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Effective Strategies for Improving Supply Chains' Resilience and Cost Effectiveness

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Walden University
2024

Abstract

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Felix L. Fidelibus

MS, Nova Southeastern University, 1993

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Consulting Capstone Study Submitted in Partial Fulfillment

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Abstract

Supply chain disruption is a longstanding issue for consumers and organizational leaders since it impedes the delivery of critical services. When business leaders lack effective strategies to improve supply chain resiliency and sustainability, the organization's ability to remain operational is impacted. Grounded in Freeman's stakeholder theory and the Baldrige Excellence Performance Framework, the purpose of this qualitative case study was to explore strategies used by five supply chain business leaders of a public water utility located in the southern region of the United States to enhance raw material supply chain resilience. Data collection included semi-structured interviews, internal documents, and external sources. Data were analyzed using thematic analysis. Six key themes emerged: stakeholder relationship building, supplier evaluation, vendor performance, strategic planning, adherence to standards and regulations, and technological integration. A key recommendation is for public utility business leaders to undertake proactive risk assessments and use supplier diversification. The implications for positive social change include the potential for business leaders in the utility industry to foster social equity, environmental sustainability, community engagement, and economic development.

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Acknowledgments

Nothing in this world can take the place of persistence. Talent will not: nothing is more common than unsuccessful men with talent. Genius will not; unrewarded genius is almost a proverb. Education will not: the world is full of educated derelicts. Persistence and determination alone are omnipotent.

—Calvin Coolidge, Insurance Sun, 1902

I want to start by thanking God, the creator of life, who provided me with the strength and courage to complete this doctoral journey. Dr. Rocky Dwyer, thank you for supporting me in the Walden University Doctor of Business Administration program. Thanks to Drs. Bridget Dewees, Denise Land, and Al Endres, and all the residency faculty, for their hard work and dedication to my success.

Table of Contents

List of Tables

List of Figures

Section 1: Foundation of the Study

In this study, I used the 2023–2024 Baldrige Performance Excellence Framework and Freeman's stakeholder theory to explore how some supply chain business leaders lack effective strategies to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve their organizational mission. Per the guidelines for the Walden University consulting capstone (Walden, 2023), I served as both researcher and consultant to an assigned a client organization located in the mid-southeastern United States. The client leader and I identified a business problem that the organization needed to resolve. I subsequently engaged in a comprehensive analysis and synthesis of the academic literature and completed an assessment of the organization using the Baldrige Performance Excellence Framework.

Background of the Problem

Supply chain disruption is a longstanding issue; the background of the disruption is rooted in organizations as essential service providers. Critical services such as electricity, gas, water, and sanitation, which are essential for daily life, public health, and safety, are provided by certain companies (Nieponice, 2017). However, these services are often rendered through complex and interconnected supply chains that are vulnerable to disruptions. Natural disasters, such as hurricanes, earthquakes, and floods, can damage infrastructure and disrupt supply chains, for instance (Schmidt et al., 2020). Additionally, cyberattacks, terrorist attacks, and other security breaches have become significant concerns for public companies in recent years (Schmidt et al., 2020). Supply chain disruptions can also occur due to internal factors such as equipment failures, supply chain

management issues, and inadequate contingency planning. These disruptions can lead to service interruptions, delays, and increased costs, which can have significant economic and social consequences (McGahan, 2021). Research is needed to document the causes of the problem and identify strategies that leaders can use to mitigate supply chain risk.

Problem Statement

Supply chain disruptions and the risks that result from such disruptions are a major problem within the international marketplace (Hamidu et al., 2023). The manufacturing and selling of goods face exposure to the effects of disruption, and supply chain leaders must understand and deploy strategies to mitigate these problems and find solutions for continued resilience (Rutitis et al., 2022). For organizations to remain competitive, their leaders must obtain a cost-efficient, responsive, and flexible supply chain to deliver products with high quality at the right time and place (Halmai, 2022). The general business problem was that some business leaders lack effective strategies to improve supply chain resiliency and sustainability in a cost-effective manner to remain operational. The specific business problem was that some supply chain business leaders lack effective strategies to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve their organizational mission.

Purpose Statement

The purpose of this qualitative single-case study was to explore strategies that business leaders use to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve their organizational mission. The population for this study was comprised of five leaders of an organization located in the

Southern region of the United States. The potential for societal transformation is relevant to organizations and consumers. Organizational leaders can potentially use the results to lower service costs, making services more affordable for consumers and improving service accessibility and quality, leading to a higher standard of living. Consumers in lower income households may benefit by having lower service costs and better availability of services, which in turn may provide an improved standard of living (Pierce et.al., 2020).

Nature of the Study

The research method that I chose for this study was a qualitative single-case study because it provided a dynamic approach to explore the experiences that participants had encountered in implementing successful strategies related to sustainability. The qualitative research method is also more flexible than other methods and allows greater interaction between the researcher and the participants (Aspers & Corte, 2019). It was not my intention to test a hypothesis or to examine variables to identify causal inferences, or test a theory; therefore, the quantitative methodology was not appropriate for this study. Mixed-methods research includes a combination of quantitative and qualitative research techniques to answer a research question (Saunders et al., 2019). Because I did not examine statistical inferences, a mixed-methods research methodology was not appropriate for my study.

I considered phenomenology, ethnography, and case study research designs. In qualitative case studies, researchers focus on the "what," "why," and "how" of a business problem (Yin, 2018). I chose a single-case study design to explore supply chain

disruption that may affect an organization. The case study was an appropriate method to use because it enabled me to gain an understanding of a particular phenomenon, which is an approach advocated by Stake (1995). Phenomenology is a reflective approach used by researchers to explore human emotions, and ethnography is a strategy to depict and interpret individuals' behavior within a social context (Neubauer et al., 2019). As Saunders et al. (2019) noted, both ethnography and phenomenology designs are used to understand a social or cultural context and comprehend a group's behavior or describe participants' experiences. Because an understanding of participants' lived experiences would not have provided insight on their implementation of successful strategies related to supply chain sustainability, they were not appropriate for this study. In addition, I did not incorporate a multiple-case study research design for my consulting capstone study; the reason is that I was assigned a single entity by my program to use as the target organization. For this reason, a single-case study design was therefore an appropriate design for the purpose of this study.

Research Question

The research question for this study was, what strategies do supply chain business leaders use to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve their organizational mission?

Interview Questions

To answer the research question, I posed the following interview questions to participants:

1. How do you identify and categorize the raw materials critical to your production process? How do you currently assess the resiliency of your supply chain for these materials?

2. What are the main challenges you have encountered in your raw material supply chain in terms of disruptions or vulnerabilities? How have these challenges impacted your operations and sustainability goals?

3. Please provide examples of instances where your raw material supply chain faced disruptions? How did your organization respond to these disruptions while considering both cost-effectiveness and sustainability?

4. What data-driven approaches or tools do you use to monitor and predict potential supply chain disruptions related to raw materials? How do these insights inform your decision-making process?

5. Are there any partnerships or collaborations with suppliers that you have established to enhance supply chain resiliency? How do you ensure that these collaborations align with your mission and sustainability objectives?

6. How do you evaluate the total cost of ownership when considering raw material suppliers? What factors beyond initial costs do you consider ensuring a cost-effective yet resilient supply chain?

7. Can you discuss any initiatives you have implemented to optimize inventory management of critical raw materials? How do these initiatives contribute to maintaining a balance between resilience, cost, and sustainability?

8. Are there any specific technological advancements or innovations you have explored to enhance raw material supply chain resiliency? How do these innovations align with your company's long-term mission and sustainability goals?

9. What metrics or key performance indicators (KPIs) do you use to measure the success of your efforts in improving raw material supply chain resiliency? How do you measure the success of your efforts in improving raw material supply chain resiliency? How do you ensure these KPIs reflect both cost-effectiveness and sustainability considerations?

10. How do you determine and assess the effectiveness of your business strategy to remain resilient to support an organizational recovery from the effects of a crisis?

11. Is there any additional information regarding effective strategies for mitigating supply chain disruptions that you would like to add?

The interview questions are also included in Appendix A.

Conceptual Framework

The conceptual framework that I used in this study was Edward Freeman's stakeholder theory. Freeman (1984) proposed that organizational leaders should identify and engage with their stakeholders, understand their needs and interests, and consider them in their decision-making processes. Freeman's stakeholder framework provides detailed guidance, tools, and templates to support (a) planning, (b) designing, (c) undertaking, and (d) evaluating stakeholder activities while considering the interests of

all stakeholders. Using Freeman's stakeholder theory as the conceptual lens for my study enabled me to obtain an in-depth exploration of the relationships between organizational leaders and their stakeholders. It provided a structured framework to identify and analyze the various stakeholders involved and their expectations, and the influence they had on the organization's decision-making processes. Furthermore, Freeman emphasized the importance of ethical principles. In this single-case study, I was able to obtain relevant data to identify (a) areas where the organizational leadership was not meeting its ethical obligations and (b) strategies that leadership could potentially use to improve stakeholder relationships and overall organizational performance.

I used the Baldrige Performance Excellence Framework as an assessment tool. The Framework is based on a comprehensive approach that stresses systematic management, continuous improvement, and reengineering as the vehicles to organizational success (Baldrige, 2023). This framework combines elements of total quality management, with KPIs applied within different domains in the organization as a whole (Heng et al., 2022). By using this framework, leaders can plan and implement strategies that are consistent with their organization's mission, vision, and values (MVV). The framework consists of several interconnected components: (a) leadership commitment to excellence; (b) strategic planning processes that are data-driven and focused on long-term goals; (c) customer and stakeholder engagement to understand and meet their needs; (d) measurement, analysis, and knowledge management to track performance and drive improvements; (e) workforce engagement to ensure that employee skills and motivation align with organizational objectives; (f) process management to

optimize and innovate operational processes; and (g) results-focused evaluation, emphasizing not only financial outcomes but also customer satisfaction, workforce engagement, and social responsibility (Baldrige Performance Excellence Program, 2023). This thorough approach requires that all facets of effectiveness be examined and improved for the best results.

The Baldrige Performance Excellence Framework is an important tool for analyzing and formulating effective strategies to enhance supply chains. The framework offers an integrated approach with several dimensions. It provides possibilities for organizational leaders to enhance their supply chain resilience and simultaneously maintain the affordability of costs incurred. Focusing on these key points, this study may provide useful findings about how to build supply chains that can withstand disruptions and maintain competitiveness. In particular, this framework fit easily with the objectives of the study and allowed me to explore in a systematic way how these factors mesh together so as to influence supply chain performance.

Operational Definitions

Baldrige Excellence Framework: A framework developed by the National Institute of Standards and Technology, to assist business leaders to achieve performance, excellence, and improved organizational effectiveness (Baldrige Performance Excellence Program, 2023).

Enterprise risk management: A framework that is designed to help establish a consistent risk management culture, regardless of employee turnover or industry standards, by guiding risk management functions, managing complexity, visualizing risk,

assigning ownership, and defining responsibility for assessing and monitoring risk

controls (Marker, 2021).

Organizational sustainability: The ability of an organization to enhance the

societal, environmental, and economic system in which it operates to withstand

immediate drawbacks and achieve strategic goals (DeSmet et al., 2021).

Assumptions, Limitations, and Delimitations

Assumptions, limitations, and delimitations are important components of research

studies that help clarify the scope and boundaries of the investigation (P. T. Ross &

Bibler Zaidi, 2019). Discussion of assumptions, limitations, and delimitations can provide

a transparent and accurate representation of the research process and allow researchers to

acknowledge the inherent uncertainties, constraints, and choices made in the study. This

can ensure that readers can critically evaluate the findings and interpret them

appropriately (J. L. Johnson et al., 2020).

Assumptions

Assumptions are the underlying beliefs or conditions researchers make to conduct

their study and establish the underlying research design and methodology (J. L. Johnson

et al., 2020). In this study, I had five assumptions. First, I assumed that the client

stakeholders of the client organization would answer all questions truthfully and without

bias. Second, I assumed that the information provided to me by my client leader was

accurate and updated and provided a clear understanding of the client organization and its

operational procedures and processes. Third, I assumed that the single-case study design

was appropriate for this study. Fourth, I assumed that the results of my research would

enable me to craft a comprehensive synopsis of the measurement, analysis, and understanding of the client organization, employing the 2023–2024 Baldrige Performance Excellence Framework. Fifth, I assumed that the results of this study would provide a strategic benefit to the client organization to mitigate the problems associated with a future supply chain disruption.

Limitations

Limitations refer to the factors or constraints that may affect the research study and affect the interpretation of the results. These factors or constraints include the research methodology, design, sample size, data collection techniques, resources, or time issues (J. L. Johnson et al., 2020). The following are the limitations for this study. First, the use of a single-case study designs means that the results are not generalizable to a wider population. Second, the study was limited to a single entity within a specialized industry. Third, there was a lack of previous studies in the research area that are specialized to a public water utility so there were limited research data available for comparison. Fourth, this study was limited by the use of the Walden University consulting capstone requirements and the use of 2023–2024 Baldrige Excellence Framework.

Delimitations

Delimitations refer to the specific boundaries or exclusions set by researchers to narrow the focus of their study. Such boundaries help to define what aspects of the research topic are included or excluded from the investigation (J. L. Johnson et al., 2020). The scope or boundaries of this qualitative single-case study was a specific industry in

the public sector located in the mid-southeastern United States. Further delimitations in this study include the use of the Baldrige Excellence Framework, the specific research question, the chosen conceptual framework, and the data presented in the literature review. Also, the study was further delimited due to the application of the Walden University consulting capstone process and procedures to explore a specific industry within the public sector and within a specific geographical area.

<div align="center">**Significance of the Study**</div>

Contribution to Business Practice

The results of this study may provide strategies for organizational leaders aiming to enhance their raw material supply chain resiliency in a cost-effective manner, thereby supporting sustainability and facilitating the achievement of their operational mission (see Barman et al., 2021). Supply chain strategies such as supplier diversification and adopting digital technology for increased visibility and speed of response have been shown to increase resilience and reduce costs (Ivanov, 2020). By examining these strategies, I sought to provide some useful pointers on how to balance operational efficiency with risk reduction. In addition, by putting these strategies into effect manufacturers can potentially build more robust supply chains, which are the key to maintaining a competitive position and customer satisfaction in today's market (Magableh, 2021). Therefore, implementation of the strategies identified in this research may improve supply chain resilience and financial sustainability by providing practical strategies and contributing to the success of business practice.

Implications for Social Change

The results of this study may offer strategies that organizational leaders can leverage, potentially translating lower costs for services to benefit consumers and fostering social change. Minimizing supply chain disruptions would have positive consequences for lower income consumers, as it would enhance the accessibility and affordability of goods and services, thus potentially elevating their standard of living (Carolan, 2021). Increasing supply chain efficiency may generate other economic benefits, such as relieving cost burdens for consumers squeezed by debt and potentially aiding poverty reduction (M. U. Shah & Bookbinder, 2022). These outcomes can have a potentially positive impact on social conditions, by making services more affordable, which can further community welfare and fairer growth (P. F. Johnson & Klassen, 2022). Therefore, these findings could provide information that might bring improvements to people's lives, perhaps particularly so for people who have lower incomes.

<div align="center">

A Review of the Professional and Academic Literature

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In this qualitative single-case study, I explored the strategies supply chain business leaders use to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve their organization mission. The targeted population consisted of four C-suite leaders of a public utility company, and my client leader, located in the mid-southeastern United States who were responsible for implementing strategies to support the effectiveness of supply chain mitigation. This study may effect positive social change by identifying strategies that organizational

leaders can use to achieve sustainability during a crisis. These efforts may provide uninterrupted services to local communities' employment opportunities for residents.

The objectives of the literature review are to provide an in-depth analysis and synthesis of existing academic sources that pertain to this study's subject matter. Chapter 2 will follow an organized structure. The first section will focus on the literature search strategy, highlighting the measures I used to acquire the necessary peer-reviewed publications for the narrative review. The second section will consist of an exhaustive and in-depth analysis of the chosen theoretical framework, in addition to the justification for its implementation. The third main section features the literature review, which focuses on a clear discussion and synthesis of sources used for the study. Finally, I summarized and further synthesized the literature review's key findings and patterns. A brief and descriptive transition to Chapter 3 will follow.

Literature Search Strategy

I employed different strategies to acquire the academic materials necessary for the literature review. I searched several academic databases, search engines, and repositories, which I accessed via Walden University Library and the web, to find peer-reviewed texts. These resources included Google Scholar, Academia.edu, Elsevier, Taylor & Francis Online, ResearchGate, PubMed, Scopus, Web of Science, ProQuest (Scholarly Journals), JSTOR, and ScienceDirect. The literature review sources range from 2019 to 2023, with the exception of two sources related to Freeman's stakeholder theory from 1984 and 2004, respectively, to ensure relevancy and research currency within the literature review. Peer-reviewed works and journals cited in the literature review that are older than 2018

consist of the historical aspect of the literature and research related to the conceptual framework seminal theories and conferences.

The literature search for this study generated 116 peer-reviewed sources, including works older than 2019 and works published between 2019 and 2023. The total percentage of sources published before 2019 was 10.3% ($n = 12$), whereas the percentage of sources published between 2020 and 2023 was 89.7% ($n = 104$), as shown in Appendix B. That most studies in the literature review were published from 2020 to 2023 shows the ongoing relevance and evolving nature of the research topic. The inclusion of older studies was important for a comprehensive understanding of the topic's historical context and development. The historical research published prior to 2018 engaged with Freeman's stakeholder theory, which emerged before that date. This blend ensured a balanced perspective, acknowledging foundational work while capturing the latest advancements and trends. I used the following keywords to find relevant literature: *supply chain model*, *supply chain efficacy*, *supply chain sustainability*, *supply chain resiliency*, *resilience in supply industries*, *supply chain during crisis*, *supply chain resilience COVID-19*, *supply chain disruptions*, *supply chain in emergencies*, *supply chain in war*, *supply chain disruptions*, *sustainable supply shipping*, *risk assessment supply chain*, *emergency responses*, *strategic management*, *stakeholder*, *approach*, *disruption management*, *supply chain management*, *utility supply chains*, *utility industry*, *resilience in public utilities*, *sustainable public utilities*, *public utility cost management*, *energy supply chain sustainability*, *water supply chain sustainability*, and *supply chain management*.

Conceptual Framework: Stakeholder Theory

I used Freeman's (1984) stakeholder theory because of its pertinence to identifying and engaging with stakeholders, understanding their needs and interests, and considering them in decision-making. This theory provides a structured framework for analyzing stakeholder relationships and expectations, as well as assessing leadership's ethical obligations and improving organizational performance.

Historical Evolution of Stakeholder Theory

The conceptual framework chosen for this study was Freeman's stakeholder theory, which focuses on the dynamics of strategic management and stakeholders Freeman (1984) defined stakeholders as individuals or groups who can affect or are affected by the firm's actions. Freeman further affirmed that firm leaders should prioritize the interests of their stakeholders rather than just those of shareholders. Freeman's stakeholder theory is relevant to this study because it outlines a framework for stakeholder analysis that can assist with the identification and management of ethical and strategic issues. Stakeholder theory has continued to evolve over the years, as evident in Freeman's more recent work (e.g., Freeman et al., 2021).

Modern Interpretations and Applications

Freeman revisited his 1984 stakeholder theory in 2004 and suggested that the stakeholder theory had attained traction over the years and that it assisted a firm's leadership with the creation of long-term value by considering the interests of relevant supply chain stakeholders in strategic management. Freeman (2010) further stressed the need for a pragmatic approach to stakeholder management that balanced the interests of

different stakeholders and considered the broader societal implications of business

decisions. Since Freeman developed stakeholder theory in the early 1980s, other

researchers have examined its efficacy and implications within the current era, especially

in the post-pandemic context (Freeman et al., 2021). For example, M. U. Shah and

Bookbinder (2022) used Freeman's stakeholder theory as the framework for their

literature review to identify challenges and risks that impede business leaders from

developing sustainable supply chains and circular systems. The empowerment of

organizational life cycle stages was a key factor that M. U. Shah and Bookbinder

considered when identifying trends in literature that identified the benefactors and

detriments found with strategic management chains. As well, Kayikci et al. (2022) used

the stakeholder theory for their analysis of drivers for a smart sustainable circular supply

chain. The researchers attributed the development of a sustainable circular supply chain

to the stakeholder's principle of considering the opinions and insights of different

stakeholders. M. U. Shah and Bookbinder considered the different types of stakeholders

who would either contribute or be detrimental to a supply chain initiative whereas

Kayikci et al. considered the importance of specific opinions. Both M. U. Shah and

Bookbinder and Kayikci et al. attributed the opinions of relevant stakeholders as crucial

aspects to feedback, vis-à-vis strategic chain leadership management.

Stakeholder Theory in the Context of Supply Chain Disruptions

Some researchers have examined the stakeholder theory from the perspective of

supply chain disruptions that affect transport in various industries. Ashrafi et al. (2020)

carried out a study focused on driving factors of corporate sustainability practices in

maritime ports. Ashrafi et al. explored the contributing factors of sustainability in maritime ports from a multistakeholder perspective. Ashrafi et al. noted that maritime ports serve as a mechanism for aligning the interests of relevant stakeholders. These stakeholders include terminal operators, vessel operators, railways, trucking companies, industry associations, communities, government agencies, and representatives of marginalized and Indigenous groups. Furthermore, Ashrafi et.al. highlighted that local community residents possess the capacity to apply social pressure, thereby influencing decisions that could potentially impact environmental degradation. They also underscored the unequal influence of different stakeholders on maritime ports, stemming from their varying abilities to sway the decisions made by managerial authorities. The key implications from Ashrafi et al.'s research are that there are different factors that affect stakeholders' interests and that there may be conflict between and within the various groups and members.

Stakeholders represent a variety of motivations and incentives. Ashrafi et al. (2020) examined the dynamic of stakeholder theory from the perspective of factors that may contribute to or hinder the efforts of transport or maritime ports. For example, leaders of trucking or railway companies, vessel operators, and other state-related figures are key stakeholders because they have the ability to impact the flow of transport and maritime port operations. They are stakeholders according to Freeman's (1984) theory because they have the ability to impact the flow of transport and maritime port operations.

Stoelhorst (2021) provided another perspective that concentrated on the value, rent, and profit of a given stakeholder while considering the role played by shareholders. Stoelhorst inquired as to the means that firms could generate a profit through the creation of a stakeholder resource-based theory framework centered around a team used as a sample. Stoelhorst described their idea of a stakeholder resource-based theory as one based on the resource philosophy, which views inconsistencies between theoretical models that focus on profit generation and the appropriation of funds. A resource-based insight could be interpreted as there are no rational actors that submit to governance infrastructure. Furthermore, Stoelhorst emphasized the significance of competitive bargaining in profit generation and appropriation, where multiple actors behave and make decisions on the basis of their own stakes. Stoelhorst considered the multilateral and dynamic aspects of the stakeholder perspective, where not only do stakeholders play a role but so do the surrounding aspects like law, governance, information, and business law.

Although rational actors are the most pivotal aspects of engaging in stakeholder discourse and dealings, there are important elements in the environment setting to consider, as outlined by Stoelhorst and Ashrafi et al.. Stoelhorst (2021) perceived stakeholders as rational actors who act based on profit and on the interests of both stakeholders and shareholders. In contrast, Ashrafi et al. (2020) outlined the different tiers of interactions between various stakeholders, who originate from a range of different fields such as transportation, logistics, organization, and government-related agencies. Both Stoelhorst and Ashrafi et al. considered the dynamic of the stakeholder to not only

be a rational one, but also a dynamic type of entity that considers what they have in stake regarding profits, gains, shares, and productivity. Although neither Stoelhorst nor Ashrafi et al. provided an in-depth analysis on what supply chain disruptions mean for differing stakeholders, both publications merited inclusion in the discussion of the theoretical framework because of the insight they provided on what stakeholders in different firms and entities do from a theoretical perspective.

Theoretical Debates and Tensions in Stakeholder Theory

Although stakeholder theory has its utility in different fields including financial, logistic, and business-related research, there are examples of some authors who have put into question its overall utility as a key framework. The implementation of stakeholder theory became a field of debate and discourse in the field of business and societal intersections (Barney & Harrison, 2020). The writers analyzed the meetings of scholars across a 2-year period to ascertain and discuss a list of tensions that were brought up during the bulk of their discussions. The discussions involved debates and discussions that surfaced whether the stakeholder perspective could be considered a theory at all (Barney & Harrison, 2020). Barney and Harrison (2020), in their research highlighted that Freeman and his colleagues indicated that the term theory was only used to elevate a variety of concepts and ideas from a more advantageous position. Barney and Harrison (2020) identified what was defined as the theoretical aspects of the stakeholder theory and categorized it into three elements: description of human actors who cooperate and engage in value creation, alignment of values, norms, and ethics as means of producing both efficient and effective flourishing within and among organizations; and

encompassing a worldview of business reflecting an elevated state of consciousness regarding short- and long-term societal effects.

The implications behind this are that the stakeholder perspective as a framework is less so a theoretical or hypothetical discipline, and more so a series of different concepts and principles that form the norms and ethical aspects of the business (Barney & Harrison, 2020). The authors further insinuate that the key elements that entail the stakeholder tradition are less so an innovative perspective or theoretical foundation that is made to innovate but instead, is considered the culmination of different disciplines and business philosophies that form what Barney and Harrison (2020) considered are mechanisms that have the ability to formulate both short-term and long-term elements in the field of stakeholder and supply chains. Barney and Harrison (2020) did not extensively cover the theoretical traditions of stakeholder theory from the perspective of supply chain disruptions. However, what Barney and Harrison (2020) outlined are some of the aspects of what is defined as *tensions* of the stakeholder theory. In the publication, stakeholder theory discussions' tensions were described as the following ways for different stakeholders to expose differently participant tensions and a constructive discussion on how research-related conflicts of interest are addressed through newly developed research projects. Barney and Harrison (2020) sought to propose a new research-related framework during the two-day Strategic Management Society conference extension in Zürich, Switzerland, in September of 2016.

Dynamics of Stakeholder Engagement and Tensions

Barney and Harrison (2020) inferred that tensions in research originated mostly from conflicts between different scholars as to what specifically defined improvements for the dynamics of stakeholder theory-related research. Freeman et al. (2020) further discussed some of the tensions that were found in how stakeholder theory was perceived. Freeman et al. (2020), stated that some of the tensions that were perceived in the field of stakeholder theory discourse were described as the following in response to whether it was a theory or a perspective: whether stakeholder theory could be considered a pivotal theoretical element was rooted from its inception and that there were assumptions on whether the theoretical foundations were immune from criticism or challenges and the discourse that surrounded it.

Another point highlighted by Freeman et al. (2020) was the question of whether stakeholder management revolved around the satisfaction of stakeholders or treating them as joint partners. Freeman et al. (2020) mentioned that in a post-Porter world, which was defined as one where suppliers and customers were seen as detriments to successful competition, did tensions vis-à-vis stakeholder theory have some sense. Freeman et al. (2020) also noted that there was an existing tension regarding competition and cooperation regarding the discussion of what defined stakeholder theory.

Third, Freeman et al. (2020) questioned whether the stakeholder tradition needed to be focused more on creation value for the firm's stakeholders or value for the firm itself, in which he stated that in an SM scholarship we all understand and agree on just what the firm is and that answering this question is of vital importance to SM due to the

implications for the question of competition and cooperation. An SM approach is inextricably linked with a profit maximization mind-set. The authors also stated that in the process of solving certain kinds of performance problems, this mind-set will create additional potentially larger problems.

The implications presented by Freeman et al. (2020) and the context of tension in the aspects of stakeholder management theory focused on whether it could be considered a theoretical foundation or a concept. Furthermore, Freeman et al. (2020) also questioned whether there was some kind of tension between cooperation and competition. Stakeholders are often defined as a party that would benefit from any given kind of technical relationship, as highlighted by Freeman et al. (2020). However, the authors also called to question whether partnership or competition played a much more pivotal role in relation to stakeholder management. In addition, Freeman et al. (2020) posed a perspective, which questioned whether the satisfaction of stakeholders or the facilitation of healthy competition between them was considered the most pivotal and significant. Other authors in the field have also provided their input and perspective on what defines tensions in the stakeholder theory.

In a more recent publication, Freeman et al. (2021) provided another perspective that focused on resource-based perspective of the firm regarding different tensions. Freeman et al. shared that there are some similarities between the resource-based view of the firm and stakeholder theory. Freeman et al. discussed the origins of both resource-based perspectives and then ascertained what led to their different developmental trajectories. Freeman et al. further argued that in its current form, the resource-based view

had aspects that were considered incomplete. Freeman et al. stated that tensions between competition and cooperation were some of the key challenges that revolved around strategic management because managers desire to see their organizations succeed while sacrificing prospective cooperation in favor of gaining the upper hand against others. The inferences made by Freeman et al. are that cooperation is pivotal in the field of strategic management and that competition has outdated practices in understanding the dynamics of firms and resources from a stakeholder perspective.

Tensions in stakeholder thinking may come from the perspective of whether there is some form of conflict between inter-stakeholder relations. P. F. Johnson and Klassen (2022) carried out their study because of the presence of sector spending, which embodied an important portion of gross domestic product in most countries. The authors highlighted that sector spending had some promise to advance calls in improving the sustainability of goods and services that were provided through supply chain partners in the conditions that multiple objectives could be reconciled. P.F. Johnson and Klassen also briefly discussed what entailed some of the elements that focused on stakeholder theory tension. They explored the theory that there are differences between stakeholders and that relying on an internal-external characterization of stakeholders, overlooks an important pathway for public sector organizations to potentially reconcile inter-stakeholder tensions, which can also improve good participatory practice. The authors stated that stakeholder groups might either fuel further tension as they imperfectly represent multiple stakeholder groups, or diffuse differences as they negotiate reasonable compromises and improve collective understanding across all stakeholder groups.

P. F. Johnson and Klassen (2022) inferred that internal-external stakeholder character was not as crucial for public sectors organizational pathways, instead inferring that bridging and connecting different types of stakeholders through the employment of mediators within the industry were more pivotal compared to the idea of being able to reconcile tensions. P. F. Johnson and Klassen stressed the importance of compromise, as opposed to the perspective that Freeman et al. (2020) provided, which focused on stakeholders as subjects of either satisfaction or a means to facilitate better cooperation amidst each other. P. F. Johnson and Klassen provided a more novel approach to the stakeholder theory's point of contentions, treating stakeholders not just as key persons whose needs needed to be satisfied or as key subjects of cooperation but rather, as equals within the field of compromise and negotiation.

Stakeholder Theory in Practice: Case Studies and Applications

There are other examples of perspectives from authors that focus on the sustainability of different stakeholders. Govindan et al. (2021) offered a differing perspective that focused more on social sustainability tensions regarding the stakeholder theory. Govindan et al. (2021) noted that there were numerous unethical practices and violations of social norms that originated from higher-tier suppliers and their respective sub-suppliers. It was of pivotal importance to ensure social sustainability for most of the supply chain (Govindan et al., 2021). The publication by Govindan et al. (2021) consisted of a literature review that performed an analysis of 129 research papers that were published in various journals to ascertain the drivers, issues, barriers, practices, and tensions that were linked to the social sustainability vis-à-vis stakeholders. Govindan et

al. (2021) noted that supplies were usually pressured to lower costs so that orders were secured while practicing social management aspects, which created friction between buyers and suppliers.

Govindan et al. (2021) also added that tensions also come from suppliers' inability to fulfill the buyers, code of conduct, which may lead to a termination of business relations. If there is mistrust among the buyers and their suppliers, this would amount to psychological tension and suppliers feel that they are forced to measure, monitor, and report sustainability indicators that are not relevant for their own business (Govindan et al., 2021).

Stakeholder Engagement and Negotiation Dynamics

Govindan et al. (2021) inferred from their literature review that some of the tensions they noticed were tied not only to interpersonal relationships but also the knowledge that stakeholders have when it comes to engaging and creating negotiations with other stakeholders. Govindan et al. (2021) alongside P. F. Johnson and Klassen (2022) both approached the problem regarding stakeholder theory and negotiation from the perspective of engagement and the dynamic of whether both parties could cultivate mutually beneficial relationships and business connections. Govindan et al. (2021) and P. F. Johnson and Klassen considered the importance of several elements: negotiation, compromise, relationships, and contextual background knowledge regarding stakeholders who come from different countries or unique international contexts. Both sets of researchers offered a perspective that focused on stakeholders as entities that not only

needed to be appeased but also had to be treated as direct equals within the field of business.

Community Benefits and Stakeholder Conflicts

In other series of publications, the authors focused on what entailed the tensions between varying stakeholders from the perspective of differing tradeoffs and community benefits. The authors employed the use of focus groups interviews among a sample of public sector buyers based in Wales (Wontner et al., 2020). The central focus of the research was that the authors highlighted the challenges regarding the implementation of community benefits (CBs), defined as a sustainable public procurement policy made to ensure positive and social outcomes for local communities when public expenditure is allocated to goods, labor and, services (Wontner et al., 2020). With regard to tensions, Wontner et al. (2020) presented data, which highlighted that public sector bodies needed to balance a range of external and organizational demands that complied with legislative rules in the fields of goods and services. Most public sector participants in the study reported that views of legal risks or challenges had the potential to inhibit community benefit implementations because of risk management perceptions (Wontner et al., 2020).

The tensions that are highlighted by Wontner et al. (2020) in this instance focused on the role played by public sector organizations as a key stakeholder, in addition facilitating others to implement and participate in CBs. The participant in the quote by Wontner et al. (2020) indicated that governmental stakeholders may hinder the goals of public sector buyers. So, while stakeholders have the potential to act as beneficiaries to other parties, they also hold detrimental disadvantages that may prove to be problematic

for other stakeholders within organizations. The implications regarding the theoretical

framework are that stakeholders are a multi-dimensional facet. Even if the interests of the

stakeholders can be met, there still may be conflicts of interest.

Configurational Perspectives in Stakeholder Engagement

Similar to the study by Wontner et al. (2020), another example of a publications

that explored the role played by conflicts of interest vis-à-vis the field of stakeholder

theory and its implications as the study's chosen theoretical framework can be found in

Gupta et al. (2020) who focused on examining the engagement strategies, national

institutions, and firm performance of from a configurational and stakeholder performance

perspective. Gupta et al. (2020) advanced what they considered to be a configurational

perspective through the development of a model aimed at further enhancing the interests

or conflicts of interests among stakeholders. Regarding the tensions between different

stakeholders, Gupta et al. (2020) found that competing interests had the ability to

generate tensions between labor and capital and that market-driven and coordinated

institution had to allocate which goes where vis-à-vis stakeholders to ensure mutual

cooperation and satisfaction of all stakeholders involved. For example, McGahan (2021)

explored and integrated insights from a resource-based perspective of firms into a new

variant of the stakeholder theory. McGahan (2021) considered this the emergence of a

much more powerful stakeholder theory that could provide novel and precise means of

understanding the desires of different stakeholders. McGahan (2021), explored the theory

that any tension that is not fully understood, exists between the constraints on the firm in

enacting value along a technological trajectory, the creativity of human stakeholders in

creating and deploying strategic resources, and the ways in which the evolution of organization structure drives firms to exploit external resources unsustainably.

McGahan (2021) noted the tension lies in stakeholders' interest vis-à-vis the creation of different strategies and the means that they may utilize existing resources. In comparison, Gupta et al. (2020) viewed that the competing interests of different strategies was less so focused on the utility of different resources but on the means of conflict between different aspects such as labor and capital. Both McGahan (2021) and Gupta et al. (2020) examined the stakeholder theory from a perspective that would be argued as something more deeply rooted in both resource and conflicts of interest. Conflict in accordance with the whims of stakeholders is defined more as the way that different parties engage with what they are currently allocated. McGahan (2021), with regard to defining governance in his new variant of the stakeholder theory, defined it as the resolution of commitment issues leading to internalized value-creating opportunities from an organizational perspective. McGahan (2021) noted that organizations needed to develop unique resources for both community stakeholders and cohesion in resource deployment.

The perspective offered by McGahan (2021) focused more on the dynamics of how different stakeholders organize themselves to create a cohesive system where different contributions and alliances can co-exist in the name of satisfying and fulfilling the interests of various stakeholders. The idea of stakeholders as posited by McGahan (2021) focused on corporate governance and a way to develop a mutual and cooperative system. Gupta et al. (2020) touched upon a similar subject, which focused on the

conflicts of interest between two entities within the same stakeholder entity. McGahan (2021) and Gupta et al. (2020) provided valuable insight in the further clarification and enhancement of what corporate governance and the facilitation of cooperation meant for stakeholders and the theory. Meeting the needs of different stakeholders is one aspect but the ability to understand other stakeholders and work within a similar framework mutually agreed upon by all parties is a key element.

The Role of Actors and Network Interests on Stakeholder Tensions

The tensions of stakeholder theory are also dependent on the different actors that play a role in any given corporate system, versus that of overall network interests. Kinder et al. (2019) published an article that was aimed at the examination of corporate eco-systems, alliances, and tensions from what they penned as an actor-network perspective. The authors of the study conducted a study on a sample comprised of 39 interviews, focused on the algorithm-based management exerted by digital gig platforms. Digital gig platforms contributed to information and power asymmetries that were problematic for the gig economy (Kinder et al., 2019). Even though the design of gig economy platforms could inhibit unbalanced relationships, Kinder et al. (2019) highlighted how freelancers and clients through the Upwork platform could leverage a network of alliances through external digital platforms to repossess a sense of displaced agency in the freelance sector. Kinder et al. (2019) outlined some of the tensions faced by freelancers, clients, and network actors as follows power asymmetry and information asymmetry in social media networks such as Upwork (Kinder et al., 2019). Power symmetry and asymmetry were

also reliant on how social media platforms opted to negotiate with their users, or in this context, the stakeholders (Kinder et al., 2019).

Kinder et al. (2019) framed freelancers as the key stakeholders who are faced with tensions and conflicts of interest that come in the form of a website's technical limitations and a network's inability to meet the need of the relevant stakeholders. In context of that study, Upwork as a platform is a vital network of interests that the freelance stakeholders of a website seek out negotiations and constructive dialogue as a means of ensuring that the platform's digital ecosystem survives and does not continue to hinder the survival of different content creators and freelance workers in the platform (Kinder et al., 2019). In another similar study the authors focused on how this dynamic could be applied and examined from the perspective of freelance workers and content creators as stakeholders within the social media website, Twitter.

Ravell (2023) conducted a study that focused on the controversial tweets of British author, J. K. Rowling, on the social media website, Twitter (now known as X). Ravell (2023) used his study to explore how users such as Rowling, who in the logic of Kinder et al. (2019), would be a stakeholder as a user of the website, engaged with her audience and other stakeholders through what many have criticized as transphobic posts. Ravell (2023) indicated the following regarding tensions amidst stakeholders: "Prosumer fan engagement is now being recognized as 'promotional labour' for brands and celebrities. However, as demonstrated by this hashtag, fans may withhold this labour and even anti-promote on social media when they disagree with these brands" (p. 22). Ravell (2023) noted in particular that consumers or fans of a brand or piece of media, which in

this context are the stakeholders, are liable to turn against brands or intellectual properties should it go against their principles. Ravell (2023) mentioned that the behavior of stakeholders if their relationship with a higher power in the chain can be damaging from a PR perspective. In the study, Ravell (2023) used the example of the hashtag usage, #ripjkrowling, when referring to community stakeholder criticisms towards what was perceived to be transphobic rhetoric from J. K. Rowling.

The Dynamics of Stakeholder Theory in Contemporary Perspectives

Ravell (2023) and Kinder et al. (2019) both examined the dynamic of the stakeholder from a non-commercial or non-corporate perspective. Ravell (2023) and Kinder et al. (2019) placed content creators or regular users as the forefront of the stakeholder relationship versus that of a network or key actor perspective. Ravell (2023) perceived responsibility as a key actor is to maintain positive relationships with the stakeholders on social media who continue to facilitate and promote the image of her brand. Whereas Ravell (2023), views Twitter as a network where both shareholders and stakeholders engage in different types of discourse. Although at first glance, the research of both Ravell (2023) and Kinder et al. (2019) may not fully resonate with the corporate perspective that the traditional stakeholder theory originated from, the authors of the two articles provide current researchers a better understanding on the continuously changing dynamic of the stakeholder and shareholder systems. The maintenance of relationships and public image that ensures the smooth operation of a key actor's reputation or the daily operations of any given social platform are key aspects to understand, especially when understanding the implications behind the evolving dynamic of the stakeholder

relationship. In the case of Ravell (2023), stakeholders do not even act as customers or buyers, they can represent themselves as opinionated individuals with a smartphone and social media app at hand.

Evolving Dynamics of Stakeholder Theory

The dynamic elements between stakeholder theory and the changing nature of tension in the theory continue to evolve, especially in academic publications that are focused on a sense of connectedness between different stakeholders. Crane (2020) explored stakeholder connectedness and the dynamics of trust between different parties in the context of managerial stakeholders attempting to categorize and prioritize different types of stakeholders in relation to limited resources. He emphasized the instrumentality of today's interconnected digital age and the implications that it brings to the ways that actors are capable of engaging with stakeholders in a manner that feels far closer than it did decades ago. Crane (2020) presented a conceptual model that would further facilitate the utility of stakeholder connectedness and its implications for either building or eroding the trust of stakeholders. Crane (2020), focused on stakeholder correctness, outlined that even though stakeholder connectedness was not a novel concept, there was scarce research that focused on fostering further connecters among stakeholders that also described some of the key mechanisms connected to them.

Stakeholder Connectedness and Digital Influence

The implications presented by Crane (2020) embody that stakeholder connectedness lacks refinement, especially in the ongoing digital age. Crane (2020) also criticized stakeholder theory in its current and dominant form, which is defined as the

preferential treatment of certain stakeholders over others. The perspective presented here

shares similarities with the works of both McGahan (2021) and Kinder et al. (2019), who

stressed the importance stakeholder management and relationships as a network that

needed continuous maintenance and a mutual sense of understanding and bond.

Traditional stakeholder theory assumes that the management of stakeholder balance is

focused on the idea of whether there are stakeholders who are worth engaging with more

than others. However, Crane (2020), McGahan (2021), and Kinder et al. (2019)

considered the significance of all stakeholders' vested interest in a business operation.

The stakeholder dynamic proposed focused on the idea that entities should not just seek

to satisfy or appease key stakeholders but rather facilitate in the generation of a system

that is beneficial to all stakeholders involved (Crane, 2020; Kinder et al., 2019;

McGahan, 2021). There are still numerous examples of academic publications that view

the conceptual and theoretical foundations of stakeholder theory from a more updated and

modernized perspective.

A better understanding of the stakeholder dynamic is pivotal, especially when

understanding what it means when conflicts of interest or supply chain disruptions occur

amidst different stakeholders and shareholders. Matos et al. (2020) focused on the

unanticipated outcomes, trade-offs, and tensions vis-a-vis sustainable operations and

supply chain management (OSCM). The publication was a literature review that outlined

different themes from academic publications and peer-reviewed journals as a means of

introducing key concepts, issues, and theoretical or conceptual perspectives that focus on

the stakeholder tradition. Matos et al. (2020) outlined the significance of stakeholder

publications resurfacing in 2019 and 2022, with 22 and 35 publications released in those years, respectively, as of when the article was being written. Matos et al. (2020) identified several themes and ideas from their literature review regarding tension, which stated that even though scholars were aware of attempts to improve particular supply chain parameters that may impact different sectors, there was less focus on how it could affect OSCM elements.

Challenges in Sustainable Operations and Supply Chain Management

Matos et al. (2020) implied that economic criteria are the key focus of tensions and compromises between different stakeholders. Matos et al. (2020) also highlighted the weaknesses of some studies when it came to social and environmental aspects. The findings of Matos et al. (2020) complimented Crane's (2020) findings in that research circa 2019 demonstrates a limitation of works that focus on social and environmental factors. The perspective introduced by Crane (2020) inquired a perspective on stakeholders that is less focused on satisfying key stakeholders and figures but rather on the facilitation of a productive system where different stakeholders and entities can cooperate and thrive productively. A growing pattern and trend of literature is beginning to emerge vis-à-vis the traditional aspects of the stakeholder tradition, which focuses primarily on the ability to not just appease or meet the criteria of stakeholder parties but to ensure the smooth and cooperative facilitation of decision-making frameworks between everyone involved.

Corporate Accountability and Stakeholder Reactions

The perspectives behind the stakeholder theory and how its dynamic has evolved over time also focused on the anticipated negative reactions from stakeholders, especially regarding the notion of accountability. Maon et al. (2019) explored what they considered to be the darker elements of stakeholder reaction when corporate accountability is played out. Maon et al. (2019) employed a literature review that delineated an integrated framework illustrating the adverse consequences of corporate social responsibility (CSR) and its inadvertent negative impact on internal and external stakeholders. Maon et al. (2019) identified the themes through the analysis of existing works in their literature review, which included the view that consumers-maintained connections with CSR and different brands in their minds, which had the potential to greatly affect consumer habits.

The themes identified by Maon et al. (2019) regarding brand association and positioning have some similarities to the study by Ravell (2023), who focused on Rowling's reputation and actions as a point of contention. However, Ravell (2023) in his work did not consider whether Rowling was willing to take accountability for her posts on social media but instead focused on how willing stakeholders, or in the context of Maon et al. (2019), consumers were willing to maintain associations between a brand and a specific action tied to CSR. Maon et al. (2019) viewed the stakeholder dynamic not as simply appeasing the stakeholder but rather as the responsibility of a company to maintain a clean image to mitigate potential consequences in the event of a backlash event when CSR-related actions occur. Maon et al. (2019) further added to their study by highlighting that stakeholders may strike back against a brand for a perceived

infrastructure to their reputation due to something they coined as belonging tensions, such as questions of identity and issues that arise among stakeholders who strive for self-expression or group affiliation. Maon et al. (2019) further stated that these conflicts can become prominent, particularly when individuals face conflicting or incongruous expectations related to their identity. This led to contradictions and stress regarding their values, convictions, or priorities. This insinuated that a kind of cognitive dissonance of sorts was enough to damage the identity and reputation of a corporate entity among stakeholders or something that had them doubt themselves. Maon et al. (2019) provided a perspective of the stakeholder theory, which further explored stakeholders as more than just individuals or organizations who need to be satisfied or appeased over another individual or separate group. The literature review identified themes and came to conclusions that treat stakeholders, on both an individual and collective level, as complex individuals with their own series of opinions, perspectives, and outlooks on the world around them that may or may not impact how they perceive corporate entities. There is also the impact on how corporate responses to the unintended negative reactions from stakeholders to CSR actions play out, as defined by Maon et al. (2019). The view held is that the key purpose of business entities was to generate profit and how it was linked to the short-term maximization of profits. Maon et al. (2019) also viewed that optimistic consumers could be worth considering because optimism can lead to the reduction of risk perceptions.

The view undertaken here is that corporations must make gambles and PR strategies in determining or predicting the neutral or negative reactions that may be

embedded in stakeholder backlash. There is still a wide array of publications that focus on the mitigation techniques of corporate and firm entities on a stakeholder-level to ensure the mitigation of conflict.

Innovations in Managing Stakeholder Tensions

The perspective of stakeholders as dynamic entities is further embedded in academic publications that focus on how dynamic techniques can be used to manage stakeholder tensions between different parties and stakeholders. Best et al. (2021) centered on how tensions originating from business model innovations can be managed through the use of a dual mission focus, covering social and economic. In addition, Best et al. (2021) implemented three key aspects of business model innovations: initiation, exploitation, and innovation through the use of illustrative examples vis-à-vis three dynamic capabilities, which included sensing, seizing, and transformational. Best et al. (2021) highlighted the conclusions they drew in their publication, which stated that competitive tendering led to governing tensions affecting social purpose organizations network members' structures while they adapted to a new form of standardization. Best et al. further stated that part-time work arrangements and staff absenteeism were other examples of tensions created in working environments.

Best et al. (2021) provided the implication that engagement in business model innovations created tensions from an internal perspective. Within corporate or infrastructural entities, there are multiple stakeholders who either have everything to gain or lose. In the context of this relationship, corporate bodies and entities need to carefully facilitate and strategize the most effective means of mitigating the worst possible

outcomes in internal stakeholder tension management, which may come in the form of absentees or low productivity. Appeasement in this context is the minimal solution but what Best et al. (2021) insinuated is a framework that is focused more on innovative practices that can help a corporate entity flourish further. Keegan et al. (2019) carried out a similar study, which focused on the management of tensions from a human resource management perspective, while also implementing the paradox theory. Keegan et al. (2019) enriched tensions-centered human resources management (HRM) and provided insights for human resource managers on mitigating various kinds of tensions. Keegan et al. (2019) provided some of the following insights regarding human resource management tensions from a stakeholder perspective, which included how HRM scholarship acknowledged the possibility of temporary alignment between a variety of stakeholders, employer, and employee interests regarding strategic goals. Simultaneously, Keegan et al. (2019) highlighted how scholars noted the importance of unequal conditions in affecting stakeholder goals.

Both Best et al. (2021) and Keegan et al. (2019) viewed the dynamic of stakeholder management and interests as fluid and multi-faceted. Keegan et al. (2019) highlighted the importance of maintaining scholarship and professional development for human resource managers as a means of properly mitigating some of the tensions and conflicts of interests that are faced by different stakeholders and persons of interests within a corporate entity. Best et al. (2021) on the other hand focused more on the creation of innovative business strategies that would allow for internal stakeholders to properly adjust to their newer positions or duties without sacrificing productivity. Keegan

et al. (2019) and Best et al. (2021) provided the study with a rich perspective regarding the internal stakeholder dynamic. While Keegan et al. (2019) employed a different theoretical framework, the core components of the stakeholder theory that were implemented for the study are still pivotal elements to consider.

To summarize, there is a wide availability of academic publications that focus on Freeman's (1984) stakeholder theory. However, as decades passed, multiple examples of academic publications viewed the dynamic of stakeholder engagement as something far more than the appeasement of certain business entities or prioritization of one stakeholder over the other. The changing times have required researchers, learners, and other relevant stakeholders in the business field to reconsider what they once thought was the dominant view of the stakeholder tradition, in adapting a more dynamic and mutually cooperative variant of the stakeholder model. In place of merely appeasing or satisfying the needs of key stakeholders over several other minor ones, there is a variety of literature that suggests for a way that stakeholders, whether major or minor, can properly co-exist and mutually cooperate to formulate a constructive and productive workflow across several working fields. The following will be comprised of a literature review that discusses the impact of supply chain disruptions across the globe.

Topical Review of Literature

There are examples of different academic publications that explore the impact of effective strategies that a public utility's supply chain business leaders could implement to improve raw material supply chain resiliency. There is a wide array of academic publications that center on the dynamics of how business leaders may improve supply

chain resiliency, especially raw materials. The topical literature review will be divided into several classifications. The first will explore the impact of the global COVID-19 pandemic on the supply chain of raw materials. The second category will focus on works discussing the means that corporations and firms build up resiliency among raw material supply chains, and the third will be focused on emergency responses to supply chain disruptions pertaining to raw materials and other supplies are being implemented from the perspective of digital transformation and new communicative strategies.

Impact of COVID-19 on Raw Material Supply Chains

There are numerous examples of academic publications that focus on how the COVID-19 pandemic shaped and altered the ways that public infrastructure and suppliers of raw materials have operated since 2020. Yu et al. (2020) carried out a study that centered on the impact of COVID-19 as a major factor disrupting major supply chains. Yu et al. (2020) discussed the different strategies that supply chains used in building up resiliency during the crisis. Yu et al. (2020) highlighted that at the time of writing, raw materials for pharmaceutical and medical purposes needed to step up during the height of the pandemic, which also included raw medical supplies. Yu et al. (2020) outlined that chemical re-agents and raw materials were only limited to chemical industry-manufactured entities.

The high-on-demand impact that COVID-19 brought upon raw materials and pharmaceutical supplies was further highlighted by Paul and Chowdhury (2021), who carried out a study focused on the development of a production recovery plan for manufacturing supply-chains for items that were deemed to be high on demand. Paul and

Chowdhury (2021) carried out their study due to what they considered to be at the time, a lack of focus on academic sources that focused on the formulation of strategies to rebuild supply chains following historic epidemics. Paul and Chowdhury (2021) described part of their pandemic recovery plan added several COVID-19 linked parameters such as the average cost of augmented production capacity that included costs considering extra shifts, hiring staff, overtime, and machinery. Another parameter involved emergency sourcing costs per unit of raw materials that were used to ascertain the cost for material sourcing (Paul & Chowdhury, 2021).

Both Paul and Chowdhury (2021) and Yu et al. (2020) considered some of the contextual circumstances and the consequences that were evident during the pandemic as a driving force of supply chain disruptions and activity. In another study, Cai and Luo (2020) outlined the significance in ensuring that the manufacturing sector would be repaired as soon as possible following the pandemic. Cai and Luo (2020) used their publication to properly analyze the impact of COVID-19 in 2020 on manufacturing entities and formulated an analysis at the time on how they could properly recover. Cai and Luo stressed the pivotal role played by the supply chain disruptions COVID-19 caused and how it affected logistics. There were measures such as air flight control, import and export restrictive measures, and stricter commodity protocols that caused four challenges for international logistics. Cai and Luo (2020), Paul and Chowdhury (2021), and Yu et al. (2020) provided informative examples in better comprehending the impact that was brought about by COVID-19, which were evident when the pandemic became evident. However, there are recent trends in academic research that addressed the impact

of COVID-19 long after the pandemic's lockdowns and restrictions on trade and maritime supply chains were lifted (Rutitis et al. (2022).

The COVID-19 pandemic not only changed perspectives on the supply chain industry but also how consumers engaged with the elements they once took for granted. Rutitis et al. (2022) published a study that was centered on sustainable value chains and how COVID-19 influenced consumer behaviors 1 to 2 years after the end of the pandemic's more intensive lockdowns in several countries. The development of bio composites for packaging and the overreliance on it was highlighted to be problematic by Rutitis et al. (2022) during the duration of the pandemic. Simultaneously, the impact of COVID-19 could be seen as having a positive impact in how people view the changing and dynamic nature of the supply chain industry. Rutitis et al. (2022) outlined some of the positive aspects of COVID-19 on the feedstock production, raw material processing, and packaging manufacturing stages of the value chain. However, there was still a negative impact on the buying behaviors of people vis-à-vis retail behaviors following the pandemic. Another study by Raj et al. (2022) highlighted strategies that could be used during and post-pandemic as well as the initial lessons that were learned. Raj et al. (2022) highlighted the significance of scarcity of labor and scarcity of material as part of the key challenges. Raj et al. (2022) and Rutitis et al. (2022) have key differences in the compositions of their respective studies, where one focused more on the lessons learned while acknowledging the impact on buyer habits while Raj et al. (2022) considered the damage that was done to the supply chain status quo.

The consequences of the COVID-19 pandemic were also rooted in both long-term and short-term economic consequences regarding supply chain strategies and mitigation in the event of a crisis. Halmai (2022) stressed the significant economic and supply related consequences that the COVID-19 pandemic brought upon supply chain disruptions, especially in the EU. Furthermore, Halmai (2022) stressed that supply chain disruptions were still ongoing, in light of the Russo-Ukrainian War which began in February 2022. Others in the field have continued to propose more unique aspects in mitigating supply chain disruptions within the post-pandemic world, with an example coming from Omar et al. (2022), who posited the implementation of a blockchain-backed supply chain strategy. Omar et al. (2022) argued that the use of a crypto-currency-backed blockchain supply chain method would allow for tracking systems and smart contradicts supported by an algorithmic framework that could decentralize storage and cut costs. Halmai (2022) and Omar et al. (2022) posited the role of technological developers behind crypto technologies as stakeholders amidst the complications of supply chain disruptions. Numerous strategies have been proposed by a different researcher; however, there remains a girth in publications that continue to resort to more traditional means in addressing ongoing supply chain troubles and the mitigation of future disruptions (Halmai, 2022).

Resilience of Supply Chains in the Postpandemic World

The following will focus on an in-depth discussion of academic works focused on examining the role played by companies, firms, and other relevant stakeholders in building up what they perceive to be airtight resiliency in the post-pandemic world. There

are numerous examples of academic publications that consider the role played by the relevant supply chain stakeholders and corporate entities regarding the implications brought about for supply chain management. Nayeri et al. (2022) stated that supply chain networks needed to be designed while considering the elements of sustainability, resiliency, responsiveness, and globalization. On the other hand, authors such as Rabbani et al. (2022) considered the implementation of a framework that was more deeply rooted in stochastic programming, meaning that it would involve the implementation of what would be considered a reactive strategy. Nayeri et al. (2022) and Rabbani et al. (2022) examined the dynamics of resilience building for supply chains from a more robust and contextual perspective, as opposed to one that considered specifically the dynamics and nuances of different stakeholders.

Sector-Specific Supply Chain Resilience Strategies. Spieske and Birkel (2021) focused on the dynamics behind supply chain resilience from the context of chemical companies. Whereas Aityassine et al. (2022) examined the effect of supply chain resilience as measured through the means of supply chain flexibility, supply chain collaboration, and supply chain agility vis-a-vis supply chain performance. Spieske and Birkel (2021) introduced a sample that consisted of employees from Jordan chemical industrial companies to acquire the necessary data through an electronic questionnaire as the main data collection method. Aityassine et al. (2022) contributed significantly to the academic publications that focused on supply chain resilience from the context of chemical industries outside of the United States in countries like Jordan.

The trend of what is a situational perspective on supply-chain resiliency is rooted from the impact that was brought about by the COVID-19 pandemic. For example, Clavijo-Buritica et al. (2023) formulated and proposed a framework that was rooted in a hybrid approach focused on resilient agri-supplier networks. Clavijo-Buritica et al. (2023) focused on the context of perishable coffee bean goods from Columbia, and it proposed a two-phase scheme that focused on simulation and optimization of newer strategies. Phillips et al. (2022) explored some of the perceived values that reconfiguration of the global value chain could have on the wider supply-chain perspective. Phillips et al. (2022) highlighted concrete steps for managers to take in the event that global shocks or incidents were to occur and outlined an explanation of potential supply-chain shocks and disruptions with respect to vaccine manufactures that are complex and require specialized production capacity which are supplied by domestic and international firms. Phillips et al. (2022) further noted that production can solicit raw materials from over 300 suppliers in 30 countries; however, in April of 2021, there were global shortages of over 100 components and ingredients, which caused a major disruption in vaccine production and supply.

The key implications that are presented here note that supply chains and shortages continue to be vulnerable, even following the intensive lockdowns that occurred in 2020. Furthermore, the following authors have moved on to resorting to more mathematical equations and models as a means of better predicting what the next and incoming shocks of unprecedented economic emergencies may bring in light of production delays and supply chains. Shafiee et al. (2022) focused on the implementation of what they

considered to be a lean, resilient, and sustainable method in the interest of supply chain implementations in the event that emergency contexts occur. Shafiee et al. (2022) studied the impact of integrating lean, resilient, and sustainable practices in supply chain network contexts. Shafiee et al. (2022) introduced a new multi-objective mixed-integer programming in development to pave the way for lean management. Shafiee et al. (2022) outlined that with regard to their strategies on lean manufacturing, the economic, environmental, and social objective functions indicate the sustainability principles applied in supply chain of the proposed model in this research. The economic objective function minimizes operational and strategic costs. The environmental objective function reduces the pollution emitted from installation and transportation and the social objective function increases fixed and variable job opportunities in the supply chain network.

The implications presented by Shafiee et al. (2022) in this context are that economic, environmental, and societal functions are dependent on sustainability. The key goal inferred by Shafiee et al. (2022) focused on exploring elements of productivity and sustainability that were not compromised as a means of facilitating further economic and financial growth following the post-pandemic period. Shafiee et al. (2022) reinforced their research findings by highlighting that lean manufacturing system concentrated towards on-time delivery, but a system's activities could still be susceptible to disruptive circumstances, which could denote the exigency of lean integration and practices linked to resilience.

Shafiee et al. (2022) did not focus so much on different stakeholders who are part of a much larger system as much as they focused on the ability for internal stakeholders

to ensure business continuity. There is a greater focus that is placed on the dynamic played by external stakeholders, as opposed to the functionality of internal stakeholders. The key priorities of Shafiee et al. (2022) focused more on the idea that the wheel not only has to be reinvented but the framework and dynamic of supply chain itself was refocused from the ground up as a means of mitigating future financial and logistical risks to infrastructure in the near future.

Cherrafi et al. (2022) explored the potential and significance that would be enacted by digital and communicative technologies as pivotal enablers in supporting a supply-chain management environment in the post-COVID-19 era. Cherrafi et al. (2022) determined the pandemic crisis re-introduced the debate on supply chain resilience and sustainability. Cherrafi et al. (2022) investigated the distinct effects of COVID-19 on supply chains where they identified both short-and medium-to-long-term measures used to mitigate the different aspects of the pandemic and highlighted potential transformations' impacts on supply chain sustainability and resilience by selecting a sample of practitioners (n=15) from different supply chains to interview. From the interviews, Cherrafi et al. (2022) further identified that raw material and active ingredients were imported from China which created vulnerability, and thus, showed a need for organizational leaders to diversify their operations and implement more focused multi-sourcing strategies.

Cherrafi et al. (2022) highlighted the desire of this participant to diversify due to environmental and circumstantial factors. Another interviewed participant from Cherrafi et al. (2022) with regard to supply chain cancellations noted that buyers asked to cancel

their clothing shipments that were already produced while also arranging payment allocations. Participants expressed worry about cash flow that could reimburse raw material suppliers and that they were not prepared for the financial distress that could place their companies at economic jeopardy (Cherrafi et al., 2022).

While interviewing my client participants it was identified that both drinking water and wastewater systems rely on the consistent delivery of water treatment chemicals to maintain operations and provide essential services to the public. Any interruption to the chemical supply chain, whether short or long term, would have a significant impact on the organization's ability to provide safe drinking water and treat wastewater prior to discharge. In a 2016 report on water sector resilience, the National Infrastructure Advisory Council (Baylis et al., 2016) recommended that leaders identify and define agency and utility roles and responsibilities during an emergency to ensure continued supply of critical water treatment chemicals. The authors highlighted the dependence of the water sector on other sectors, including the chemical industry, and made clear that forming partnerships across sectors could lead to an understanding of resource prioritization needs in circumstances where this may be required. Baylis et al. demonstrated vulnerabilities in production and distribution of water treatment chemicals, and the resulting risk of disruptions in supply of critical water treatment chemicals. The researchers demonstrated the need for stakeholders within the water sector to develop a better understanding of chemical supply chains and the risk of experiencing supply disruptions in the future.

What has been presented so far is indicative of newer trends that have since surfaced following the pandemic where stakeholders and shareholder relationships have changed. The implications from Cherrafi et al. (2022) are that corporate entities and companies are looking out for their own as opposed to either the appeasement or dealings of mutual cooperation with other stakeholders. Economic risk is a key phrase noted by Cherrafi et al. (2022) who indicate from their findings that there is a need not only for transformation of digitalized working environments but also for a means of bettering the overall supply chain environments. Digitalization may play a key role in the implementation of what may be perceived as more pivotal strategies that could improve the dynamic of different stakeholders from an internal perspective. The nature of the pandemic has forced those running supply chains to change their outlooks and perspectives on what defines a stable supply chain strategy, which is where digitalization comes in.

Digitalization of Sustainable Supply Chains

Academic publications that center on the digitalization of sustainable and resilient supply chains that have surfaced after 2022, following the COVID-19 pandemic. For example, Zhao et al. (2023) focused on examining the effects and impact of digitalization in one area of supply chain resiliency. Zhao et al. (2023) argued that the outbreak of the COVID-19 pandemic brought about a new trend of digitalization and strategies that were focused on further bolstering the overall resiliency of supply chains across the globe. They noted that supply chain digitalization contributes to supply chain resilience, which, in turn, influences supply chain performance, with dynamic capability theory as the key

framework. Supply chain digitalization includes the application of digital technologies and innovation of business processes in addition to products and services as well as business models based on technological application. Zhao et al. stressed the importance of digitalization in creating flexibility, agility, and efficiency.

The key implications that are presented here are that the dynamic between stakeholder and shareholders in the supply chain fields have long since changed following the impact of the pandemic. Digitalization is a type of technology that could be introduced to streamline the process, regardless of the actors who participate in this field of work. Marinagi et al. (2023) further this area of academic publications through the exploration of what digitalization, or as it is referred to in the article: Industry 4.0, can do for the reformation of supply chains. Marinagi et al. (2023) justified the further digitalization of the supply chain sector due to the threats and vulnerabilities that advanced and became more prominent in the late 2010s and early 2020s. These examples include the following: a) external or environmental risks, b) internal risks, c) information risks, d) management risks, and e) supply and demand risks.

Both Marinagi et al. (2023) and Zhao et al. (2023) continued to imply that so much has continued to change since the implementation of different strategies and means of supply chain management in recent years. Furthermore, the pandemic had exacerbated some of the risks that came with normal supply chain strategies. Setiawan et al. (2023) explored the idea of digitalization reform in supply chain industry from the perspective of inviting and facilitating better competition. Setiawan et al. (2023) provided some influence and importance to other stakeholders, by indicating the role that they play in

terms of facilitating economic competition and growth in addition to how digitalization could facilitate a more resilient supply chain for the benefit of the stakeholders who are involved.

Bigliardi et al. (2022) outlined how the overall digitalization of the supply chain and the normalization of technological elements had the potential to streamline and manage the process in a much more efficient manner. Bigliardi et al. (2022) cited examples of the driving forces that could fully digitalize supply chains, which included crypto technology, blockchain technology, the Internet of Things, and other advanced communication methodologies. Bigliardi et al. (2022) noted that as of writing, the digitalization of supply chains as a means of building up further resiliency still faced challenges from different parties and stakeholders. Simultaneously, there remain avenues for the digitalization of supply chains to flourish productively in the future.

Mohammed et al. (2022) discussed the dynamics behind the digitalization of decision-making vis-à-vis the supply chain and how it could facilitate a much more resilient strategy in improving logistics. Mohammed et al. (2022) argued that digitalization is being seen as a potential avenue for key stakeholders due to the growing demands from buyers, consumers, and other stakeholders to meet and satisfy newer challenges that have emerged from the post-pandemic perspective. Zaman et al. (2022) also considered the significance of digitalization in banking, which in turn could affect the dynamics behind the banking and supply chain areas. A technological model adaptation approach was greatly considered when it came to the means that it could affect digitalization going forward.

In a separate publication, Di Vaio et al. (2023) considered the consequences that could arise from the implementation of these digitalized techniques in the supply chain across an array of financial and logistical sectors. Other examples of digital transformation in the field of logistics and streamlining of supply chain disruptions to ensure sustainability also included AI technologies, communicative platforms, and a variety of digitalized platforms, which caught the eye of different supply chain stakeholders. Di Vaio et al. (2023) additionally highlighted that AI could support the identification of organizational resources enabling supply chain redesign during a disruption of management. However, the continuous operation could improve performance and AI in turn can use this for knowledge creation.

While Di Vaio et al. (2023) expressed the advantages held by the formulation of digitalized AI strategies to assist with the streamlining of the supply chain distribution method, there are still issues that persist, which range from the dynamic of accountability to knowledge creation. Furthermore, the input of other stakeholders would need to be considered when there are considerations behind the application of this technology. The following section will be comprised of a discussion of how the current supply chain literature compares with the theoretical and conceptual foundations of the study.

Analysis of Literature in Relation to the Conceptual Framework

There was an abundant availability of academic literature focused on both the study subject and the conceptual framework, which focused on the stakeholder theory. The nature of COVID-19 and the supply chain disruptions that followed altered the way that many stakeholders on an internal level within the shipping and logistics industry

perceive supply chain resilience. This may also include the facilitation of streamlining certain processes that may affect the workload of internal stakeholders or priorities that may drive other stakeholders and shareholders away from the agenda. For example, raw material supply chains were affected by the pandemic, however, the availability of equipment parts and services also impacted the treatment water to ensure clean drinking and wastewater. In addition, the logistics of transporting such raw materials were affected by the loss of labor and availability of trucks and rail systems which then required the reevaluation of the mechanics of sustainability in times of crisis.

Dmytriyev et al. (2021), Horisch et al. (2020), and Vitolla et al., (2019) focused on the shareholder theory and were centered on refining the theory originally formulated by Freeman. In place of a stakeholder theory that focused on the appeasement of a few stakeholders over several unimportant ones, newer examples of academic works began to consider the role played by all stakeholders not just as subjects to be appeased but as equals working conduct and concisely together in a much larger process. Horisch et al. (2020) on the other hand, focused on the re-examination of the supply chain process pre-2022 and the stakeholders involved.

Post-pandemic publications such as the article written by Patrucco and Kahkonen (2021) focused on the supply chain sector and were centered on how different logistical stakeholders and supply chain strategies could be rebuilt on an internal level. Furthermore, there was also conversation and discourse behind the digitalization of up-and-coming technologies, regardless of how it affected the stakeholders whose work

process and flow may either be streamlined or marginalized as a result of digitalized techniques aimed at prioritizing sustainability and resilience over cooperation.

The post-pandemic supply chain landscape is viewed as an uncertain environment, with many key factors unsure of what may come next from the consequences that ensued in the post-pandemic world (Raj et al., 2022). Furthermore, there is still a limitation in literature and publications that focus specifically on concrete techniques that have shown more tangible evidence post-2022 (Raj et al., 2022). A number of sources and publications that were published post-pandemic or during the pandemic were comprised of models, hypotheticals, and strategies developed by researchers to see if they would align with the interests of the logistic shareholders and stakeholders involved (Panwar et al., 2022).

Summary and Conclusion

In this qualitative single-case study, I aimed to ascertain and explore the effective strategies that a public utility's supply chain business leaders implement to improve raw material supply chain resiliency in a cost-effective manner that maintains sustainability and achieves organizational goals. In the literature review, I provided an in-depth analysis and synthesis of existing research that focused on supply chain management resiliency and Freeman's stakeholder theory. Within the literature varying elements of the stakeholder theory were prioritized by researchers to identify stakeholders as equal partners across a variety of industries and partnerships. However, the researchers that focused on supply chain management, especially after COVID-19, pivoted towards the dynamic of what is necessary to ensure sustainability and resilience of supply chains to

avoid further disruptions. The focus on stakeholders as the center of research became marginalized, with most post-2022 researchers focused on discussing the methods and digitalized means that the supply chain process requires refinement and further streamlining.

Transition

The existing body of literature on mitigation strategies of supply chain disruptions for public utilities is minimal at best and varied. Academic scholars explored strategies for public utility companies as well as other businesses but provided limited evidence on processes to successfully eradicate the possibilities of disruption due to pandemic situations or other crises. I sought to discover alternative views on strategies within the public utility domain as well as other business environments from the perspective of stakeholders and other leaders for the purpose of this study. My review and analysis of professional and academic literature included peer reviewed journal articles, internal documentation, seminal works, and published case studies over the past 5 years.

In Section 2, I provide a comprehensive analysis of the research purpose, the role of the researcher, participants, research method and design, population and sampling, ethical principles of human research, data collection instruments, data analysis, data organization technique, and qualitative data analysis. I included in-depth information on reliability, dependability, credibility, confirmability, transferability, and validity. I discussed triangulation methods, data saturation, and data storage and destruction techniques.

In Section 3, I reference the 2023–2024 Baldrige Performance Excellence Framework as my guide for an in-depth review of my client company's organizational profile. I focused on several topics, including (a) organizational description; (b) the leadership triad; (c) customer relationships; (d) measurement, analysis, and knowledge management; (e) workforce, operations, and results of processes, and (f) implications for social change. I concluded Section 3 by providing an executive summary of key findings, project summary, contributions, and recommendations for further actions.

Section 2: The Project

I explored how some supply chain business leaders lack effective strategies to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve their organizational mission. The need for resilient, cost-effective supply chains is necessary so that organizational leaders can quickly adapt to changes and mitigate the effects of disruptions, ensuring the continuation of essential services. Companies rely heavily on their supply chain for seamless operations, necessitating a competitive edge. In an age marked by disruptions, a company's competitive prowess hinges upon the effectiveness of its supply chain. Regrettably, the supply chain is highly susceptible to global disruptions, which can unexpectedly impact industries with little warning. Therefore, it is imperative for the supply chain to maintain ongoing resilience and sustainable performance to effectively address such disruptions (Manurung et.al., 2023).

Purpose Statement

The purpose of this qualitative single-case study was to explore strategies that business leaders use to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve their organizational mission. The population for this study is comprised of six leaders within an organization located in the Southern region of the United States. The potential for social change includes the ability to translate lower costs for services rendered by the organization to benefit consumers. For consumers with lower-income households, the effects of a mitigated disruption may

allow those households to have lower service costs, and better availability of services which in turn may provide an improved standard of living.

Role of the Researcher

The role of the researcher is the primary source for data collection and is crucial and multifaceted which often involves conducting interviews in qualitative case studies (Saunders et al., 2019). For this qualitative single case study, I served as the primary researcher for data collection. I have no direct experience in consulting or researching supply chain resiliency strategies.

To ensure ethical behavior, I strove to heed the principles of the *Belmont Report* within the research study. I used the *Belmont Report* as a guide to ensure that ethical principles and behavior related to my role and responsibilities while collecting data from my client organization and its staff. I followed the principles of Walden University's Institutional Review Board (IRB) and their documented requirements as well as all regulations specified in the requirements of the University. As set forth in the *Belmont Report* (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979), researchers must follow three principles: (a) respect for persons, which entails treating individuals as autonomous agents; (b) beneficence, which refers to treating individuals in an ethical manner and respecting their decisions; and (c) justice, which means fairly distributing the risks and rewards of research.

Walden University also requires that doctoral students in the consulting capstone acquire IRB approval prior to conducting research to protect the interest of human subjects (Walden University, 2023). Once receiving IRB approval, I was able to conduct

meetings with my client leader to familiarize myself with the mission, vision, and stakeholders of the organization. In his book on qualitative research, Yin (2018) stated that reviewing public documents allows researchers to gain a broad understanding of the structure, procedures, and strategies of an organization. It is in the best interest of the researcher to gain the trust and respect of the targeted interviewees and to foster a comfortable and safe environment which allows the participants to freely speak (Elhami, 2022). Researchers use an interview protocol to facilitate the interview process (Dunwoodie et al., 2022). I used an interview protocol (see Appendix C) to collect the data, identify themes, and ensure that the participants felt safe and respected, as well as understanding their ability to halt the process at any point in time.

I also sought to be honest, objective, and transparent by remaining focused on the research question and avoiding bias in the research process, which is an approach advocated by S. Shah (2019). To continue the process of bias avoidance, I also audio-recorded the interviews and had a third party transcribe the data. Finally, I provided each interviewed participant with a copy of their transcription which allowed my participants to review the transcription for accuracy, elimination of data or misrepresentations, which aligned with a process identified by McKim (2023) as effective in determining my interpretation of their responses.

Participants

Researchers in the Walden Doctor of Business Administration program who are completing a consulting capstone select interview participants based on the participants' knowledge of the client organization and ability to answer the research question (Walden

University, 2023). The participants in this study were identified in conjunction with my client leader, for their knowledge and experience of the organization. The eligibility for this study required the participants to have an active role in the leadership and decision-making process in their organization. The participant criteria includes: (a) participants must be senior leaders within the organization with the ability to create and implement a business change; (b) participants must have the organizational authority to enforce the MVV of the organization, (c) participants must engage and interact with stakeholders and shareholders; and (d) participants must have the ability to provide data and information relevant to the process and procedure of the company. This study is centered around a consulting capstone as determined by Walden University, who collaborated with a specific organization to solve a specific business problem. The client leader of the organization provided access for this researcher to their employees for interviews related to this study.

To solidify a beneficial and trusting relationship with the client-organization, I maintained contact with the client leader via phone and email. Because of geographical restrictions, I interviewed participants by virtual media. Remotely interviewing participants can reduce research costs and encourage participation. I used virtual media to interview my participants to avoid the lack of social cues that could increase ambiguity and misrepresentation that would normally be present in just a phone interview (Topping et al., 2021). To encourage respect, trust, and effective communication, I have used weekly phone conversations with the client leader to understand the essence of the organizational mission better. I established a working relationship with the stakeholder

participants through email and text, and to answer any specific questions related to the research process. Qualitative researchers should communicate continuously with participants to strengthen trust and transparency, which might result in fewer misunderstandings (Topping et al., 2021). Thus, continual clarification regarding the research process with participants in this study extended a respectful and collaborative working relationship.

Qualitative researchers study participants' meaning and the relationship between key players using a variety of data collection techniques to establish trust, participation, access to meanings, and in-depth understanding (Saunders et al., 2019).

Leader participants in this study interacted with me as the consultant and were willing to follow the guidelines and procedures of both Walden University and the Baldrige Performance Excellence Framework (2023–2024). I established a working relationship with my client by visiting the business webpage and social media sites. I worked with my client to establish flexible times to discuss the 40-week service order agreement.

Establishing trust and flexibility with participants' increases participation and is important for data collection and analysis (Jordan & Gray, 2018; M. W. Ross et al., 2018; Shaw & Satalkar, 2018). I indicated my desire to collaborate, protect their privacy, follow established rules and guidelines grounded in the *Belmont Report*, and identify key work processes using the Baldrige Performance Excellence Framework (2023–2024). Jordan and Gray (2018) found that the purpose of risk assessment is to minimize harms that

might occur during the course of their participation in the study, therefore, I also obtained

consent and outlined the risks associated with human subject research to my participants.

Research Method and Design

A well-planned research design helps ensure that the methods used match with the

research aims, that the researcher collects high-quality data, and that the right kind of

analysis is achieved to answer the research questions, utilizing credible sources. This

allows the researcher to draw valid, trustworthy conclusions (Snyder, 2019).

Research Method

I used the qualitative research method to explore strategies used by organizational

leaders of a public sector organization operating in the mid-southeastern United States.

Researchers use qualitative research methods to gather information and explore

phenomenon about individuals and groups (Tenny et al., 2022). Qualitative research

requires an in-depth analysis of organizational processes and people without bias.

Researchers using the qualitative research method can acquire essential information from

participants when using multiple data collection instruments. Narrative analysis is a type

of qualitative data analysis that focuses on interpreting the core narratives from a group's

personal accounts. Qualitative data are narrative and help explore the lived experience of

individuals (DeFina, 2021).

When choosing the appropriate research method to analyze the research question,

the distinction between qualitative and quantitative research is vital. Qualitative research

involves exploring critical issues using semi structured interviews to gain essential

information from the participant (Adeoye-Olatunde & Olenik, 2020). Quantitative

methods are more suitable for examining hypotheses or comparing variables (Yin, 2018). Researchers use mixed methods combining quantitative and qualitative research to address complex topics and obtain a comprehensive finding (Saunders et al., 2019). I did not test hypotheses or seek to determine a correlation between variables. Therefore, the qualitative research method is appropriate for this study and the other methods are not appropriate because it aligns with my research question and provides in-depth data on growth strategies for mature small information technology businesses beyond current capacity.

Research Design

I selected a single case study design for this study. Researchers selecting a case study design seek to explore and address the how, what, and why of participants' lived experiences and perceptions within their natural context (Ridder, 2019). The four types of case study design are (a) single-case design, (b) multiple-case design, (c) holistic single unit, and (d) embedded multiple units of analysis design (Yin, 2018). The single-case study allows a researcher to gain an in-depth understanding of the participants (Saunders et al., 2019). The single-case study is a set of methods and procedures used to collect, analyze, and measure variables in the research problem being explored or examined (Alavi et al., 2018). The purpose of the research design is to address the research question and develop the respective concepts.

(Guetterman & Fetters, 2018).

In a qualitative study, researchers use explore and interpret specific occurrences based on the criteria of the business problem and using the proper research design that

correlates to the study (Tobi & Kampen, 2018). In a qualitative study the methodology design choices include ethnography, grounded theory, phenomenology, and case study (Saunders et al., 2019). The research design roadmaps how the researcher will approach responding to the study's specific research question and includes objectives, data collection sources, collection and analysis plan, and constraints (Saunders et al., 2019). The purpose of the research design is to align the data and findings to the research question through consistent design choices (Rashid et al., 2019).

Researchers use the phenomenological design to focus on participants' recollections and interpretations of their experiences (Saunders et al., 2019), which did not fit the purpose of this study. As well, I considered an ethnographic design in which researchers observe participants in their natural environment (Spurr et al., 2022), however, it was not my intention to explore leaders through direct observation as an ethnographic design does not align with my study objectives.

In a single-case study, researchers use open-ended questions to explore topics in-depth and uncover deeper insights, gain valuable feedback, and provide extensive answers to established questions (Weller et al., 2018), which helps reach data saturation. Data saturation is the point in research when sufficient data is collected to draw necessary conclusions, and any further data collection will not produce value-added insights (Saunders et al., 2019). The failure to reach data saturation has a negative impact on the quality and validity of the research (Mwita, 2022). In this study ensured data saturation when the domain interviewing stakeholder participants, and until no new information or

themes emerged and replication of data occurred using checklists and narrative reviews as discussed in Morse (2021).

Population and Sampling

The population from which I selected my primary list of participants were specific individuals selected in conjunction with my client leader who had direct knowledge of the client organization and their knowledge of each individual in relation to the specific business problem. The participants came from a public company operating in the mid-southeastern United States. I elected to use the recommendations received from my client leader for the participants of this study as the client leader had the most knowledge of the problem and the individuals that could assist in this research. The sample size was dependent on the purpose of the study (Hennink & Kaiser, 2022) and number of participants needed to adequately answer the research question. Researchers should select the sample size that has the best opportunity to ensure data saturation (Hennink & Kaiser, 2022). I ensured data saturation by continuing to interview additional participants until no new information or themes emerge.

All of the participants were selected based on the eligibility requirements outlined by the *Consulting Capstone Manual* (Walden University, 2023). The requirements included senior leaders within the public company with historical knowledge of the business and the ability to implement change within the organization. Additionally, during individual qualitative interviews, researchers typically focus on talking with individuals commonly referred to as key stakeholders. These are individuals who play a role in or are otherwise impacted by the implementation effort. Qualitative researchers

must select leaders with a general knowledge of the problem focus and experience in creating and implementing growth strategies (Aspers & Corte, 2019). The participants were chosen based on their specific knowledge of the business problem and related activities and who are stakeholders associated with the process.

In my study I used purposeful sampling. Purposeful sampling is widely used in qualitative research for the identification and selection of information-rich cases related to the phenomenon of interest (Campbell et al., 2020; (Denieffe, 2020). Purposeful sampling usually occurs before gathering data, whereas theoretical sampling occurs in conjunction with data collection (Yazan, 2015). I engaged in weekly correspondence with my client leader and conducted interviews with my participants via Microsoft Teams in accordance with the service agreement. Participant interviews and public and private document reviews are the primary method of data collection for qualitative case studies (Busetto et al., 2020). When conducting a qualitative study, consistent contact with the participants is necessary to ensure data saturation (Saunders et al., 2019). I aligned the interview questions (see Appendix A) with the 2023–2024 Baldrige Excellence Performance Framework to ensure that the interviews would help define how the process of creating excellence can be undertaken with predictable, reliable, and repeatable results. I reviewed the data to determine if saturation occurred with the participants. When enough data and information has been collected to draw conclusion from semi structured interviews and review of the client organization's public and private material, reveal no new information, and provide no further value-added insights, then data saturation occurred.

Ethical Research

Ethical behavior in academic research refers to the principles and guidelines that researchers must follow to ensure that their work is conducted with integrity, transparency, and respect for the rights and well-being of all participants involved (Resnik, 2020). Ethical research practices are essential for maintaining the credibility and trustworthiness of the scientific community and safeguarding the rights of research subjects (Walden University, 2023).

Researchers must obtain informed consent from all participants before involving them in the study. This means that participants must be fully aware of the study's purpose, procedures, potential risks, and benefits, and they should voluntarily agree to participate without coercion (Sutrop & Louk, 2020). Drolet et al. (2022), determined that researchers must protect the confidentiality of participants' information and ensure that their identities are kept anonymous, especially when dealing with sensitive data. Without explicit permission from participants and the IRB personal information is not disclosed. Participants were referred to as Participant 1, 2, 3, and so forth, and a fictitious company name was used to ensure privacy. Proper steps were taken to minimize any potential harm to participants. This included both physical and psychological harm. Studies involving vulnerable populations, such as children or individuals with mental disabilities, require extra caution and consideration. In this study, this was not necessary; however, all potential issues were represented.

Researchers should report their findings in an accurate and truthful manner. Data manipulation or selective reporting of results is unethical and can undermine the integrity

of research (Resnik, 2020). Proper credit is given to the work of others, and all efforts have been instituted to avoid plagiarism, which involves using someone else's ideas, words, or work without appropriate acknowledgment. I received no compensation nor offered any financial incentive in this study to avoid participation bias and fabrication of information and there has been no conflicts of interest that could influence the research outcome or interpretation of results. Qualitative researchers should respect the intellectual property rights of others, including copyrights and patents.

To ensure that my study complied with federal regulations as well as the Walden University's requirements for informed consent, I submitted my research request to Walden University IRB. I obtained IRB approval (no. 02-07-23-1168098), which ensured that my study complied with federal regulation and Walden University requirements. Walden University's IRB reviews research protocols to ensure compliance with ethical standards. Researchers must obtain approval from the appropriate IRB before commencing their studies, per the language in the consent form.

Data Collection Instruments

Data collection can be defined as a systematic method of obtaining, observing, measuring, and analyzing accurate information to support research for a specific business problem (Alam, 2021). I collected data for this qualitative single-case study by conducting semistructured interviews with participants on the Microsoft Teams platform. Also, I reviewed transcripts, interview notes, email correspondence, business website pages, and other corporate documents relating to the organization. Conducting semistructured interviews allows a researcher to gather in-depth information from

participants in order to gain a better understanding of the study phenomenon; transcription of the interview responses helps to ensure accuracy (Gahesha & Aithal, 2022). Collecting good data is necessary to identify and understand various problems, perceptions, theories, and other factors that affect an organization. The analysis of data enables practitioners and researchers to make effective business decisions and strategize effective solutions to industry problems (Gahesha & Aithal, 2022).

Prior to the interview session, I confirmed the date and time by providing an email invitation to each participant to approve. This method ensured that the date and time was added to our respective calendars with appropriate reminders. With the use of Microsoft Teams, I was able to conduct my interviews and retain a transcript to use to member check the data with the participant for accuracy. My interview questions were aligned with my research question, which was, What strategies do supply chain business leaders use to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve their organizational mission?

In addition to conducting semistructured interviews, I reviewed internal and external documents that aligned to the research question. The documents included company financial reports, purchasing records, internal procedures, vendor analysis, product information, content analysis derived from the internet and case study analysis. A review of archival records, documents and materials was used to understand current processes and procedures.

The choice of data collection technique depends on the research objective, the research question, the available resources, and the nature of the data required.

Researchers need to justify their choice of data collection methods in their research proposals and dissertations, demonstrating that their chosen techniques are appropriate for addressing their research questions and objectives (Busetto et al., 2020).

Data Collection Technique

Data collection techniques utilized in this qualitative single-case study were semistructured Microsoft Teams interviews, along with a review of transcripts, notations, emails, the company website, and other public domain information relating to the business problem that was available on the internet. In a doctoral study, researchers utilize various methods to explore the procedures and strategies related to the organization to gain a better understanding of the stakeholder views and perceptions surrounding the business problem being studied. The semistructured interview process is a main strength in conducting qualitative research as the data derived from the interviewee is a good way to cover a range of topics that provide reliable, comparable qualitative data among different participants (DeJonckheere & Vaughn, 2019). The authors also noted that researchers and stakeholders engage in meaningful dialogue in real-time scenarios during the interview sessions.

The review of the company's organizational documents provided additional historical and current relevant information through the process of methodological triangulation (Yin, 2018). This data is valuable as it refers to information collected and generated within the organization relating to operations, performance, processes, and activities. Although methodological triangulation, such as the examination of a company's organizational documents, contracts and other relevant papers helps enhance

data validity with respect to multiple perspectives, it also has serious shortcomings First, this approach is time-consuming and resource intensive: it requires collecting large volumes of data from many sources (Gahesha & Aithal, 2022). This complexity, although conducive to diversity in data presentation, may also give rise to inconsistencies and conflicts and it is challenging for researchers who want to integrate and synthesize diverse information. Besides, undue reliance on existing documents may produce results clouded by the context and purpose of their creation (Yin, 2018). Moreover, such documents are by no means comprehensive or current and may thus constrain the breadth of information acquired.

A member checking procedure was carefully incorporated into the research methodology to ensure that the data gathered from interviews is accurate and reliable. Following interviews and the transcribing of responses, respondents will be given an opportunity to review these responses to verify that their meanings are correctly represented. This step is important in order to ensure the validity of qualitative research. At the same time, by allowing participants to verify or specify their statements, any misunderstanding or misinterpretation that may have occurred on the part of researcher in transcribing spoken words can be avoided (Motulsky, 2021). Besides strengthening the credibility of data, this testing process also arouses participants 'interest in actively participating and helps to build social trust concerning research (Motulsky, 2021). Thus, through this strict procedure, member checking is an important device to help the researcher understand that his interpretation of the results agrees with participants 'original intentions and thus increases confidence in findings.

Data Organization Techniques

Data collection is a critical aspect of a doctoral study, as it forms the foundation upon which the research findings and conclusions are based. The choice of data collection techniques depends on the research question, objectives, and the nature of the study. Data organization techniques in doctoral research involve systematic methods for managing, storing, and structuring research data to ensure its accessibility, integrity, and usefulness throughout the research process. This includes developing a clear and consistent system for naming and labeling files and folders, maintaining comprehensive documentation of data sources and collection methods, and employing data management software or databases to store, organize, and analyze data efficiently. Effective data organization not only enhances the researcher's ability to locate and utilize data but also facilitates transparency, reproducibility, and the validation of research findings, contributing to the overall rigor and credibility of the doctoral research study (Hartson & Pyla, 2019). For this study, my organizational techniques followed suit with these guidelines.

The guidelines for the Walden University Consulting Capstone require the researcher to mask the identity of clients by assigning a generic name and/or code to the company, participants, and associated data. I masked the names of the participants by assigning code names, such as Participant 1 and Participant 2. The company was masked using the pseudonym XYZ Company. Per IRB rules and regulations regarding client confidentiality (Lapid et al., 2019).

In managing the acquired research data, I have established a systematic approach to ensure meticulous tracking and secure storage. This involves utilizing research logs and reflective journals for documenting emerging understandings, alongside a sophisticated cataloging and labeling system for easy retrieval and organization (Lapid et al., 2019). All raw data, encompassing interview transcripts, field notes, and other primary sources, are securely stored on encrypted, password-protected electronic devices. This rigorous data management protocol not only upholds the privacy and confidentiality of the information but also aligns with ethical research standards (Lapid et al., 2019). Additionally, in compliance with Walden University's best practices, I am committed to retaining all raw data for a minimum period of 5 years, ensuring its availability for future verification, analysis, or audit purposes. This systematic approach underscores the integrity and reliability of the research process, safeguarding the authenticity and confidentiality of the data while facilitating comprehensive analysis and robust findings.

Data Analysis

The purpose of qualitative data analysis in research is to uncover and understand the rich and nuanced insights embedded within textual or non-numerical data. Qualitative data analysis involves systematically examining and interpreting this data to identify patterns, themes, meanings, and relationships, enabling researchers to generate in-depth, contextually grounded, and theory-driven insights. It helps researchers explore complex phenomena, capture the perspectives and experiences of participants, and develop a deeper understanding of social, cultural, or behavioral processes (Lester et al., 2020). Qualitative data analysis contributes to the development of theories, the formulation of

research questions, and the generation of evidence-based recommendations, enhancing

the depth and breadth of knowledge in various academic disciplines and informing

practical decision-making in fields such as sociology, anthropology, psychology, and

education (Bostrom, 2019). The subsequent step involves coding of the data, which

implies a process of identifying and labelling or coding quotations in the text that relate

to the research aim. By sorting the data, it can be seen as an extension of coding as both

activities involve an attempt to label and reduce the large amount of raw data to make it

more manageable. The process of methodological triangulation enhances credibility with

the use of multiple data sources to identify new themes. Both coding and sorting take

place in close interaction with the data (Bostrom, 2019).

In my study, I used the thematic analysis methodology proposed by Braun and

Clarke in 2006 to analyze the data with NVivo software. This involved a structured

process of coding the data and discerning patterns or themes. Firstly, I familiarized

myself with the data through repeated reading and re-reading of what had been collected

helped me build an in-depth understanding of it all. From this, I constructed the first level

of codes by systematically sorting segments of information, as shown in Appendix D.

These codes were then grouped into potential themes, each representing an important

aspect of the data. These themes were then considered and revised until they really

captured the data set. I then refined and named the themes, grounding them in detail. This

thoroughness guaranteed a complex and complete grasp of the subject.

In my own research, I used triangulation to add depth and corroborate the results

of semi-structured interviews. This process involved meticulously reviewing and making

cross-references among several data sources: interview transcripts, notes, email exchanges and relevant corporate documents. I used triangulation to avoid giving a narrow and unidimensional view of the data, which would have detracted from both its credibility and depth. Thoroughly selected and classified key themes allowed direct investigation into the actual research question. To deepen the study, these themes were correlated with existing literature (completed studies as well as more recent publications than when they proposed their hypotheses), and also with concepts underpinning research. This approach ensured that the findings were not only grounded in the data but also resonated with contemporary academic discourse and theoretical underpinnings, offering a robust and insightful contribution to the field.

In order to avoid any personal bias, I used member checking to ensure the legitimacy of the data collected. I cross-referenced data received between the interviews, academic journals and case studies relating to the strategies for mitigation of supply chain disruptions. Researchers compare their findings with peer-reviewed literature and the conceptual framework to validate, refute, and expand upon the existing body of scholarly work (J. L. Johnson et al., 2020). Using the 2023–2024 Baldrige Excellence Performance Framework, I was able to use the triangulated data to align the findings of the data collected and the conceptual framework with strategies that contribute to the mitigation of supply chain disruptions and allow for solutions to the stated business problem.

Reliability and Validity

Reliability

Reliability in data collection for conducting research for this doctoral study refers to the degree of consistency and stability in the measurement or observation of research variables. It ensures that the data collection methods and instruments used yield consistent results when applied repeatedly (Yin, 2018). Achieving reliability is crucial to minimize measurement error and enhance the trustworthiness of the study's findings. Researchers enhance reliability by using a clear and well-documented research design, maintaining transparency in data collection and analysis processes, engaging in member checking or peer debriefing, and providing a detailed audit trail of decision-making. A high level of reliability indicates that the study's measurements are dependable, and that the data collected can be trusted to accurately reflect the underlying phenomena being studied, increasing the overall validity and credibility of the doctoral research. This ensures that the study's findings are dependable, trustworthy, and consistent with the research process, thereby enhancing the rigor and credibility of the qualitative research. In order to ensure the reliability of the data, it is essential to reach saturation of the data.

In my research, the data gathered from semistructured interviews and analysis of both internal and external documents led to reaching data saturation, a point where no new themes or relevant information emerged, underlining the dependability of the study. To further address dependability, I implemented member checking, where participants were invited to review and confirm the accuracy of their interview transcriptions and the interpretations of their responses (Mwita, 2022). This process ensured that the findings

truly reflected the participants' perspectives and added a layer of verification to the research outcomes, strengthening the trustworthiness of the study (Mwita, 2022). Additionally, systematic transcript review was conducted to cross-check data consistency and reliability, further reinforcing the dependability of the research findings.

Validity

In qualitative research, validity refers to the extent to which the study accurately captures and represents the phenomenon or concept under investigation (Nha, 2021). Validity ensures that the findings and interpretations align with the experiences, perspectives, and realities of the participants. The ultimate goal of this study is to achieve valid and accurate data. Achieving validity involves employing rigorous research methods, such as triangulation (using multiple data sources or methods), member checking (seeking feedback from participants), and prolonged engagement (sufficient time spent in the field) to enhance the credibility and trustworthiness of the study (Nha, 2021). Validity in qualitative research is not about measurement precision as in quantitative research but rather about the authenticity and richness of the insights obtained, ensuring that the study's conclusions accurately reflect the complexity and depth of the studied phenomenon. In this study I followed all protocols of triangulation, member checking and followed the interview protocol to ensure the accuracy of the phenomenon.

In my interview sessions, I used penetrating and probing questions to gain insight into the procedures and processes of the organization. I followed up with member checking and correlated the data by triangulation to ensure the trustworthiness of the

research (Nha, 2021). I determined transferability by adhering to the interview protocol, IRB guidelines, and informed consent agreement. With this protocol I developed transferability so that other researchers can adhere to the same procedures in other similar situations. Yin (2018) concluded that rigor is a critical component of qualitative research because it requires researchers to apply existing theories, use current literature, and add data that strengthens qualitative research and offer greater insight for future researchers. To ensure valid reliable results, I verified the participant role and what their responsibility is within the organization, I member checked the interviews for accuracy, I triangulated the data using multiple sources, and compared the interview data to my existing literature review and the case study's conceptual framework until I no new information or theme was determined. Reaching data saturation ensures the validity of the study findings. As part of self-discovery in relation to this doctoral study, I leaned to put aside any personal bias that I may have had entering the project. I used self-checking to ensure that the research from both the semi-structured interviews and the outside literature data was void of any interference of my own personal bias to ensure reliability and validity of the data.

Transition and Summary

In Section 2, I outlined the proposal for my doctoral study by restating the purpose of the study and the role of the researcher. I identified the participants involved in the interview process as well as the research design and methodology. I explained the data collection elements, data collection techniques, data analysis and how each ensures reliability and validity of the study. Moving to Section 3, I have used the Baldrige Excellence Framework as the tool to measure the successes of my consulting client

organization in leadership, strategy, customers, measurement, analysis and knowledge

management, workforce, operations, and results.

Section 3: Organizational Profile

The Baldrige Excellence Framework and its Criteria for Performance Excellence incorporate seven categories which represent key areas of an organization. My client organization business leaders use this framework to incorporate proven practices toward leadership to help the organization rise to specific challenges, increase corporate strength, and successfully manage operations to achieve their mission and goals. The seven categories are classified as (a) leadership; (b) strategy; (c) customers; (d) measurement, analysis, and knowledge management; (e) workforce; (f) operations; and (g) results (Baldrige Excellence Framework, 2023–2024).

Key Factors Worksheet

Organizational Description

The XYZ Company is a public water and wastewater utility that protects public health and the environment by providing clean drinking water and wastewater (sewer) services to their specific areas. These services are delivered directly to their customers via a work process described later in this document. XYZ Company has been providing potable water to residents of its service area since the early 1900s, when the city council created a commission to manage the city's drinking water supply. Since then, technological advances in water treatment and distribution have made XYZ's drinking water some of the cleanest, safest water in the United States. The original pumping station, built within that time, is now the site of the current water treatment plant. The buildings were refurbished in the 1980s to house the plant's administrative offices and laboratory staff.

Organizational Environment

The following is an overview of the client organization chosen for my consulting capstone project study. The client is a public water and wastewater utility. They provide clean water services to their customers.

Product Offerings. The client is a public water and wastewater utility that protects public health and the environment by providing clean drinking water and wastewater (sewer) services to their area. These services are delivered directly to their customers via a work process described later in this document.

Mission, Vision, and Values. The company has established a specific MVV. The mission statement is to protect public health and enhance the environment of the service community by providing clean water services of exceptional quality and value. The vision statement is to achieve excellence and exceed customer expectations. The cores values are teamwork, ethical behavior and integrity; accountability; customer service focus, both internal and external; open and honest communication, and innovation. The core competencies are treating and distributing high-quality drinking water; collecting, transporting, and treating wastewater; and providing abundant water supply for customers and for fire protection. Table 1 shows XYZ's mission and vision statements and core values and competencies.

Table 1

Mission, Vision, and Challenges

Mission	To protect public health and enhance the environment of our service community by providing clean water services of exceptional quality and value
Vision	Our Vision is to become worthy of the Malcolm Baldrige National Quality Award for our customers, our community, and our future
Core Values	Teamwork; Ethical behavior & Integrity; Accountability; Customer service focus (internal and external); Open/honest communication; Innovation
Core Competencies	- Treating and distributing high-quality drinking water - Collecting, transporting, and treating wastewater - Providing abundant water supply for our customers and for fire protection

Note. Customer expectations that serve as benchmarks for achieving excellence and exceeding customer satisfaction in alignment with the vision statement.

Workforce Profile

The organization comprises 430 associates with two key employee groups: operations and administration. The administration offices are open from 8 am to 5 pm, Monday through Friday. Although there have been no significant changes in workforce composition or needs, there is anticipation that there will be an increase in retirements within the next few years. The company has addressed senior leaders' succession and is managed, planned, and integrated with a system for talent management and career development. The organizational chart of officers and directors is as follows:

Assets. The company maintains five facilities and a vast network of water and wastewater collection pipes, pump stations, and other infrastructure totaling over $1,300,000,000 to support the key processes. Table 2 includes the most recent balance sheet for the XYZ Company:

Table 2

Condensed Statement of Net Position

Condensed Statement of Net Position				
For the years ended December 31, 2022, 2021, and 2020				
	2022	**2021**	**2020**	**% Change 2021-2022**
Assets				
Current assets	$ 606,564,108	$ 591,090,147	$ 564,924,730	2.62%
Noncurrent assets	162,981,176	-	43,886,930	
Capital assets	1,346,737,759	1,313,765,599	1,277,714,297	2.51%
Total Assets	**$ 2,116,283,043**	**$ 1,904,855,746**	**$1,886,525,957**	**11.10%**
Deferred Outflows				
Deferred Loss - refunding	$ 42,327,209	$ 48,059,223	$ 26,433,026	-11.93%
Pension	4,986,414	6,334,840	7,971,741	-21.29%
Other postemployment ben	10,955,086	12,198,714	13,635,880	-10.19%
Total Deferred Outflows	**$ 58,268,709**	**$ 66,592,777**	**$ 48,040,647**	**-12.50%**
Liabilities				
Current liabilities	$ 72,127,498	$ 73,502,969	$ 55,799,249	-1.87%
Noncurrent liabilities	929,137,100	793,178,097	811,884,366	17.14%
Total Liabilities	**$ 1,001,264,598**	**$ 866,681,066**	**$ 867,683,615**	**15.53%**
Deferred Inflows				
Accum increase hedging	-	-	$ 31,761,630	0.00%
Pension	$ 1,899,261	$ 7,963,653	484,973	-76.15%
Other postemployment ben	2,788,260	2,019,987	458269	38.03%
Total Deferred Inflows	**$ 4,687,521**	**$ 9,983,640**	**$ 32,704,872**	**-53.05%**
Net Position				
Net investment in capital assets	$ 760,187,251	$ 739,927,868	$ 701,700,121	2.74%
Restricted for debt service	44,969,896	36,475,472	32,533,324	23.29%
Restricted bond covenants	20,199,819	19,672,510	19,611,623	2.68%
Unrestricted	343,242,667	298,707,967	280,333,049	14.91%
Total Net Position	**$ 1,168,599,633**	**$ 1,094,783,817**	**$ 1,034,178,117**	**6.74%**

Regulatory Requirements. The organization is an independent public utility governed by an elected board of commissioners. The governance structure and service

area are specified by state law. The board consists of three commissioners elected by voters for 6-year staggered terms, and the mayor also serves on the board. The CEO reports directly to the commissioners and carries out the policies set by the commissioners. The CEO has four direct report officers who are responsible for 15 department directors. Figure 1 is the organizational chart.

Figure 1

Organizational Chart
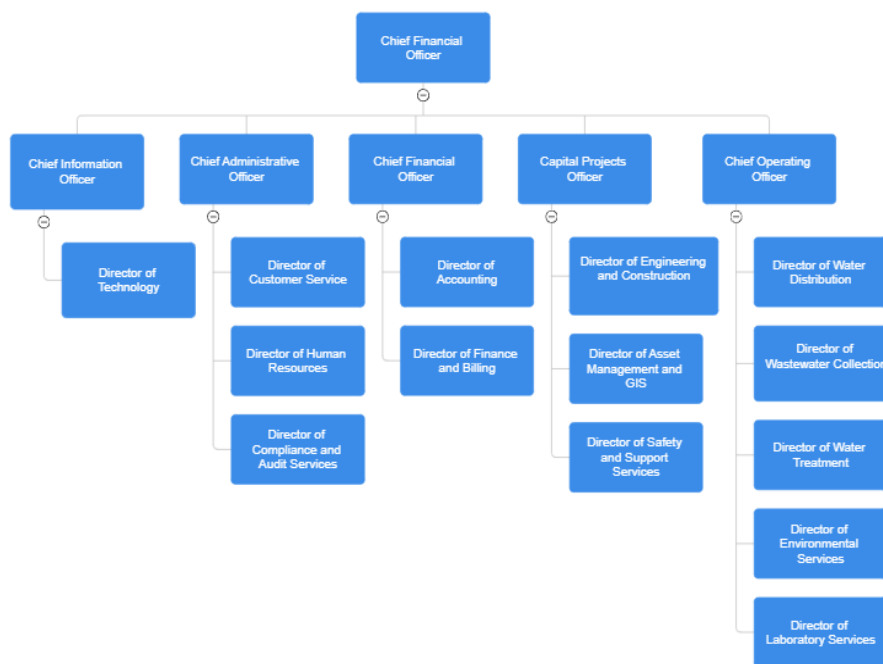
Organizational Relationships

Organizational Structure. The key method for communication and building relationships with suppliers and partners includes agreements with defined service goals. The Purchasing Policy establishes guidelines for the procurement of goods and services

based on the product or service purchased and the associated cost. To ensure the integrity of the process, solicitations define the communication mechanisms during the procurement process. Currently, to allow for better pricing and supplier relationships, multiyear agreements are established, which allows for time for the supplier to gain an understanding of the work process and provide feedback to maximize better service. The key suppliers include chemical vendors whose products are critical to the main process of the organization.

Customers and Stakeholders. As is typical in a public utility, the service area is exclusive and without competition from other public water utilities. A written contract defines any services provided within other municipalities. The key market groups of the company are water and wastewater. There are two key customer groups: water only and water and sewer customers.

Suppliers and Partners. The key method for communication and building relationships with suppliers and partners includes agreements with defined service goals. The Purchasing Policy establishes guidelines for the procurement of goods and services based on the product or service purchased and the associated cost. To ensure the integrity of the process, solicitations define the communication mechanisms during the procurement process. Currently, to allow for better pricing and supplier relationships, multiyear agreements are established, which allows for time for the supplier to gain an understanding of the work process and provide feedback to maximize better service. The key suppliers include chemical vendors whose products are critical to the main process of the organization. The organization purchases more than $25,000,000 worth of products and

services each year, ranging from chemicals to pipes and fittings, and is continuously looking for good vendors to supply those items. The procurement team is an active member of the National Institute of Governmental Purchasing. Formal procedures require solicitation by an invitation for bid or a request for proposals, which may be advertised in The Post and Courier newspaper and industry publication at least 14 days prior to the date offers are due. Direct solicitation documents are mailed to vendors on the vendor list for the item sought, and Dodge Reports, if applicable. Offers on informal (small) purchases are solicited by mail, fax, or telephone from a minimum of three vendors on the Vendor List. Informal purchases do not require public advertising. The informal bid process, from solicitation to the opening of offers, takes from one to seven days. The evaluation and award process may take up to three additional days.

Organizational Situation

Competitive Environment

Monopolistic utilities are averse to change. However, they serve an increasingly aware and demanding group of stakeholders. The customer's expectations of the water service provider are constantly increasing, both in terms of performance and rates. The owners are concerned about costs and risks. This situation has created opportunities in the water industry that the privatization companies are capitalizing on.

Competitive Position

Most water treatment systems are of an age that need significant capital renewals and replacements. According to the U.S. Environmental Protection Agency (2021) stated that the cost of water infrastructure replacement in the United States over the next 20 years is estimated to be $76,300,000,000. These numbers tend to understate the need

because these are U.S. Environmental Protection Agency-qualified needs. Whatever the true number, this is undoubtedly a major undertaking. Building new or expanded facilities, or replacing outdated or inadequate facilities, will require investments by utilities and rate increases to pay for the debt.

Competitiveness Changes

Privatization will likely continue to change the landscape of the water industry. New industry-wide expectations for service, performance, and costs are emerging simply because privatization exists as an option for service delivery in the water utility marketplace (Ward, 2020).

Comparative Data

There is growing political support for privatization. This can be related to the political benefits of privatization that may not be available through other forms of service delivery. The private operation of public services tends to eschew such political interference, as there tends to be more stability in leadership and the specific operations of privatized public service operations (Ward, 2020). The United States Conference of Mayors (2022) as cited in (Water Mission, 2022) found that the political interest in public–private partnerships was expanding. Of 261 cities surveyed, 40% currently had some form of public–private/partnership. Another 14% of the cities without any public–private partnerships were considering it. The most common services that were privatized are shown in Table 3.

Table 3

U.S. Conference of Mayors Survey - Privatization of Organization Services (Water

Mission, 2022)

Service	Existing (%)	Future (%)
Design and construction	71	36
Meter reading	33	73
Billing and collection	31	50
Distribution system operations and maintenance	25	32
Treatment facility operations and maintenance	19	41

Given the data presented and the status of the industry, there are a myriad of challenges that lie ahead for the water industry in the coming decade. There is also a great opportunity for water utilities to incorporate new technologies into their current operations, equip their employees with new skillsets, and utilize younger generations' perspectives and talents to advance the industry to a place that embraces innovation and new solutions rather than one playing catch-up. The industry must work with its customers and develop new partnerships to generate new funding sources and solutions to decades-old problems. Creativity, engagement, trust, and stepping out of comfort zones will be required for utilities to upgrade their infrastructure to build a resilient system to deliver affordable and high-quality water to customers in the face of climate change.

Strategic Context

Utility companies are consistently seeking ways to foster economic development for both financial and political reasons. The public utility sector must formulate a comprehensive economic development plan. This strategic plan (SP) should recognize and capitalize on fundamental facts about the domain in which it operates. A successful

strategy will remove limitations that are self-imposed over history and encourage the utility to venture into new enterprising ways that reflect its ability to expand and grow within its territory.

Performance Improvement System

To measure success, the factors that the XYZ Company measures are customer service, financial management, workforce engagement, and operational performance. Company leaders strive for excellence and have implemented the following elements for performance improvement:

- the Baldrige Framework for Excellence

- ISO 14001: Environmental Management System

- innovation management process

- strategic planning process

- team structure

- approach, deployment, learning, and integration model

Leaders focus on measurement and results per the SP, as outlined in Figure 2.

Figure 2

Strategic Plan for the Performance Improvement System
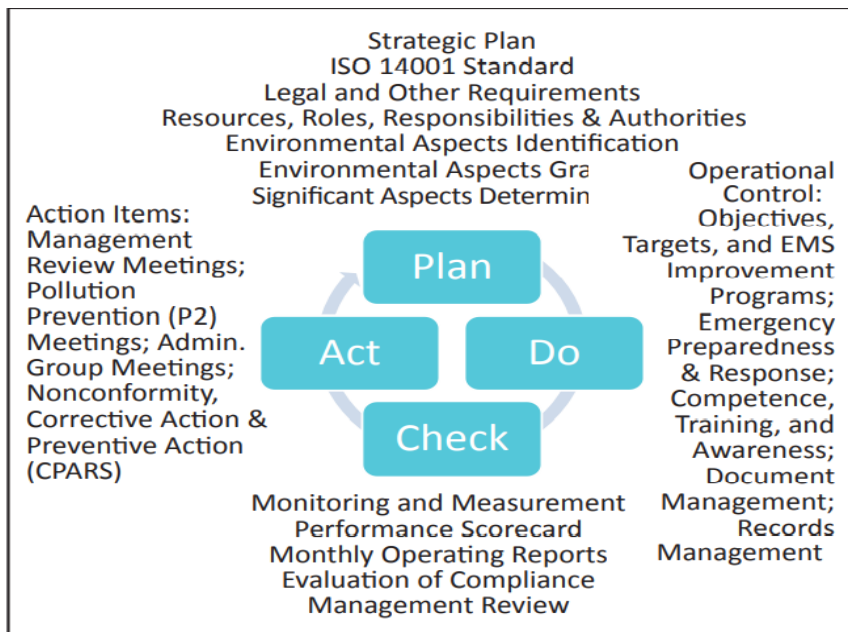
Note: P2 (Pollution prevention), CPARS (Corrective or Preventative Action Request System), ISO (International Organization of Standardization), EMS Environmental Management System)

Leadership Triad: Leadership, Strategy, and Customers

The criteria for performance excellence in a public utility company, often based on frameworks like the Baldrige Excellence Framework (2023–2024) encompass a comprehensive set of principles and practices aimed at achieving operational excellence and delivering value to stakeholders. This framework typically includes categories such as leadership, strategy, customers, measurement and analysis, workforce, operations, and results. Under each category, specific criteria are outlined to guide the organization in areas like strategic planning, customer focus, workforce development, process improvement, and performance measurement. By adhering to these criteria, public utility companies can strive for continuous improvement, increased efficiency, and enhanced

customer satisfaction while ensuring the effective management of resources and the fulfillment of their mission to provide reliable and sustainable utility services to the public.

Leadership

Senior Leadership

Senior leadership's approach to setting the organization MVV is determined principally through the development of the SP within the vision achievement team, strategic plan leadership team, and the strategic steering team, including departmental point leaders and associates through a team design matrix known as the XYZ Company team structure as shown in Figure 3. Consistent communications, cross functional teams, training, and modeling behaviors further reinforce the MVV among associates. Key suppliers and stakeholders are made aware of the MVV during contract negotiations, contractors' meetings, and correspondences. Customers are kept apprised of the MVV through banners or video monitors in every customer center and every mailing sent forth by the company. Learning is achieved through implementation of the Baldrige Criteria for Performance Excellence, which is the foundation and framework for continuous improvement. Engagement and participation on a strategic team occur as a requirement on each associate's performance appraisal. Overall results are tracked by annual associate survey questions regarding the understanding of the long-term strategy of the organization.

Figure 3

Leadership Model
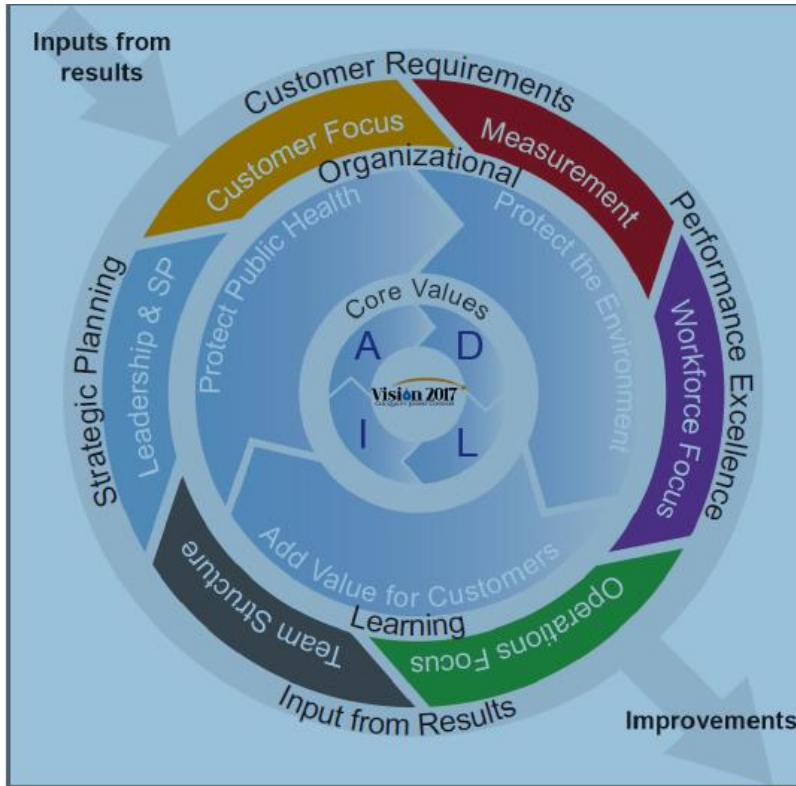
Governance and Societal Responsibilities

In support of the organization's strategic advantage and the core value for

accountability, the senior leadership's approach to demonstrating their commitment to

legal and ethical behavior is accomplished through modeling appropriate behaviors,

maintaining and enforcing formal policies and procedures, and participating in systematic

education processes such as leadership academy classes and biennial ethics training.

Workforce activities are monitored through internal and external audits and confidential

audit reporting. Breaches of ethical standards are not tolerated, and corrective actions are

adjudicated as appropriate. There is a compliance and audit services department, which was established in 1986, and a human affairs Team, which has been deployed since 1995, to address these actions. Additionally, a grievance and arbitration process, internal ethics hotline and code of conduct policies were established to promote and facilitate ethical behavior throughout the organization. The company's approach to ensuring responsible governance occurs thorough the established systems for performance management. These systems demand ethics, internal and external financial and process measurement, auditing, legal fiduciaries, and regulatory compliance. Key aspects of these requirements are reviewed and achieved in accordance with approved by-laws for governance including board accountability, state and federal regulations, and policy disclosures.

Using feedback from the Baldrige Collaborative Assessment, company leaders established a systematic process for identifying and selecting strategic partnerships within the local community. Within the guidelines, company leaders chose two primary partners whose efforts have had an impact on local and global communities. The first was Trident United Way, which has focused on education, increased gainful employment, and increased availability for health care services within the local area (Trident United Way, 2022). The other service, Water Missions International, was chosen because of its efforts related to water purification, which has resulted in safe water serviceability for over 230,000 people worldwide as of 2022 (Water Mission, 2022). Senior leaders, in concert with the workforce, contribute to improving its service communities through financial support, encouraging workforce participation, and personally serving on a wide varied of community boards. Senior leaders occasionally provide direct hands-on involvement with

community improvement programs. These initiatives are endorsed by senior leaders and administered in pursuit of the company's strategic goal to become leaders in societal responsibility and community involvement and integration.

Strategy

XYZ Company leaders have been conducting formal strategic planning for over 20 years. The approach to balancing short-term and long-term strategic goals and objectives is defined in the company's standard operating instructions (SOIs), which include a flexible, agile SP deployment strategy. The long-term goals are established by the strategic steering team. Balancing the stakeholders' needs is addressed in the SP and SOI and is deployed through the internal and external strengths, weaknesses, opportunities, and threats (SWOT) analyses, budgeting process, and monthly strategy meetings. A systematic process utilizing the plan, do, check, act approach, was created to ensure the SP update process is structured, formally captured, deployable, repeatable, integrated, evaluated, and improved through the feedback process. The utilization of these mechanisms aligns the organization with its core competencies, strategic challenges, and strategic advantages. This phase of the strategic planning process utilizes biannual SWOT analysis, customer surveys and feedback from internal and external customers, suppliers, and stakeholders. The company also provides for a 5-year SP update process as shown in Figure 4. The officers of the organization serve as champions for each steering team. the CEO is champion for the leadership and strategic planning team, the chief administrative officer serves as the champion for the customer focus team, the chief operating officer serves as the champion for the operations focus team, the chief

financial officer champions the measurement team, and the chief capital projects officer serves as champion for the workforce focus team. Through this creative approach, all associates have been assigned to a strategic team and area. The SP process is integrated with the continual improvement process and is linked to departmental performance.

Figure 4

Update Process for 5-Year Strategic Plan
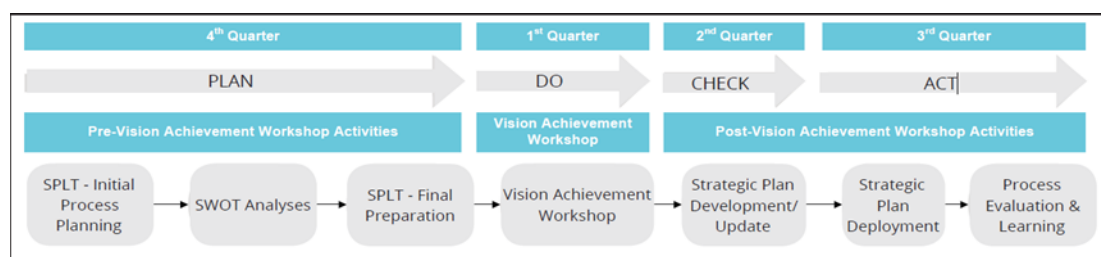
Note: SPLT (Strategic Plan Leadership Team), SWOT (Strengths, Weaknesses, Opportunities, Threats.

Strategy Development

XYZ Company's approach to strategy development utilizes the SP process to create an environment that supports innovation. A significant number of inputs through brainstorming and creative thinking occur at vision achievement workshops to promote and realize innovation. The primary vehicle for deployment occurs through steering teams, point leaders, and cross-functional teams to solve problems. This approach is integrated with all associates serving on at least one team within the SP framework. Steering teams and point leaders meet quarterly to discuss pertinent improvement ideas. Individual associates are strongly encouraged to seek innovative solutions to improve processes. The company's open culture approach to innovation and continuous

improvement allows associates to submit suggestions informally and formally. Many innovations are learned at local, state, national, and international conferences from which associates bring back valuable best practices to share with the organization.

Strategy Implementation

The company's approach to identifying strategic opportunities is through SWOT analyses which are conducted in all departments in preparation for the strategic planning workshops which occur every 2 years. Recent learning opportunities identified include (a) use technology to improve customer service efficiency, (b) reduce costs, (c) improve public education and community involvement, (d) enhance relationships with stakeholders, I tap into the knowledge of vendors and partners, and (f) expand environmental initiatives. The SP process is integrated with the continual improvement process and is linked to departmental performance. Team incentives and environmental management system improvement programs. Deployment was also aligned with individual performance via smart goals on performance appraisals. Through the team structure, the ability to execute the SP is assured.

Balancing short-term and long-term strategic goals and objectives is defined in the SP and SOI which addresses deployment, and includes a flexible, agile deployment strategy. The approach to balancing stakeholder needs is also addressed in the SP and SOI and is deployed through internal and external SWOT analysis. The voice of the stakeholder is used as an input into strategic planning workshops. Implementing strategic action plan deployment to key suppliers and partners is accomplished through the company website, vendor communication process contracts, pre-constructions, and the

newly instituted vendor portal. The SP deployment outcomes are sustained through the

establishment of systematic processes including scheduling, results monitoring, SOIs,

responsibility identification, execution, post evaluation and continuous improvement.

Table 4 shows an example of an action plan used by strategic teams within the company.

Table 4

Strategic Action Plan

Strategic Objectives	Strategic Goal (Summary of pending Strategic Plan items (2012-2015)
Leadership and Strategic Planning	- Transform operations and organizational structure to eliminate departmental silos. - Enhance our leadership position in environmental stewardship. - In order to fulfill our societal responsibility and strengthen key communities, be a nationwide leader in the industry for community involvement initiatives.
Measurement	- Develop a systematic process for the identification of performance indicators and implement a measurement hierarchy systematically linking Performance Indicators to Key Performance Indicators - Work with Information Technology (IT) to align priorities with strategic goals annually when the IT Master Plan is reviewed and updated.
Core Values	- Systematically monitor and assess improvement initiatives and performance results. (Partner with Measurement)/ - Fully implement a comprehensive Asset Management Program to include infrastructure and technology. - Proactively manage innovation. (Partner with Leadership).
Core Competencies	- Treating and distributing high-quality drinking water - Collecting, transporting, and treating wastewater - Providing abundant water supply for our customers and for fire protection

Action plans are reviewed and modified at strategic monthly meetings. The approach for establishing performance projections is based upon factors such as past performance, benchmarking data, historical trend rate, and assumptions about future conditions. It is observed within performance software and on performance measurement charts. This approach is deployed on short and long-term performance indicators as is aligned and integrated with the SP. Learning occurs through continuous monitoring, action plan adjustments, and continuous improvement efforts.

Customers

The customer service contact center, dispatch, and branch offices serve as the primary points of contact between customers and the XYZ Company. The majority of customer interaction is done by phone, which survey results showed was best method of contact. The contact center handles non-emergency customer phone calls, emails and forms submitted through the company website. Dispatch handles calls about water and sewer emergencies and service-related inquiries that require follow-up by technical crew. The branch office staff serves customers who walk into one of two office locations for face-to-face transactions.

The cross-functional social media team monitors XYZ's social media accounts and works with the appropriate department to immediately address complaints/inquiries and share customer feedback. Complaints received through social media are captured in the complaint database or work order system, as appropriate. The use of social media at XYZ Company is particularly effective during crisis situations, such as water outages. Customer account information is managed through the customer relationship information

system (CRIS), which was developed and is maintained by the information technology department to meet customer support needs by providing fast access to detailed account information The cross functional customer service support team, which is made up of associates from customer service, information technology, billing, and accounting, meets monthly to discuss, prioritize, and track improvements to CRIS, the customer service phone system, online payment system, and other customer support systems as needed based on customer and associate feedback. Complaints related to billing and customer support are captured in the complaint database for immediate follow-up/resolution and category trend analysis, which is used to identify actionable improvements. Technical complaints, which are those related to water or sewer service problems, are documented, and managed through the database, and often require dispatching a crew or technician to investigate or make a repair. Technical complaint data is monitored continually and used to address water quality concerns and other service-related issues.

Customer Expectations

The XYZ Company's approach to customers' expectations is derived from listening and capturing actionable feedback which has been evolved based on learning from instituting Baldrige Collaborative Assessment feedback reports, changing technology, and benchmarking. The company instituted focus groups to gain insight on customer needs, preferences, and opinions and have scheduled focus groups for a minimum of every 3 years, or more frequently, if needed.

Customer Engagement

The XYZ Company encourages customer engagement through the use of customer surveys. Surveys provide lagging satisfaction data and feedback about customers' expectations and support preferences. The company uses a professional research company to conduct two separate surveys:

- contact center survey: This is a monthly call-back survey of a random sampling of customers who interact with the contact center to determine satisfaction with customer support.

- customer survey: This is a comprehensive survey to gain insight into customers' satisfaction, engagement, communications preferences, and interest in new services, such as live web chat. This survey is done quarterly with results reported quarterly and annually to provide more time and actionable feedback. The survey instrument includes core questions that remain unchanged for trending purposes, but the survey is reviewed each year by the customer focus and leadership and SP steering teams. Questions are added or deleted as needed to gather relevant, actionable feedback.

Results Triad: Workforce, Operations, and Results

In support of the strategies developed for XYZ Company, workforce capability and capacity needs are assessed in a gap analysis as part of the company's strategic planning process. Capacity is viewed annually in the budgeting process with leaders analyzing anticipated business conditions as well as attrition forecasts from their succession plan. This process is repeated when vacancies in positions occur. The

capability needs for skills and competences are assessed in an annual performance appraisal process which is integrated across all areas and linked to strategic planning.

Workforce

Workforce Environment

Managing the workforce is linked to strategic planning and development. The company's ability to learn is met in the need to maintain current legally required certifications and industry standard skills. The company has used various recruiting methods and has enabled them to obtain a federally approved apprenticeship program for several key positions. The process is managed by the human resources department and deployed using federals guidelines. Apprenticeships are measured by successful completion of training and testing within the program. On a day-to-day basis, managers and department leaders manage productivity and staffing through work order systems and productivity management tools.

The company's approach to recruitment is to hire the best qualified, right-fit candidates. Position openings are posted for a minimum of ten workdays. Most are posted internally only, allowing the company to grow and recruit from its own workforce. Interviews are conducted in a panel format. Candidate's qualifications are evaluated against job criteria based upon the core competencies of the job. New associates participate in orientation and a systematic onboarding process including checklists, assigning a work buddy to help guide and coach new associates for their first six months, as well as immediate assignment to a strategic team to help ensure proper alignment of company values culture, and commitment to customer focus.

In the company's overall approach to associate satisfaction is maintaining fair treatment through equitable and consistent policy administration. The company provides excellent benefits and associate services to promote the welfare, safety, and security of associates and their families. Striving to maintain a balance between work and home life is important to the company's associates and leaders and has been identified as one of their engagement drivers for company administration.

Workforce Engagement

In support of the company's SP, the values of open and honest communication, teamwork, and performance excellence are expressed through a highly engaged workforce. This has fostered a culture of high performance and a high degree of diverse ideas, cooperation, and motivation. The company leaders' approach begins with their team incentive program. In addition, a number of cross-functional teams and tools engage the workforce and deploy continuous improvement initiatives. Diverse ideas are essential in the learning process of the company. To drive the best ideas and thinking, all of the company associates are required to participate in strategic steams or team structure. These teams are selected by the executive leadership team with input from department leaders to ensure integration across the organization as well as diversity in relevant skill, talent, thinking, backgrounds, cultures, and segments of the associate population. The associates are empowered through a culture of continuous improvement via associate surveys, meetings, open door policy, spot awards and an innovation forum. This diversity of ideas allows the company to obtain a wealth of feedback from a variety of perspectives that produces outcomes accepted by the majority of the associates.

The company's approach in support of high-performance work and engagement includes interdependent components for workforce planning, talent management, training and development, and performance management tied together in deployment strategies. These efforts achieve continuous improvement and organized learning, as shown in Figure 5.

Figure 5

Workforce Development System
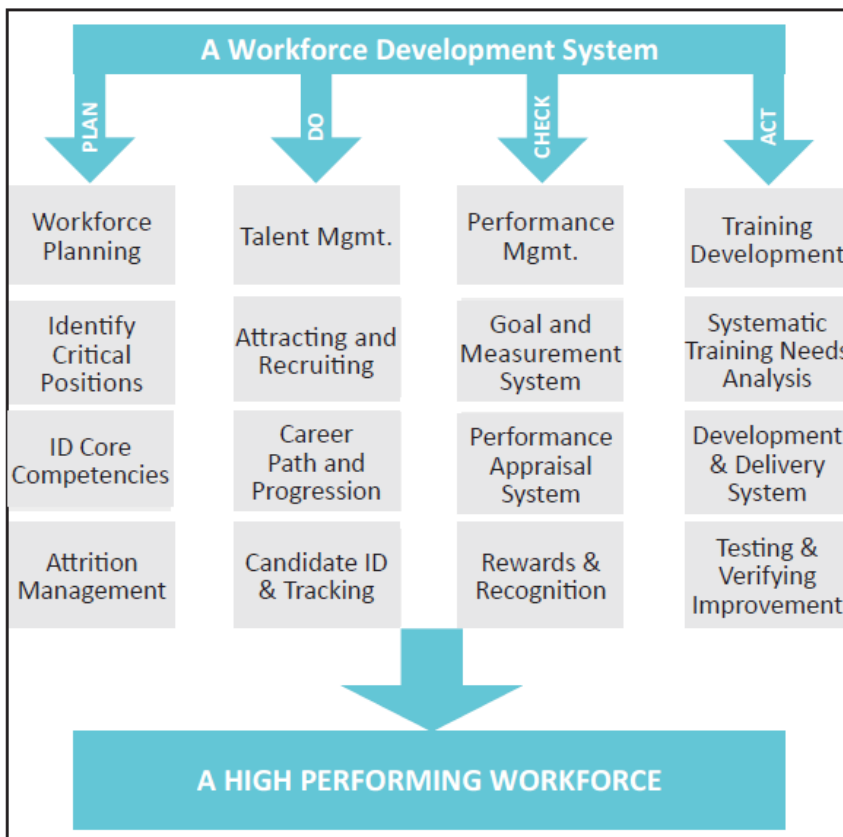
Note. The figure illustrates XYZ's simplified workforce development system to promote continuous improvement and organized learning.

The company provides numerous opportunities for associates to develop and enhance their career progression potential. The company offers a tuition reimbursement program, continuing education through professional organizations and certificate programs, leadership training to all associates, potential career paths are outlined on job descriptions to help with cross-training and development and apprenticeship programs. While the main focus of career progression is placed on associates, the human resources department manages the process through various plans and programs and integrates career progression through performance appraisal processes and a talent management database. There is an active contingency plan for identifying key roles as well as a succession plan for other roles in all segments of the company.

Operations

The hierarchy of systemic approaches to design, manage, improve, and innovate work processes uses seven quality principles that represent the work system and is used to design and manage all key work and support processes, while capitalizing on the company's core competencies. These include customer focus, MVV, continuous improvement, innovation, teamwork, data-based decision making, and integrated and strategic planning.

Work Processes

The company's key work processes are the production and distribution of potable water. The collection and treatment of wastewater and the key requirements for these work processes are directly aligned with the company's key customer requirements to build upon their strategic advantage and core values of customer focus. Their key

learnings are reflected in corporate incentives that are designed to improve associate understanding of how the daily work directly impacts improved process performance and, in turn, customer satisfaction levels.

Operational Effectiveness

Product excellence and customer value are stressed throughout the organization utilizing quality principles. The processes are designed around customer key requirements/satisfaction and aligned with the company's MVV, SP, and core competencies. Customer focus is a core value and a quality principle for work process design. The company utilizes key performance indicators to control and improve key work processes. In-process measures are central to daily process control. The daily operations are designed to meet process requirements through the use of highly trained and certified personnel, automation, computerized systems for monitoring, control, and simulation. Online instrumentation continuously monitors process parameters to ensure all processes are operating within specifications. In general, workforce, customer, supplier, partner, and collaborator input are central to the company's approach for determining end-product quality and performance requirements.

Measurement, Analysis, and Knowledge Management

In a water utility company, the Baldrige system is instrumental in measuring, analyzing, and improving organizational performance (Baldrige Performance Excellence Program, 2023). It begins with the identification of KPIs specific to the company's objectives, encompassing areas like water quality, distribution efficiency, customer satisfaction, and financial sustainability. Continuous data collection and monitoring are

maintained through sophisticated systems and processes, ensuring real-time insights. Analysis involves benchmarking against industry standards and competitors and engaging in root cause analysis for any performance deviations (Baldrige Performance Excellence Program, 2023). Improvement strategies are then developed, focusing on infrastructure upgrades, process optimization, and staff training, while maintaining a strong emphasis on quality assurance and regulatory compliance. The Baldrige framework instills a culture of excellence through leadership commitment, customer engagement, and an adaptable, data-driven approach, creating a pathway for sustainable performance improvement that aligns with the company's long-term goals and objectives.

Measurement, Analysis, and Improvement of Organizational Performance

The XYZ Company's primary approach to ensure that day-to-day operations of their key processes meet key business support requirements is found in the key work support processes and performance indicators. The key work support processes include deployment of the SP, coordination of the environmental management system, integration of information technology, management of the supply chain, laboratory services, fleet maintenance, engineering and construction, customer liaison functions, accounting, budgeting and finance functions, internal auditing, and workforce development. These processes are monitored using key performance indicators and published to department leaders on a monthly basis.

Information and Knowledge Management

The Company's performance improvement management system is their approach to improving work processes, improving products and performance, enhancing core

competencies, and reducing variability. The company uses an improvement and innovation model that details the primary deployment, learning and integration mechanisms to monitor progress. The model reflects how opportunities for improvement are identified and addressed throughout the organization. Some of the elements of the improvement and innovation model are the environmental management system that provides the framework to improve work processes through a process called the plan-do-check-act continuous improvement model. Key process teams use that methodology to achieve better performance. Since core competencies are aligned with their key work process, systematic improvements to the processes translate to enhanced core competencies, for example, improvements to water distribution key processes have strengthened the company's ability to provide adequate water supply during fire emergencies. Six Sigma methodologies, including trend analyses and statistical process control are used to reduce variation within key processes. This method is primarily used to link key process variables to product/service attributes in order to consistently meet requirements.

One key factor regarding this study is the company's approach to supply chain management. The company manages the supply chain as a key support process. Suppliers and partners provide products and services that enable the company to meet the needs of the customers and are integral to the success of the organization. Important factors that contribute to supply chain management and qualified suppliers are needed to meet operational needs, enhance performance, and maintain customer satisfaction. Various methodologies, including emergency services, are utilized to procure the materials and

services needed to maintain sustainability. Supplier performance is continuously evaluated against standards and specifications in order to maintain the integrity of prequalified lists and suppliers that were selected to provide materials through the inventory department. Feedback is provided through meetings, email, web postings, surveys, participation in industry professional events, and written agreements with defined service levels. Suppliers that do not meet standards and specifications are informed through the delivery and acceptance process and may be placed on probationary status or removed from supplier eligibility.

<div align="center">

Collection, Analysis, and Preparation of Results

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The purpose of this qualitative single-case study was to explore strategies that business leaders use to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve their organizational mission. To analyze the collected data, I used Braun and Clarke's (2006) thematic analysis framework. NVivo software was employed to facilitate the process. The thematic analysis culminated in the identification of six themes: stakeholder relationship building, supplier evaluation and monitoring, diversified supplier engagement, strategic planning for resilience, adherence to standards and regulations, and technological integration for resilience, as shown in Appendix D and Table 5. These themes are reflective of the strategies employed by the four participants to improve supply chain resiliency within their operations.

Table 5

Research Question and Corresponding Themes

Research question	Themes used to address the research question

What strategies do supply chain business leaders use to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve their organizational mission?	1. Stakeholder relationship building 2. Supplier evaluation and monitoring 3. Diversified supplier engagement 4. Strategic planning for resilience 5. Adherence to standards and regulations 6. Technological integration for resilience

Table 6 shows the number of participants whose responses aligned with each theme. The table also shows the total number of references associated with each theme in the data.

Table 6

Number of Participants and References Associated with Each Theme

Theme	No. of participants contributing to the theme (*N* = 10)	No. of references to the theme in the data
Theme 1: Stakeholder Relationship Building	4	7
Theme 2: Supplier Evaluation and Monitoring	4	31
Theme 3: Diversified Supplier Engagement	4	19
Theme 4: Strategic Planning for Resilience	4	71
Theme 5: Adherence to Standards and Regulations	4	10
Theme 6: Technological Integration for Resilience	4	5

Thematic Findings

The research question that underpinned the study was, What strategies do supply chain business leaders use to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve their organizational mission? The six themes that emerged from the interviews and data organization analysis represent

the strategies employed by supply chain business leaders to enhance raw material supply chain resiliency in a cost-effective manner, ensuring sustainability and alignment with organizational missions.

Theme 1: Stakeholder Relationship Building

The first theme derived from the thematic analysis is stakeholder relationship building. Stakeholder relationship building with stakeholders is a crucial step in enhancing the resilience of raw material supply chains. All four participants emphasized the significance of cultivating positive connections with various stakeholders such as suppliers, customers, and regulatory bodies. This aligns with contemporary managerial and academic perspectives, including Ravell (2023) and Kinder et al. (2019), who have advanced stakeholder theory to acknowledge the amplified influence of shareholders through digital networks like social media, blogs, and other platforms. These digital channels create a dynamic tension between stakeholder interests. Sustaining these relationships is indispensable for an organization's operations and reputation management, enabling proactive identification of reputational risks (Ravell, 2023). By adopting this strategic approach, existing knowledge in the field is reaffirmed while acknowledging that stakeholder engagement cannot be disregarded in today's digitally interconnected world.

Linking these findings to its conceptual framework, the study reflects a substantive overlap with the resource-based view, which is expressed here as relationships per se are resources that can give competitive advantage and resilience. The strategies for creating and maintaining these connections can be quite complex, as it

requires balance between negotiation or compromise with others on the one hand but also leverage of contextual knowledge on the other (Freeman et al., 2021). This balance is essential since stakeholders are not just buyers or consumers but may be influencers and opinion leaders. Therefore, robust stakeholder relationships are a form of intangible assets that organizations can rely on to go through supply chain disruptions in an orderly manner and maintain operational continuity.

Theme 2: Supplier Evaluation and Monitoring

The thematic analysis reveals that supplier evaluation and monitoring has become an essential strategy. All four participants emphasized its importance for supply chain resiliency. The way it operates is that there needs to be rigid and continuing measurement of supplier performance, which basically coincides with current literature stressing the need for a solid framework regulating suppliers in supply chain management (Aityassine et al., 2022). Participants provided different methodologies, such as using emergency services to secure material and continuous testing of suppliers against their standards or specifications. According to Heng et al. (2022), it helps to keep prequalified lists up-to date and saves them from being laid by the wayside, guaranteeing efficient operation of business and customer satisfaction. This approach is in line with modern risk management thinking, which says that it must be possible to assess proactively the quality of suppliers so as to reduce supply chain disruptions. Thus, supplier evaluation and monitoring confirm and expands upon existing knowledge on supply chain resilience.

The conceptual framework of the study is intrinsically linked to this theme, as it represents a strategic approach which uses supply chain relationships and performance

metrics for organizational longevity. Vendor Performance programs were also mentioned by participants as a comprehensive system for evaluating and communicating vendor performance, especially with key suppliers. These are all part of maintaining good supplier relationships and uninterrupted supply, even in extreme circumstances (Freeman et al., 2021). This active approach in finding alternative suppliers and consummating multiple-year contracts for both better pricing terms as well relationship building reflects the resource-based view, which maintains that external resources (suppliers), like internal ones must be managed to ensure a firm can continue to have competitive advantage (Dmytriyev et al., 2021). These results not only echo what has been written on good supply chain management, but they also provide tangible examples of how abstract concepts can be applied in actual practice, enriching our understanding of the dynamics behind organizations satisfying missions and seeking long-term survival.

Theme 3: Diversified Supplier Engagement

Another important theme was strategic planning for resilience. Strategic planning for resilience is the key to building up supply chain resilience, all participating parties agree. This theme is consistent with recent literature emphasizing that multi-suppliers are important in terms of both risk management and operational flexibility (Paul & Chowdhury, 2021)). Participant 4 said that in order to avoid overly relying on single sources, they used a diverse supplier base; and their response was flexible enough to track fluctuations of the market. This active approach not only ensures the continuity and adaptability of supply chains, but also reinforces the literature's argument that diversified sourcing is a strategy for building resilience.

Tying back to the conceptual framework, this theme reflects a strategic alignment with the resource-based view of the firm. From a strategic perspective, it aligns with our perspective of the firm's resources as a source of competitive advantage (M. U. Shah & Bookbinder, 2022). Engaging numerous suppliers expands the range of resources available to organizations and is a key method for sustaining competitiveness. Participant 3 highlighted the utilization of proactive investigation techniques and ongoing evaluation of supplier portfolios, emphasizing that it is crucial for these practices to be in line with organizational goals and market demands (Kayikci et al., 2022). These actions not only exemplify supply chain theory in practice but also contribute to enhancing the enterprise's ability to adapt and endure over time.

Theme 4: Strategic Planning for Resilience

Strategic planning for resilience emerged as a central focus in the study, as this can significantly enhance supply chain resilience. Gupta et al. (2020) suggested that anticipating and planning for risks necessitates proactive and strategic approaches. Additionally, all participants described the development of comprehensive resilience strategies encompassing scenario planning, risk assessment, and clearly defined response mechanisms. By adopting this proactive stance, organizations are well-equipped to handle disruptions promptly and adapt swiftly to changing circumstances. Ultimately, this affirms and broadens existing knowledge surrounding supply chain resilience.

Furthermore, this theme is intricately tied to the stakeholder's theory, reflecting a strategic approach that leverages planning and preparedness for organizational resilience (Freeman et al., 2021). Participants 2 and 4 highlighted the use of advanced analytics and

data-driven decision-making in strategic planning, allowing for real-time monitoring of supply chain performance and risk identification. They also mentioned the importance of cross-functional collaboration in the strategic planning process, emphasizing the need to involve various departments in risk assessment and response planning. These practices not only corroborate the literature on effective supply chain management but also illustrate the practical application of strategic planning concepts in real-world scenarios, enhancing our understanding of supply chain dynamics in the pursuit of organizational mission and sustainability.

Theme 5: Adherence to Standards and Regulations

Adherence to standards and regulations also emerged as a pivotal theme within the study, underscoring its critical role in bolstering supply chain resilience. This theme aligns seamlessly with contemporary literature that highlights the importance of compliance with industry standards and regulations for mitigating risks and ensuring operational continuity (Marinagi et al., 2023). Participants 1 and 3 emphasized their strict adherence to quality and safety standards in supplier selection and product procurement processes. They also discussed the significance of staying up to date with evolving regulatory requirements and proactively incorporating them into supply chain operations. This approach not only validates existing knowledge but also contributes to its extension by demonstrating the practical relevance of standards and regulations in achieving supply chain resilience.

Furthermore, this theme is intricately intertwined with the study's conceptual framework, reflecting a strategic approach that prioritizes compliance with external

standards and regulations for organizational resilience. Participants highlighted the use of

compliance audits and performance assessments to ensure supplier adherence to industry

standards. Additionally, Participant 2 emphasized the significance of maintaining

transparent communication channels with regulatory authorities to promptly address

compliance-related issues (M. U. Shah & Bookbinder, 2022). These practices not only

corroborate the literature on effective supply chain management but also underscore the

practical application of regulatory compliance in real-world scenarios (Wontner et al.,

2020). This enhances the understanding of how adherence to standards and regulations is

a vital component of supply chain dynamics, contributing to organizational mission

fulfillment and long-term sustainability.

Theme 6: Technological Integration for Resilience

The last theme from the analysis was technological integration for resilience

emerged. The theme highlights the pivotal role of technology in enhancing supply chain

resilience (Zhao et al. (2023). This theme aligns with contemporary literature that

emphasizes the strategic use of technology for risk mitigation and operational continuity

(Bigliardi et al., 2022). Participants 3 and 4 discussed the adoption of advanced

technologies such as blockchain, Internet of Things, and AI to streamline supply chain

operations, improve visibility, and enable real-time monitoring. This approach not only

confirms the relevance of technology in supply chain resilience but also extends

knowledge by showcasing the practical implementation of cutting-edge technological

solutions.

Furthermore, this theme is intricately tied to the conceptual framework, reflecting a strategic approach that leverages technological integration for organizational resilience. All participants highlighted the use of predictive analytics to identify potential disruptions and proactively address them. They also emphasized the importance of data sharing and collaboration among supply chain partners through digital platforms, enabling seamless communication and coordination (Kayikci et al., 2022). These practices not only corroborate the literature on effective supply chain management but also illustrate the practical application of technological integration concepts in real-world scenarios (Freeman et al., 2021). This enhances our understanding of how technology plays a transformative role in supply chain dynamics, contributing to organizational mission fulfillment and long-term sustainability.

Product and Process Results

Company XYZ is in existence to provide water services and wastewater services directly to their consumers. The company is an independent public utility governed by an elected board of commissioners and the governance structure and service area are specified by state law. The company's team structure provides avenues for innovation, communication, and associate engagement focusing on measurement and results that help the company track its progress toward excellence.

With a focus on cost reduction and sustainability, the organization employs strategic methods to enhance the resilience of XYZ Company's supply chain. A central aspect of this approach involves implementing a vendor performance program, which serves as a comprehensive system for evaluating and communicating vendor

performance, particularly with regard to critical suppliers. This program is integral to the company's supplier relationship strategy, ensuring stability for suppliers and uninterrupted supply even in extreme circumstances. Furthermore, XYZ Company leaders actively seek alternative suppliers as part of its routine operations rather than simply as a precautionary measure. This proactive arrangement facilitates ongoing communication and prepares these suppliers for potential emergencies. Collectively, these strategies contribute to the strength of the company and align with its mission of maintaining efficient yet cost-effective supply chains that operate smoothly. These initiatives reflect the company's commitment to achieving performance excellence while demonstrating a deep understanding of supply chain dynamics and effective risk management practices.

Customer Results

The XYZ Company's leaders continue to develop and improve an approach to customer listening and interaction. The methodology does not vary between water only and combined water and sewer customers. Complaints related to customer support are captured in a database for immediate follow-up, resolution and category trend analysis which is used to identify actionable improvements. Any technical complaints are documented and managed separately, and specific crews are dispatched to technicians to analyze and repair.

The company's approach to listening and capturing actionable feedback has evolved based on learning from Baldrige Collaborative Assessment feedback reports, changing technology, and benchmarking. Because the utility does not have competitors,

118

there is no benchmark for customer satisfaction, however respondents via customer
surveys are asked to rate their satisfaction in comparison to their other utility providers
such as electric and cable. These results are compared with other water/sewer utility
companies, as shown in Figure 6.

Figure 6

Overall Customer Satisfaction

Overall Customer Satisfaction Average Rating (1-10 scale)
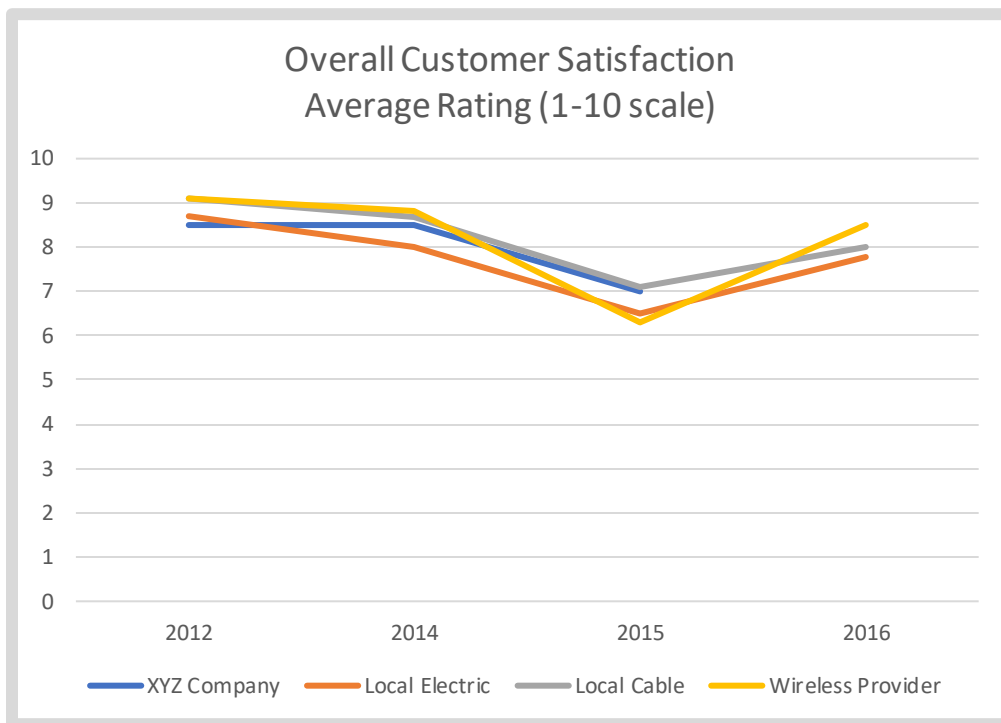
It is the belief of the organization that an abundant water supply and effective
infrastructure management are critical to fulfilling its mission, meeting customers' key
product requirements and positioning itself to expand relationships with current
customers and serve new customers as a result of population growth and economic

development. The company enables customers to seek information and support via the

key means of support listed in Table 7.

Table 7

Customer Requirements and Key Means of Support

Customer Support Requirements	Key Means of Support
Good customer service **Easy payment options** **Quick response when a problem occurs** **Core Competencies**	• Phone – automated service, speak to an agent, 24/7 emergency dispatch • Web – online bill payment, forms (open/close an account, request a document, leak adjustment) • Email • Social media – Twitter (X), Facebook, YouTube • Branch offices for walk-in and drive-thru service

Because the company provides essential public services without competition, their

approach to customer relationship building is creating value through public education and

exceeding customers' expectations. Public education is provided through speaking

engagements and participation in community events, customer newsletters, websites, and

social media.

Workforce Results

The workforce of the XYZ Company is the major backbone of achieving

customer satisfaction and quality in the drinking water and wastewater process. The use

of a workforce development system (see Figure 5) offers a systematic approach in

support of high-performance work and engagement. The process achieves continuous

improvement and organizational learning. Associate development and training are the

core of the workforce system. To reinforce new knowledge and skills on the job,

individual training needs involving job requirements, action plans, and innovation are

determined through the annual performance appraisal process. This is done at the

department level via an in-house leadership academy, as shown in Table 8. To evaluate

the effectiveness of learning and transfer of skills, the approach is to utilize a check-off

sheet outlining the competency-based performance expectations of the leadership

academy that follows the student into the workplace subsequent to attending each year

(deployment). This checklist is incorporated into the annual performance review to

ensure that the associate is applying learning from the leadership academy into everyday

work (integration).

Table 8

Competency-Based Performance Expectations of the Leadership Academy

Block	Description	Supports
1 **Leadership Fundamentals**	Focuses on building relationships, modeling behaviors, expectations, interpersonal skills, and communication skills.	Ethics, ethical business practices, customer focus, and reinforcement of new knowledge and skills.
2 **Continuous Improvement**	Teaches a hands-on PDCA using the seven-step problem-solving process. Groups work in cross-functional teams to solve real problems.	Supports organizational performance improvements, change and innovation, achievement of action plans, and reinforcement of new knowledge and skills.
3 **Baldrige**	Provides an in-depth study of the Baldrige Criteria and how we address the criteria utilizing our Strategic Plan Team Structure.	Core competencies, strategic challenges, and achievement of our short-term and long-term action plans.
4 **Statistics, Project Management And Lean Methods**	Explores process improvement using analytical data-based decisions, along with the CPMA's methods for professional project management.	Organizational performance improvement and innovation
5 **Teamwork**	In-tact team participants assess their teams for five dysfunctions in order to build a more effective working environment and team relationships.	Organizational performance improvement, organizational change, and innovation.
6 **Toastmasters**	Teaches leadership through enhanced communication and presentation skills.	Organizational performance improvement.
7 **Measurement**	Study of statistical process control, performance metrics and project management.	Organizational performance improvement and achievement of action plans.

Note: PDCA (Plan, Do, Check, Act), CPMA (Consumer Protection and Markets

Authority,

Leadership and Governance Results

The public works of the target city, doing business as XYZ Company, is organized according to the code of laws of its city. Pursuant to the 1976 city code, the full control and management for the operation of XYZ rests with the duly elected commissioners of public works of XYZ. Such duties and responsibilities may be delegated by the board of commissioners of XYZ to the officers of XYZ, who shall operate the utility under the direction and authority of the board. The board members are all actively involved with the ongoing operations of the firm. The CEO and other C-suite executives continue to develop an open-door policy with other department leaders and staff members. This open-door policy is an effective means to allow all members to have input into the operation of the business. Senior leaders communicate with the entire workforce using an open-door approach to frank, two-way communication.

The following are espoused in company policy and deployed to engage and learn from associates using a variety of systematic processes: Strategic team meetings, SKIP-level meetings, and department meetings. Senior leaders are available for one-on-one meetings with associates, in most cases without appointments. Actions are developed and taken as concerns warrant. Communications, as a company value, are to be open, honest, clear, timely, and involve listening and learning. Leaders are accountable for personally upholding this value in their annual performance appraisals. Key decisions are communicated primarily through our Hot/Warm/Cold Water bulletins and associate meetings. The Water Weekly (WW) newsletter, email, and the intranet website provide support to these two primary avenues. Integration is realized through the participation of

all departments and associates in these processes. Senior leaders recognize associates for good performance, training accomplishments and for service and safety milestones both in person and newsletters.

The company strives for a continual emphasis on equity, access, and belonging. This is evident in the mix of staff members and qualifications. The company's approach to ensuring responsible governance occurs through its established systems for performance management. The systems incorporate ethics, internal and external financial and process measurement, auditing, legal fiduciaries, and regulatory compliance. Key aspects of the governance requirements are reviewed and achieved in accordance with approved by-laws for governance including board accountability, state and federal regulations, and policy disclosures and elections.

Financial and Market Results

The XYZ Company operations are funded by revenue from rates and fees charged for water and wastewater service, interest-bearing investments, and revenue bond proceeds. Impact fees charged for new connections to water and sewer systems are an important source of revenue that can only be used for capital improvements related to growth. The company's fiscal year is January 1 to December 31, and an annual budget is approved by the board of commissioners. Net balances from cash reserves are held in cash reserves to reduce the amount of future borrowing for capital improvements.

Periodically the company will issue revenue bonds to fund capital improvement projects. These bond issues must be approved by the city council, and the ordinances that govern the borrowing terms require them to maintain net earnings to equal or exceed

120% of the annual principal and interest requirement in each fiscal year. Financial

reports are prepared in conformance with generally accepted accounting principles and

includes audited financial statements. Each year's report is completed in June of the

following year.

In regard to general trends, the area experienced slow growth in 2022; however,

the customer base expanded by approximately 1,540 new water accounts and 976

wastewater accounts. The utility is positioned to manage the continued growth in the area

as they have a plentiful water supply and ample capacity. The company employs

conservative management principles to maintain sustained and healthy debt coverage

from revenues and continues to build financial strength and stability as shown in Figure

8.

Figure 7

Comparison of Total Net Position and Financial Position

Total Net Position	2022	2021	2020
Net investment in capital assets	$760.19	$739.93	$701.70
Unrestricted	$343.24	$298.71	$280.33
Restricted	$65.17	$56.15	$52.14

Comparisons of Financial Position	2022	2021	2020
Total Assets & Deferred Outflows	$2,174.55	$1,971.45	$1,934.57
Total Liabilities & Deferred Inflows	$1,005.95	$876.66	$900.39
Total Net Position	$1,168.60	$1,094.78	$1,034.18
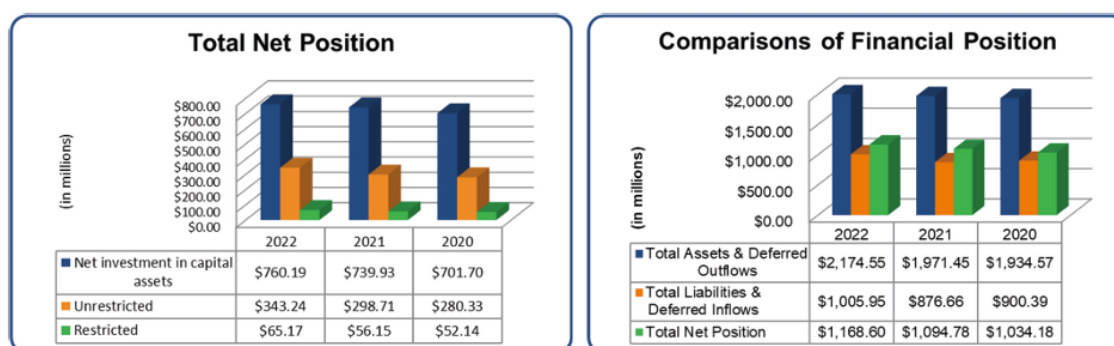
Note. Comparing the total net position and financial position shows sustained and healthy

debt coverage from revenues and continues to build financial strength and stability

Key Themes

Process Strengths

The XYZ Company had implemented varying frameworks to explore process methodologies within their company. One specific framework utilized was the Baldrige Performance Framework. Led by the director of audit, and with the confirmation of executive leadership team and the board of directors, there was a commitment to the organization's MVV throughout the strategic planning process.

Using a six-step analysis process, I identified six themes that respond to the research question, which was, what strategies do supply chain business leaders use to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve their organizational mission? The themes encompass the following strategies used by business leaders to improve raw material supply chain resiliency: (a) establishment of relationships with other stakeholders, (b) evaluation and monitoring of suppliers and company, (c) use of more than one supplier, (d) engagement in planning, (e) setting and following of standards and regulations, and (f) use of technology.

Process Opportunities

The opportunities for the XYZ Company are to continue to leverage their strengths toward strategic planning to implement new processes to identify and engage new and varied methods to identify alternative sources for procurement of raw materials, services, and transportation to aid in continuous production of safe drinking water and wastewater. Continuous improvement in the area of ensuring best practices, better

communications, and stakeholder engagement. Following the results of the Baldrige Assessment, the Company should continue to contribute to improving service communities through financial support, encouraging workforce participation and for company executives to serve on community boards to achieve the company goal of becoming a leader in societal responsibility and community involvement.

The company leaders are engaged backup suppliers; however, in the event of an emergency, acquiring the necessary supplies may still pose a challenge. Procuring reliable and loyal critical suppliers provides greater assurance for successful business continuity and resilience. In addition to cost effectiveness, it will be necessary to ensure the supplier promotes high quality and can deliver goods in a timely manner. Engaging backup suppliers during the normal course of business will provide assurance that the backup supplier can provide critical supplies in a timely manner and at the right quality and cost.

Results Strengths

The Company leadership performs regular risk analysis for critical suppliers. This is done through surveys and site visits to ensure the vendors business continuity and resiliency programs and response plans are in place. The company leadership has engaged the backup suppliers by purchasing a percentage of needed supplies from them each year. This is done to ensure loyalty and keep the relationships favorable. The company leaders have instituted a process of a purchasing card for department managers for them to purchase critical supplies in the event of a crisis. This circumvents the bid process and allows for a timely delivery of goods and services in times of emergency.

Results Opportunities

Results opportunities include continuous improvement for XYZ Company in the areas of backup suppliers, contingency planning, and risk analysis. The leaders of the company need to ensure the engagement of backup suppliers by monitoring the quantity and timing of raw materials and services. This will ensure that the suppliers will be responsive in the case of future supply chain disruptions. Company leaders should continue to hold strategic planning sessions with purchasing and department heads to understand what contingency plans should be implemented in the event of a crisis that delays or prohibits the procurement of raw materials or the delivery of raw materials needed to support public health and protect the environment as stated in the company mission statement.

Project Summary

The purpose of this qualitative single-case study was to explore strategies that business leaders use to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve their organizational mission. As a participant in Walden University's consulting capstone, I worked with an assigned public utility organization located in the mid-southeastern United States that provides drinking water and wastewater treatment to its clients. I used purposeful sampling to identify five executive business leaders as the population for this study. I performed semi structured interviews with four of the executive leaders, reviewed internal and external documents as well as an extensive literature review and other gathered data, and employed triangulation to find common themes.

I explored strategies the XYZ Company leaders used to achieve its MVV and explored data collected from various entities to understand the strategies used to mitigate disruptions of supply chains in the event of a crisis. Supply chains are vulnerable to many forms of disruption and successfully managing supply chain risks requires that the organization effectively measure, monitor, and mitigate supply chain risk.

The results of the study aligned with the Baldrige Performance Excellence Framework including (a) leadership, (b) strategy, (c) customers, (d) measurement, analysis & knowledge management, (e) workforce and (f) operations. The Baldrige Framework provided the basis for the company's approach to performance excellence. Along with the approach, deployment, learning, and integration model, it assures alignment of key processes and key projects with the company's mission, vision, values, and core competencies. The environmental management system standards guide the design and improvement processes using a continuous improvement model. Standard operating instructions and document control standards are in place to ensure effective control systems for maintaining key work processes. The company's team structure provides avenues for innovation, communication, and associate engagement with the focus on measurement and results that helps the company learn and track its progress towards excellence.

Contributions and Recommendations

To mitigate disruptions in a public utility supply chain, several key contributions and recommendations can be made. First, the XYZ Company needs to employ proactive risk assessment and resilience planning which are crucial contributions to this endeavor.

The identification of vulnerabilities and the evaluation of possible risks, including natural catastrophes, limitations in the supply chain, or even cyber assaults, enables utility companies to create resilient contingency strategies (Hossain et al., 2021).

Recommendations to the XYZ Company include diversifying suppliers and sources of essential materials, fostering collaborative partnerships, and investing in advanced technology and data analytics to enhance supply chain visibility. This can aid the public utility in identifying potential disruptions at an early stage and promptly responding to mitigate their consequences (Tewari et al., 2021). Additionally, the establishment of a robust regulatory structure and the provision of governmental assistance are imperative for the XYZ Company, in order to cultivate a conducive atmosphere for the restoration and fortification of infrastructure in cases of catastrophe (Hossain et al., 2021)

XYZ Company needs to continually engage in regular training and simulations to prepare for disruptions. Also, implementing robust communication protocols with stakeholders, including customers, suppliers, and government agencies, is crucial to ensure a coordinated response to supply chain disruptions (Tewari et al., 2021). Investing in sustainable and resilient infrastructure and promoting energy efficiency can reduce overall vulnerability of public utility supply chains. In summary, instituting strategies to mitigate disruption in a public utility supply chain requires a combination of risk assessment, diversification, technology, partnerships, regulatory support, and a proactive and holistic approach to resilience planning and execution.

Application to Professional Practice

Instituting strategies for mitigating disruption in a public utility supply chain is highly relevant to professional practice, especially for those involved in managing or working within the public utility sector. According to Aityassine et al. (2022), professionals in charge of supply chain management for public utilities must evaluate, examine, and control risks to guarantee continuous service provision. This involves a systematic and continuous approach to identifying vulnerabilities and implementing risk reduction measures. The supply chain professionals in public utilities can enhance operational efficiency by implementing strategies to mitigate disruptions. Baz and Ruel (2021) stated that the process includes identifying vulnerabilities and implementing risk reduction measures by diversifying suppliers, optimizing inventory management, and investing in technology for real-time monitoring and predictive analytics to maintain a smooth supply chain flow. Leaders must foster collaborations and partnerships with suppliers, government agencies, and other stakeholders to ensure an expedited response to disruptions through facilitation of information sharing, resource allocation, and disaster recovery efforts (DeSmet et al., 2021).

Public utilities are often subject to various regulations and standards. Professionals need to stay compliant with these regulations, while also advocating for supportive policies and regulations that enhance resilience and disaster recovery capabilities. According to Tewari et al. (2021), public utilities prioritize customer satisfaction as they serve the public. Professionals in this sector must communicate effectively with their customers during disruptions, manage expectations and provide

time information on service restoration. Strategies for mitigating disruption can help minimize the impact on customer service and satisfaction. By developing and implementing training programs and disaster preparedness initiatives is crucial for public utility professionals. They need to ensure that their teams are well-prepared to respond effectively to disruptions and that they are aware of best practices for mitigating these disruptions (Wontner et al., 2020).

Business leaders in the public utility sector should focus on sustainability and resilience. Implementing green and resilient infrastructure can reduce the vulnerability of the supply chain to environmental and other risks. Professionals need to be proactive, adaptable, and well-prepared to address disruptions while ensuring the continuity of critical services to the public to protect infrastructure, maintain public trust, and meet regulatory requirements, all of which are vital elements of effective professional practice in public utilities.

Implications for Social Change

Implementing social change within a public water utility can have a profound implication for the community it serves by promoting social change. Within a public water utility leaders can ensure equitable access to clean and safe drinking water for all residents, regardless of their socio-economic status. This helps address issues of environmental justice and reduces disparities in access to essential services. Policies that focus on social change can make water sources more affordable, especially for low-income households. Implementing tiered pricing structures or assistance programs can help ensure that essential water services are within reach for all members of the

community. A public water utility that prioritizes social change can also focus on sustainable and environmentally friendly water management practices. This includes water conservation, source protection, and reducing the environmental impact of water treatment and distribution.

Engaging with the community and involving them in decision-making processes is a critical aspect of social change within a water utility. This can lead to a sense of ownership and empowerment among residents, as well as more transparent and accountable utility operations. Social change initiatives often include educational campaigns about water conservation, water quality, and the importance of efficient water use. This can lead to greater awareness and responsible water use within the community. Social change can also involve enhancing the resilience of the water utility and its ability to respond to emergencies or natural disasters. This ensure that the community is better prepared to face disruptions in water supplies. Having the resources to provide clean and safe water has direct implications for the health and well-being of the community. A water company committed to social change can lead to improved health outcomes and a higher quality of life for residents.

Keeping a sustainable water system can provide initiatives within the utility, such as hiring locally or providing job training. Understanding and respecting the cultural practices and needs of the community, especially in areas with diverse populations, is an important aspect of social change with the water utility company. By developing strategies to avoid supply change disruptions, the utility can collect and share data related to practices that help mitigate shortages of raw materials and support services that

provide safe drinking water to the community. This data can inform policy decisions and community-led initiatives for change.

Implementing social change within a water utility company goes beyond just delivering safe drinking water. It encompasses a broader commitment to improving the well-being of the community it serves. It can address issues related to social equity, environmental sustainability, community engagement, and economic development, leading to a more inclusive and resilient society.

Recommendations for Action

The XYZ Company should analyze and map and understand the complex risks of major water disruptions and develop mitigations. The federal government should assist owners and operators in the water sector to uncover emerging cross-sector risks and develop mitigations for disruptions that could cascade into other sectors and regions or have the potential for national consequences. The XYZ Company needs to establish a committee to work as a liaison with the federal government to understand emerging risks within the scope of their community to develop strategies for mitigation for themselves and their counterparts across the United States.

The federal government should commit funding and expert resources to help identify, analyze, and map hidden risks that result from complex sector interdependencies, regional interconnections, and increased convergence of physical-cyber systems (Baylis et al., 2016). These risks include fortifying water sector response and recovery capabilities. The water sector has a good track record of maintaining continuity of service and rapid response and recovery. However, because of the criticality

of water and wastewater services, the federal government should take immediate actions to formalize and improve the response and recovery capabilities at every level of the water sector.

The recommendation to my client organization is to implement a task force that works with the federal government to set national standards that will activate immediate response in the case of a disaster that would cause any type of disruption and affect the ability of water utility companies to provide clean drinking and wastewater services to its consumers. The company needs to work toward fostering public awareness and support through educational campaigns, thereby creating a grassroots movement that puts pressure on federal leaders to prioritize and act decisively on water infrastructure issues. The federal government should increase planning for extreme events, consolidate federal response responsibilities, and increase funding for successful sector mutual aid efforts. Increasing federal funding, investment, and incentives to improve water infrastructure resilience.

The XYZ Company needs to develop its own infrastructure that provides a structured plan for major disruption events that works with the federal government to secure funding to implement such plans to improve resilience and sustainability. The federal government should establish new funding mechanisms, structures, and incentives to increase investment in resilience at the regional and local levels to counter historic underinvestment in infrastructure, and to remove obstacles that public agencies face in increasing rates, particularly when it impacts low-income communities. Increasing technical and financial resources and expertise available to the water sector.

The XYZ Company needs to ensure that it has a voice within the federal government to gain access to funding, structure and incentives and remove any obstacles that would deter funding on the local level. This will ensure that the local water utilities maintain rates that would be affordable to all consumers and provide grants for those lower income households. Establishing partnerships with other stakeholders, such as environmental groups, local communities and private sector entities, can create a unified front in support of comprehensive water infrastructure policies. The federal government should work with larger, well-resourced utilities to improve the technical and financial capabilities of smaller and less-resourced utilities by creating programs that link regional technical resources to local water utilities, and leverage established programs, expertise, and capabilities of universities.

The XYZ Company needs to ensure that it has access to all technical and financial resources provided by the federal government through the implementation of a task force or committee that has access to such programs, is informed and educated in the process of attaining assistance in the event of a disaster. This task force can collaborate with larger water utility agencies to design and implement capacity building programs, technical assistance and mentorship programs for the smaller utilities. My client should collaborate with shared investments in new technology, equipment or infrastructure upgrades that improve efficiency and reduce costs.

The federal government should also assist national and regional water associations to expand outreach to utilities to improve access to valuable tools and models. These efforts should emphasize improving the cybersecurity capabilities of water

utilities that have limited cyber capacity. The XYZ Company needs to ensure that its infrastructure is current with the technology to provide cybersecurity guidelines and procedures to countereffect any threats that may occur.

Strengthening federal leadership, coordination, and support for water sector resilience. The President should enact laws that strengthen federal leadership on water infrastructure issues by directing a coordinated effort across federal agencies to raise awareness about the importance of water, leveraging investment to create job opportunities and inclusion for local communities, and identifying and removing legal, regulatory, and policy barriers that impede investment and implementation of resilient measures.

The XYZ Company must work with local and state officials to engage in proactive advocacy effort, collaborate with industry associations, experts, and policymakers to emphasize the importance of a robust infrastructure. This involves participation in relevant forums, submitting policy recommendations and building relationships with key decision makers. XYZ Company must invest in research and data analysis to highlight the economic, environmental, and societal benefits of upgrading and maintaining water infrastructure.

To ensure that these recommendations are widely disseminated and put into practice, the XYZ Company needs a multifaceted communications strategy. This strategy should include publishing thorough analytical reports and case studies in industry-specific publications as well scholarly journals, aimed at professionals and researchers in the water field. In addition, the results of this study should be presented at national and

international water as well as civil engineering-related conferences on infrastructure resiliency against cyber threats. This will provide an opportunity for peer review and exchange with other scholars from around the world. These recommendations should be used to develop training modules that will form part of continuing education courses aimed at water sector professionals, helping knowledge become real skills.

The leaders of the XYZ Company should facilitate forums for information sharing and networking to connect this smaller scale utility with industry experts, suppliers and other stakeholders. This exchange of information can lead to shared resources, cost effective solutions, and collaborative problem solving. Additionally, webinars and online workshops may be used to exchange best practices, targeting integration of technology with cyber security in water utilities. More widely, policy briefs and executive summaries will be published in media outlets and presented at public forums to draw policymakers and community leaders on board. Through use of numerous dissemination channels, the effect that these recommendations can produce in strengthening resilience within the water sector is also maximized. By fostering these efforts, water utility companies and government agencies can collectively address the technical and financial challenges faced by smaller utilities, ultimately improving the overall resilience and sustainability of the water infrastructure sector.

Finally, the XYZ Company needs to further assess its progress using the Baldrige Criteria for Performance Excellence due to the comprehensive and systematic framework it offers for organizational evaluation. The Baldrige criteria, developed by the U.S. National Institute of Standards and Technology, provide a holistic approach that covers

key aspects such as leadership, strategy, customer focus, measurement and analysis, workforce engagement, operations, and results (Baldrige Performance Excellence Program, 2023). By aligning with these criteria, a company gains a structured method to identify strengths, opportunities for improvement, and areas that require focus. This assessment goes beyond traditional performance metrics, encouraging organizations to delve into their processes and systems in a deeper fashion. The Baldrige framework not only aids in identifying areas for enhancement, but also facilitates a culture of continuous improvement and innovation (Baldrige Performance Excellence Program, 2023). Moreover, organizations using the Baldrige criteria often achieve better overall performance, customer satisfaction, and employee engagement, making it a valuable tool for companies committed to excellence and sustained success in a competitive business environment.

Recommendations for Further Research

The study confirms what was found in this and in previous studies of resilience: much of the most critical national infrastructure is crumbling and in major need of renewal and increased investment. New investments in smart, sustainable, resilient infrastructure is a catalyst for job creation, economic competitiveness, and an equitable and shared prosperity. To be sure, the risks are complex, the investments required are massive, and the task exceeds the capabilities of any one company, sector, or government agency. Currently there is local support for major infrastructure investments, and projects at the local level that actively engage local communities, including a host of partners—

business, government, community advocates, education, labor, and philanthropic organizations.

A great deal needs to be done to strengthen the security and resilience of critical infrastructure. Although much of the responsibility rests with the owners and operators who design, build, operate, maintain, and repair the infrastructure, the federal and state governments are critical partners in this endeavor. Federal and state governments must make it easier for the owners and operators to invest in infrastructure improvements; they must identify and remove regulatory barriers that inhibit resilient behavior; they must help to identify and mitigate cross-sector risks that hide between the seams of interdependent sectors and regions; they must develop measurable standards and best practices to guide water agencies in their resilience efforts; they must leverage the science and engineering resources of national laboratories and universities to develop innovative technologies and bring them to market; and they must strengthen leadership and coordination among agencies across all levels of government. I believe the information found in this study provides a practical template for action that can help ensure the long-term security and economic prosperity of the company's critical infrastructure.

Reflections

While the risk evaluation presented in this study provides a useful benchmark, the actual risk that a supply disruption will impact a specific water system are highly specific to that system. A system-specific risk assessment of chemical supplies can help focus efforts to build supply chain resilience. Factors to consider in such a risk assessment

include identifying the number of suppliers available: Leaders should inventory the number of suppliers capable of delivering the water treatment chemical to the system. In general, a distribution facility will deliver to customers within a 5-hour drive, which allows drivers to make a delivery and return to the distribution center without exceeding the 11-hr limit for hours driven without a 10-hr break. Also confirm that nearby suppliers can deliver the chemical using a method compatible with the water system's infrastructure (e.g., bulk delivery, containerized chemicals) and on route specific roads capable of handling hazardous material to adhere to federal regulations.

There should be a diversification of suppliers; that is, determining whether the suppliers in the region are receiving chemicals from a variety of producers. If all regional suppliers rely on a single producer, that can increase vulnerability to supply disruptions. Validate supplier performance, Leaders should review the performance history of current or potential chemical suppliers. A history of delayed deliveries, unexpected price increases, declarations of force majeure, poor communication, or other poor performance indicators could lead to or exacerbate supply chain challenges. The organization's leaders need to evaluate the transportation infrastructure. Evaluate the resilience of transportation resources used to transport chemicals from the supplier to the water system, and from the chemical producer to the supplier.

Reliance on a single transportation resource (e.g., a single rail line) can increase vulnerability to supply disruptions. Understand geographic considerations. Evaluate whether the geographic location of a water system could present challenges to the availability or delivery of water treatment chemicals. Water systems in regions that are

vulnerable to natural disasters (e.g., hurricanes, wildfires, flooding) could also be at increased risk of supply disruptions. Also, producers that are in such regions might be more vulnerable to disruptions in production, and this could impact availability of water treatment chemicals hundreds of miles away.

Understanding regional experience is also important. Discuss supply challenges with other water systems in the region or the state water and wastewater agency response network. These experiences can provide insight into the types of supply challenges that might be likely to occur in the future. The company needs to make a periodic review of the supply chain process. Changes in chemicals used, quantity requirements, and contracting and procurement policies may change a system's supply chain risk profile. Likewise, there may be changes in the suppliers, producers, and transportation resources that service the system's region. Reassessing supply chains and the associated risk of disruptions on a routine basis ensures that efforts to bolster supply chain resilience are focused on the greatest risks.

Conclusion

In conclusion, implementing robust strategies to mitigate disruptions in the supply chain is imperative in today's dynamic and interconnected business environment. By adopting proactive risk assessment, diversifying suppliers, leveraging technology for enhanced visibility, and fostering collaborative partnerships, organizations such as this public utility can build resilience and effectively navigate challenges. Furthermore, strong regulatory support, continuous training, and sustainable infrastructure investments are critical components of a comprehensive approach to supply chain disruption mitigation.

With these strategies in place, businesses are better equipped to not only weather disruptions but also emerge stronger and more adaptable in an ever-changing marketplace, ultimately ensuring the continuity of their operations and the satisfaction of their customers.

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Appendix A: Interview Questions

I asked the following open-ended questions during the semistructured interviews:

1. How do you identify and categorize the raw materials critical to your production process? How do you currently assess the resiliency of your supply chain for these materials?

2. What are the main challenges you have encountered in your raw material supply chain in terms of disruptions or vulnerabilities? How have these challenges impacted your operations and sustainability goals?

3. In the context of supply chain resiliency, what does sustainability mean to your organization? How do you balance the two aspects when making decisions about your supply chain strategy?

4. Could you provide examples of instances where your raw material supply chain faced disruptions? How did your organization respond to these disruptions while considering both cost-effectiveness and sustainability?

5. What data-driven approaches or tools do you use to monitor and predict potential supply chain disruptions related to raw materials? How do these insights inform your decision-making process?

6. Are there any partnerships or collaborations with suppliers that you have established to enhance supply chain resiliency? How do you ensure that these collaborations align with your mission and sustainability objectives?

7. How do you evaluate the total cost of ownership when considering raw material suppliers? What factors beyond initial costs do you consider to ensure a cost-effective yet resilient supply chain?

8. Can you discuss any initiatives you have implemented to optimize inventory management of critical raw materials? How do these initiatives contribute to maintaining a balance between resilience, cost, and sustainability?

9. Are there any specific technological advancements or innovations you have explored to enhance raw material supply chain resiliency? How do these innovations align with your company's long-term mission and sustainability goals?

10. What metrics or key performance indicators (KPIs) do you use to measure the success of your efforts in improving raw material supply chain resiliency? How do you measure the success of your efforts in improving raw material supply chain resiliency? How do you ensure these KPIs reflect both cost-effectiveness and sustainability considerations?

11. How do you determine and assess the effectiveness of your business strategy to remain resilient to support an organizational recovery from the effects of a crisis?

12. Are there any additional information regarding effective strategies for mitigating supply chain disruptions that you would like to add?

Appendix B: Peer-Reviewed Sources

Older than 5 years (*n* = 104)	Less than 5 years (*n* = 12)
Adeoye-Olatunde & Olenik (2020)	Alavi et al. (2018)
Aityassine et al. (2022)	Freeman (1984)
Altay & Pal. (2022)	Guetterman & Fetters (2018)
Ashrafi et al. (2020)	Hartson & Pyla (2019)
Barman. et al. (2021)	Jordan & Gray (2018)
Barney & Harrison (2020)	Nieponice (2017)
Baylis et al. (2016)	M. W. Ross et al. (2018)
Baz & Ruel (2021)	Shaw & Satalkar (2018)
Best et al. (2021)	Tobi & Kampen (2018)
Bigliardi et al. (2022)	Weller et al. (2018)
Bostrom (2019)	Yazan (2015)
Brzozowski (2022)	Yin (2018)
Busetto et al. (2020)	
Cai & Luo (2020)	
Campbell et al. (2020)	
Carolan (2021)	
Cherrafi et al. (2022)	
Clavijo-Buritica et al. (2023)	
Crane (2020)	
DeFina (2021)	
DeJonckheere & Vaughn (2019)	
Denieffe (2020)	
DeSmet et al. (2021)	
Di Vaio et al. (2023)	
Dmytriyev et al. (2021)	
Drolet et al. (2022)	
Dunwoodie et al. (2022)	
Elhami (2022)	
Freeman et al. (2020)	
Freeman et al. (2021)	
Gahesha & Aithal (2022)	
Govindan et al. (2021)	
Gupta et al. (2020)	
Habtewold (2021)	
Halmai (2022)	
Heng Xie et al. (2022)	
Hennink & Kaiser (2022)	
Hobbs (2021)	
Horisch et al. (2020)	
Hossain et al. (2021)	
Ivanov (2020)	
J. L. Johnson et al. (2020)	
P. F. Johnson & Klassen (2022)	
Keegan et al. (2019)	
Kinder et al. (2019)	
Lapid et al. (2019)	
Lester et al. (2020)	
Magableh (2021)	
Maon et al. (2019)	

Older than 5 years ($n = 104$)	Less than 5 years ($n = 12$)
Marinagi et al. (2023)	
Marker (2021)	
Matos et al. (2020)	
McClain. (2019)	
McGahan (2021)	
McKim (2023)	
Meyer et al. (2021)	
Modgil et al. (2022)	
Mohammed et al. (2022)	
Morse (2021)	
Motulsky (2021)	
Mwita (2022)	
Nayeri et al. (2022)	
Neubauer et al. (2019)	
Nha (2021)	
Omar et al. (2022)	
Ozdemir et al. (2022)	
Panwar et al. (2022)	
Patrucco & Kahkonen (2021)	
Paul & Chowdhury (2021)	
Phillips et al. (2022)	
Rabbani et al. (2022)	
Raj et al. (2022)	
Rashid et al. (2019)	
Ravell (2023)	
Resnik (2020)	
Ridder (2019)	
P. T. Ross & Bibler Zaidi (2019)	
Rutitis et al. (2022)	
Saunders et al. (2019)	
Scala & Lindsay (2021)	
Setiawan et al. (2023)	
Shafiee et al. (2022)	
Shah & Bookbinder (2022)	
Shah (2019)	
Shen & Sun (2023)	
Singh et al. (2019)	
Snyder (2019)	
Spieske & Birkel (2021)	
Spurr et al. (2022)	
Stoelhorst (2021)	
Subedi (2021)	
Sutrop & Louk (2020)	
Tenny et al. (2022)	
Tewari et al. (2021)	
Topping et al. D. (2021)	
Trident United Way (2022)	
Um & Han (2021)	
Vitolla et al. (2019)	
Walden University (2023)	
Water Mission (2022)	
Wieland & Durach (2021)	

Older than 5 years (*n* = 104)	Less than 5 years (*n* = 12)
Wontner et al. (2020)	
Yu et al. (2020)	
Zaman et al. (2022)	

Appendix C: Interview Protocol

Introduction Script

Thank you for allowing me to speak with you today. Per the conversation I had with you over the phone and the e-mail I sent to you, I will reiterate that I am a Doctor of Business Administration student in the Consulting Capstone at Walden University. The purpose of this qualitative single case study is to identify and explore the effective strategies that organization's supply chain business leaders use in the mid-southeastern United States to improve raw material supply chain resiliency in a cost-effective manner to maintain sustainability and to achieve its mission and to avoid the effects of supply chain disruptions which can lead to service interruptions, delays, and increased costs, which can have significant economic and social consequences.

Your participation is very important in this study to help understand what strategies are necessary to mitigate a supply chain disruption within your industry. Your participation is voluntary so if I ask a question that you do not wish to answer or want to stop or withdraw from the study at any time, please let me know.

I will take notes during the interview as well as using a recording device to ensure that I capture exactly what you say. Once I transcribe the audio taping and notes, I will schedule time with you to review my transcriptions for accuracy. The procedure I will follow is as follows:

1. I will turn on the audio recording device and notate the date and time.

2. I will introduce the participant by using a pseudonym name (i.e., Participant 1, Participant 2, Participant 3, Participant 4).

3. I will begin the interview.

4. I will start with question number one and follow through to the final wrap-up question (see Appendix A).

5. I will continue with targeted follow-up questions if time permits.

6. I will end the interview process and thank the participants for their time.

7. I will reiterate the member checking process and confirm the contact information for the participants.

8. I will convey my contact information for follow-up questions and any concerns from the participants.

9. The interview protocol ends.

Appendix D: Codes, Categories, and Themes

Code	Category	Initial theme	Refined theme
Alternate sourcing and utility collaboration	Use of stakeholder engagement strategies	Business leaders established relationships with other stakeholders as a strategy to improve raw material supply chain resiliency.	Stakeholder relationship building
Interutility collaboration and mutual aid			
Relationship management with suppliers			
Collaboration and benchmarking opportunities	Embrace of operational optimization strategies		
Need for structural and pricing changes			
Governmental initiatives and compliance	Evaluation of external influence and public perception	Business leaders engaged in the evaluation and monitoring of suppliers and the company as a strategy to improve raw material supply chain resiliency.	Supplier evaluation and monitoring
Public awareness and political will			
Public perception and influence	Assessment and promotion of stakeholder engagement and support		
Regulatory and funding limitations			
Monthly meetings with national utility group for knowledge sharing			
Rate comparison and public support			
Supply chain complexity and regulatory challenges	Embrace of multisupplier risk mitigation	Business leaders used more than one supplier to improve raw material supply chain resiliency.	Diversified supplier engagement
Supply chain vulnerabilities			
Reliance on interutility support networks	Collaborative risk management		
Challenges in asset management and infrastructure renewal	Engagement in operational planning and infrastructure management	Business leaders engaged in planning to improve raw material supply chain resiliency.	Strategic planning for resilience
Challenges in infrastructure investment			
Decaying infrastructure			
Project management and collaboration			
Strategic response and resilience building			
Financial and operational constraints	Resource management and addressing of constraints		
Financial challenges in funding infrastructure			
Limited resources and challenges			
Resource allocation and prioritization			

Code	Category	Initial theme	Refined theme
Resource limitations in smaller utilities			
Resource scarcity			
Risk management and resource allocation			
Emergency response coordination			
Challenges in meeting federal requirements	Embrace of various regulatory compliance strategies	Business leaders set and followed standards and regulations to improve raw material supply chain resiliency.	Adherence to standards and regulations
Impact of public ownership and regulatory structure			
Government influence on supply	Collaboration with the government to counter challenges		
Fragmentation in federal support			
Challenges in cross-jurisdictional cooperation			
Limited federal programs and resources			
Access to technical expertise and information	Technological infrastructure enhancement	Business leaders used technology to ensure supply chain resiliency.	Technological integration for resilience
Technical constraints			
Inadequate information sharing	Use of technology for workforce and resource management		
Staffing and expertise constraints			

Note. The generated codes were categorized and refined into themes.