBel, L., & Elleuch, M. (2016). Benefits of inter-firm relationships: Application to the case of a five sawmills and one paper mill supply chain. *Infor, 54,* 192-209. doi:10.1080/03155986.2016.1197538

Le Roux, C. S. (2017). Exploring rigour in autoethnographic research. International *Journal of Social Research Methodology, 20*, 195-207. doi:10.1080/13645579.2016.1140965

Leung, L. (2015). Validity, reliability, and generalizability in qualitative research. *Journal of Family Medicine and Primary Care, 4*, 324-327. doi:10.4103/2249-4863.161306

Levitt, H. M., Bamberg, M., Creswell, J. W., Frost, D. M., Josselson, R., & Suárez-Orozco, C. (2018). Journal article reporting standards for qualitative primary, qualitative meta-analytic, and mixed methods research in psychology: The APA publications and communications board task force report. *American Psychologist, 73*(1), 26-46. doi:10.1037/amp0000151

Levitt, H. M., Pomerville, A., Surace, F. I., & Grabowski, L. M. (2017). Metamethod study of qualitative psychotherapy research on clients' experiences: Review and recommendations. *Journal of Counseling Psychology, 64*, 626-644. doi:10.1037/cou0000222

Li, G., Fan, H., Sun, H., & Cheng, T. (2017). An information processing perspective on supply chain risk management: Antecedents, mechanism, and consequences. *International Journal of Production Economics, 185*, 63-75. doi:10.1016/j.ijpe.2016.11.015

Li, G., Yu, G., Wang, S., & Yan, H. (2017). Bullwhip and anti-bullwhip effects in a supply chain. *International Journal of Production Research, 55*, 5423-5434. doi:10.1080/00207543.2017.1319087

Li, X., Wu, Q., Holsapple, C. W., & Goldsby, T. (2017). An empirical examination of firm financial performance along dimensions of supply chain resilience. *Management Research Review, 40*, 254-269. doi:10.1108/MRR-02-2016-0030

Liao, H., & Hitchcock, J. (2018). Reported credibility techniques in higher education evaluation studies that use qualitative methods: A research synthesis. *Evaluation & Program Planning, 68*, 157-165. doi:10.1016/j.evalprogplan.2018.03.005

Lie, R., & Witteveen, L. (2017). Visual informed consent: Informed consent without forms. *International Journal of Social Research Methodology, 20*, 63-75. doi:10.1080/13645579.2015.1116835

Lier, T., Caris, A., & Macharis, C. (2016). Sustainability SI: Bundling of outbound freight flows: Analyzing the potential of internal horizontal collaboration to improve sustainability. *Networks & Spatial Economics, 16*, 277-302. doi:10.1007/s11067-014-9226-x

Lii, P., & Kuo, F. (2016). Innovation-oriented supply chain integration for combined competitiveness and firm performance. *International Journal of Production Economics, 174*, 142-155. doi:10.1016/j.ijpe.2016.01.01

Liu, J., Sarkar, S., Kumar, S., & Jin, Z. (2018). An analysis of stock market impact from supply chain disruptions in Japan. *International Journal of Productivity & Performance Management, 67*, 192-206. doi:10.1108/IJPPM-06-2016-0104

Liu, S., Yang, Y., Qu, W. G., & Liu, Y. (2016). The business value of cloud computing: The partnering agility perspective. *Industrial Management & Data Systems, 116*, 1160-1177. doi:10.1108/IMDS-09-2015-0376

Liu, X., Xie, X., Wang, K., Qi, H., Cao, J., Guo, S., & Li, K. (2017). Pinpointing anomaly RFID tags: Situation and opportunities. *IEEE Network, 31*(6), 40-47. doi:10.1109/MNET.2017.1700043

Loh, H. S., Thai, V. V., Wong, Y. D., Yuen, K. F., & Zhou, Q. (2017). Portfolio of port-centric supply chain disruption threats. *International Journal of Logistics Management, 28*, 1368-1386. doi:10.1108/IJLM-09-2016-0208

Lucker, F., & Seifert, R. W. (2017). Building up resilience in a pharmaceutical supply chain through inventory, dual sourcing and agility capacity. *Omega, 73*, 114-124. doi:10.1016/j.omega.2017.01.001

Lyons, S., Karkou, V., Roe, B., Meekums, B., & Richards, M. (2018). Research article: What research evidence is there that dance movement therapy improves the health and wellbeing of older adults with dementia? A systematic review and descriptive narrative summary. *The Arts in Psychotherapy, 60*, 32-40. doi:10.1016/j.aip.2018.03.006

Ma, P., Lund, M. S., Nielsen, U. S., Aamand, G. P., & Su, G. (2015). Single-step genomic model improved reliability and reduced the bias of genomic predictions in Danish Jersey. *Journal of Dairy Science, 98*, 9026-9034. doi:10.3168/jds.2015-9703.

MacKenzie, C. A., & Apte, A. (2017). Modeling disruption in a fresh produce supply chain. *International Journal of Logistics Management, 28*, 656-679. doi:10.1108/IJLM-04-2016-0097

Madani, S. R., & Rasti-Barzoki, M. (2017). Sustainable supply chain management with pricing, greening and governmental tariffs determining strategies: A game-theoretic approach. *Computers & Industrial Engineering, 105*, 287-298. doi:10.1016/j.cie.2017.01.017

Malik, A., Ngo, L. V., & Kingshott, R. J. (2018). Power, resource dependencies and capabilities in intercultural B2B relationships. *Journal of Services Marketing, 32*, 629-642. doi:10.1108/JSM-01-2018-0006

Mani, V., Gunasekaran, A., & Delgado, C. (2018). Enhancing supply chain performance through supplier social sustainability: An emerging economy perspective. *International Journal of Production Economics, 195*, 259-272. doi:10.1016/j.ijpe.2017.10.025

Mann, M., Byun, S., & Li, Y. (2015). Realignment strategies in the US retail industry during a recessionary time. International Journal of Retail *& Distribution Management, 43*, 775-792. doi:10.1108/IJRDM-11-2014-0151

Maramwidze-Merrison, E. (2016). Innovative methodologies in qualitative research: Social media window for accessing organisational elites for interviews. *Electronic Journal of Business Research Methods, 14*, 157-167. Retrieved from http://www.ejbrm.com/about.html

Marley, K. A., Ward, P. T., & Hill, J. A. (2014). Mitigating supply chain disruptions: A

normal accident perspective. Supply Chain Management: *An International Journal, 19*, 142-152. doi:10.1108/SCM-03-2013-0083

Marshall, C., & Rossman, G. B. (2016). *Designing qualitative research* (6th ed.). Thousand Oaks, CA: Sage.

Martha, A., Victor D., D., Maan Isabella A., C., Michelle N., E., Dale M., N., & Cheryl Dennison, H. (2017). Participant retention practices in longitudinal clinical research studies with high retention rates. *BMC Medical Research Methodology, 17*(1), 1-10. doi:10.1186/s12874-017-0310-z

Matopoulos, A., Barros, A. C., & Van Der Vorst, J. A. (2015). Resource-efficient supply chains: A research framework, literature review, and research agenda. *Supply Chain Management: An International Journal, 20*, 218-236. doi:10.1108/SCM-03-2014-0090

Megheirkouni, M., & Roomi, M. A. (2017). Women's leadership development in sport settings. *European Journal of Training & Development, 41*, 467-484. doi:10.1108/EJTD-12-2016-0085

Mertens, D. M., & Hesse-Biber, S. (2015). Triangulation and mixed methods research. *Journal of Mixed Methods Research, 6*, 75-79. doi:10.1177/1558689812437100

Meyvis, T., & Van Osselaer, S. J. (2018). increasing the power of your study by increasing the effect size. *Journal of Consumer Research, 44*, 1157-1173. doi:10.1093/jcr/ucx110

McCusker, K., & Gunaydin, S. (2015). Research using qualitative, quantitative or mixed methods and choice based on the research. *Perfusion, 30*, 537-542.

doi:10.1177/0267659114559116

McEvoy, E., Enright, E., & MacPhail, A. (2017). Negotiating ‘ethically important moments’ in research with young people: Reflections of a novice researcher. *Leisure Studies, 36,* 170-181. doi:10.1080/02614367.2015.1119877

Mhizha, S., Tandire, J., Muromo, T., & Matika, M. (2016). Ecological self-image and behaviours for children living on the streets of Harare. *Development Southern Africa, 33,* 39-52. doi:10.1080/0376835X.2015.1113124

Milovanovic, G., Milovanovic, S., & Spasic, T. (2016). The role of contemporary web technologies in supply chain management. *Ekonomika, 62*(1), 43. doi:10.5937/ekonomika1601043M

Mirkovski, K., Lowry, P. B., & Feng, B. (2016). Factors that influence interorganizational use of information and communications technology in relationship-based supply chains: Evidence from the Macedonian and American wine industries. *Supply Chain Management, 21,* 334-351. doi:10.1108/SCM-08-2015-0343

Mitrega, M., Forkmann, S., Zaefarian, G., & Henneberg, S. C. (2017). Networking capability in supplier relationships and its impact on product innovation and firm performance. *International Journal of Operations & Production Management, 37,* 577-606. doi:10.1108/IJOPM-11-2014-0517

Mizgier, K. J., Pasia, J. M., & Talluri, S. (2017). Multiobjective capital allocation for supplier development under risk. *International Journal of Production Research, 55,* 5243-5258. doi:10.1080/00207543.2017.1302618

Molina-Azorin, J. F., Bergh, D. D., Corley, K. G., & Ketchen, D. J. (2017). Mixed methods in the organizational sciences. *Organizational Research Methods, 20*, 179-192. doi:10.1177/1094428116687026

Mota, B., Gomes, M. I., Carvalho, A., & Barbosa-Povoa, A. P. (2018). Sustainable supply chains: An integrated modeling approach under uncertainty. *Omega, 77*, 32-57. doi:10.1016/j.omega.2017.05.006

Munkhdorj, B., & Sekiya, Y. (2017). Cyber attack prediction using social data analysis. *Journal of High Speed Networks, 23*, 109-135. doi:10.3233/JHS-170560

Murtagh, N., Achkar, L., & Roberts, A. (2018). The role of building control surveyors and their power in promoting sustainable construction. *Construction Management & Economics, 36*, 363-374. doi:10.1080/01446193.2017.1397721

Myers, M. D. (2015). *Qualitative research in business and management*. Thousand Oaks, CA: Sage

Namdar, J., Xueping, L., Sawhney, R., & Pradhan, N. (2018). Supply chain resilience for single and multiple sourcing in the presence of disruption risks. *International Journal of Production Research, 56*, 2339-2360. doi:10.1080/00207543.2017.1370149

National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, Department of Health, Education and Welfare. (1979). *The Belmont Report: Ethical principles and guidelines for the protection of human subjects of research*. Washington, DC: U. S. Government Printing Office.

Retrieved from https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/index.html

Newington, L., & Metcalfe, A. (2014). Factors influencing recruitment to research: Qualitative study of the experiences and perceptions of research teams. *BMC Medical Research Methodology, 14*(1), 1-20. doi:10.1186/1471-2288-14-10

Noble, H., & Smith, J. (2015). Issues of validity and reliability in qualitative research. *Evidence Based Nursing, 18*, 34-35. doi:10.1136/eb-2015–102054

Nguyen, T. V., Nguyen, N. C., & Bosch, O. J. (2017). Identifying key success factors in supply chain management for increasing the competitive advantages of Vietnamese coffee. *Competitiveness Review, 27*, 438-461. doi:10.1108/CR-10-2016-0066

Nunan, D., & Di Domenico, M. (2017). Big Data: A normal accident waiting to happen? *Journal of Business Ethics, 145*, 481-491. doi:10.1007/s10551-015-2904-x

Nunez Ramirez, M. A., Wendlandt Amezaga, T. R., & Alvarez Medina, M. T. (2016). The relationship between organizational culture and knowledge management in tequila companies from Mexico. *International Journal of Advanced Corporate Learning, 9*, 44-50. doi:10.3991/ijac.v9i1.5748

Nyamah, E. Y., Jiang, Y., Feng, Y., & Enchill, E. (2017). Agri-food supply chain performance: an empirical impact of risk. *Management Decision, 55*, 872-891. doi:10.1108/MD-01-2016-0049

Obayi, R., Koh, S. C., Oglethorpe, D., & Ebrahimi, S. M. (2017). Improving retail supply flexibility using buyer-supplier relational capabilities. *International Journal of Operations & Production Management, 37*, 343-362. doi:10.1108/IJOPM-12-2015-0775

Odongo, W., Dora, M., Molnar, A., Ongeng, D., & Gellynck, X. (2016). Performance perceptions among food supply chain members: A triadic assessment of the influence of supply chain relationship quality on supply chain performance. *British Food Journal, 118*, 1783-1799. doi:10.1108/BFJ-10-2015-0357

Oghazi, P., Rad, F. F., Zaefarian, G., Beheshti, H. M., & Mortazavi, S. (2016). Unity is strength: A study of supplier relationship management integration. *Journal of Business Research, 69*, 4804-4810. doi:10.1016/j.jbusres.2016.04.034

Ojadi, F., Tickle, M., Adebanjo, D., Laosirihongthong, T., & Boon-itt, S. (2017). Supplier qualification for high-value goods and services in Nigeria: A comparison of qualified and non-qualified suppliers. *International Journal of Logistics*: *Research & Applications, 20*, 201–216. doi:10.1080/13675567.2016.1210105

O'Keeffe, P. (2016). Supply chain management strategies of agricultural corporations: A dependency approach. *Competition & Change, 20*, 255-274. doi:10.1177/1024529416647146

Olah, J., Zeman, Z., Balogh, I., & Popp, J. (2018). Future challenges and areas of development for supply chain management. *Logforum, 14*, 127-138. doi:10.17270/J.LOG.2018.238

Olbert, H., Protopappa, S. M., & Thonemann, U. W. (2016). Analyzing the effect of express orders on supply chain costs and delivery times. *Production & Operations Management, 25*, 2035–2050. doi:10.1111/poms.12588

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposive sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health, 42*, 533-544. doi:10.1007/s10488-013-0528-y

Pandey, S., & Chawla, D. (2016). Using qualitative research for establishing content validity of e-lifestyle and website quality constructs. *Qualitative Market Research: An International Journal, 19*, 339-356. doi:10.1108/QMR-05-2015-0033

Pariazar, M., & Sir, M. Y. (2018). A multi-objective approach for supply chain design considering disruptions impacting supply availability and quality. *Computers & Industrial Engineering, 121*, 113-130. doi:10.1016/j.cie.2018.05.026

Park, K., Min, H., & Min, S. (2016). Inter-relationship among risk taking propensity, supply chain security practices, and supply chain disruption occurrence. *Journal of Purchasing & Supply Management, 22*, 120-130. doi:10.1016/j.pursup.2015.12.001

Park, J., & Park, M. (2016). Qualitative versus quantitative research methods: Discovery or justification? *Journal of Marketing Thought, 3*(1), 1-7. doi:10.15577/jmt.2016.03.01.1

Paulus, T., Woods, M., Atkins, D. P., & Macklin, R. (2017). The discourse of QDAS: reporting practices of ATLAS.ti and NVivo users with implications for best practices. *International Journal of Social Research Methodology, 20*, 35-47. doi:10.1080/13645579.2015.1102454

Paulraj, A., Chen, I., & Blome, C. (2017). Motives and performance outcomes of sustainable supply chain management practices: A multi-theoretical perspective. *Journal of Business Ethics, 145*, 239-258. doi:10.1007/s10551-015-2857-0

Petersen, M., Brockhaus, S., Fawcett, S. E., & Knemeyer, A. M. (2017). The ties that bind: How a collaboration deficit impedes the development of sustainable products. *Supply Chain Forum: International Journal, 18*, 166-176. doi:10.1080/16258312.2017.1369841

Peloquin, C., Doering, T., Alley, S., & Rebar, A. (2017). The facilitators and barriers of physical activity among Aboriginal and Torres Strait Islander regional sport participants. *Australian & New Zealand Journal of Public Health, 41*, 474-479. doi:10.1111/1753-6405.12701

Perrow, C. (1999). Organizing to reduce the vulnerabilities of complexity. *Journal of Contingencies and Crisis Management, 7*, 150-155. doi:10.1111/1468-5973.00108

Pfeffer, J. S., & Salancik, G. R. (2003). *The external control of organizations: A resource dependency perspective*. Palo Alto, CA: Stanford University Press.

Pfeffer, J. S., & Salancik, G. R. (1978). *The external control of organizations: A resource dependency perspective.* New York, NY: Harper & Row.

Plano Clark, V. L., & Ivankova, N. V. (2016). *Mixed methods research: A guide to the field* (Vol. 3). Thousand Oaks, CA: Sage

Power, D., & Gruner, R. L. (2015). Exploring reduced global standards-based inter-organisational information technology adoption. *International Journal of Operations & Production Management, 35*, 1488-1511. doi:10.1108/IJOPM-01-2013-0016

Pradabwong, J., Braziotis, C., Tannock, J. T., & Pawar, K. S. (2017). Business process management and supply chain collaboration: Effects on performance and competitiveness. *Supply Chain Management, 22*, 107-121. doi:10.1108/SCM-01-2017-0008

Putan, A., Ivan, O. R., & Tamas, A. (2017). Cost centers from hospital units. Study case. *Valahian Journal of Economic Studies, 8*, 67-80. doi:10.1515/vjes-2017-0008

Qazi, A., Dickson, A., Quigley, J., & Gaudenzi, B. (2018). Supply chain risk network management: A Bayesian belief network and expected utility based approach for managing supply chain risks. *International Journal of Production Economics, 196*, 24-42. doi:10.1016/j.ijpe.2017.11.008

Qazi, A., Quigley, J., Dickson, A., & Ekici, S. O. (2017). Exploring dependency based probabilistic supply chain risk measures for prioritising interdependent risks and

strategies. *European Journal of Operational Research, 259,* 189-204. doi:10.1016/j.ejor.2016.10.023

Qiu, T. (2018). Dependence concentration and fairness perceptions in asymmetric supplier-buyer relationships. *Journal of Marketing Management, 34,* 395-419. doi:10.1080/0267257X.2018.1450281

Ralston, P. M., Richey, R. G., & J. Grawe, S. (2017). The past and future of supply chain collaboration: A literature synthesis and call for research. *International Journal of Logistics Management, 28,* 508-530. doi:10.1108/IJLM-09-2015-0175

Ramji, Z., & Etowa, J. (2018). Workplace integration: Key considerations for internationally educated nurses and employers. *Administrative Sciences (2076-3387), 8,* 2-N.PAG. doi:10.3390/admsci8010002

Randall, W. S., Hawkins, T. G., Haynie, J. J., Nowicki, D. R., Armenakis, A. A., & Geary, S. R. (2015). Performance-based logistics and interfirm team processes: An empirical investigation. *Journal of Business Logistics, 36,* 212-230. doi:10.1111/jbl.12084

Rasila, H., & Jylha, T. (2015). The many faces of office noise – case contact center. *Facilities, 33,* 454-464. doi:10.1108/F-11-2013-0085

Rathore, R., Thakkar, J. J., & Jha, J. K. (2017). A quantitative risk assessment methodology and evaluation of food supply chain. *International Journal of Logistics Management, 28,* 1272-1293. doi:10.1108/IJLM-08-2016-0198

Raut, R. D., Gardas, B. B., Jha, M. K., & Priyadarshinee, P. (2017). Examining the critical success factors of cloud computing adoption in the MSMEs by using ISM

model. *Journal of High Technology Management Research, 28*, 125-141. doi:10.1016/j.hitech.2017.10.004

Raweewan, M., & Ferrell, W. G. (2018). Information sharing in supply chain collaboration. *Computers & Industrial Engineering, 126*, 269–281.doi: 10.1016/j.cie.2018.09.042

Reimann, F., & Ketchen, D. J. (2017). Power in supply chain management. *Journal of Supply Chain Management, 53*(2), 3-9. doi:10.1111/jscm.12140

Revilla, E., & Saenz, M. J. (2017). The impact of risk management on the frequency of supply chain disruptions. *International Journal of Operations & Production Management, 37*, 557-576. doi:10.1108/IJOPM-03-2016-0129

Rezapour, S., Farahani, R. Z., & Pourakbar, M. (2017). Resilient supply chain network design under competition: A case study. *European Journal of Operational Research, 259*, 1017-1035. doi:10.1016/j.ejor.2016.11.041

Rich, K. A., & Misener, L. (2017). Insiders, outsiders, and agents of change: First person action inquiry in community sport management. *Sport Management Review (Elsevier Science), 20*, 8-19. doi:10.1016/j.smr.2016.08.004

Ridder, H. (2017). The theory contribution of case study research designs. *Business Research, 10*, 281-305. doi:10.1007/s40685-017-0045-z

Riley, J. M., Klein, R., Miller, J., & Sridharan, V. (2016). How internal integration, information sharing, and training affect supply chain risk management capabilities. *International Journal of Physical Distribution & Logistics Management, 46*, 953-980. doi:10.1108/IJPDLM-10-2015-0246

Roberts, E., & Struckmeyer, K. M. (2018). The impact of respite programming on caregiver resilience in dementia care: A qualitative examination of family caregiver perspectives. *Inquiry (00469580), 55,* 1-11. doi:10.1177/0046958017751507

Roldan Bravo, M. I., Ruiz Moreno, A., & Llorens-Montes, F. J. (2016). Supply network-enabled innovations. An analysis based on dependence and complementarity of capabilities. *Supply Chain Management, 21,* 642-660. doi:10.1108/SCM-02-2016-0062

Ross, M. W., Iguchi, M. Y., & Panicker, S. (2018). Ethical aspects of data sharing and research participant protections. *American Psychologist, 73,* 138-145. doi:10.1037/amp0000240

Ruggunan, S. (2016). An exploratory study of the training of South African officers in the merchant navy. *Maritime Policy & Management, 43,* 309-328. doi:10.1080/03088839.2015.1040861

Rugraff, E., & Sass, M. (2016). How did the automotive component suppliers cope with the economic crisis in hungary? *Europe-Asia Studies, 68,* 1396-1420. doi:10.1080/09668136.2016.1221062

Saade, R. G., & Nijher, H. (2016). Critical success factors in enterprise resource planning implementation. *Journal of Enterprise Information Management, 29,* 72-96. doi:10.1108/JEIM-03-2014-0028

Sabouhi, F., Pishvaee, M. S., & Jabalameli, M. S. (2018). Resilient supply chain design under operational and disruption risks considering quantity discount: A case study

of pharmaceutical supply chain. *Computers & Industrial Engineering, 126*, 657–672. doi-10.1016/j.cie.2018.10.001

Saghiri, S. & Hill, A. (2014). Supplier relationship impacts on postponement strategies. *International Journal of Production Research, 52*, 2134-2153. doi:10.1080/00207543.2013.857053

Salam, M. A. (2017). The mediating role of supply chain collaboration on the relationship between technology, trust, and operational performance. *Benchmarking: An International Journal, 24*, 298-317. doi:10.1108/BIJ-07-2015-0075

Samtani, S., Chinn, R., Chen, H., & Nunamaker, J. F. (2017). Exploring emerging hacker assets and key hackers for proactive cyber threat intelligence. *Journal of Management Information Systems, 34*, 1023-1053. doi:10.1080/07421222.2017.1394049

Sarkar, S., & Kumar, S. (2016). Demonstrating the effect of supply chain disruptions through an online beer distribution game. *Decision Sciences Journal of Innovative Education, 14*, 25-35. doi:10.1111/dsji.12091

Sarkar, S., & Kumar, S. (2015). A behavioral experiment on inventory management with supply chain disruption. *International Journal of Production Economics, 169*,169-178. doi:10.1016/j.ijpe.2015.07.032

Sawik, T. (2017). A portfolio approach to supply chain disruption management. *International Journal of Production Research, 55*, 1970-1991. doi:10.1080/00207543.2016.1249432

Sawik, T. (2019). Disruption mitigation and recovery in supply chains using portfolio approach. *Omega, 84*, 232–248. doi:10.1016/j.omega.2018.05.006

Scheibe, K. P., & Blackhurst, J. (2018). Supply chain disruption propagation: A systemic risk and normal accident theory perspective. *International Journal of Production Research, 56*, 43-59. doi:10.1080/00207543.2017.1355123

Schoenung, B., & Dikova, D. (2016). Reflections on organizational team diversity research. *Equality, Diversity & Inclusion, 35*, 221-231. doi:10.1108/EDI-11-2015-0095

Schoonenboom, J. (2018). Designing mixed methods research by mixing and merging methodologies: A *13-Step Model. American Behavioral Scientist, 62*, 998-1015. doi:10.1177/0002764218772674

Schmitt, T. G., Kumar, S., Stecke, K. E., Glover, F. W., & Ehlen, M. A. (2017). Mitigating disruptions in a multi-echelon supply chain using adaptive ordering. *Omega, 68*, 185-198. doi:10.1016/j.omega.2016.07.004

Schnittfeld, N. L., & Busch, T. (2016). Sustainability management within supply chains: A resource dependence view. *Business Strategy & The Environment, 25*, 337-354. doi:10.1002/bse.1876

Shamout, M. D., & Emeagwali, O. L. (2016). Examining the impact of electronic supply chain management processes on customer satisfaction: A literature review. *Business & Economic Horizons, 12*, 141–163. doi: 10.15208/beh.2016.11

Shams, L., Sari, A. A., & Yazdani, S. (2016). Values in health policy -- a concept analysis. *International Journal of Health Policy & Management, 5*, 623-630. doi:10.15171/ijhpm.2016.102

Shaw, D., & Satalkar, P. (2018). Researchers' interpretations of research integrity: A qualitative study. Accountability in research: *Policies & Quality Assurance, 25*, 79-93. doi:10.1080/08989621.2017.1413940

Shobayo, P. B. (2017). Supply chain management and operational performance in Nigeria: A panel regression model approach. *International Journal of Entrepreneurial Knowledge, 51*, 66-77. doi:10.1515/ijek-2017-0012

Siew Khoon Khoo, Y., & Saleh, K. (2017). A qualitative study among potential manufacturers on the development of 'made in Malaysia' biological products: Challenges and proposed solutions. *Journal of Commercial Biotechnology, 23*, 44-61. doi:10.5912/jcb814

Silvestre, B. (2016). Sustainable supply chain management: Current debate and future directions. *Gestao & Producao, 23*, 235-249. doi:10.1590/0104-530X2202-16

Sodhi, M. S., & Tang, C. S. (2018). Corporate social sustainability in su\pply chains: A thematic analysis of the literature. *International Journal of Production Research, 56*, 882-901. doi:10.1080/00207543.2017.1388934

Somapa, S., Cools, M., & Dullaert, W. (2018). Characterizing supply chain visibility – a literature review. *International Journal of Logistics Management, 29*, 308-339. doi:10.1108/IJLM-06-2016-0150

Soosay, C. A., & Hyland, P. (2015). A decade of supply chain collaboration and

directions for future research. *Supply Chain Management*: *An International Journal, 20*, 613-630. doi:10.1108/SCM-06-2015-0217

Sorsa, M. A., Kiikkala, I., & Åstedt-Kurki, P. (2015). Bracketing as a skill in conducting unstructured qualitative interviews. *Nurse Researcher, 22*(4), 8–12. doi: 10.7748/nr.22.4.8.e1317

Southcott, J., & Joseph, D. (2017). Changing the world one voice at a time: Philanthropy and community choirs in Australia. *Creative Industries Journal, 10*, 155-167. doi:10.1080/17510694.2017.1324117

Sousa, M. D. M., & Figueiredo, R. S. (2014). Credit analysis using data mining: Application in the case of a credit union. *Journal of Information Systems and Technology Management, 11*, 379-396. doi:10.4301/s1807-17752014000200009

Spiegler, V., Potter, A., Naim, M., & Towill, D. (2016). The value of nonlinear control theory in investigating the underlying dynamics and resilience of a grocery supply chain. *International Journal of Production Research, 54*, 265-286. doi:10.1080/00207543.2015.1076945

Srinivasan, R. S., & Tew, J. D. (2017). Supply chain immune system: Concept, framework, and applications. *International Journal of Logistics: Research & Applications, 20*, 515-531. doi:10.1080/13675567.2017.1324834

Srivastava, S. K., Chaudhuri, A., & Srivastava, R. K. (2015). Propagation of risks and their impact on performance in fresh food retail. *The International Journal of Logistics Management, 26*, 568-602. doi:10.1108/IJLM-02-2014-0032

Straube, F., Durach, C. F., & Phung, J. (2016). Developing and applying a supplier selection model to account for supplier risk impacts. *Supply Chain Forum: International Journal, 17,* 68-77. doi:10.1080/16258312.2016.1171958

Sundram, V. P. K., Chandran, V. G. R., & Bhatti, M. A. (2016). Supply chain practices and performance: The indirect effects of supply chain integration. *Benchmarking: An International Journal, 23,* 1445-1471. doi:10.1108/BIJ-03-2015-0023

Tang, S. Y., Gurnani, H., & Gupta, D. (2014). Managing disruptions in decentralized supply chains with endogenous supply process reliability. *Production & Operations Management, 23,* 1198-1211. doi:10.1111/poms.12160

Tao, F., Fan, T., Lai, K. K., & Li, L. (2017). Impact of RFID technology on inventory control policy. *The Journal of the Operational Research Society, 68,* 207-220. doi:http://dx.doi.org.ezp.waldenulibrary.org/10.1057/s41274-016-0030-5

Tarafdar, M., & Qrunfleh, S. (2017). Agile supply chain strategy and supply chain performance: complementary roles of supply chain practices and information systems capability for agility. *International Journal of Production Research, 55,* 925-938. doi:10.1080/00207543.2016.1203079

Tate, W. L., & Bals, L. (2017). Outsourcing/offshoring insights: Going beyond reshoring to rightshoring. *International Journal of Physical Distribution & Logistics Management, 47,* 106-113. doi:10.1108/IJPDLM-11-2016-0314

Teller, C., Kotzab, H., Grant, D. B., & Holweg, C. (2016). The importance of key supplier relationship management in supply chains. *International Journal of*

Retail & Distribution Management, 44, 109-123. doi:10.1108/IJRDM-05-2015-0072

Thoni, A., & Tjoa, A. M. (2017). Information technology for sustainable supply chain management: A literature survey. *Enterprise Information Systems, 11*, 828-858. doi:10.1080/17517575.2015.1091950

Thorpe, A. S. (2014). Doing the right thing or doing the thing right: Implications of participant withdrawal. *Organizational Research Methods, 17*, 255–277. doi:10.1177/1094428114524828

Tkalac Vercic, A., & Poloski Vokic, N. (2017). Engaging employees through internal communication. *Public Relations Review, 43*, 885–893. doi:10.1016/j.pubrev.2017.04.005

Truong Quang, H., & Hara, Y. (2018). Risks and performance in supply chain: The push effect. *International Journal of Production Research, 56*, 1369-1388. doi:10.1080/00207543.2017.1363429

Truong, T. D., & Hallinger, P. (2017). Exploring cultural context and school leadership: Conceptualizing an indigenous model of có uy school leadership in Vietnam. *International Journal of Leadership in Education, 20*, 539-561. doi:10.1080/13603124.2015.1105388

Tsun-lok, K., & Pik-Ching, W. (2017). A validity study of the MWEP scale in Hong Kong. *Management (18544223), 12*, 217-234. doi:10.26493/1854-4231.12.217-234

Tukamuhabwa, B., Stevenson, M., & Busby, J. (2017). Supply chain resilience in a developing country context: a case study on the interconnectedness of threats, strategies, and outcomes. *Supply Chain Management, 22*, 486-505. doi:10.1108/SCM-02-2017-0059

Tunarosa, A., & Glynn, M. A. (2017). Strategies of integration in mixed methods research. *Organizational Research Methods, 20*, 224-242. doi:10.1177/1094428116637197

Udekwe, E., & La Harpe, A. C. (2017). The use of human resource information systems in two retail organisations in the Western Cape, South Africa. *South African Journal of Human Resource Management, 15*(1), 1-7. doi:10.4102/sajhrm.v15i0.827

Ulusoy, E., & Schembri, S. (2018). Subculture as learning context: Subcultural music consumption as language, channel and journey. *Consumption, Markets & Culture, 21*, 239-254. doi:10.1080/10253866.2018.1447463

Uneke, C. J., Sombie, I., Lokossou, V., Johnson, E., & Ongolo-Zogo, P. (2017). An assessment of national maternal and child health policy-makers' knowledge and capacity for evidence- informed policy-making in Nigeria. *International Journal of Health Policy & Management, 6*, 309-316. doi:10.15171/ijhpm.2016.132

Vahid Nooraie, S., & Parast, M. M. (2016). Mitigating supply chain disruptions through the assessment of trade-offs among risks, costs and investments in capabilities. *International Journal of Production Economics, 17*, 18-21. doi:10.1016/j.ijpe.2015.10.018

Van de Ven, A. H., & Drazin, R. (1985). The concept of fit in contingency theory. In L. L.Cummings and B. M. Staw (Eds.). *Research in organizational behavior* (pp.333-366). Greenwich, CT: JAI Press

Verma, N. K., & Chatterjee, A. K. (2017). A multiple-retailer replenishment model under VMI: Accounting for the retailer heterogeneity. *Computers & Industrial Engineering, 104*, 175–187. doi: 10.1016/j.cie.2016.12.001

Villarreal Larrinaga, O. (2017). Is it desirable, necessary and possible to perform research using case studies? *Cuadernos De Gestión, 17*, 147-171. doi:10.5295/cdg.140516ov

Vincent, N. E., Higgs, J. L., & Pinsker, R. E. (2017). IT governance and the maturity of IT risk management practices. *Journal of Information Systems, 31*, 59-77. doi:10.2308/isys-51365

Vokhmyanina, A., Zhuravskaya, M., & Osmólski, W. (2018). The issue of bullwhip-effect evaluating in supply chain management. *Logforum, 14*, 163-170. doi:10.17270/J.LOG.2018.280

Wang, Q., Craighead, C. W., & Li, J. J. (2014). Justice served: Mitigating damaged trust stemming from supply chain disruptions. *Journal of Operations Management, 32*, 374-386. doi:10.1016/j.jom.2014.07.001

Wang, C., Duan, Z., & Yu, L. (2016). From nonprofit organization to social enterprise. *International Journal of Contemporary Hospitality Management, 28*, 1287-1306. doi:10.1108/IJCHM-05-2014-0230

Wang, X., Tiwari, P., & Chen, X. (2017). Communicating supply chain risks and mitigation strategies: a comprehensive framework. *Production Planning & Control, 28*, 1023-1036. doi:10.1080/09537287.2017.1329562

Wang, Y., Wang, N., Jiang, L., Yang, Z., & Cui, V. (2016). Managing relationships with power advantage buyers: The role of supplier initiated bonding tactics in long-term buyer–supplier collaborations. *Journal of Business Research, 69*, 5587-5596. doi:10.1016/j.jbusres.2016.03.066

Wang, Z., Yang, L., Zhao, L., Cao, N., Lu, Y., & Patnaik, S. (2018). A dual-objective vendor-managed inventory model for a single-vendor multi-retailer supply chain with fuzzy random demand. *Journal of Intelligent & Fuzzy Systems, 35*, 211–222. doi: 10.3233/JIFS-169581

Watts, L. L., Todd, E. M., Mulhearn, T. J., Medeiros, K. E., Mumford, M. D., & Connelly, S. (2017). Qualitative evaluation methods in ethics education: A systematic review and analysis of best practices. *Accountability in Research: Policies & Quality Assurance, 24*, 225-242. doi:10.1080/08989621.2016.1274975

Wieteska, G. (2016). Building resilient relationships with suppliers in the B2B market. *Management 20*, 307-321. doi:10.1515/manment-2015-0067

Wieteska, G. (2018). The Domino effect - Disruptions in supply chains. *LogForum, 14*, 495–506. doi:10.17270/J.LOG.2018.302

Wiles, A., & Crawford, A. (2017). Network hospitality in the share economy: Understanding guest experiences and the impact of sharing on

lodging. *International Journal of Contemporary Hospitality Management, 29*, 2444-2463. doi:10.1108/IJCHM-08-2016-0453

Wilhelm, M., Blome, C., Wieck, E., & Xiao, C. Y. (2016). Implementing sustainability in multi-tier supply chains: Strategies and contingencies in managing sub-suppliers. *International Journal of Production Economics, 182*, 196-212. doi:10.1016/j.ijpe.2016.08.00

Wolf, J. (2014). The relationship between sustainable supply chain management, stakeholder pressure and corporate sustainability performance. *Journal of Business Ethics, 119*, 317-328. doi:10.1007/s10551-012-1603-0

Woods, M., Macklin, R., & Lewis, G. K. (2016). Researcher reflexivity: Exploring the impacts of CAQDAS use. *International Journal of Social Research Methodology, 19*, 385-403. doi:10.1080/13645579.2015.1023964

Wowak, K. D., Craighead, C. W., & Ketchen, D. J. (2016). Tracing bad products in supply chains: The roles of temporality, supply chain permeation, and product information ambiguity. *Journal of Business Logistics, 37*, 132-151. doi:10.1111/jbl.12125

Wu, I., & Chiu, M. (2018). Examining supply chain collaboration with determinants and performance impact: Social capital, justice, and technology use perspectives. *International Journal of Information Management, 39*, 5-19. doi:10.1016/j.ijinfomgt.2017.11.004

Wu, J., & Zhao, H. (2015). The dual effects of state ownership on export activities of emerging market firms: An inducement-constraint perspective. *Management International Review, 55*, 421-451. doi:10.1007/s11575-014-0231-6

Wyte-Lake, T., & Griffin, A. R. (2018). Supporting staff through a complete hospital evacuation and extended displacement period. *Journal of Healthcare Management, 63*, 195-209. doi:10.1097/JHM-D-16-00009

Xia, J., Wang, Y., Lin, Y., Yang, H., & Li, S. (2018). Alliance formation in the midst of market and network: Insights from resource dependence and network perspectives. *Journal of Management, 44*, 1899-1925. doi:10.1177/0149206316630379

Xia, Y., Zu, X., & Shi, C. (2015). A profit-driven approach to building a “people-responsible” supply chain. *European Journal of Operational Research, 241*, 348-360. doi:10.1016/j.ejor.2014.08.041

Xiaoming, L., Olorunniwo, F., Chunxing, F., & Jolayemi, J. (2016). Improving performance in supplier relationship management with lower-tier supplier visibility and management. *Annals of Management Science, 5*, 19-36. Retrieved from www.annalsofms.org

Xiaosong, Z., & Lijun, J. (2017). An empirical study on the economic effect of financial cooperation among countries of the "silk road economic belt." *Engineering Economics, 28*, 542-551. doi:10.5755/j01.ee.28.5.19189

Xu, K., Dong, Y., & Xia, Y. (2015). ‘Too little’ or ‘too late’: The timing of supply chain demand collaboration. *European Journal of Operational Research, 241*, 370-380. doi:10.1016/j.ejor.2014.09.006

Yadav, V., Sharma, M. K., & Singh, S. (2018). Intelligent evaluation of suppliers using extent fuzzy TOPSIS method. *Benchmarking: An International Journal, 25*, 259-279. doi:10.1108/BIJ-07-2016-0114

Yan, T., & Kull, T. J. (2015). Supplier opportunism in buyer-supplier new product development: A China-U.S. study of antecedents, consequences, and cultural/institutional contexts. *Decision Sciences, 46*, 403-445. doi:10.1111/deci.12130

Yang, B., & Yang, Y. (2010). Postponement in supply chain risk management: a complexity perspective. *International Journal of Production Research, 48*, 1901-1912. doi:10.1080/00207540902791850

Yang, C., Liang, P., & Avgeriou, P. (2018). Assumptions and their management in software development: A systematic mapping study. *Information & Software Technology, 94*, 82-110. doi:10.1016/j.infsof.2017.10.003

Yang, F., & Zhang, X. (2017). The impact of sustainable supplier management practices on buyer-supplier performance. *Review of International Business & Strategy, 27*, 112-132. doi:10.1108/RIBS-08-2016-0043

Yang, J., Lai, K. H., Wang, J., Rauniar, R., & Xie, H. (2015). Strategic alliance formation and the effects on the performance of manufacturing enterprises from supply

chain perspective. *International Journal of Production Research, 53*, 3856-3870. doi:10.1080/00207543.2014.974843

Yang, S., Kang, M., & Cha, H. (2015). A study on dialogic communication, trust, and distrust: Testing a scale for measuring organization–public dialogic communication (OPDC). *Journal of Public Relations Research, 27*, 175-192. doi:10.1080/1062726X.2015.1007998

Yeardley, T. (2017). Training of new managers: Why are we kidding ourselves? *Industrial & Commercial Training, 49*, 245-255. doi:10.1108/ICT-12-2016-0082

Ye, S., Xiao, Z., & Zhu, G. (2015). Identification of supply chain disruptions with economic performance of firms using multi-category support vector machines. *International Journal of Production Research, 53*, 3086-3103. doi:10.1080/00207543.2014.974838

Yin, R. K. (2018). *Case study research: Design and methods* (6th ed.). Thousand Oaks, CA: Sage.

Youyu, C., Tong, S., Shou, C., Shouyang, W., Kin Keung, L., & Lu, G. (2017). Strong–weak collaborative management in coping supply chain disruption risk transmission based on scale-free networks. *Applied Economics, 49*, 3943-3958. doi:10.1080/00036846.2016.1273494

Yu, S., Mishra, A. N., Gopal, A., Slaughter, S., & Mukhopadhyay, T. (2015). E-procurement infusion and operational process impacts in MRO procurement: Complementary or substitutive effects? *Production and Operations Management, 24*, 1054-1070. doi:10.1111/poms.12362.

Yunis, M., El-Kassar, A., & Tarhini, A. (2017). Impact of ICT-based innovations on organizational performance. *Journal of Enterprise Information Management, 30*, 122-141. doi:10.1108/JEIM-01-2016-0040

Zapkau, F. B., Schwens, C., & Kabst, R. (2017). The role of prior entrepreneurial exposure in the entrepreneurial process: A review and future research implications. *Journal of Small Business Management, 55*, 56-86. doi:10.1111/jsbm.12232

Zeng, B., & Yen, B. P. (2017). Rethinking the role of partnerships in global supply chains: A risk-based perspective. *International Journal of Production Economics, 1*85, 52-62. doi:10.1016/j.ijpe.2016.12.004

Zhang, Q., & Cao, M. (2018). Exploring antecedents of supply chain collaboration: Effects of culture and interorganizational system appropriation. *International Journal of Production Economics, 195*, 146-157. doi:10.1016/j.ijpe.2017.10.014

Zhao, Y., & Cao, H. (2015). Risk management on joint product development with power asymmetry between supplier and manufacturer. *International Journal of Project Management, 33*, 1812-1826. doi:10.1016/j.ijproman.2015.08.008

Zhou, W., Chong, A. Y. L., Zhen, C., & Bao, H. (2018) E-supply chain integration adoption: Examination of buyer–supplier relationships. *Journal of Computer Information Systems, 58*, 58-65, doi: 10.1080/08874417.2016.1189304

Zhou, Y., Huang, B., Gong, D., & Peters, B. A. (2017). The Impacts of carbon tariff on green supply chain design. *IEEE Transactions on Automation Science & Engineering, 14*, 1542-1555. doi:10.1109/TASE.2015.2445316

Zhu, Q., Krikke, H., Caniels, M. J., & Wang, Y. (2017). Twin-objective supply chain collaboration to cope with rare but high impact disruptions whilst improving performance. *International Journal of Logistics Management, 28*, 488-507. doi:10.1108/IJLM-02-2016-0028

Appendix A: Interview Questions

1. What strategies does your organization have in place to mitigate the effects of disruptions in the supply chain?
2. How did your employees respond to those strategies?
3. How were strategies to mitigate the effects of disruptions in the supply chain communicated throughout the organizational ranks and among stakeholders?
4. What modifications did you apply to any strategy to improve its effectiveness in mitigating the effects of disruptions in the supply chain?
5. What policies and processes have you used to mitigate the effects of disruptions in your organization's supply chain?
6. What were the principal barriers to implementing your strategies for mitigating disruptions in the supply chain?
7. How did you address key barriers to implementing your organization's strategies for mitigating disruptions in the supply chain?
8. How did you assess the effectiveness of your strategies for mitigating disruption in the supply chain?
9. What other information would you like to share concerning the strategies you developed and implemented to mitigate the effects of supply chain disruption in your organization?

Appendix B: Interview Protocol

Introduction to the Interview

My name is Gift Wilford Bondwe, a student at Walden University pursuing a doctoral degree in Business Administration specializing in Global Supply Chain Management. Thank you for accepting to participate in this study. I am conducting a qualitative multiple case study to uncover strategies for mitigating the effects of supply chain disruptions in the grocery stores' supply chain in Northwest Arkansas. The length of this interview should be about 30-45 minutes. The interview format is open-ended questions. Please feel free to seek clarity on questions and add more detailed explanations and personal views as you see appropriate.

Things to remember

- Switch the mobile phone to silent mode
- Collect the signed consent form
- Get approval to record the interview
- Assure participant that all responses will be confidential
- Start interview and audio recording simultaneously and take notes
- Observe the participant for non-verbal body language and gestures
- Collect detailed responses to the interview questions
- Not to interrupt the participants and to carefully listen what they are saying (active listening)
- Ask follow-up probing questions to get more in-depth information.

After the Interview

I will let the participants know that they will receive a copy of the transcribed interpretation of the audio recording by email. The participants will need to review the document for accuracy, give feedback, and then sign the document, and return it. Thank the participant(s) for taking their time to participate in the study. Give participants contact numbers in case they have follow up questions and concerns