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Effective Manufacturers' Strategies for Service Innovations

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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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Abstract

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MA, Trident University, 2010

BA, American InterContinental University, 2006

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

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Abstract

In the United States, more than 50% of managers offering services in the manufacturing industry report failed service initiatives. The purpose of this multiple case study was to explore strategies that manufacturing managers used to sustain their business for longer than 5 years. The population consisted of 3 manufacturing organization managers offering business services to support petroleum and coal companies who have sustained their business operations in the mid-Atlantic region of the United States for longer than 5 years. Data were collected from semistructured interviews and organization documents were analyzed through the perspective of the strategic service innovation theory conceptual framework. Yin's 5-step process for data analysis: compiling, disassembling, reassembling, interpreting, and concluding was used to identify multiple themes through data saturation. Multiple themes emerged from data analysis, including service innovation strategies such as strategic innovation and competitive advantage, customer-focus strategies including customer's needs and providing solutions, resource strategies consisting of internal resources and knowledge resources, and external network strategies including external market and relationships. Managers in the manufacturing industry can use the findings of this study to improve business practices by implementing strategies to offer services through service innovation processes, developing customer focus, considering resources, and leveraging external networks. The findings of this study may be used to affect positive social change to improve socioeconomic conditions by increasing employment opportunities for residents of communities with petroleum and coal manufacturing companies in the mid-Atlantic region of the United States.

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Dedication

This research is dedicated to the ladies who always pushed me to be a better man, in order of age: Grandma Fox, Aunty Shirley, Auntie Pauline, Mom, Mrs. Evangelina Melo, Auntie Cheryl, my wife Stephanie, and my baby girl Eva. Also, I am dedicating this research to the gentlemen who drove me to work hard to earn a place in this world, in order of age: Grandpa Fox, Uncle Danny, Uncle Roy, Dad, Mr. Januario Melo, Brian, Kyle, and my son Bronson. Scott, in your own way drove me to this day, too. Thank you to the ladies and gentlemen in my family for your love and support over the past 40 years. You inspired me to be better even when I struggled!

> It is not the critic who counts; not the man who points out how the strong man stumbles, or where the doer of deeds could have done them better. The credit belongs to the man who is actually in the arena, whose face is marred by dust and sweat and blood; who strives valiantly; who errs, who comes short again and again, because there is no effort without error and shortcoming; but who does actually strive to do the deeds; who knows great enthusiasms, the great devotions; who spends himself in a worthy cause; who at the best knows in the end the triumph of high achievement, and who at the worst, if he fails, at least fails while daring greatly, so that his place shall never be with those cold and timid souls who neither know victory nor defeat. - Theodore Roosevelt.

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So many people contributed to my completion of this academic journey. First, I need to thank my wife Stephanie, thank you for all you did out of love to support my academic pursuits. I thought of you in every step of this journey, foot by foot. I love you for eternity!

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Thank you to all the people who took the time to mentor me, thank you for taking a chance on me and teaching me to learn from my mistakes. Thank you to some key mentors, including Coach Quigley, Bob LaCasse, Chris Jackson, Bryce, COL Carra (US Army Retired), Captian Sella (US Coast Guard Retired), LTC Maddry, CCJ4-O-JPO staff, and all my mentors at VA. Thank you to our Nation's Veterans, without your defense of our constitutional rights, we lack the freedom required for academic pursuit.

Mom and Dad thank you for initiating my academic journey. My completion of this degree was rooted in your exhaustive labors and work ethics. I love you both! I owe my completion of this degree to the support and love of my wife, Stephanie, and children, Bronson and Eva. I earned this degree only with their support, encouragement, snacks and coffee, good-night kisses, hugs, patience, prayers, and sacrifices of time without me. I love you with all I am! I earned this degree to make the best life I can for us.

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Section 1: Foundation of the Study

Often, managers in the manufacturing industry seek new strategies to overcome globalized market threats of increased product price competition and the need to add value to products to sustain business operations (Sakyi-Gyinae & Holmlund, 2018). Some manufacturing managers seek opportunities to enter services markets as a strategy to sustain business operations (Ha, Lee, & Kim, 2016). Manufacturing managers take advantage of service-based innovation strategies to successfully offer business services to sustain business operations (Yang & Hou, 2015). Many manufacturing managers seek strategic service innovations to overcome barriers to gaining a competitive advantage in the manufacturing industry as well as services offerings.

Background of the Problem

Manufacturing managers strategically innovate to overcome severe economic decline challenges by leaving traditional product offerings to change to new services offerings (Martin-Rios & Parga-Dans, 2016). Additionally, manufacturing managers changed organizational structure, organizational culture, and customer relationships to sustain a competitive advantage to meet customers' demands for increased service innovation (Valtakoski, 2017). In the energy industry, managers seek strategies to sustain a competitive advantage in the global economy despite increasing the risk of economic shocks (Broadstock, Fan, Ji, & Zhang, 2016). Manufacturing managers seek innovative strategies to overcome barriers to sustain a competitive advantage by providing services to customers.

Since the 2008 financial crisis, managers of energy companies focusing on manufacturing production of fossil fuel products face economic challenges due to decreased demand and increasingly restrictive regulations throughout the global economy (Wang, Ma, Song, & Liu, 2017). Manufacturing managers at energy companies follow the strategy trends amongst manufacturers to change the focus of providing products to providing product service systems and other service offerings as means to sustain competitive advantage (Benedetti, Cesarotti, Holgado, Introna, & Macchi, 2015). Manufacturing managers of energy companies, traditionally dependent on energy commodities as a source of revenue, experience barriers when transitioning a product-focused strategy for providing services for energy solutions (Helms, 2016). Energy companies' manufacturing managers need effective strategies to overcome barriers to offer services to sustain business operations (Benedetti et al., 2015).

Problem Statement

In the United States, the majority of manufacturing managers respond to growing product market threats by offering services to sustain their business (Brax & Visintin, 2017). However, less than 50% of those manufacturing managers offering services reported successful service-based innovation initiatives (Benedettini, Neely, & Swink, 2015). The general business problem was that some manufacturing managers invest in services-based initiatives without effective strategies resulting in decreased longevity of business operations. The specific business problem was that some manufacturing managers offering business services lack effective service-based innovation strategies to sustain their businesses beyond 5 years.

Purpose Statement

The purpose of this qualitative, multiple case study was to explore effective service-based innovation strategies that manufacturing managers used to offer business services to sustain their businesses beyond 5 years. The target population for this study was manufacturing managers who offer business services from three petroleum and coal manufacturing companies, and who have sustained their business in the mid-Atlantic region of the United States longer than 5 years. The implication for positive social change includes the potential to provide manufacturing managers with strategies to increase the longevity of business operations, thereby positively affecting the socioeconomic conditions of communities relying on manufacturing. Other manufacturing managers may be able to use the findings this study to achieve sustainable employment opportunities and positively affect the economic opportunities of the residents of the local communities.

Nature of the Study

I selected a qualitative research method for this study. Researchers use qualitative research methods to develop meaning from human experiences by focusing on answering *what*, *how*, or *why* questions about a social phenomenon (McCusker & Gunaydin, 2015). Using a qualitative method allowed for the exploration of effective service-based innovation strategies managers of manufacturing businesses use to succeed in business. Roy, Zvonkovic, Goldberg, Sharp, and LaRossa (2015) discussed that each qualitative research participant contributes his or her constructive unit of analysis.

A quantitative research method was not appropriate for this study because the purpose of this study was to construct meaning from human experiences, not to identify the cause-and-effect of variables. Quantitative researchers conduct studies to examine relationships and differences among variables by developing and testing hypotheses through statistical testing from samples (Gibson, 2017). A mixed method was not appropriate for this study because the purpose of this study was to identify what effective service-based innovation strategies manufacturing managers offering services use to sustain their business. Qualitative researchers study social phenomenon, such as strategies, instead of developing and testing hypothesis or combining qualitative and quantitative methods in a mixed method study (Palinkas et al., 2016).

For this study, I used a multiple case study design to describe effective service-based innovation strategies of manufacturing managers offering services to sustain their business beyond 5 years. Fusch, Fusch, and Ness (2017) defined case study as a research design some researchers use to describe strategies and processes in context bounded by environment and time. Researchers use case study research designs to describe complex social experiences, to understand *how* and *why* outcomes happen (Yin, 2018). Researchers use a phenomenological design to explore human experiences of a shared event (Noon & Hallam, 2018). Therefore, phenomenological research was not appropriate for this study. Researchers conduct ethnography studies to capture a shared phenomenon of a cultural group through immersion in the cultural context (Lichterman, 2017). The purpose of this study was to explore service-based innovations strategies, which did not require immersion into a cultural group context.

Research Question

The primary research question for this study was: What effective service-based innovation strategies do manufacturing managers, offering business services, use to sustain their businesses beyond 5 years?

Interview Questions

1. What service-based innovation strategies did you use to create a competitive advantage over your competitors with your service offerings?
2. How did you use service-based innovation strategies to offer business services to customers?
3. What guidance did you provide stakeholders to implement and control service-based innovation strategies?
4. How did you use resources to implement service-based innovation strategies?
5. What market conditions challenges did you overcome to implement service-based innovation strategies?
6. How did you organize your business to generate service-based innovations you use to sustain your business?
7. How did you assess the effectiveness of the service-based innovation strategies you used?
8. What other experiences about service-based innovation strategies would you like to share?

Conceptual Framework

I used a conceptual framework consisting of strategic service innovation theory for this study. In 1997, Sundbo described the strategic service innovation theory, for characterizing the evolution of services in businesses by managers organizing and controlling the service innovation process through strategic considerations. Sundbo (1997) identified the following key tenets of strategic service innovation theory: (a) service innovation was a strategic process controlled by managers, (b) standardization provides competitive advantage, (c) manager's consideration for external market conditions and internal resources, and (d) dual organization consisting of a combination of employees and customers interactions with managers' strategic guidance to produce innovative ideas. Strategic service innovation theory was applicable and fit this study as a conceptual framework because strategic service innovation theory reflects managers' using a firm's strategy to guide the service innovation process with considerations towards standardization as a competitive advantage, market conditions, internal resources, and generating innovation ideas from employees and customers.

Operational Definitions

Mid-Atlantic region of the United States: This region consists of six states including Delaware, Maryland, New Jersey, Pennsylvania, Virginia, and West Virginia (Wang, Lee, Agbemabiese, Zame, & Kang, 2015).

Petroleum and coal manufacturing companies: These companies consist of the manufacturing companies who transform petroleum or coal products into usable products, including petroleum refineries, asphalt paving, roofing, saturated materials,

lubricants, coal, and other manufactured products supporting petroleum or coal industry (U.S. Census Bureau, 2017).

Servitization: The process manufacturers use to replace product sales with value-creating relationships by implementing innovative strategies to offer services to gain a competitive advantage (Baines, 2015).

Assumptions, Limitations, and Delimitations

Assumptions

Researchers used assumptions to communicate information accepted as common sense, but not established as facts (Noble & Smith, 2015). Researchers identify assumptions to avoid misconceptions about knowledge assumed as common sense (Cleland, 2017; Davidson, Thompson, & Harris, 2017). My first assumption was that participants and researchers were competent and spoke authentically based on their actual experiences. Researchers conducting qualitative studies assume participants competence and authenticity in describing their perspectives (Yanchar, 2015). My second assumption for this qualitative study was that interviewees provided responses to address the research question. Researchers assume participants questioned answer the research question (Smith & McGannon, 2018). My third assumption was that the data collected from organizational documents was true as presented. My fourth assumption was that qualitative research was the correct research method to answer the research topic. My fifth assumption was that at least three managers forming three cases would participate in this multiple case study. Based on the five assumptions, I assumed the analysis and findings of this study represented the data provided.

Limitations

Researchers identify limitations in studies to account for any weakness not within the researcher's control, which can affect the findings of the study (Price & Murnan, 2004). The first limitation of this study was that personal bias may have unintentionally occurred during data collection or data analysis. Qualitative researchers mitigate the influence of personal bias by bracketing personal experiences (Moustakas, 1994). Qualitative researchers member-check to avoid personal bias by sharing the interpretations of the analyzed data with participants to ensure the accuracy of the data analysis (Birt, Scott, Cavers, Campbell, & Walter, 2016). I reduced personal bias by bracketing my experiences and member checking. However, some bias may not have been controllable within the study. The second limitation was the availability of manufacturing managers to complete interviews, respond to follow-up questions, and member checking. The third limitation was the availability of company documents. Managers may have limited document sharing or a limited portion of the documents available for this study. The fourth limitation was that the data presented by participants was not generalizable to all manufacturing managers.

Delimitations

Qualitative researchers establish delimitations to show the boundaries of the study, including how findings can and cannot add to the field of knowledge (Marshall & Rossman, 2016). Researchers identify limitations and boundaries within a study, so future researchers understand the constraints affecting the study findings, and to shape future research (Moore, McKee, & McLoughlin, 2015). Selected boundaries for this study

included geographic area, the population of the study, the conceptual framework, and participant selection for interviews. The geographic area of this study was the mid-Atlantic region of the United States, which may reduce the generalizability of results. The population of the study was manufacturing managers offering business services, from three petroleum and coal manufacturing companies, who have sustained their business in the mid-Atlantic region of the United States more than 5 years. The selected conceptual framework for this study was strategic service innovation theory. Researchers use the conceptual framework as the theoretical lens to view the research question (Marshall & Rossman, 2016). I selected the participants for this study from a small sample, whose experiences may not be generalizable to the larger population.

Significance of the Study

Value to Businesses

The findings from this study may be of value to business managers for developing strategies, policies, and processes to increase the success of manufacturing business service initiatives. Business managers sustain their business through the use of effective strategies (Ting, 2015). Business managers may gain value from effective service-based innovation strategies from the findings of this study.

The implications of this study describing service-based innovation strategies managers of petroleum and coal manufacturing businesses used to succeed may be significant to a broad and general business audience, including manufacturing managers from other industries facing economic decline. Business managers' ability to create effective strategies was valuable to the longevity of high-level organizational

performance (Popa & Miricescu, 2015). The findings of this study may affect the development of effective manufacturing business strategies for managers to develop and implement service-based innovations to create a competitive advantage.

Contribution to Business Practice

Business managers often evolve more successful business strategies to ensure the longevity of their business (Napolitano, Marino, & Ojala, 2015). Business managers could use the findings of this study to understand what effective strategies managers of manufacturing business offering services use to sustain their business successfully beyond 5 years and replicate those strategies to contribute to effective business practices to increase the longevity of manufacturing business. The broader business manager populations may be able to use the findings of the multiple case study to develop and deploy effective strategies within their markets to increase the longevity of the business success. Business managers can improve their business' value by benchmarking successful business strategies (Opresnik & Taisch, 2015). Business managers could use the results of this study to emulate effective strategies for long-term competitiveness within their industries and perhaps, the broader U.S. and global markets.

Implications for Social Change

Business managers may use the results of this study to contribute to positive social change by providing increased business longevity, socioeconomic sustainability, and employment opportunities for residents of communities with petroleum and coal manufacturing companies in the mid-Atlantic region of the United States. For example, leaders in mining communities ensure long-term socioeconomic sustainability by

planning for alternative economic opportunities to counter business declines in coal manufacturing (Fordham, Robinson, & Blackwell, 2017). Additionally, managers who succeed in sustaining their business beyond 5 years, can increase employment opportunities (Strydom, 2017). According to the U.S. Department of Labor, Bureau of Labor Statistics (2015), on average, managers whose business successfully remained in business for 5 years showed double the employment opportunities of their manufacturing businesses over the same 5-year period. Managers of manufacturing businesses offering services may adopt effective service-based innovation strategies to enable more businesses to be competitive in the broader United States and global markets with concomitant increases in employment opportunities in their communities, organizations, institutions, cultures, or societies.

A Review of the Professional and Academic Literature

The focus of this qualitative multiple case study was to explore effective service-based innovation strategies that manufacturing managers used to offer business services to sustain their business. I conducted a thorough review of the literature to establish the foundation of this study by exploring themes of service-based innovation strategies manufacturing managers use to sustain their business.

Researchers develop persuasive arguments through the review of the academic literature (Liao, Deschamps, Loures, & Ramos, 2017). Even though the focus of the study was effective service-based innovation strategies manufacturing managers used to sustain their business, reviewing literature involving competing frameworks, service-based

innovation, and service-based manufacturing strategies provided a holistic perspective for the foundation of the study.

I used several key terms, including *strategic service innovation theory, services innovation strategy, manufacturer services innovation, servitization, and manufacturer services strategy*, to research relevant scholarly literature to develop a holistic view needed to support the study. I used multiple academic databases available through Walden University, including ProQuest, EBSCO, and Business Source Complete. I used Google Scholar as the primary search engine to find scholarly articles to add context to the foundation of this study, including the Google Scholar site linked to Walden University online library. I verified peer-reviewed literature by searching for evidence of peer review through Ulrich's Web Global Serials Directory searches. Also, I visited the home page of the academic journals to ensure the literature was peer-reviewed and published between 2015 and 2019. I used some non-peer reviewed sources as well as some peer-reviewed articles published before 2015, such as government sources and seminal works, to show the history of a conceptual work or to add historical analysis to the context of the literature review. This literature review exceeded the required minimum of both 85% of peer-reviewed references with 99% peer-reviewed and 85% of references published between 2015 and 2019 with 93%.

Foundational Conceptual Framework

Qualitative researchers use a conceptual framework to provide clarity on key issues and describe the application of elements of the conceptual framework into practice (Hammad & Hallinger, 2017). To frame a research question for a study, researchers must

look at academic works previous scholars used to develop a full understanding of a similar topic (Dasgupta, 2015). Qualitative researchers develop themes from patterns to provide detailed descriptions of the phenomenon through a framework (Onwuegbuzie & Weinbaum, 2017). The conceptual framework that previous researchers used to study service-based innovation strategies used by manufacturing managers offering business services was strategic service innovation. The conceptual framework for this study was strategic service innovation theory.

In 1997, Sundbo developed strategic service innovation theory, which describes managers' strategic development of innovative services in business. Rapaccini and Visintin (2015) discussed how researchers considered the business value proposition as a product or service offerings as a function to satisfy the customers' needs, the source of competitive strategy. Sundbo (1997) sought to answer two research questions: (a) if services firms innovate, and (b) how service firms organize and manage the innovation process. Sundbo found that managers of service firms innovate and use strategy to manage the service innovation process. Sundbo's research led to the establishment of strategic service innovation as a conceptual framework that researchers use to understand how managers use strategy to manage service-based innovations offerings to customers. Manufacturing managers seeking effective means to provide service innovations to sustain their business may use this conceptual framework to understand the strategic service innovation process.

Competing Theories

Qualitative researchers explore a business problem through a specific conceptual lens chosen to view the phenomena. Strategic service innovation was an appropriate conceptual lens to explore the business problem for this study, which was that some manufacturing managers offering business services lack effective service-based innovation strategies to sustain their businesses beyond 5 years. Researchers exploring manufacturing managers' strategies to innovate to offer services used several competing conceptual frameworks, including (a) Barney's (1991) resource-based view (Story, Raddats, Burton, Zolkiewski, & Baines, 2017), (b) Miles's (1993) service innovation (Patricio, Gustafsson, & Fisk, 2018), and (c) Porter's (1991) strategy (Rabetino, Kohtamaki, & Gebauer, 2017). While some researchers used different theories to explore what strategies managers used to innovate services offerings, Sundbo's (1997) conceptual framework, strategic service innovation, incorporates elements of each of the competing theories. Sundbo recognized that researchers failed to address the full scope of effective service-based innovation strategies within each conceptual or theoretical framework.

Resource-based view as a conceptual framework. Researchers analyzed strategic innovations that manufacturers used to offer services through the lens of the manager's strategy for using resources (Benedettini et al., 2015; Lutjen, Tietze, & Schultz, 2017). Wernerfelt (1984) explored how managers strategically manage resources, instead of products, to improve profitability, using a theory known as resource-based view theory. Barney (1991) further expanded on resource-based view theory by describing how managers use strategy to sustain a competitive advantage by choosing a

business offering comprised of limited, unique, and non-substitutable resources. Benedettini et al. (2015) used resource-based view theory to explore strategies that manufacturers used to offer services in addition to manufacturing products. Researchers using resource-based view theory on manufacturers' strategies focused on business managers' use of resources to compete. Therefore, the researchers failed to answer what effective service-based innovation strategies managers used to sustain their business.

In contrast to some researchers use of a resource-based view exploring manufacturers' use of resource strategies to offering services, not all researchers agreed on the use of a resource-based view to study manufacturers' strategies for providing services. Raddats, Burton, and Ashman (2015) eliminated the resource-based view as an appropriate theory to examine manufacturers' servitization because the researchers found that firms might not own all the resources supporting a competitive advantage. Lutjen et al.'s (2017) exploration of the stages of manufacturers' service innovations required external resources to innovate to offer business services. Barney's (1991) exploration of the resource-based view required managers to possess resources to sustain competitive advantage; however, Lutjen et al.'s (2017) and Raddats et al.'s (2015) findings suggest a manager may not possess all resources required to sustain a competitive advantage. While managers use resources to determine their organization's competitive advantage, researchers who used resource-based view neither explained how manufacturing managers implement services into their business offerings, nor addressed how manufacturing managers use service-based innovation strategies.

Service innovation as a conceptual framework. Researchers used service innovation to explain how business managers innovate service offering (Gebauer, Joncourt, & Saul, 2016; Hakanen, Helander, & Valkokari, 2017). Miles (1993) first described the modern view of service innovation through changes in technology that allowed managers to transcend services beyond the traditional compartmentalization of services versus products boundaries and international borders. However, Sundbo (1997) argued that managers developing service innovations used technology to provide service offerings, as service providers used technology to innovate services, not become a service. Miles (1993) suggested manufacturers and service providers move toward the center of the products versus services spectrum. Manufacturers increase flexibility similar to the services end of the spectrum and service providers standardizes services with technological innovations similar to product manufacturers' pole (Gebauer et al., 2016). Researchers' opinions differ on how manufacturing managers, who provide services, perform service innovation.

Researchers used service innovation as a conceptual framework to view manufacturers' innovations for offering services to focus on the employees' relationship with the customer (Hakanen et al., 2017). For example, Lutjen et al. (2017) explored innovations leading to the development of the four-step process, including: first, partnering with customers to identify service needs; second, determining if customers' jobs are part of a more extensive process; third, determining what opportunities are available to complete the jobs; and fourth, determining what resources need investment into the service innovation.

Similarly, Kuijken, Gemser, and Wijnberg's (2017) quantitative research results showed growth through a focused strategy on product service systems with product and service elements managers combined to provide synergetic value to satisfying customers. Kuijken et al.'s research supported Raddats et al.'s (2015) focus on service innovation through satisfying customers' needs with investment in resources. Manufacturing managers' intense focus on meeting customers' needs to provide service offerings was the focus of the service innovation conceptual framework.

Manufacturing managers must consider more than customers in developing effective strategies to offer services. While Kuijken et al. (2017) explored the opportunity, innovation, customers, and resources for service innovations, the researchers failed to explore how manufacturing managers used the processes. Managers' focus on technology (Miles, 1993) and customers (Sakyi-Gyinae & Holmlund, 2018) in the service innovation process are essential elements in exploring manufacturers' service-based strategies. In contrast, Sundbo (1997) considered technology and information about customers' preferences as strategic inputs manufacturing managers used to offer services. Therefore, manufacturing managers do not only consider technology or customers when providing services; instead, managers require more strategic elements to gain effective service-based innovation strategies to sustain their businesses beyond 5 years.

Strategy as a conceptual framework. Since the 1960s, many researchers contributed to differing perspectives to the academic field of business strategy (Beamish & Lupton, 2016). However, most researchers, including Porter (1991) and Mintzberg (1978), agreed on one common element: managers develop strategies to overcome

business challenges. Mintzberg defined strategy as an advance plan with the purpose to overcome challenges. Effective manufacturing managers develop strategies to overcome challenges to offer services; however, researchers disagree about which strategy was appropriate for manufacturing managers to overcome barriers to offer services. Researchers established a spectrum of opposing perspectives on strategy, including a transcendent pole consisting of strategy based on analytical competencies, long-term vision, and deliberate intention, and the opposing immanent pole consisting of strategy based on speculation and emergence of unintended order (Barrett, Davidson, Prabhu, & Vargo, 2015). Sundbo's (1997) strategic service innovation concept incorporates elements from both spectrum poles, as researchers find analytical processes, unexpected opportunities, and threats to be sources of strategies to innovate from a solely manufacturing business to providing service offerings.

Other competing conceptual frameworks. Researchers developed competing concepts to explore strategies that show how manufacturers offer services. Vernon's (1979) life cycle theory stages, including introduction, growth, maturity, and decline stages allowed researchers to focus on product manufacturers transitioning to service offerings based on individual life cycle stages. Eloranta and Turunen (2015) opined that manufacturing managers take responsibility for developing the most effective and efficient value-creating service system for the business and customers by transitioning from products to services. Cusumano, Kahl, and Suarez (2015) argued that manufacturers providing services overcome the concept that manufacturers only provide services to complement products, by suggesting manufacturing managers who provide services

could build new markets or enter different markets in various product and services lifecycle phases.

Sundbo's (1997) research did not differ between product phases to determine strategies for when managers should enter into services markets. While providing an alternative conceptual framework to explore service innovations, lifecycle theory, Cusumano et al. (2015) focused only on products in a mature phase and did not provide an answer to the research question of this study. Examining product life cycles to determine strategies when managers enter into service offerings fails to answer the research question of this study.

Other researchers explored the topic of manufacturers entering service markets through the lens of several competing theories. Cusumano et al. (2015) expanded on the understanding of manufacturers providing services, known as servitization, by developing a competing conceptual framework to strategic service innovation to explain strategies manufacturing managers should implement when offering services. Kuijken et al. (2017) examined servitization from a value-based framework and found that transitioning from providing a product integrating offering services was a challenging process. Raddats et al. (2015) explored, through a single case study, how a manufacturer's innovation allowed integrated product service offerings through three means, including: (a) products and services as one sale, (b) products and services as separate sales, and (c) services as a separate individual sale. While other researchers explored the topic of manufacturers entering service markets through several competing theories, the researchers failed to answer the research question of this study.

However, researchers explored manufacturers entering service markets through servitization conceptual lens similar to strategic service innovation. For example, Rabetino et al. (2017) further refined a strategy map of servitization to four general elements, including (a) finances, (b) customers, (c) internal resources, and (d) training. Rabetino et al.'s explanation of servitization concepts displayed similar concepts to Sundbo's (1997) findings, with the inclusion of strategy and customer relationships in the process of manufacturers providing business services. However, Rabetino et al. (2017) described servitization concepts with limited perspectives, including productivity and growth as separate strategies, and internal perspectives showed operations management processes, while Sundbo generalized strategy concepts. Sundbo focused on strategic service innovation concepts, including the strategic process controlled by managers, standardization, external markets, internal resources, and dual organization with employee and customer interactions leading to innovation. Similar to Sundbo's dual organization concept, Sakyi-Gyinae & Holmlund (2018) opined manufacturing managers seek a competitive advantage by innovating the manufacturing organization to increase focus to understand which customers value. Researchers (Sakyi-Gyinae & Holmlund, 2018) closely aligned their conceptual view with Sundbo. However, some researchers (Rabetino et al., 2017) only expanded upon specific elements of strategic service innovation lacking the holistic view Sundbo provided.

Researchers who discuss servitization focus on strategies related to the delivery of service offerings to customers. While researchers differ on the types of strategies manufacturing managers used, most agree that effective manufacturing managers who

provide business services focus on strategies to provide services or a combination of integrated products and services to customers. The research question of this study does not specify product-service differentiation, product-service configurations, or customer value to explain strategic service innovations; therefore, servitization conceptual elements are too specific for use as a conceptual framework for this study.

Managers Control Innovation Based on Strategy

To develop strategic service innovations in manufacturing businesses, managers control innovation through strategy to create value from service offerings from a product-based business. Sundbo (1997) relied on Porter's (1991) explanation of a manager's responsibility to develop a strategy to drive service innovations. Managers develop an overarching business strategy to overcome the challenge that managers were unable to engage in every decision made within an organization (Porter, 1991). Similarly, Stock, Jong, and Zacharias (2017) concluded managers' strategic leadership influenced a creative environment enabling subordinates' proactive innovations. The effectiveness of managers' strategies depends on the managers' development of an organizational culture conducive to services innovation, which managers control to change product-based businesses to ensure successful service innovations (Rabetino et al., 2017). Manufacturing managers-controlled business service innovations through the overarching strategy (Sundbo, 1997), which managers communicate to strategic stakeholders to ensure implementation of innovation strategy into subordinate's business decisions without manager's direct participation (Birken et al., 2015). Manufacturing managers effectively control service innovations based on strategies to influence services

innovative organizational culture and communication of the strategy with stakeholders to influence business decisions.

Managers manage an organization's innovations through strategy development. Managers design a portfolio of innovation by considering the business environment, market trends, risk analysis, strengths, weaknesses, opportunities, and the application of resources to forge a competitive advantage (Tamayo-Torres, Gutiérrez -Gutiérrez, Llorens-Montes, & Martinez-Lopez, 2016). Similarly, Frow, Nenonen, Payne, and Storbacka (2015) suggested managers identify opportunity and allocate resources to strategically innovative to new services or products with customers taking an active role in the co-creation design process. For example, manufacturing managers strategically design services offerings through the application of resources to provide services in niche markets complimenting complex manufacturing processes, such as post-processing services in low volume parts (Strong, Sirichakwal, Manoghran, & Wakefield, 2017). Effective managers utilize organizational strategic design capabilities to develop innovations (Gerlitz, 2015). Managers following strategic service innovation concepts control innovations with business strategy.

In contrast, some researchers disagree with Sundbo's (1997) description of the importance of managers' control in the innovation process. For example, some managers used a horizontal business structure to enable employees to focus on customer service (Venkatesh & Singhal, 2017). Sundbo suggests innovation take place between customers and employees at the lowest level, with managers' control in the form of strategy. Venkatesh and Singhal (2017) concluded managers should empower employees to

contribute to servitization innovations based on customer interaction with employees. Sundbo's description of the manager's role in the innovation process was in between the two management approaches. Additionally, Prajogo's (2016) examination of the external business environment affects the success of managers' innovation strategies of Australian manufacturers found managers with innovation strategies fitting the external business environment generated a successful innovation strategy. Prajogo's findings show the importance of strategic fit with the external business environment, which Sundbo captures this concept with employees developing innovation based on relationships with customers.

However, Sundbo (1997) broadened service innovations beyond strategic fit with the external environment, which Prajogo (2016) limited to quantitative findings. Despite some researchers, dissenting opinion of Sundbo's description of the importance of managers' control of innovation through strategy, both the researchers recognized managers control strategies to innovate through either employee empowerment (Venkatesh & Singhal, 2017), or strategic fit to the external environment (Prajogo, 2016). Managers engaged in service innovations exercise control over innovation strategies. The purpose of this study was not to measure the degree of control managers displayed in service innovations, but instead to explore how managers used service-based innovation strategies to offer services to sustain business beyond five years.

Managers' Role in Strategy

Managers are responsible for developing business strategy, including strategies to implement services offerings to customers. Jia, Tian, Yang, Sun, and Malik (2016)

examined the relationship between servitization and business performance, through statistical analysis of an international large-scale survey database. Jia et al. found that managers must ensure strategies fit the business core, as service improvement actions require high-cost investments that decrease business performance when the service improvement actions do not strategically fit. To establish a strategic fit to satisfy changing customers' needs, effective managers leverage organizational learning required for innovations to meet demands (Tamayo-Torres et al., 2016). Managers need to ensure a strategic fit between the business core and strategies through organization-wide changes and strategic foresight to offer services to future customers.

For example, Ford and Despeisse (2016) suggested from a multiple case study described the need for manufacturing managers to make business-wide changes to business strategy, technology, organizational structure, operations, and supply chains to take advantage of additive manufacturing as a service offering. Managers ensure strategic fit of both strategy and organizational-wide changes needed to satisfy future customers' needs. However, Venkatesh and Singhal (2017) suggested horizontal business structure approach for manager deciding on strategic changes needed to offer services. Jia et al. (2016) found service orientation of competitive strategy and improvement actions must fit strategically with each other to improve business performance. Managers took on many roles in strategic service innovation in manufacturing; however, some researchers agreed that effective manager's role in strategy involves responsibility for the strategic fit of the service offering in the business (Prajogo, 2016). In this study, managers' role in

strategy includes foresight to ensure strategic fit of service offerings based on strategy and business-wide changes.

Managers provide strategic guidance. One of the most important roles and responsibilities for managers' business strategy was to provide strategic guidance to ensure a competitive advantage (Ambroise, Prim-Allaz, & Teyssier, 2018). Managers of manufacturing business provided strategic guidance on how to pursue strategic service innovation (Sayar & Er, 2018). Porter (1991) recognized managers move organizations to favorable environments; which helps to explain why manufacturing managers provide guidance on strategies for employees to provide service offerings. Manufacturing managers guided the business pursuit of services as a strategy to gain a transformative relationship with customers providing a competitive advantage over competitors (Szasz, Demeter, Boer, & Cheng, 2017). When providing customers service offerings to improve business performance, managers developed a competitive strategy to fit service orientation and organizational improvement actions with each other (Jia et al., 2016).

Manufacturing managers provide strategic guidance when pursuing service offerings because managers' strategies misaligned to the organization present risk to business sustainment. Manufacturing managers gain knowledge of the risks to business sustainability when efforts to provide service offerings fail to follow an effective competitive strategy (He, Ho, Zhang, & Dey, 2016). For example, Benedettini et al. (2015) suggested offering services exposed manufacturers to different risks associated with demand volatility based on different customer needs and uncertainty of various operational functions. Manufacturing managers pursuing conflicting standardization and

customization approaches to offering services face multiple challenges to satisfying customers' needs and fail to reach business objectives through service offerings (Lenka, Parida, Sjodin, & Wincent, 2018). Manufacturing managers providing services seek long-term relationships with customers required overcoming barriers to customers' commitment, including getting the customer involved and developing technical and business competencies to continue to provide services (Coreynen, Matthyssens, & Van Bockhaven, 2017). Manufacturing managers provide strategic guidance to avoid risks in offering services to customers.

In controlling business risks, manufacturing managers provided strategic guidance to determine the magnitude of service offerings as either a service dependent product or a substitution for conventional services with a manufacturer's service-based product (Lee, Yoo, & Kim, 2016). Managers considered several key elements when providing strategic guidance for offering services, including differentiation, competitive strategy, relationships with customers, customer's needs, and product service functional design (Ambroise et al., 2018). Manufacturing managers used business strategies to offer services to gain a sustainable competitive advantage with business strategies to control market segment inputs, value chain development, financial resources, and focus on business sustainability (Alghisi & Saccani, 2015). For example, Ford and Despeisse (2016) recommended managers take advantage of additive manufacturing advancements and positive impacts to drive business sustainment. Manufacturing managers are responsible for providing strategic guidance to overcome barriers to risk in service innovations.

Competitive advantage. Manufacturing managers offer business services to gain a competitive advantage to sustain business operations. Manufacturing managers developed service offerings to sustain competitive advantage (Bustinza, Bigdeli, Baines, & Elliot, 2015). Ha et al.'s (2016) study consisted of Small and Medium Enterprise, *SME*, manufacturers engaged in servitization gained a competitive advantage through greater efficiency in business management, product planning, and product production process, than SME manufacturers without servitization in processes. Through comparison of cases, Lee et al. (2016) revealed two possible strategic paths for manufacturers gaining a competitive advantage by offering services, including integrating a service provider, or integrating goods and services, servitization. In contrast, Rau, Zbiek, and Jonas (2017) concluded manufacturing managers offering services created a competitive advantage through differentiation by a strategic process of establishing a value proposition to meet customers' needs. Manufacturing managers establish services offerings to seek competitive advantage and benefit from service offerings as a competitive advantage in sustaining the longevity of the business.

Researchers agree manufacturing managers seek opportunities within market conditions to initiate effective service strategies. Alghisi and Saccani (2015) suggested managers utilize networks to seize competitive advantage through service offerings by sensing opportunities and threats. Saul and Gebauer (2018) suggested manufacturing managers gain a competitive advantage by engaging customers with specific service offerings, which free customers' resources through reduced costs. Also, Ha et al. (2016) examined Korean manufacturing small and medium enterprise managers engaged in

servitization finding the manufacturing managers possessed efficiencies in several business processes than nonservitized businesses, including business management, product planning, and product production. Manufacturing managers control strategy to gain competitive advantages through opportunities to increase engagements with customers to provide service offerings from organizational reconfigurations and efficient business processes improvements.

For example, Gebauer et al. (2016) described four service networks manufacturing managers used to take advantage of the opportunity to move from products to services, including vertical after-sales service networks, horizontal outsourcing service network, vertical life-cycle service network, and horizontal integration service network. Also, manufacturing managers in mature economies can take advantage of opportunities to satisfy customers by increasing understanding of customers' needs through the exploitation of Big Data to provide complimentary service offerings (Opresnik & Taisch, 2015). While researchers disagree on specific opportunities for manufacturing managers, use to gain a competitive advantage to offer services, in this study effective manufacturing managers identify and take advantage of opportunities when innovating to offer business services.

Barriers to strategy implementation. Some manufacturing managers experienced barriers to establishing successful service offerings. Some manufacturing managers experienced barriers to implementing services within the service market. For example, Kuijken et al. (2017) described manufacturing managers' lack of service skills as a barrier to develop effective service offerings. Benedettini et al. (2015) found

manufacturers providing service offerings, such as retail, distribution, and financial services experienced increased external risk. Some manufacturers experienced limitations in the form of inconsistent demand for services, such as maintenance contracts for repair services for manufacturer's products (Gebauer et al., 2016). Manufacturers offering services exposed the organization to the volatility of different customer needs and uncertainty of differences in product or service operational functions (Benedettini et al., 2015).

Researchers identified several challenges limiting strategic service innovation in businesses. For example, Zhang and Banerji (2017) found manufacturing managers faced barriers to service innovation, including, organizational structure factors, economic factors, and internal resources with external market factors. Coreynen, Matthyssens, Rijck, and Dewit (2018) found manufacturing managers possessed limited internal resources as capabilities in service practices, including training staff and maximizing efficiencies. Porter (1991) recognized managers move organizations to favorable environments. However, Benedettini et al. (2015) suggested offering services exposed manufacturers to different risks associated with demand volatility based on various customer needs and uncertainty of changing operation functions. Porter's suggestion helps to explain why manufacturing managers' move into service offerings to sustain their businesses despite challenges. The purpose of this study was not to identify specific challenges to manufacturing managers to innovate to provide service offerings.

Managers influence service innovations in businesses processes, products, or services to gain a competitive advantage. Managers benefit from service innovation

through business resilience, effective responses to changing requirements, securing customers limiting competition, taking advantage of continued growth opportunities, developing new service business lines, and revenue streams growth (Baines, 2015). Managers developed competitive advantage, to gain benefits, through innovative services strategies by establishing entrepreneurial posture in strategic decision-making, create value for customers with new services, deciding on resource limitations for innovation initiatives, and ensuring innovation align to customers' needs (Hakanen et al., 2017). Managers benefit from establishing a competitive advantage through service innovation by aligning their innovation efforts with customers' needs and controlling innovation through strategy. To benefit from competitive advantage through innovation, managers engage in various roles to enhance innovation in business processes and products/services.

Managers Role in Service Innovation

Managers' role in service innovation includes effecting innovations through creating conditions for employees to understand customers' challenges and developing solutions to those challenges. Managers effectively increase innovation through decisions to opening innovation processes to customers' feedback (Chakkol, Karatzas, Johnson, & Godsell, 2018). Windler, Juttner, Michel, Maklan, and Macdonald (2017) found through qualitative research managers serve suitable solution customers as consultants establishing a relationship for the customer shared business problems and expertise with the product service solution provider. Managers create conditions to increase service innovations through increasing employee understanding of customers' needs.

Also, managers effectively facilitate employee knowledge sharing needed to overcome barriers to providing innovative services to customers by aligning goals and promoting trust (Valtakoski & Jarvi, 2016). Managers affected employees' commitment to innovation by communicating support for employees' implementation of collaboration (Birken et al., 2015). Managers create conditions within an organization for employees to develop customers' trust to understand customers' needs to find innovative solutions to customers' problems (Ikeda & Marshall, 2016). Managers encouraged organizational learning as a key element to develop innovation to strategic fit to customers' demands (Tamayo-Torres et al., 2016). Research showed managers' role in innovation includes considering customers in the innovation process, which requires supportive communication and trust with both employees and customers to develop solutions to meet customers' requirements.

Managers influence the development of innovative service offerings by overcoming barriers to understanding services. For example, managers seeking to learn the value of the service realized the importance of interactivity for developing knowledge, which differed from manufacturer's product focus (Raddats et al., 2017). Kuijken et al. (2017) discussed to overcome barriers to offer services manufacturing managers took advantage of opportunities to sell products and services separately to increase understanding of effective service strategies. Similarly, manufacturing managers provided solutions to innovation barriers, including (a) facilitating development processes, (b) clarifying responsibilities, (c) providing knowledge, (d) compensating partners, (e) incentivizing value co-creation with customer engagement, and (f)

supporting continuous improvement (Benedetti et al., 2015). Rabetino, Harmsen, Kohtamaki, and Sihvonen (2018) found managers used a strategic innovation process for manufacturers to transition to providing services. Manufacturing managers need effective strategies to overcome barriers to service innovations, which require most managers to support employees' generation of innovative ideas and build an organization to promote and integrate service innovations through strategy.

Employees' Relationships

Similar to Sundbo (1997), researchers using resource-based view or service innovation sought employees' relationship with customers as a key strategic element to offer services. Li, Lin, Chen, and Ma's (2015) quantitative research demonstrated managers provided organizational empowerment positively influenced business performance, through service strategy. Employees empowered to innovate towards services at manufacturing provide an opportunity for manufacturers to gain a competitive advantage. Hakanen et al. (2017) suggested managers strategically study the dynamic interactions between employees and customers to benefit from employees' relationship with customers. He et al. (2016) further examined the relationship between organizational empowerment and business performance for manufacturers offering services, which demonstrated a positive correlation.

Similarly, Brax and Visintin's (2017) explored themes changing focus from product strategies to customer-focused service strategies. Manufacturing managers effectively offered services through a joint commitment between employees and

customers (Kreye, 2017). Manufacturing managers use employee relationships with customers strategically to capitalize on opportunities for service innovations.

Dual Organization

To understand how manufacturing managers, use effective strategies to provide service offerings, researchers need to understand how managers establish an organizational structure to overcome strategic service innovation challenges. Managers establish organizational structures; therefore, effective manufacturing managers must find the right fit for an organizational structure to support both products-based business, as well as strategic shifts towards providing service offerings (Bustinza et al., 2015). Managers of innovative businesses with high performances in revenue growth and profitability created innovation by structuring the organization to encourage innovation through innovative culture and development of processes to enable innovation (Ikeda & Marshall, 2016). Effective manufacturing managers offering services organize the organizational structure to overcome barriers to competing with services.

Some researchers (Bustinza et al., 2015; Ikeda & Marshall, 2016) agreed, manufacturing managers needed to change organizational structure establish effective service initiatives. However, other researchers disagreed on the specific organizational structure required, for example, Weeks and Benade (2015) recommended consolidating services under a separate services business, to increase production employees' focus on product manufacturing operations. In contrast, Kuijken et al. (2017) discussed that managers who sought to offer services required an organizational structure to overcome changes in management focus from products to services. Sundbo (1997) described

effective manufacturing managers develop a dual organization strategy to innovate manufacturing the business to offer services.

Informal Interaction for Ideas

Manufacturing managers engaged in offering services establish direct relationships with customers, while managers of product-oriented businesses restrict engagement was an indirect connection with customers (Chakkol et al., 2018). Manufacturing managers take advantage of customers' requests for customization of products, which often result in service offerings to train the customer on new functionalities (Cusumano et al., 2015). By engaging customers through product-service system feedback, manufacturers innovate to develop better quality products and services (Wan, Li, Gao, Roy, & Tong, 2017). Through establishing interactions, directly with the end-using customer, manufacturing managers sell new versions of products and services to existing customers over a longer timeframe through servitization (Cusumano et al., 2015). Manufacturing managers offering services direct communication with customers improved functional quality and customer satisfaction (Coreynen et al., 2018). Effective manufacturing managers providing service offerings need to establish direct communication between employees and customers.

Service Innovation as a Strategic Process

Manufacturing managers use service innovation as a strategic process to provide service offerings. Manufacturing managers approach to service innovation as a strategic process to gain a competitive advantage (Baines et al., 2017). Manufacturers sought service innovation strategies either through alignment of an external competitive

environment (Martin-Rios & Parga-Dans, 2016), or an internal development of resources (Vargo, Wieland, & Akaka, 2015). From an external perspective, Sundbo (1997) identified the following key tenets of strategic service innovation theory showed service innovation as a strategic process of determining customers' needs through employee relationships to identify service offerings aligned with managers' strategic guidance. Successful managers incorporate a strategic process to innovate services into their business offerings. Martin-Rios and Parga-Dans (2016) suggested manufacturing managers strategically innovate when faced with a severe economic decline by leaving traditional product offerings to change to new services offerings. Like Porter's (1991) five forces, managers seek information from the external competitive environment. Effective manufacturing managers use a strategy development process to decide how to use service innovation to take advantage of opportunities for customers' needs (Rabetino et al., 2018).

Managers seek to provide service innovations by aligning strategy to provide services needed by external customers. To innovate services managers, focus on satisfying future customers' needs presenting opportunity, instead of focusing on satisfying existing customer's needs (Coreynen et al., 2018). Lee et al. (2016) examined two strategic innovation paths for manufacturers to gain a competitive advantage by offering services, including (a) integrating third-party service provider, or (b) integrating goods and services. However, manufacturing managers seeking to satisfy customers' needs through service offerings innovate to provide solutions, through integrated product-related services (Chakkol et al., 2018). Kanninen, Penttinen, Tinnila, and Kaario (2017)

found manufacturing managers effectively offer services through a four-step process, including: (a) identification of current services and customers' needs, (b) definition of service strategy, (c) service development, business modeling, and marketing, and (d) improve capabilities. Manufacturing managers apply service innovation strategies including cost reductions and expansions to base markets to achieve a competitive advantage (Lee et al., 2016). Effective managers strategically align service innovations with the customers' demands.

Also, some manufacturing managers innovate through analysis of market conditions trends (Andreassen, Lervik-Olsen, & Calabretta, 2015). Some manufacturing managers seeking innovation opportunities use Big Data to increase competitive advantages through increasing the virtualization, organization, sharing, and analyzing data on customers' behaviors to innovate to provide new service offerings to customers (Opresnik & Taisch, 2015). Additionally, Bohm, Eggert, and Thiesbrummel (2017) concluded manufacturers focus strategy on innovation to design services to satisfy customer's needs when transitioning from a product focus to provide customers with service offerings. Managers use technological advances in the analysis of data allowing managers to make strategic decisions about which opportunities to pursue to offer services (Opresnik & Taisch, 2015).

In contrast, to the external perspective of service innovation as a strategic process with an external focus, Vargo et al. (2015) suggested managers innovate through a strategic process of combining institutional knowledge with the development of new technology. Similarly, Tamayo-Torres et al. (2016) examined managers' strategic

approach to organizational learning as an effective method for aligning innovation and strategic fit. Valtakoski (2017) found institutional knowledge as a key resource for both customers and manufacturers. Both authors (Tamayo-Torres et al., 2016; Vargo et al., 2015), view the innovation process as a strategic process focused on internal elements, including institutional knowledge or organizational learning.

Manufacturing managers achieve innovation in services by increasing focus on innovations in research and development of services (Tran & Park, 2016). Manufacturing managers investing in research and development for services require technological change (Wu & Wu, 2015). Managers offering services require different technology resources than managers providing products, including web services to engage service customers, to manage the complexities of planning for new service operations, new financial management structures, and realignment of the information technology systems to meet the demands of both product and services operations (Weeks & Benade, 2015). Technology design-driven processes allow managers to take advantage of industry flexible manufacturing and services, individual customized products and services, and innovative business models through smart technology (Gerlitz, 2015). Managers can integrate technology strategically into service offerings through new information systems services need to support product and service customization (Grubic, 2018). While some researchers disagree on the focus of the service innovation process, the researchers agree successful managers use a strategic process to innovate services.

Manufacturing managers provide service innovations through a strategic process (Sundbo, 1997). This process includes aligning external competitive environment factors,

customers' needs, with internal resources, services integrated with products (Frow et al., 2015). Senior managers influence innovation by resource allocation and directly communicating the strategic vision and prioritizing innovation initiatives to employees (Birken et al., 2015). Lutjen et al. (2017) provided a three-stage service innovation process to consider strategic service innovations, consisting of (a) service initiation, (b) service anchoring, and (c) service extension. Managers decide to provide service offerings based on aligning customers' needs with organizational resources leading to service innovation as a strategic process. Similarly, Spring and Araujo (2017) suggested manufacturing managers sought to leverage repair and maintenance services of manufacturers products as a development approach to strategical initiation of service offerings.

Customers. Customers actively participate in the development of effective service innovations. Researchers, who addressed customers strategies for service innovations, agreed to look for innovations from customers; however, researchers disagreed on the perspective, which to view customers' contribution to strategic service innovation. Sakyi-Gyinae and Holmlund (2018) described how researchers considered the source of competitive strategy consisted of satisfying the customers' needs. Similarly, Baines et al. (2017) suggested managers of product-based companies look to develop service solutions by targeting tasks loyal customers require assistance in accomplishing. Manufacturing managers effectively provide customers with service innovations aligned with customers' needs (Coreynen et al., 2017). Manufacturing managers effectively use service innovations through understanding and satisfying customers' needs.

Manufacturing managers must focus on customers' needs to develop effective service innovations. Jaaron and Backhouse (2017) found, through multiple case studies, successful managers approach innovation by focusing on customers' needs to develop improvements to existing services or new service offerings. Manufacturing managers gain a competitive advantage through optimization of services alignment with customers' processes (Trkman, Mertens, Viaene, & Gemmel, 2015). Similarly, Sakyi-Gyinae and Holmlund (2018) suggested effective managers of product-based businesses develop service innovations aligned to the customer's value perspective. Both Jaaron and Backhouse (2017) and Sakyi-Gyinae and Holmlund (2018) suggested effective managers offering services take responsibility to solve customers' needs to increase productivity through service offerings.

Managers focus on customers' needs through organizational change or customers' life cycle. For example, IBM managers pioneered manufacturing business transformation to offer services; which IBM managers amended the organizational culture to focus on customers' needs (Tunisini & Sebastiani, 2015). In contrast, Andreassen et al. (2015) viewed customers' needs for services based on three phases of life, including young and carefree, chaos in life, and getting life back. Although, researchers disagree on the type of role customers play in service innovation; researchers agree customers are critical to the effectiveness of service-based innovation strategies.

In contrast, manufacturing managers seeking to implement servitization strategies focus on improving customer relationships, understanding customer's internal business processes, and target solving customers' problems with efficient and effective service

solutions (Baines, 2015). Manufacturers, moving upstream in the value chain through service offerings, obtained high growth in profitability through differentiation and customer satisfaction (Bustinza et al., 2015). Raja, Chakkol, Johnson, and Beltagui (2018) case study described manufacturing managers' strategy to collaborate with customers integrate knowledge and resources with customers to deliver solutions. Integrators to establish a direct service relationship with end-user customers, which manufacturing managers used specific skills and capabilities to perform service tasks too complex for the integrators provide to end-user customers. As a function of successfully implementing a servitization, managers engaged in the strategic process to gain an understanding of the customer's experience with both the product and services, for low-level product and service integration design to the solution to satisfy the customer's needs (Kim, Lee, & Kim, 2015). Li et al. (2015) found managers of manufacturing companies enhance the competitiveness of their firm through focused attention to their customers while providing increased customized integrated solutions.

Manufacturers analyze the external risks to determine changes needed to compete in service markets (Zhang & Banerji, 2017). Managers improved communications with customers from product offerings to focus on areas where customers require assistance in completing service tasks (Sakyi-Gyinae & Holmlund, 2018). Understanding the external business environment requires establishing an active partnership with customers to identify customers' needs (Vaittinen, Martinsuo, & Ortt, 2018). Andreassen et al. (2015) recognized the value of analysis of the external business environment; proposing a systematic framework to distinguish trends from market research for service innovation

opportunities. Managers analyze relationships dynamics with customers to offer innovative services to increase the customer's capabilities to achieve goals (Sakyi-Gyinae & Holmlund, 2018). Effective manufacturing managers analyze the external environment to choose service innovation strategies.

However, managers make errors determining service offerings by assuming superior knowledge of how customers interact with the organization's processes or how the customer uses the products and service offerings (Trkman et al., 2015). Effective manufacturing managers applied strategic focus on how customers value the service offerings manufacturers provided to sustain business operations (He et al., 2016). Managers' analysis of market conditions influences managers' decisions to pursue strategic actions to offer services (Tunisini & Sebastiani, 2015). However, managers providing service offerings consider the value of service to the customer to make effective strategic decisions about which service offerings satisfy customers' needs (Peters, Blohm, & Leimeister, 2015). Manufacturing managers make mistakes in service offerings when managers fail to recognize the value of services provided to customers.

Similarly, Prajogo (2016) found effective managers achieved a competitive advantage through both product and process innovation strategies based on the context of the external business environment. Manufacturing managers offering services need to consider environmental risks and market conditions when pursuing demands for services (Benedettini et al., 2015). Managers received benefits from allowing the customer to provide input on various products and processes; through external customers' access to organizational processes, customers assist managers in making decisions regarding the

quality of products and services (Agrawal & Rahman, 2015). The source of competitive strategy consists of managers developing an understanding that the value proposition comes from a business offering to satisfy customers' needs through the functionality of the product or the service (Sakyi-Gyinae & Holmlund, 2018).

Knowledge of product and services processes. Manufacturers' transitioning from product-based business models to include service-based business offerings gained competitive advantages from increased collaboration between the product-oriented system and service-oriented system (Peillon, Pellegrin, & Burlat, 2015). Mahut, Daaboul, Bricogne, Eynard (2017) discussed managers effectively enable collaboration between product activities and service activities through employees gaining knowledge of the product and services processes.

Managers take advantage of the knowledge of products and services to develop strategic service innovations from a variety of sources. Managers effectively developed service innovations through inputs customers co-creation (Huikkola, Kohtamaki, & Rabetino, 2016). Manufacturers, such as Rolls Royce and IBM sought knowledge from digital innovations and analysis of information from the *Internet of Things*, which managers used to change product inputs to innovative services outputs (Barrett et al., 2015). Kuula, Putkiranta, and Tulokas (2016) found benefits from using public resources to develop innovations. Manufacturers focus on customer's knowledge resources to offer service innovations (Green, Davies, & Ng, 2017). Manufacturing managers effectively locate the knowledge of products and services to develop service innovations from a

variety of sources, including customers, public research organizations, and digital information, such as Big Data.

Some manufacturing managers leveraged digital information technologies to increase growth through service innovations (Prindible & Petrick, 2015). Ostrom Parasuraman, Bowen, Patricio, and Voss (2015) recognized information technological advances changed how customers serve themselves, including before, during, and after purchase. Manufacturing managers seek a competitive advantage through network connections of digital information known as the Internet of Things. Researchers defined the Internet of Things as the connection information, sensors, and communication technologies into manufactured products to provide information and services to customers (Sayar & Er, 2018). Manufacturing managers may strategically access Internet of Things to identify what services customers need and what resources need investment to innovate services to answer customers' needs.

Manufacturing knowledge. Most researchers disagree over the ability to use manufacturing knowledge to assist managers in making strategic service decisions in the servitization process. Mahut et al. (2017) suggested cooperative strategies improved value chain service quality, as manufacturers and customers connected sharing service needs through information systems. In contrast, Kuijken et al. (2017) discussed that managers experienced challenges using a product-based value to offer services, as both products and services require different management dynamics. Prajogo (2016) suggested manufacturing managers not completely abandon product innovation activities because manufacturing managers can still seek opportunities to gain product market share by

offering better products to customers. Some researchers disagree whether manufacturing managers effectively sustain businesses through servitization by relying on manufacturing knowledge in the servitization process.

Traditionally, manufacturing managers focused on product-based manufacturing strategies, which managers concentrated on engineering and designing a product to sell to customers. Traditional manufacturing strategy frameworks separated process innovation and product innovation, but service innovation required the commingling of both process and product innovations (Kowalkowski, Windahl, Kindstrom, & Gebauer, 2015). Raddats et al. (2015) found manufacturing managers' motivations to engage in servitization consisted of new revenue streams, cost savings, service quality improvements, and risk mitigation for complex products and systems. Additionally, Baines (2015) explained managers' servitization initiatives affected the organization beyond developing a new service offering for customers by the adoption of both new technology and organizational transformation during the servitization process.

Integrated Product and Service Offerings

Some manufacturing managers pursue strategies to offer services through the integration of services into their product offering strategy. Several examples of companies, which successfully pursued servitization through integration with product offerings, includes IBM (Wu et al., 2017), Rolls Royce, and General Electric (Gebauer et al., 2016). Researchers exploring product and service offerings must understand the rationale for product-based manufacturing managers to adjust business models. He et

al.'s (2016) quantitative study supported the need for manufacturers to offer product-based services to overcome barriers to product market entry in the current market.

Similarly, Sayar and Er's (2018) multiple case studies explored manufacturing managers providing services solutions by responding to customers' needs with innovative product and service combinations. Effective business managers continuously adjust business models to provide new products and services through a strategic change to gain a competitive advantage (Kowalkowski et al., 2015). Helms (2016) concluded the energy companies entering services shift from transactional commodity providers to a service business model consisting of a value proposition to reduce cost, emissions, complexity, or improvements to generation and consumption of energy to business-to-business customers and private households. Manufacturing managers may strategically change product business models to incorporate service offerings.

Manufacturing managers must align product and service strategies to gain a competitive advantage. Bustinza et al.'s (2015) found through quantitative analysis manufacturing managers sought to provide services by integrating products and services over performance-based contracts and value-added services. Similarly, Kim et al. (2015) discussed how a small to medium manufacturing business managers competed through innovative integration of services and product through a strategic process of high-level design process coupled with low-level product-service system design. However, some manufacturing managers pursued a strategy to provide services through product ownership retention, while offering the customer use of the product with support services incorporated into solutions contracts (Zhang, Ren, Liu, & Si, 2017). Some researchers

agree manufacturing managers used integration of products and services to achieve a competitive advantage through servitization.

Manufacturing managers may seek an opportunity to differentiate products to gain a competitive advantage, which managers may use this strategy to enter services markets. Cusumano et al. (2015) concluded most product-based business managers across a broad international spectrum of business offered more substitution services in the ferment phase, but as the managers' business progressed through the transition and mature phases, replacement services decreased as extending and smoothing services increased in service offerings. Bustinza et al. (2015) found the source of competitive advantage drove manufacturers to use customer satisfaction as the source of knowledge to develop services closely aligned with business functions; however, differentiation was appropriate for special service unit or external partnerships to drive innovation. Kim et al., (2015) explained the strategic servitization process through a double-deck servitization process, which demonstrated the managers of the small furniture manufacturing company successfully applied the servitization process through integrated product and services for the DIY furniture product, by providing education and customization to meet customer's needs. Researchers of this topic disagree on whether manufacturing managers should engage servitization through product and service integration or differentiation through substitution strategies to innovate services offerings.

Strategy Inspired Employees

Effective manufacturing managers provide a strategy to inspire employees to provide service offerings to customers. Employees motivated by organizational support

for innovating ideas are a key element to innovations needed to pursue energy business initiatives (Tantau, Chinie, & Carlea, 2015). Li et al. (2015) found in China investment in human resources was a requirement to promote servitization, and managers gain servitization profitability by the steady accumulation of capabilities. To overcome business operations challenges to servitization, manufacturing managers need to employ and train employees capable of establishing relationships with customers and developing innovations to provide solutions to customers (Chakkol et al., 2018). Employees effectively inspired by strategy provide innovation and establish relationships with customers to promote manufacturing managers' service offerings.

Manufacturing managers inspire employees with strategies to gain the knowledge needed to innovate to satisfy customers with service offerings. When performing job tasks, individual employees gain the knowledge needed to innovate products, procedures, processes, or services (Engen & Magnusson, 2015). Service provider employees establish a relationship and gain extensive knowledge of customers' preferences; employees' knowledge of customers' preferences was a critical element to innovating services to meet customers' expectations (Akesson, Skalen, Edvardsson, & Stalhammar, 2015). Employees' innovation was a fundamental factor in achieving a competitive advantage; however, employees' innovation was useless unless managers support the employee by implementing the innovation in the organization (Kafetzopoulos, Gotzamani, & Gkana, 2015). Employees' knowledge of customers become a critical element for manufacturing managers to effectively decide, which services to provide to meet customers' expectations.

Employees respond to the business environment to make ideas into possible innovations (Sinha & Srivastava, 2016). Managers inspire employees through empowerment to seek opportunities to improve work processes and procedures leading to increased employee innovations (Kafetzopoulos et al., 2015). Manufacturing managers effectively offer services through boundary spanning employees linking external customer requirements with internal processes and resources (Chakkol et al., 2018). Managers' strategic support for employees' innovations positively affects the achievement of organizational goals (Schuckert, Kim, Paek, & Lee, 2018). Employees inspired by manufacturing managers' strategies to provide services to gain knowledge of customers needed to innovate service offerings effectively.

Standardization

Effective manufacturing managers use standardization as a strategy as a competitive advantage to provide service offerings. Manufacturers facing steep price competition stemming from manufacturing standardization and modularization seek servitization as a strategy to remain competitive (Ha et al., 2016). Manufacturing managers seek standardization in product-oriented systems to control costs and provide certainty (Lenka et al., 2018). Managers who integrate product-service offerings may provide differentiation as a competitive advantage by structuring the product-service business model (Adrodgari & Saccani, 2017). Manufacturing managers pursuing servitization gain a competitive advantage through cost reductions from adjusting the scale of service configurations and standardization (Martin-Rios & Parga-Dans, 2016).

Manufacturing managers pursue standardization of service offerings to reduce costs, differentiate, and adjust the scale of service offerings to remain competitive.

However, manufacturing managers face barriers in standardizing services. For example, customers' sense of value differs between products and services (He et al., 2016). Service managers respond to customers' request for customized services as a competitive advantage, unlike in manufacturing products (Lenka et al., 2018). Additionally, customers measure product quality and services quality based on subjective standards, including (a) a product design, material, and manufacturing technology, and (b) the difference between the perceived levels of service expected at purchase compared to the actual level of service delivered (You & You, 2016). Additionally, Kowalkowski et al. (2015) discussed managers sought to standardize service offerings, however, were challenged to customize to meet customers' needs. Manufacturing managers seeking to standardize services face barriers from customers' requirements for flexibility in services, the customer's sense of the value of the service, customers' requests for services customization, and customers' perceived versus actual quality of service (Benedettini et al., 2015; You & You, 2016). Manufacturing managers need to change perspectives on standardization between providing products and offering services to customers.

In contrast, researchers show a strategic push to standardize the service provider process. For example, Curiazzi, Rondini, Pirola, Ouertani, and Pezzotta (2016) presented a standard process model for service delivery consisting of seven process segments, including (a) handling customer's requests, (b) assess the feasibility and create the offer, (c) manage order, (d) mobilize and plan, (e) prepare job, (f) perform service job for

customer, and (g) complete job. Additionally, Wu and Wu (2015) concluded service providers either apply structure to the service system to organize people and technologies when managing services design and execution, or work unilaterally towards internal objectives without understanding customers. However, Andreini, Salo, and Wendelin (2015) recommended product-service providers standardize by providing solutions to provide cost reductions, create improvements to customer relationships, and develop loyalty.

Manufacturing managers faced challenges to standardize services offerings when focusing on touchpoints with customers, who required increasing customization and flexibility to satisfy customers' needs (Benedetti et al., 2015). Managers focused on standardization of product design open organizations to feedback from external stakeholders, such as distributors and installers, which managers could apply to servitization strategies (Weeks & Benade, 2015). However, managers can achieve a competitive advantage through standardization as Sundbo (1997) suggested by focusing on standardizing macro service processes with managers' decisions influenced by feedback pulled from employees' understanding of customers' service requirements.

Manufacturing managers seek opportunities to sustain business operations through service offerings; yet, many manufacturers offering services need to overcome barriers to innovate service offerings. To overcome the obstacles to services innovation, Sundbo (1997) offered a conceptual framework, strategic service innovation, showing how managers effectively engage in service innovations as a strategic process. Researchers support Sundbo's concepts by further refining the strategic process to

aligning customers' needs with internal resources to provide innovative service offerings. Manufacturing managers can apply Sundbo's concepts to overcome service innovation barriers through a strategic process to provide service offerings required to sustain the business beyond 5 years.

Transition

Section 1 consists of the basis of the study, including identification and alignment of the research problem in the form of a problem statement, research question, and purpose statement. I provide a conceptual framework using Sundbo's (1997) strategic service innovation theory as a conceptual lens to view the answer to the research question grounded in current and relevant academic literature. I made assumptions, as well as identified limitations and delimitations to assist in analyzing the data from the study. To highlight the importance of researching the topic, I provide information on the significance of the study.

In the final portion of Section 1, I review current and relevant academic literature. I provide an academic literature review discussing the conceptual framework and relevant research on the business problem. I gauge the relevancy of literature based on minimum criteria established to guide the use of peer-reviewed articles within five years of the expected completion of this study. The literature review consists of discussion on theories considered as the conceptual framework for this study, including similarities and conflicts on the research topic. Additionally, I discuss the relevance of Sundbo's (1997) strategic service innovation theory consisting of managers' control of service innovation strategy, managers' consideration of external market conditions and internal resources, managers'

establishment of dual organizations to provide service innovations, and strategy to pursue standardization of services.

In Section 2, I discuss key decisions on how I plan to conduct this multiple case study with supporting rationale based on peer-reviewed articles and seminal sources. I describe the roles of the researcher as well as decisions about participant recruitment. Additionally, I discuss the decisions to pursue a qualitative research method and multiple case study design for this study by ruling out other research methods and designs not appropriate to answer the research question. I identify the population of manufacturing managers capable of answering the researching question and sampling strategies to recruit participants to ensure data saturation to answer the research question for this study. Additionally, I ensure the application of ethical research principles for this study, by discussing the inclusion of ethical principles from the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979), known as the Belmont Report. I discuss data collection, organization, and analysis by identifying specific data collection instruments, data collection technique, data organization technique, and data analysis. Finally, I described how I ensure the reliability and validity of my findings by using data triangulation to ensure data saturation, and member checking techniques.

In Section 3, I present the findings of the study. Additionally, I discuss the application to professional practices, implications for social change, and make recommendations for action and further research. I conclude the study with reflections on

my experience in the Walden University DBA process followed by the concluding statement about this study.

Section 2: The Project

Manufacturers influenced by technological advances and increased global competition in product-based operations are motivated to enter service markets to sustain businesses (Aminoff & Hakanen, 2018). Manufacturing managers need effective service innovation strategies to overcome challenges to provide service offerings. In Section 2, I provide the purpose of the study, the research method, research design decisions, and supporting the rationale for the study's execution. In this section, I document the preparation and procedures of the study, including the role of the researcher, the participant selection process, data collection, data organization, data analysis, and the reliability and validity of the study.

Purpose Statement

The purpose of this qualitative, multiple case study was to explore effective service-based innovation strategies that manufacturing managers used to offer business services to sustain their businesses beyond 5 years. The target population for this study was manufacturing managers who offered business services from three petroleum and coal manufacturing companies, and who have sustained their business in the mid-Atlantic region of the United States longer than 5 years. The implication for positive social change includes the potential to provide manufacturing managers with strategies to increase the longevity of business operations, thereby positively affecting the socioeconomic conditions of communities relying on manufacturing. Other manufacturing managers may be able to use the findings this study to achieve sustainable employment opportunities

and positively affect the economic opportunities of the residents of the local communities.

Role of the Researcher

My role as a researcher in this qualitative, multiple case study was to serve as the primary data collection instrument. I prepared, organized, and reported findings by following an established interview protocol. I followed ethical guidelines for this study. In qualitative research, the researcher is the data collection instrument (McCusker & Gunaydin, 2015). Qualitative researchers serve as the data collection instrument when conducting interviews with research participates (Twining, Heller, Nussbaum, & Tsai, 2017). Qualitative researchers prepare data by collecting data for content analysis, selecting units of analysis, and developing meaning by interpreting data through their perspective lens (Bengtsson, 2016). In this multiple case study, I served as a primary data collection instrument conducting semistructured interviews and analyzing data from company documents to develop meaning about the social phenomenon.

My relationship with the research topic stemmed from my experience in the U.S. military serving in various organizations in the petroleum and logistics fields at tactical, operational, and strategic levels. Additionally, I formed my perspective on the research topic through professional experience in contract management consisting of business innovations, strategy development, and acquisitions for manufactured commodities and business services.

Qualitative researchers construct meaning through their personal views of a topic (Hannes, Heyvaert, Slegers, Vandenbrande, & Van Nuland, 2015). Qualitative

researchers often possessed a relationship with the research topic that sometimes preceded the data collection and further develops by executing the study (Tufford & Newman, 2012). Qualitative researchers preparing interview questions use their relationship with the research topic to understand how to phrase interview questions to extract thick and rich content from participates (Castillo-Montoya, 2016). I framed my relationship with the topic of this study through military and professional experiences, which may have influenced the interview questions and interpretation of the data.

I followed the ethical principles discussed in the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979) to respect people's autonomy, protect people from harm by minimizing risks, and ensure equal distribution of benefits and burdens of the research. I followed Walden University's (2016) ethical guidelines and gained Institutional Review Board (IRB) approval before gathering data. I followed these ethical principles throughout the study by informing potential participates about the study's benefits and risks through an interview protocol. Castillo-Montoya (2016) discussed that researchers prepared participants by providing an information sheet and briefing about the interview process, including all potential risks and benefits before gaining consent. Following ethical principles in this multiple case study was critical to ensure people's autonomy, protection from harm, and equal distribution of the benefits and burdens of the research.

Without effective strategies to mitigate biases, the researcher could negatively influence the results of this study. To mitigate bias in this study, I used bracketing. Researchers used bracketing to avoid bias and refrain from providing feedback during the

interview process (Roulston & Shelton, 2015). Ethical researchers accounted for the interviewer's role in avoiding bias as an effective listener by respecting the interviewee's perspective over the interviewer's assumptions (Hoover, Strapp, Ito, Foster, & Roth, 2018). Qualitative researchers bracketed and set aside personal feelings about a topic to avoid bias in both data collection and data analysis: researchers failing to bracket unconsciously affect data (Sorsa, Kiikkala, & Astedt-Kurki, 2015). By bracketing my feelings on the topic during interviews, I mitigated my bias in the research process.

I followed an interview protocol and I identified potential risks and benefits of the study to the participates and sought informed consent before conducting interviews (see Appendix A). Cugini (2015) described the importance of the researcher identifying potential risks to study participants to seek informed consent. Researchers follow an interview protocol by contextualizing the interview process and procedures in their communication with potential study participates (Wilson, Onwuegbuzie, & Manning, 2016). Qualitative researchers document potential study participants' informed consent through the process identified in the interview protocol, which demonstrates researchers' exercise of ethical judgment (Hammersley, 2015). I followed an interview protocol with each participant to ensure I followed ethical guidelines throughout this study.

Participants

In this subsection, I establish the eligibility criteria for study participants, strategies for gaining access to participants, and strategies for establishing a working relationship with participants. Researchers set eligibility criteria to assess which potential participants can answer the research question. Weng (2015) suggested the quality of

participant eligibility criteria affects the quality of the study results. Elliott, Husbands, Hamdy, Holmberg, and Donovan (2017) suggested researchers define the criteria for participation in qualitative research based on the conceptual framework and design of the research. Participants consisted of managers from petroleum or coal manufacturing companies in the mid-Atlantic region of the United States, who effectively used service-based innovation strategies to offer business services to sustain their business beyond 5 years. To participate, participants needed direct knowledge of successful service-based innovation strategies used to offer business services to the manufacturing business.

I gained access to participants by reviewing public information in company documents and websites for managers of petroleum and coal manufacturing companies whose managers offer services. Researchers can identify potential participants through publicly available information found online (Weng, 2015). I contacted managers from selected companies through phone and email to invite participants to provide information related to the criteria of the study to determine eligibility. Researchers take advantage of distributing information about studies through emails to gain access to potential participants (Rocchi, Beaudry, Anderson, & Pelletier, 2016). Burton-Chase, Parker, Hennig, Sisson, and Bruzzone (2017) concluded researchers used online recruitment potential participants effectively when the researchers defined population and the population was accessible online. Additionally, I used social media such as LinkedIn and Twitter to post a general statement about my study and direct potential participants contact me to consider their eligibility for study participation. Participants did not publicly announce participation on any social media site.

I established a working relationship by briefing and offering an opportunity for questions and answers with potential participants about participation in the study. I emphasized the potential benefits of the study to potential participants, to motivate potential participants to enroll in the study. Parikh, Mason, and Williams (2016) found identifying the benefits of a study was a key strategy for overcoming barriers to motivating potential participants to volunteer for research studies. Additionally, I corresponded and provided updates to participants, so participants understood what steps were in the process and required time commitments necessary for participation in the study. Participants' perception of the burdens of participation may change throughout the participation of the study (Cutler, Doherty, & Carmichael, 2018). I provided an information sheet and consent form to document communication during this part of the discussion. My research question directly tied to participants; therefore, participants should have been interested in relationship building and reinforcing opportunity for altruism. Dotolo, Nielsen, Curtis, and Engelberg (2017) suggested researchers retain participants to continue in studies through relationships between researcher and participants, as well as emphasizing the chance to demonstrate altruism.

Research Method and Design

Research Method

Qualitative research involves researchers characterizing human experiences within the social context related to a phenomenon (Walther et al., 2017). Researchers conduct qualitative research to construct understanding from people's experiences in the world (Mandal, 2018). Researchers explore a human social phenomenon using qualitative

methods by allowing a participant's experience to stand as a unit of analysis (Daher, Carre, Jaramillo, Olivares, & Tomicic, 2017). The goal of using a qualitative method was to construct detailed meaning from a phenomenon, from the social experiences of people in their natural social context. For this study, I used a qualitative research method to explore what service-based innovation strategies manufacturing managers use to sustain their business by offering services. In contrast to quantitative methods, qualitative methods typically include analysis of textual data analysis from human experiences collected through interviews, focus groups, narratives, archives, or recordings of people and events (Goldberg & Allen, 2015).

Quantitative methods significantly differ from qualitative methods because researchers who use quantitative methods examine outcomes of changes to variables through statistical testing of the hypothesis (Gibson, 2017). Researchers use quantitative research methods to test theories using variables, which the researcher changed to test the theory (McCusker & Gunaydin, 2015). Quantitative method research includes examining theories or hypothesis using statistical analysis to explain relationships between predefined variables (Counsell & Harlow, 2017).

I selected a qualitative research method for this study. Researchers use qualitative research methods to develop meaning from social phenomenon by focusing on the details, meanings, and motivation of the situation through data collection and analysis from human experiences (Mandal, 2018). Using a qualitative method allows exploration of what service-based innovation strategies managers of manufacturing businesses use to

succeed in business, through each participant's experience stands as a unit of analysis (Martinez, Neely, Velu, Leinster-Evans, & Bisessar, 2017).

In contrast, researchers conducting quantitative studies seek to demonstrate the cause-and-effect of variables by developing a hypothesis to observe variables through statistical testing from large samples (Gibson, 2017). Researchers use quantitative research methods by using statistical analysis to measure the relationships between variables to explain universal laws (Counsell & Harlow, 2017; McCusker & Gunaydin, 2015). A quantitative research method was not appropriate for this study; a statistical analysis did not answer the research question.

Mixed method was not appropriate for this study because the purpose of this study was to explore a social phenomenon. Researchers use mixed methods to address a phenomenon when a single research method is unable to answer the research question (Mayoh & Onwuegbuzie, 2015). Researchers conducting mixed methods studies combined qualitative and quantitative methods to explain a phenomenon through measuring participant's answers to survey questions while providing flexibility to explore the phenomenon with open-ended questions (Shannon-Baker, 2016). The quantitative portions of hypothesis development in a mixed method study fail to fit research to understand *how* or *why* (Yin, 2018). For this study, mixed methods were not an appropriate method to focus on exploring *how* and *what* manufacturing managers use to offer business services to sustain their businesses beyond 5 years.

Research Design

I used a multiple case study as the research design for this qualitative study. Using a multiple case study research design focused this study on the social phenomenon, including (a) the contextual social experiences of managers of manufacturing businesses, (b) who used service-based innovation strategies in manufacturing businesses to succeed, and (c) bound by a specific time beyond 5 years. Yin (2018) defined a case study as a research design used to explore a phenomenon in its context bounded by time and environment. Dasgupta (2015) discussed researchers used case study to explore strategies bound by context. Researchers use case study research design to explore complex social experiences to understand *how* and *why* outcomes happen (Morgan, Pullon, Macdonald, McKinlay, & Gray, 2017).

Researchers use a phenomenological design to explore human lived experiences of a shared event (Mayoh & Onwuegbuzie, 2015), which was not appropriate for this study. Researchers conduct ethnography studies to capture a shared phenomenon of a cultural group through immersion in the specific cultural context (Lichterman, 2017). However, the purpose of this study was to explore service-based innovations strategies, which did not require immersion into a cultural context. Researchers use narrative research design based on the retelling of experiences (Petty, Thomson, & Stew, 2012). Narrative research design misaligned with the purpose of this study because narrative experiences of manufacturing business managers in the mid-Atlantic region of the United States failed to describe service-based innovation strategies.

Qualitative researchers achieve data saturation when data analysis of participants' experiences offers no more new information to answer the research question (Morse, 2015a; Nelson, 2017). Fusch and Ness (2015) suggested data saturation occurred when the amount of data allowed the researchers to replicate the study, no new information was obtainable, and continuation of coding was impractical. For this multiple case study data saturation occurred when participants presented no additional themes to answer the research question.

Population and Sampling

Researchers define the research population to determine the appropriate sample and participants to answer the research question. Van Rijnsoever (2017) suggested researchers first define the sample population based on inclusion criteria. Researchers need to identify the specific population so that decision makers can make informed decisions regarding the social phenomenon (Korngiebel, Taualii, Forquera, Harris, & Buchwald, 2015). Yin (2018) recommended multiple case study consist of two to three cases to achieve literal replication and four to six cases to achieve theoretical replication. The target population for this study was managers offering business services, from three petroleum and coal manufacturing companies, who have sustained their business in the mid-Atlantic region of the United States beyond 5 years. I selected three cases for this study to achieve literal replication.

Sampling

Choosing a sample of participants who are knowledgeable about the research topic was critical in answering the research question (Levitt, Motulsky, Wertz, Morrow,

& Ponterotto, 2017). For example, Gentles, Charles, Ploeg, and McKibbon (2015) suggested qualitative researchers select participants based on their knowledge of the research topic. Researchers conducting qualitative studies using interviews decided the sample size and sampling strategy, such as purposeful sampling to acquire data from the target population needed to answer the research question (van Rijnsoever, 2017). The sample size for this study was three managers offering business services from three petroleum and coal manufacturing companies, who sustained their business in the mid-Atlantic region of the United States beyond 5 years.

I used purposeful sampling as the sampling method for this study. Gentles et al. (2015) defined sampling as selecting and collecting data from specific sources needed to answer the purpose of the research. Also, Fugard and Potts (2015) suggested researchers determine the sample size based on the study population and prevalence of themes the researcher plans to uncover. Qualitative researchers select an adequate sample to ensure sufficient data for credible analysis and reporting (Varpio, Ajjawi, Monrouxe, O'Brien, & Rees, 2017). Researchers use purposeful sampling techniques to explore outlier cases from unusual phenomenon (Palinkas et al., 2015). I used purposeful sampling to sample manufacturing managers from three different petroleum and coal manufacturing companies, who established business services strategies to sustain their business beyond 5 years in the mid-Atlantic region of the United States, or until data saturation.

Data Saturation

I ensured data saturation by analysis of theme-based data collection; data saturation occurred when data analysis of sampling participants offered no additional

themes to answer the research question. I continued to add data for the study through interviewing additional participants from one or more of the three organizations until data saturation. Researchers increase the quality of qualitative studies through continuing data collection and analysis processes until data saturation (Aldiabat & Navenec, 2018). However, researchers, who gather more data than data saturation, waste resources preventing deep and rich data analysis on the research topic (Varpio et al., 2017). Fusch and Ness (2015) suggested researchers achieve data saturation when new emerging concepts from participants stopped, and interviewees reiterate concepts of other participants. Researchers achieve data saturation when data from participants' interviews became redundant; yet, researchers achieve theoretical saturation when researchers satisfy a description of all the concepts from the conceptual framework (Roy et al., 2015).

Interview Setting

Identification of the appropriate interview setting was a critical step in accessing data from participants. Ivanova-Gongne, Koporcic, Dziubaniuk, and Mandjak (2018) recommended researchers conduct interviews in a social context in a safe and comfortable environment free of distractions for the participant. Choosing the appropriate interview setting required researchers to carefully plan for ensuring confidentiality and privacy yet allow the participant to feel comfortable in the social context (Coad et al., 2015). Researchers establish the safety of research participants by ensuring confidentiality (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979).

Oates (2015) suggested researchers may use either Skype-like video teleconference or person-to-person as a viable means of conducting semistructured interviews. Skype-like video teleconference enabled flexibility for participants in establishing the time and place for the interview as well as allowed for interviewers and interviewees to terminate participation with a click of a button (Weller, 2017). Participants may relax when using Skype-like video teleconference as both the participant and the researcher control the interview medium (Adams-Hutcheson & Longhurst, 2017). I used face-to-face interviews with an option for interviews to take place on Skype or telephone if the interviewee preferred and it was mutually agreed. I conducted the face-to-face, Skype, and telephone interviews in the mid-Atlantic region of the United States at a location and time mutually agreed upon, which the interviewees felt comfortable and safe.

Dikko (2016) suggested a neutral setting was preferred to limit distractions, which an interviewee might experience at work or home. However, I prioritized a place where the interviewee felt most comfortable to speak about the research topic. Researchers may collect quality data through online mediums when interviewees prefer online interviews (Shapka, Domene, Khan, & Yang, 2016). However, researchers may miss nonverbal clues such as body language when conducting interviews through online chat, such as Skype or telephone (Adams-Hutcheson & Longhurst, 2017). I conducted mutually agreed to interviews in interviewees' preferred setting through either face-to-face, Skype, or telephone mediums, which ensured the comfort and safety of the interviewee and interviewer.

Ethical Research

Researchers ensure participants' protection through careful planning and risk mitigation, identify the plan to protect participants, mitigate risk, and gain IRB approval before conducting any research inquiry with participants (Walden University, 2016). Researchers possess responsibility for following ethical research practices, to include providing participants the opportunity to decide whether to participate in the research through informed consent (Wallace & Sheldon, 2015). I followed an interview protocol to identify the potential risks and benefits to participant candidates and sought informed consent before conducting interviews. Cugini (2015) described the importance of the researcher formally identifying potential risks to study participants to seek informed consent. Researchers followed interview protocols by contextualizing the interview process and procedures with potential study participants (Wilson et al., 2016). Qualitative researchers use the interview protocol to document that potential study participants were informed and consented to the interview, which demonstrated the researcher's exercise of ethical judgment (Hammersley, 2015).

Participation was voluntary; research participants possessed the capability to decline or withdraw from taking part in this study. Researchers provided information to participants on how the study may contribute to the body of knowledge, as well as the benefits to the volunteer participants and the broader population (Dotolo et al., 2017). Participants possessed the capability to stop participation at any time without retribution. Participants did not receive any financial compensation for participation. Instead of

financial compensation, participants receive the benefits of contributing to the field of knowledge (Resnik, 2015).

My research activities in this study followed the ethical principles discussed in the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979), to respect people's autonomy, protect people from harm by minimizing risks, and ensuring equal distribution of the benefits and burdens of the research. I followed Walden University's ethical guidelines (2016) and gained IRB approval before conducting interviews. I followed ethical principles throughout the study by informing potential participants about the study's benefits and risks, through an interview protocol. Dikko (2016) discussed researchers preparation of participants by providing an information sheet and briefing about the interview process, including all potential risks and benefits before gaining consent. I maintained participants' privacy and identity of any organization confidential by assigning a tracking code number, which did not include any participant's personal information nor easily identifiable information from the volunteers' participation in the study. I shall not disclose the volunteer participants' identity nor the identity of the organization by replacing any easily identifiable information with the tracking code number or completely removing the easily identifiable information from this study.

I keep data secure, backed up, and password protected electronically within my password-protected computer with commercially supplied computer security. Additionally, I keep a copy of the data on an external removable storage device. I store the external removable storage device in a locked safe in a building monitored by a

security system. I am storing the data for five years in this manner, and then destroy the data after 5 years. The Walden University IRB approval number was 09-21-17-0533504.

Data Collection Instruments

In this qualitative study, I was the primary research instrument. The researcher served as the primary data collection instrument in case study research (Harvey, 2015). I collected data through a semistructured interview, which allows flexibility to ask probing questions throughout the interview process. In qualitative research, researchers use semistructured interviews to gain the flexibility to ask additional probing questions so that participants can discuss complex social experiences (Dixon, 2015). I used two primary sources of data including in-depth semistructured interviews and organization documents to collect data for this study. Researchers use predetermined questions in semistructured interviews, which allowed researchers flexibility to seek clarification (Dikko, 2016; Moustakas, 1994; Yin, 2018). May, Barletta, Stahl, and Taisch (2015) used semistructured interviews to explore manufacturing managers' decision-making strategies in the energy management field.

Each participant received a consent form, interview protocol (see Appendix A), and interview questions before conducting each interview. Palinkas et al. (2016) provided interview questions, consent forms, and protocol documents specific to the individual study. Participants reviewed the interview protocols containing an overview of the study, interview procedures, human participant protection information, data recording, member checking, and interview questions. Researchers develop a strong interview guide and protocol to allow researchers and participants to focus the discussion on experiences with

the phenomenon (Cridland, Jones, Caputi, & Magee, 2015). To conduct an effective qualitative research interview, researchers prepare participants by discussing data recording and procedures requiring participant's time commitment (Hoover et al., 2018). To collect data, I prepared participants by providing information about the study, including consent forms, interview protocol, interview questions, data recording, time commitment, and supporting documentation.

Researchers possess responsibility for identifying the scope in which data collection occurs (Grady, 2015). I conducted the semistructured interviews through either face-to-face, Skype-like video teleconference, or telephone mediums. Researchers conducting interviews often use a single interview method, such as a semistructured interview or structured, but the interviewing medium differed (Adams-Hutcheson & Longhurst, 2017). Either face-to-face interviews or Skype-like video teleconference, interviews yield quality data (Oates, 2015). For example, AlKhateeb (2018) successfully used Skype-like video teleconferencing as a medium for semistructured interviews. Similar to face-to-face interviews, researchers can develop a rapport with interviewees when using Skype-like video teleconferences to conduct qualitative research (Weller, 2017).

Additionally, Goldberg and Allen (2015) suggested using telephone interviews to enhance the ability to recruit participants from multiple locations. Qualitative researchers use telephone interviews to collect data from geographically dispersed participants with little difference than face-to-face or Skype interviews (Rosenthal, 2016). Parikh et al.

(2016) suggested telephone interviews as an option to accommodate participants through flexible participation requirements.

In addition to collecting data from semistructured interviews, I collected data from organizational documents as the second primary source of data. Researchers conducting case studies use multiple sources of data to explore a social phenomenon, including semistructured interviews and organizational documents (Dasgupta, 2015; Yin, 2018). Researchers use multiple sources of data to gain different perspectives to form a holistic picture of the social phenomenon (Fusch & Ness, 2015).

To enhance the reliability and validity of the data collection process, I requested participants to conduct member checking. Researchers use member checking to validate the researcher's interpretation of the participant's discussion meaning (Morse, 2015b). Researchers engage in member checking by sharing themes derived from data analysis to allow participants to reply to the interpretation of the meaning from data collected during the interview (Harvey, 2015). Ancker et al. (2015) conducted member checking during qualitative interviews to ensure the themes from interviews meant what the interviewees meant in their discussion in the interview. I did not conduct transcript checking, nor pilot testing. I conducted member checking to ensure reliability and validity of data collected.

Data Collection Technique

I used semistructured interviews in order of preference consisting of a face-to-face, Skype-like video teleconference, or the telephone mediums as the primary data collection technique. Researchers use semistructured interviews to allow participants to answer open-ended questions, which facilitated participants' descriptions of experiences

with the research topic (Moustakas, 1994; Yin, 2018). The benefits of semistructured interviews included the combination of an interviewer's flexibility to explore the topic in-depth with open-ended questions, and the structure provides participants focus during the discussion (Bradshaw, Atkinson, & Doody, 2017). Semistructured interviews were an appropriate primary data collection technique for this multiple case study.

Researchers experience advantages and disadvantages in each interview medium. One advantage researchers gained in face-to-face interview settings was visual feedback (Weller, 2017). Also, Dixon (2015) suggested researchers conducting face-to-face interviews established rapport in the interview process by demonstrating techniques of listening and prompting participants in person. However, researchers, who conduct face-to-face interviews, experience some disadvantages, including geography, mobility, financial, and time constraints (Iacono, Symonds, & Brown, 2016). I overcame constraints by scheduling a mutually agreeable time and place to conduct the face-to-face interview, and when face-to-face interviews were not feasible, I used the Skype-like video teleconference or the telephone mediums as an interview option.

Researchers experience advantages and disadvantages when using Skype-like video teleconference or the telephone for interviews. Researchers experience advantages by using Skype-like video teleconference, including interviewees' and interviewers' rapport, convenience for the interviewee, flexibility in geography and time, and establishment of a visual connection between people similar to face-to-face interviews (Weller, 2017). Rosenthal (2016) suggested online chat or telephone interviews increased flexibility to accommodate participants' requirements in participation as an advantage.

Also, researchers experience increased interviewees' privacy (Oates, 2015). Some potential participants experience a disadvantage of using Skype-like video teleconference due to a lack of technical skills needed to conduct the interview using Skype-like video teleconference systems (Weller, 2017). Also, researchers experience disadvantages of using Skype-like video teleconference by only seeing portions of the interviewees' body language from the camera (Adams-Hutcheson & Longhurst, 2017).

Similarly, researchers using telephones experience disadvantages of not seeing body language during the interview (Goldberg & Allen, 2015). However, Ward, Gott, and Hoare (2015) concluded researchers recognized the value in verbal and nonverbal clues, such as paralinguistic clues, to capture participants' experiences during telephone interviews. I mitigated disadvantages by taking time before the interview began to review Skype-like video teleconference features with participants and requested the interviewee adjusted the view to allow the maximum view of body language. Similarly, I mitigated disadvantages of telephone interviews by listening for audio clues from the participant, such as verbal hesitation or noise from shifting body weight in a chair.

Before the interview, I researched the organization's publicly available documents, including capabilities statements, websites describing service offerings, and strategic planning data to gain a complete understanding of the participant's relationship with the phenomenon. Researchers use document analysis as a method to explore a research topic as a primary source of data (Morgan et al., 2017). Yin (2018) suggested documents as a primary source of data for case studies. Gebauer, Paiola, and Edvardsson

(2012) used organizational documents to conduct qualitative research on service providers to gain a complete perspective of management strategies.

I did not conduct a pilot study after IRB approval. A pilot study is a trial run of a future study to assess implementation challenges in recruitment, data collection instruments, and allow the researcher experience before starting the actual study (Doody & Doody, 2015). Dikko (2016) suggested researchers conduct a pilot study to identify challenges influencing the outcome of the future study. Similarly, Hoover et al. (2018) provided researchers a pilot of the interview protocol before conducting interviews. I ruled out pilot studies, because each interview was important, and not using data collected from the participant was not an appropriate use of the participant's time for this study.

I established validity through member checks, which entailed participants reviewing the draft themes to ensure the researcher's interpretation of data collected, was consistent with what the interviewee meant. Morse (2015b) suggested qualitative researchers used strategy for ensuring validity through member checks. Since most qualitative researchers serve as both the data collector and data analyst, researchers mitigate bias through member checking (Birt et al., 2016). Varpio et al. (2017) recommended researchers conduct member checking with interview participants after completing data analysis. See the interview protocol located in Appendix A, and the interview questions list outline is in Appendix B.

Data Organization Technique

I transcribed the digital recording files for each interview manually and uploaded each file into an Atlas.ti database. Also, I transcribed written notes from the reflective journal into a Microsoft Office Word document to organize observations before, during, and after the interview. I converted all documents other than audio files to pdf. I electronically scanned all signed consent forms to store each document in electronic format pdf. I named each file by Participant_number_ company type_data source type, for example, the interview transcription of the first participant was *P1P Interview.pdf*. Nordstrom (2015) highlighted the importance of understanding the role of recording devices and recordings to the data collection and organization for qualitative research. Also, Yin (2018) suggested researchers conducting a case study compile all data into a database. Similarly, Idri (2015) suggested researchers organize and store data within electronic databases.

Since the primary source of data collection was in-depth semistructured interviews, I used a standalone digital recording device, the Philips DVT 1300© recorder, as the primary recorder. I used a Samsung Galaxy S7 © voice recording software to record the audio for as a backup recording device. Weller (2017) suggested researchers using Skype-like video teleconference or face-to-face interviews could use electronic recording devices to record the interviews. Researchers' record interviews to enable accurate data transcription and data analysis (Bradshaw et al., 2017; Nordstrom, 2015). Oates (2015) used audio recordings to capture interviews through a variety of mediums. I

collected data by recording each interview to ensure accurate transcription and analysis of the interview data.

All files are stored electronically in a database on a removable storage device and stored in a home office locked safe monitored by a home security system. The removable storage device is password protected. Based on Walden University (2016) requirements, I am maintaining all data for 5 years. After 5 years, I will delete all data collected, and destroy the removable storage device by standard commercial electronic data destruction practices at the time of destruction. Opalka-Bentler (2016) prepared similar procedures to protect qualitative research participants to move all data to a USB drive for storage, and after 5 years erase all data from a USB drive and destroy the USB drive. Kaye et al. (2015) recommended researchers ensured the protection of research participant's data based on the most current practices. National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979) recommended researchers minimize risk to participants; data stored electronically under safe and secure conditions minimizes risk to participants.

In addition to using electronic recording devices during the interview, I took notes by reflective journaling before, during, and after the interview to identify the context of the interview, including emotions, body reactions, and reactions as a secondary source of data collection. Morgan et al. (2017) suggested researchers take notes during interviews to collect data for analysis. Waldron and Ebbeck (2015) used reflective journaling during interviews to assist in data collection. Goodell, Stage, and Cooke (2016) recommended note taking to capture the emotions of participants and researchers during qualitative

interviews. I took notes before, during, and after the interview to record data as a secondary source of data collection.

Data Analysis

For this study, I analyzed the collected data through Yin's (2018) five-step process, including compiling, disassembling, reassembling, interpreting, and concluding. Durodola, Fusch, and Tippins (2017) suggested Yin's five-step process provides structure to case study data analysis. Bengtsson (2016) suggested doctoral researchers systematically analyze data through conceptual thinking. I followed Yin's five-step process to systematically analyze multiple sources of data until the achievement of data saturation.

Researchers conducting case study research design use triangulation, multiple sources of data suggesting one finding, such as methodological triangulation (Yin, 2018). Park, Chun, and Lee (2016) suggested qualitative researchers analyze data from multiple sources, including interviews, observations, surveys, and documents. Qualitative researchers use methodological triangulation by analyzing data from various sources, such as interviews, company documents, and researcher's notes (Morgan et al., 2017). I achieved methodological triangulation by comparing my two primary sources of data, including participant's semistructured interviews and company documents, including publicly available capabilities statements and websites as my two primary sources. I used reflective journaling as an additional source of data.

Frequently, qualitative researchers use qualitative data management software (QDMS) to analyze multiple sources of data (Estrada & Koolen, 2018). Similarly,

Woods, Macklin, and Lewis (2016) suggested analyzing data from primary sources, such as interview transcripts, and documents, with secondary sources, such as reflective journals enhanced the quality of data analysis by linking researchers' reflections with data collection. I transcribed each interview manually and reviewed the transcript for accuracy. Then I uploaded each interview transcript, publicly available capabilities statements and website documents, and reflective journal notes into QDMS, Atlas.ti to perform data analysis through coding the data to categorize and develop themes.

Qualitative researchers use QDMS, such as Atlas.ti to assist in theme development and drafting diagrams or visual aids to explain themes from multiple data sources (Paulus & Bennett, 2017). Bourque and Bourdon (2017) suggested researchers control data analysis through coding and theme development using QDMS. Similarly, Woods, Paulus, Atkins, and Macklin (2016) suggested qualitative researchers use QDMS, such as Atlas.ti to code, categorize, and develop themes from data. I used Atlas.ti because I was more familiar with the Atlas.ti software compared to other QDMS, such as NVivo.

I analyzed the data collected in Atlas.ti using Yin's (2018) five-step process to compile, disassemble, reassemble, interpret, and conclude themes until the achievement of data saturation. Paulus and Bennett (2017) suggested qualitative researchers use multiple sources of data in QDMS to explain a phenomenon. Similarly, Ahmad Tajuddin (2015) suggested researchers conduct qualitative research through strategical, flexible, and contextual analysis. Qualitative researchers follow an analysis process to break down data, code and categorize, and seek understanding of the meaning of the data collected (Bengtsson, 2016).

I gathered multiple sources of data collected through this study, disassembled data to individual units of analysis, reassembled data through coding and categorizing. I interpreted coded and categorized data to developed themes. I concluded findings with themes linked back to the key elements of the conceptual framework, and new academic literature. I used new academic literature to update the conceptual framework and explain themes, including competing themes between the data collected and the key elements from the literature review. Paulus and Bennett described how utilizing QDMS to analyze data from multiple sources and correlate themes to literature enhanced the rigor of qualitative researchers' findings.

Reliability and Validity

Both qualitative and quantitative researchers assess the quality of research through reliability and validity criteria as researchers and participants' biases are undesirable (Leung, 2015). Qualitative researchers assure reliability and validity of findings from a social construct, which differs from quantitative research requirements, as quantitative researchers ensure objective validity and repeatability (McCusker & Gunaydin, 2015). Qualitative researchers address dependability, such as member checking, to ensure reliability, as well as the validity of the research through establishing credibility, transferability, confirmability, and data saturation (Smith & McGannon, 2018).

Reliability

Qualitative researchers ensure reliability through dependability, which consists of the researcher accounting for whether the study achieves the same results if another

researcher repeats the study (Morse, 2015c). Qualitative researchers provide a record of the methodology and logistics to maintain consistency in the process and results, which ensure the reliability of the study. Ensuring reliability means researchers consider the changing context throughout the study by establishing an audit trail to ensure consistency throughout the study including conducting the interview, qualitative data analysis, and thematic development (Chowdhury, 2015). Qualitative researchers establish an audit trail to ensure dependability and reliability by using computer-assisted qualitative data analysis to capture the context of decisions the researcher makes throughout the study (Paulus & Bennett, 2017). I used Atlas.ti qualitative data analysis software to code collected data, conduct data analysis, and develop the audit trail of decisions made during the data collection and data analysis activities throughout the study.

Also, I established reliability through dependability through member checking to ensure consistency of the data analysis and thematic interpretation of the participant's experiences within the social context. Member checking involves checking the interpretation of the data collected through qualitative interviews by sharing the interpretation of the data with participants to ensure the accuracy of the research findings (Bengtsson, 2016). Participants ensure the accuracy of the researcher's interpretation of the data collected by reviewing the documented interruption and providing corrections when the researcher's interpretation of the data collected becomes inaccurate (Harvey, 2015). Participants assist researchers in accurately interpreting data to provide context or alternatives to the researcher's interpretation of the data (Varpio et al., 2017). I provided each participant with the opportunity to check the interpretation of the data collected

from interviews, to allow participants the opportunity to provide additional context or alternative interpretations to the data analysis.

Validity

Qualitative researchers check for validity through questioning one's bias against observations and interpretations of data; without validation, researchers could allow biases to influence research conclusions (Dasgupta, 2015). Qualitative researchers ensure validity by selecting the appropriate tools, processes, and data throughout the study (Leung, 2015). Lincoln and Guba (1985) described validity as consisting of creditability, transferability, and confirmability.

Qualitative researchers establish creditability by addressing the research process for ensuring the observation and interpretation of the data collected during the study was valid (Morse, 2015c). Bradshaw et al. (2017) described the process of ensuring creditability as exploring if the researcher's findings make sense. Researchers ensure creditability by checking the interpretation of the data with the participant's view of the meaning of the data provided (Noble & Smith, 2015). I established credibility in this study by member checking after data analysis to ensure the interpretation makes sense and captures the meaning of the participants' experience.

In addition to establishing credibility through member checking, I used methodological triangulation to apply rigor to the study findings. Qualitative researchers use methodological triangulation as a strategy to apply rigor to ensure the credibility of research findings (Bengtsson, 2016; Denzin, 1978). Noble and Smith (2015) identified triangulation as a methodological strategy qualitative researcher use to collect different

sources of data to provide a holistic set of findings. Yin (2018) suggested researchers conducting case study research use several data sources, including interviews and documents. Similarly, Chowdhury (2015) suggested qualitative researchers collect data from participants through several methods including interviews and documentation to provide rigor in research of a social construct. Qualitative researchers use member checking and triangulation to apply rigor to the research and establish the credibility of the study findings (Morse, 2015c). I applied rigor through methodological triangulation by comparing two primary sources of data, including participant's semistructured interviews and company documents, such as managers' publicly available capability statements and websites as two primary sources.

I used reflective journaling as an additional source of data. Qualitative researchers recorded reflective experiences as a process to increase awareness of subjective influence on the research process (Noble & Smith, 2015). Qualitative researchers used reflective journaling as a strategy for a source of data to apply to methodological triangulation (Hadi & Closs, 2016). Bengtsson (2016) used researcher reflections as a strategy to evaluate and promote rigor in the study. I conducted reflective journaling to capture the context of each interview and perspectives on documents to provide rigor through methodological triangulation in the study.

Qualitative researchers conduct studies with the intent to establish social constructs to explain a phenomenon, which others apply to contexts know as transferability (Morse, 2015c). Qualitative researchers analyze the validity of qualitative

research by describing the transferability of the findings beyond the context of the participants to match the conceptual framework with the study results (Yin, 2018). Qualitative researchers support transferability, by providing information on the semistructured interview process and application of rigor to the process of data collection and analysis through the interview protocol (Fusch et al., 2017).

Qualitative researchers establish the degree of neutrality, known as confirmability, which the findings relate to the participant's experiences instead of researcher's bias (Carminati, 2018; Cypress, 2017). Researchers ensure confirmability, the consistency of findings should the study be repeated, through capturing detailed notes during the researcher's decision-making and analysis actions (Connelly, 2016). I ensured confirmability in the findings of this study by capturing detailed notes during the decision-making process by reflective journaling and using Atlas.ti to capture data analysis.

Qualitative researchers ensure data saturation when the researcher collects sufficient data to provide a rich and thick description of the phenomenon, which shows the depth data collected and analyzed to answer the research question (Fusch & Ness, 2015). Qualitative researchers rely on the saturation of the data and analysis from the perspectives of participants, instead of determining the number of participant responses to demonstrate validity in quantitative research (Hancock, Amankwaa, Revell, & Mueller, 2016). Qualitative researchers use open-ended questions to achieve data saturation when additional data collection and analysis did not change or add to the researcher's interpretation of data collected to answer the research question (Tran, Porcher, Falissard,

& Ravaud, 2016). In this study, I used open-ended questions in a semistructured interview to allow participants to share as much data as possible to ensure data saturation from participants.

In addition, qualitative researchers use member checking to gain data saturation to ensure completeness of the participant's experiences (Harvey, 2015). During member checking, participants took the opportunity to provide additional information about the topic to ensure complete data (Caretta, 2016; Hadi & Closs, 2016). I ensured data saturation by continuing to collect and analyze data until themes from participant's experiences answer the research question and no new information changes the answers to the research question.

Transition and Summary

Section 2 consists of a description of how I conducted the study and the rationale for choosing a multiple case study design. Based on the purpose of this study, I, as the researcher, served as the primary data collection instrument in this qualitative multiple case study. When conducting this study, I followed ethical principles as described in the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979) to respect autonomy, protect people from harm, and ensuring equal distribution of benefits and burdens of the research. I avoided bias in this study through bracketing. Additionally, I followed an interview protocol to conduct semistructured interviews either face-to-face or if the interview prefers through Skype, which I identify in the interview protocol potential risks and benefits of the study and seek informed consent from participants in the target population.

The target population for this study was manufacturing managers offering business services, from three petroleum or coal manufacturing companies, who sustained their business in the mid-Atlantic region of the United States more than 5 years. Selection of participants formed on specific eligibility criteria consisting of managers from petroleum or coal manufacturing companies in the mid-Atlantic region of the United States, who effectively used service-based innovation strategies to offer business services to sustain their business beyond 5 years. Access to participants came through reviewing publicly available information in company documents and websites to contact managers of petroleum or coal manufacturing companies whose managers offer services through telephone and email communications. Through telephone and email communications, potential participants contacted me with eligibility criteria for participation in this study in response to invitations.

Three managers offering business services from three petroleum or coal manufacturing companies, who sustained their business in the mid-Atlantic region of the United States more than 5 years was the sample size for this study. I used purposeful sampling to collect data from specific sources to answer the research question of this study. I collected enough data to ensure data saturation through analysis of themes until sampling participants offer no additional themes to answer the research question. I continued to collect and analyze data until obtainment of data saturation in this study.

To collect data appropriately, I followed ethical guidelines, using specific data collection instruments, and followed specific data collection, organization, and analysis processes. To ensure Walden University's ethical guidelines (2016) incorporation in this

study, I gained IRB approval before conducting interviews. Also, I used the interview protocol to discuss the benefits and risks of this study with potential participants. Serving as the primary data collection instrument, I used two primary sources of data including semistructured interviews and organization documents to collect data for this study. Additionally, I requested participants to conduct member checking to enhance the reliability and validity of the data collection. I conducted data analysis using triangulation through at least two primary sources of data including semistructured interviews and organizational documents. I analyzed the data through Atlas.ti to focus the study on the key themes, which captures the context of key decisions throughout the execution of data analysis. I established reliability through dependability by using member checking and validity through establishing creditability, transferability, and confirmability of the study findings.

In Section 3, I present the study findings, as well as supporting data analysis through comparison of key themes from the data collection to academic literature describing the conceptual framework. Also, I include recommendations for social change opportunities and implications for this study. I discuss reflections of the study and finalize a conclusion for this study in Section 3.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative, multiple case study was to explore effective service-based innovation strategies that manufacturing managers used to offer business services to sustain their businesses beyond 5 years. Section 3 includes the presentation of the findings of themes from the analysis of the data collected from the sample compared with the previous scholarly research findings. Three participants provided data collected through semistructured interviews and supporting documents, leading to the thematic findings for this study to apply to professional practices and implications for positive social change.

Participants provided two primary sources of data, which were analyzed to explore emerging themes through the perspective of the conceptual framework. The conceptual framework used to analyze data collected was strategic service innovation theory. Four main themes emerged as strategies in the findings of this qualitative multiple case study based on the data analysis through the perspective of the conceptual framework, including (a) service innovation strategies, (b) customer focus strategies, (c) resources strategies, and (d) external network strategies.

Presentation of the Findings

The research question for this study was: What effective service-based innovation strategies do manufacturing managers, offering business services, use to sustain their businesses beyond 5 years? Through qualitative research and data analysis, I identified

four major themes: (a) service innovation strategies, (b) customer-focus strategies, (c) resources consideration strategies, and (d) external network strategies.

Participants consisted of managers from petroleum or coal manufacturing companies in the mid-Atlantic region of the United States, who effectively used service-based innovation strategies to offer business services to sustain their business beyond 5 years. Participants provided data analyzed for this study through semistructured interviews and supporting business documentation. The participants provided supporting business documentation, including strategy and planning documents and capabilities statements through publicly available organizational websites and at publicly available industry conferences. Both primary sources of data, semistructured interviews, and publicly available business documents were analyzed to explore themes of service-based innovation strategies manufacturing managers used to offer business services to sustain their business beyond 5 years. Themes emerged from data collected consistent with existing literature on service-based innovation strategies manufacturing managers used to provide services. Through qualitative data, participants provided the emerging themes explored through the perspective of the conceptual framework, strategic service innovation, and existing literature on the topic.

Theme 1: Service Innovation Strategies

Manufacturing managers approached strategic service innovation through processes of aligning the external competitive environment (Valtakoski, 2017), and the internal resources to offer business services (Raddats et al., 2017). Participants in this study described strategic service innovation as a process in both primary sources of data

consisting of five key elements, including (a) manager's control, (b) strategic innovation process, (c) competitive advantage, (d) dual organization, and (e) standardization. Manufacturing managers in this study sustained their business by offering service innovations strategically through a process.

Table 1

Findings for Theme 1, Service Innovation Strategies

References	Frequencies
Manager's control	102
Strategic innovation	88
Competitive advantage	56
Dual organization	38
Standardization	34

Note. Table 1 displays the participants' references and their frequencies in interviews and documents for the first theme; service innovation strategies.

The participants in the study described managers controlling a process for service innovation involving strategic innovation, seeking a competitive advantage, establishing a dual organization, and implementing standardization to offer business services. Participants followed a strategic process to offer service innovations by seeking a competitive advantage, establishing a dual organizational structure to separate management of manufacturing from services, and implemented standardization between manufacturer's product and service offerings. Sundbo (1997) described managers increasing focus on strategic service innovation organized through a systematic process.

Manufacturing managers followed a process to develop service innovations to provide solutions to customers (Chakkol et al., 2018).

Manager's control of strategy. Manufacturing managers control the service innovation process through strategy to offer services. Manager's control strategy to transition to from manufacturing products to establish organizational culture capable of nurturing services innovations (Rabetino et al., 2017). Manufacturing managers control strategy enabled the strategic service innovation process. All participants described the manager's control of strategy to offer business services to customers; their descriptions supported in the publicly available supporting documents.

Manufacturing managers control of strategy enabled crucial changes to offer services to customers. When asked what guidance the participant provided stakeholders to implement service-based innovation strategies, P3PC replied,

> Ok, going from a manufacturing focus to a primarily serviced-based or at least trying to make a transition to more of a service consulting type of business requires quite some paradigm shift. After all, we have been in business for ten years in this market, and now you are trying to make that shift. So, it requires a lot of mentoring. It requires some restructuring of the department setting a new focus area, putting employees in charge of those focus areas to become subject matter experts, and those are some very different skill sets from manufacturing or even very specific skill sets within service offerings.

P3PC's supporting documentation described manager's pursuit of efficient means to improve the quality of services offerings to customers by communicating strategy to meet

the highest levels of performance and customer satisfaction. P3PC's description of manager's control of strategy aligned with Ambroise et al. (2018) discussion of manufacturing managers control of strategy through implementing guidance to ensure internal stakeholders take advantage of opportunities to meet external needs of customers.

Similarly, P1P described manager's control of strategy in the service innovation process by changing focus to meet external market needs through responding internally to adapt labor through training. P1P's establishment of a formal training program enables managers control of strategy to be communicated in service offerings. P1P's training program invites customers to participate, which enables manufacturing managers control of strategy through direct communication. P1P discussed the establishment of "a training program to invite people who work specifically in the Northeast region." P1P described in the publicly available supporting documentation how managers control of strategy to co-locate service operations with customer's operations. Both P1P and Chakkol et al. (2018) discussed manager's control of strategy to overcome business challenges to provide service offerings through employment and training of employees capable of establishing relationships with customers to provide services.

However, P2P discussed how manufacturing managers control strategy to provide service offerings by communicating strategy with external stakeholders. P2P expressed, "So, I sit down with my customer and try to say you do not have the manpower anymore to keep up maintaining these products, so here is what we need to do." Similarly, P2P provided publicly available capabilities statement document showing manager's control of strategy to set service offering prices strategically to attract customers.

The participants and supporting documents aligned with the conceptual framework strategic service innovation (Sundbo, 1997) through the common thread of manager's control of strategy through manager's communication of strategy to facilitate internal change to offer services to customers. Sayar and Er (2018) described how managers of manufacturing business provided strategic guidance on how to change to pursue strategic service innovations with customers. Manufacturing manager's control strategy through a decision process on how to transition from a product focus to service offerings to take advantage of opportunities to meet customers' needs (Rabetino et al., 2018). In this study, the manager's control of strategy emerged as a crucial element of service innovation strategies.

Strategic innovation. Managers followed a strategic process to innovate from manufacturing products to offering services. Baines et al. (2017) viewed manufacturers developing service innovation as a strategic process. Manufacturing managers strategically innovate to adapt to the difference between providing products and offering services. All participants described strategic processes managers used to innovate to offer business services to customers and documents described service innovation as a process.

Strategic innovation involved a process in changing the business focus from how a manufacturer produces products to a focus on providing services. When asked what guidance the participant provided stakeholders to implement service-based innovation strategies, P3PC stated, "Ok, going from a manufacturing focus even though it was service-supported to a primarily serviced-based or at least trying to make a transition to more of a service consulting type business requires quite some paradigm shift for the

employees." P1P and P2P discussed a strategic innovation process to change the focus from manufacturing products to offering services. For example, P2P stated, "So we had to adjust our abilities to meet the demands of the new customers that they wanted to grow into." All participants aligned with the conceptual framework in describing strategic innovation as a process. Sundbo (1997) described strategic service innovation as a complex process to focus on meeting customer's demands.

Similarly, P2P's supporting document described a strategic process to innovate to meet new customers' needs. All participants described how changing focus from manufacturing products to offering services required a strategic innovation process. Bohm et al. (2017) found manufacturers focus through a strategic innovation process to design services to satisfy customer's needs when transitioning from a manufacturing production culture to provide customers with service offerings. Manufacturing managers follow a strategic innovation process to offer services to customers.

Managers following a strategic innovation process to offer services was consistent with the existing literature and aligned with the conceptual framework. Managers strategically innovated to offer services through realignment to meet the demands of different operating environments between products and services (Kanninen et al., 2017). Sundbo's (1997) strategic service innovation theory described how manufacturing managers used a strategic process to provide service innovations. When asked how they assessed the effectiveness of the service innovation strategies used, P3PC answered, "Well it is an ongoing process, as I said I have been in the role of the business leader

since 2006, it took some time to develop a strategy going forward and restructure the department and so on."

Similarly, P1P discussed in supporting documentation the managers' commitment to innovation strategically and profitably. Both P3PC's response and P1P's supporting document describe a strategic process for innovation. Manufacturing managers took advantage of a strategic innovation process to transition to providing business services to customers (Rabetino et al., 2018). In this study, managers used a strategic innovation process to focus on offering business services to customers.

Competitive advantage. Managers focused on the strategic process to gain a competitive advantage as a function of a strategic service innovation process to offer business services to customers. Manufacturing managers pursued service innovations through a process to gain a competitive advantage (Szasz et al., 2017). All participants in this study sought competitive advantages through the strategic service innovation process. For example, when asked what service-based innovation strategies managers used to create a competitive advantage over competitors with service offerings, P3PC responded:

> So, we developed an approach or a product based on our service experiences. So that gave us quite a competitive advantage in providing services, because we became subject matter experts, but also provide a very competitive, rugged, and superior product versus our competitors.

Managers sought to gain a competitive advantage for the business through strategic service-based innovations.

Manufacturing managers sought a competitive advantage over competitors by satisfying customers' multiple needs for products and services through a continuous strategic innovation process. Manufacturing managers gain a competitive advantage through a strategic process to engage customers with service offerings freeing customers' resources from tasks (Saul & Gebauer, 2018). P3PC's supporting documentation stated that managers' goal was to support the growth, profitability, and sustainability goals of customers. Participants in this study sought to provide strategic service innovations, which developed a dependency for the customer, therefore, providing a competitive advantage. For example, P1P discussed training as a service was a competitive advantage because manufacturing managers differentiate from competitors by providing a service value proposition answering customers lack time to prepare employees for various tasks. Manufacturing managers gain a competitive advantage through a strategic service innovation process supporting customers' growth by taking on service tasks value proposition (Rau et al., 2017). Manufacturing managers gain a competitive advantage through a strategic innovation process to develop a value proposition freeing customer from tasks and resources.

The participant's supporting documentation showed manufacturers offering services focused on gaining a competitive advantage through exceeding performance and quality expectations. In alignment with Baines et al. (2017), P2P described the competitive advantage P2P's business achieved as an ongoing strategic innovation process when P2P stated:

So, when you have a manufacturer, supplier, and service provider, that calls you

> back all the time asks you all the right questions, and has the product that actually works, then that is the one you keep going to all the time.

Manufacturing managers experience a competitive advantage through strategic alignment of service offerings with customers' processes (Sakyi-Gyinae & Holmlund, 2018). P2P's description of manufacturing managers gaining a competitive advantage by offering services enabled customers to depend on manufacturing managers on multiple fronts, including manufactured products and service offerings.

Participants viewed providing service offerings as a process to sustain a competitive advantage with product offerings with services. Participants stressed the importance of providing a manufactured product and service as a competitive advantage. The importance of providing a manufactured product and service as a competitive advantage strategy was consistent with Sundbo's (1997) framework, including managers' control service innovation through strategy to gain a competitive advantage. In this study, managers controlled the strategic service innovation process to gain a competitive advantage by providing manufactured products and service offerings.

Dual organization. All participants described the need for a dual organization structure, which managers separated the functions of manufacturing products and service offerings. Kuijken et al. (2017) recommended managers offering services establish an organizational structure allow changes in focus from products to services. Establishing a dual organization was a function of the strategic service innovation process for manufacturers as the focus of the businesses needed different organizational structures to manage the different business offerings.

Participants from this study described the change in organizational structure to a dual organization as a necessary function of the strategic service innovation process. P2P described the organizational structure as having two separate senior managers with equal authority in the business with one managing manufacturing products and the other managing service offerings. P1P showed in the organizational documents managerial separation of manufacturing and services by geography and organizational structure. In the organizational documents, P1P showed a centralized organizational structure for manufacturing with the manufacturing facility directly managed by and co-located with the central office, and the decentralized management and co-location with customers for the services organizational structure. When asked how the participant organized their business to generate service-based innovations used to sustain their business, P3PC responded, “Everybody in this department focused on building the product, installing the product, and servicing the product for this particular product. So, with that market breaking away you cannot sustain a structure like this or a focus like this.”

Managers in this study showed consistency with existing literature on the research topic. Managers find the right fit for an organization to support both products and strategic changes to provide service offerings (Kanninen et al., 2017). Neither the participants nor the authors of existing literature agreed on a specific organizational structure beyond establishing a dual organizational structure with separate managers for products and services. All the participants in this study described different interactions between organizational structures with the common theme emerging as all participants business established a dual organizational structure one for products and one for services.

Standardization. Participants described a need for standardization both as a competitive advantage and as a function of the strategic service innovation process. Managers engaged in the strategic service innovation process achieve a competitive advantage from focusing the scope of service configurations and standardization (Valtakoski, 2017). Similarly, all the participants in this study discussed the importance of providing standardized services. The participants focused on mentoring and training as methods of providing standardized services.

P1P stressed the importance of training both employees within the organizational structure providing service offerings and with customers. When asked what service-based innovation strategies the participant used to create a competitive advantage over competitors with service offerings, P1P answered, “Today, the answer is as simple as training.” Participants focused on training and mentoring employees to follow standard means to provide service innovations strategically. Manufacturing managers focused on employees providing service solutions through education and training (Chakkol et al., 2018).

For example, P3PC discussed the need for managers to mentor employees to adjust to providing services, which P3PC stated that employees require some pressure to get out of their comfort zone to standardize services in a strategic service innovation process through a focused scope that allows for successful delivery of the service to the customer. P2P described the need to have employees work with manufacturing to support the product as a service, this collaboration with manufacturing showed managers need for employees possess a common understanding of the standards operating the product as a

service offering for the customer. All participants' public documents showed standardization in services through certifications or commitment towards quality standards for service offerings.

The theme from participants that managers required standardization as a strategic service innovation process was consistent with the existing literature. Sayar and Er (2018) described the need for managers to standardize processes and align all functions of the business to the same standard despite the difference of organizational structures. Participants described specifying the scope of the service down to allow to sustain satisfying customers as a function of the strategic service innovation process to reach customers' satisfaction.

This finding from the data collected in this study conflicted with You and You's (2016) suggestion manufacturing managers face barriers to standardize services based on customer's requirements for flexibility in services, customization, and perception. Instead, all the participants described experiences when managers providing service offering explained to the customer that the customer's requests for customization or flexibility were outside of the scope of the service offering. All the participants expressed the customers' reaction as positive in showing how the services standardized were not an appropriate fit for the business to provide to the customer.

Like the participants' data collected during this study, Sundbo (1997) recognized manufacturers offer business services through a strategic innovation process focused on changes tailored to each customer. Manufacturing managers offering business services in this multiple case study effectively offer business services by going through a strategic

innovation process. Participants, recent literature, and the conceptual framework, strategic service innovation, align with the theme strategic service innovation was a process.

Theme 2: Customer-Focus Strategies

Manufacturing managers' customer-focus developed as a main theme in this study. Manufacturers focus on customers to transform from product-oriented strategies to service innovation strategies (Brax & Visintin, 2017). Sundbo (1997) described the need for managers to focus on customers in strategic service innovations and teach employees how to manager customer-centric services. All participants and supporting documents displayed the importance of customer focus as a strategic service innovation strategy. The customer focus theme consists of five key elements, including (a) identifying customer's needs, (b) customer's knowledge resources, (c) providing solutions, (d) employee and customer relationship, and (e) customer feedback.

Table 2

Findings for Theme 2, Customer-Focus Strategies

References	Frequencies
Customer's Needs	104
Customer's Knowledge Resources	101
Providing Solutions	74
Employee and Customer Relationship	60
Customer Feedback	43

Note. Table 2 displays the participants' references and their frequencies in interviews and documents for the second theme; customer-focus strategies.

Participants' and supporting documentation collected as data for this study highlighted the importance of customer focus as a critical strategy for manufacturers offering business services.

Customer's needs. Manufacturers need to focus on understanding customer's needs to innovate to offer business services. Participants and supporting documentation collected as data during this study described the importance of the strategy to focus on customer's needs for manufacturers to offer business services. Similarly, Sakyi-Gyinae and Holmlund (2018) concluded manufacturers must focus on customers' needs to provide value through service offerings to meet customer's priorities and goals. Effective manufacturing managers offering business services fit customer's needs with services to add value to the customer (Coreynen et al., 2017). All participants in this study discussed finding the customer's needs as a key element to developing a customer focus strategy.

Sundbo (1997) identified determining customer's needs as a key element of the strategic service innovation theory. Each participant and their supporting documents described a focus on customer's needs. P2P stressed the importance of focusing on customer's needs as a competitive advantage. P2P stated, "So when you say competitive advantage: we try to understand what the customer's needs are and work towards that." Similarly, the supporting documentation showed focus on customer's needs. P3PC's supporting documentation stated the manufacturer's goal of providing services was to exceed the quality requirements set by customers.

Similarly, Sakyi-Gyinae and Holmlund (2018) concluded manufacturing managers need to include customer value perspective into service offerings. P1P's document described offering comprehensive services to deliver based on customer's needs of time and location and ensuring customer's success. Sundbo's (1997) focus on providing value to meet customers' needs aligns with P1P's document description and P2P's publicly available document statement that a variety of specific technical skills are at the customer's fingertips ready for customer's tasks.

Also, P2P focused the discussion on searching to find customer's needs. For example, P2P's said, "But, we are trying to be customer-centric, and I try to give folks guidance to be listening to the customer, to engage the customer and find their needs." Similarly, P1P described the importance of researching to understand the customer's needs. P1P discussed taking advantage of the data gained from the use of an outside firm to ask customers about their needs for the next 5 years as a crucial element to understanding customer's needs and developing a customer focus. Bohm et al. (2017) found manufacturers effectively transition to providing services through service innovations designed to fit customer's needs.

Also, P2P drew attention to the importance of understanding customer's needs to offer business services. P2P stated, "One advantage that we have is that we know and understand our customer's needs." Manufacturers showed the importance of satisfying the customer's needs as all the supporting documents pointed to the capability to satisfy customer's needs. Also, P3PC discussed the importance of talking to customers to find what keeps them up at night as a key element to using service-based innovation strategies

to offer business services to customers. Manufacturing managers effectively offer business services through strategic service innovations by focusing on customers' needs (Sundbo, 1997). P3PC's supporting document supported the focus on customer's needs through the claim, "First and foremost, we listen to gain a deep understanding of our client's needs and business objectives…" In this study, manufacturing managers effectively offer business services provided finding and fitting customer's needs as the most important element to a customer focus strategy.

Customer's knowledge resources. Another key element of the strategy managers developing a customer-centric focus was manufacturing managers offering services gaining an understanding of customer's knowledge resources. Manufacturers offering business services to customers need to understand the customer's knowledge resources, as customers decide to make-or-buy based on their internal knowledge of the service offering (Valtakoski, 2017). Bohm et al. (2017) concluded manufacturers focus on customer's knowledge resources to offer service innovations. All participants and supporting documentation referenced customer's knowledge resources in the data collected for this study.

P1P focused on the importance of understanding customer's knowledge resources as a functional element of customer focus. P1P described how customer's knowledge resources declined in the early 2000s due to large numbers of employees exiting the workforce. Therefore customers faced a deficit in internal knowledge resources hindering the customer's ability to innovate. P2P conveyed the customer's knowledge resource shortfall when P2P answered, "I will go see a customer, and he has an incident or an

issue where there is a real problem and a lot of people cannot answer." Manufacturers offering services coordinate the customer's knowledge resources to allow for the more effective use of resources (Green et al., 2017).

Participants' supporting documentation focused on customer's knowledge resources. For example, one supporting document invited customer to try to the manufacturer's service offerings in their statement, "Please give us a try, and we may all learn something." The manufacturer focus on learning by all parties shows the manufacturer offering services focus on both a gap in the customer's knowledge resources as well as highlights the customer's knowledge resources could benefit the manufacturer. Rabetino et al. (2017) found manufacturing managers offering services focused on customer's knowledge resources influence in adaptation decisions. P1P stressed the influence of customer's knowledge resources to change decisions, as P1P conveyed, risks, consequences, and potential concerns when customers considered the adaptation of new processes, configurations, and equipment.

P3PC and P1P further highlighted customers lacked knowledge resources to maintain capabilities within the industry. P3PC focused on customer's lack of knowledge resources on external factors, such as changes in regulation, to develop innovative service offerings. P1P described customer's lack of knowledge resources after the customers faced a rapid increase in demand when P1P stated,

> And, the second element of that is that because I went out into the field and see this with my own eyes, I was able to see that not only service companies like myself but my competitors were affected by this kind of

reduction of general knowledge, but the customer base was as well. Manufacturing managers innovated to offer services focused on strategies to understand customer's knowledge resources gaps and influence the customer's adaptation decisions.

Sundbo's (1997) strategic service innovation focused on knowledge and learning as an internal resource. The results of this qualitative research differ from Sundbo's strategic service innovation theory, as participants focused on customer's knowledge resources as a critical element to customer focus. Similarly, to Sundbo the participant's focus on the customer's knowledge resource. Also, Raddats et al. (2017) found manufacturers offering services need to understand customer's knowledge resources to influence the customer's decision to manage risk by controlling the closeness of the manufacturer. Sundbo focused on manufacturing manager's use of internal knowledge resources to meet customer's needs; however, the results my study showed customer's knowledge resources as a critical element to the customer focus theme. Sundbo considered customer's knowledge resources shortfall as a function of customer's needs. However, I found the participant's recognition of customer's knowledge resources gaps and influence on decision making to be an important element of customer focus.

Providing solutions. Manufacturing managers focused on customers by providing solutions was a critical element in this study for customer focus theme. All the participants and supporting documentation described the need for manufacturing managers to provide solutions to customers as a key strategy to innovate service offerings. Chakkol et al. (2018) found manufacturers offering services move from product-focused strategies to strategies to provide customers with solutions.

All the participants and supporting documentation described providing solutions as a critical element of manufacturers offering business services. P2P said, “When you find their pain, and you take care of it.” P2P stressed how providing solution was an essential element of managers developing a customer-centric focus. Similarly, P1P described providing customers a solution in the form of a combination of manufactured products and training as a service to overcome barriers related to the customer’s lack of knowledge of how products and processes functioned. Coreynen et al. (2017) discussed manufacturing managers effectively offered business services through value solutions incorporating product and service customization and integration in the customer’s processes. P3PC’s supporting documents discussed the business’ objective was to deliver innovative solutions multiplying value to customers. P3PC responded that managers integrated products and services into value solutions to the point it was difficult to distinguish between services and manufacturing. Participants discussed the importance of providing solutions to customers throughout the data collection.

Additionally, P2P focused on providing solutions to customers through products and consulting focused on solving customers’ problems. For example, P2P said,

> Well I would do some investigation and find out well it looks all the same on the outside, it is different on the inside. So, I offer a backing of the situation again and engineering, information, guidance, and support to try and explain to people, “look this is what you had, but you changed your operation, so this is not going to work for you anymore, and we need to change gears a little bit, and I have something that will possibly help you.”

Brax and Visintin (2017) found as product service systems increase in complexity customers rely on manufacturers to provide solutions in the form of technical assessments, which customers previously took responsibility for completing. Sundbo (1997) viewed manufacturing managers providing solutions as a function of satisfying customer's needs, however recent literature points to manufacturers providing solutions as an element to customer focus. For example, Rabetino et al. (2017) concluded manufacturing managers offering services structure their business model to provide solutions to customers. Alignment occurred between data collected, literature, and conceptual framework that manufacturing managers effectively offer strategic service innovations through providing value solutions to customers.

Employee and customer relationship. Manufacturing managers effectively offered business services through customer focus by leveraging the employee and customer relationship for feedback. Sundbo (1997) pointed to employees' and customers' interaction as a critical element for manufacturing managers offering business services. Coreynen et al. (2017) concluded manufacturing managers effectively offer business services through relationships between employees and customers that leverage data gathering and learning from the customer about the quality of service. All the participants responded with commitments to the importance of employee and customer relationships.

Participants expressed commitment to the employee and customer relations. For example, when asked how the participant used service-based innovation strategies to offer business services to customers, P2P responded,

> And, I visit the production customers and try to solve their problems and say buy a product from my business, because I am here helping you. And, another thing I will do is support my product, so if you have any issues, if you need a startup, if you have any questions, I, from the manufacturing company will come directly and visit with you.

Similarly, Kreye (2017) found manufacturing managers effectively offered business services when employees and customers jointly commit to a close relationship. P2P's capability statement described how the manufacturer when offering services gave up a strong negotiation position to establish a strong relationship between employees and customers focused on solving customers' challenges. Additionally, P1P sought innovative means of building the employee and customer relationship, through developing training videos on YouTube to connect and build a relationship with customers through other than face-to-face interaction. P1P explained,

> But, if we offered them these videos online with a general overview of how this works or that works, I think that would be a resource to our customer base. Not only to our existing customer base but new customers because I think those folks would reference these videos and our name would be in it so that we would be associated as an expert. So, when the customer needs to make a purchase or call vendors into view products or services, we would be at the top of the call list because again we have our name associated with these product service lines, because of these videos they just watched.

P1P's capability statement aligned with P1P's explanation managers commit to employees developing long-term relationships with customers to deliver a service innovation value proposition. Chakkol et al. (2018) concluded manufacturing managers established boundary-spanning relationships with customers to provide service innovations effectively. P1P's capability statement described the manager's commitment to providing product service value propositions by developing long-term partnerships with customers. Similarly, P3PC stressed the importance of customer engagement to build relationships between employees and customers to find the customers' needs. P3PC's supporting documentation discussed how manufacturing managers offering business services focus on listening to customers to "gain a deep understanding" of customers goals and objectives to provide product service solutions. Hakanen et al. (2017) concluded managers focus service innovation strategies on employee and customers interactions to gain a competitive advantage.

While Sundbo (1997) discussed interactions with customers, the researcher concluded strategy works to tell employees customers' needs. The employee and customer relationship element of customer focus them differs Sundbo's conclusion. However, the importance of employee and customer relationship aligns with recent research on the study topic, such as Chakkol et al.'s (2018) conclusion to effectively provide services manufacturing managers must develop boundary-spanning relationships and Kreye's (2017) findings of the importance of employee and customer joint commitment in service offerings. Employee and customer relationship as a key element

in the customer focus theme expands on the current body of knowledge of strategic service innovation as a conceptual framework.

Customer feedback. Another critical element to customer focus apparent in the data collected in this study was customer feedback. Kanninen et al. (2017) found manufacturing managers offering business services collect customer feedback and develop services aligned with customers' feedback. Sundbo (1997) described the role of customer feedback involvement in strategic service innovation as limited mostly to the development process. Participants stressed the importance of customer feedback as a critical element to customer focus in the data collected.

When asked the question about assessing the effectiveness of strategic service innovation strategies, P1P replied, "We received negative feedback in the past, because they said they wanted us to perform this offering 'Why are you not doing it?'. So, I had to sit down with the customer and lay it out for them." P1P's guiding principles document aligned with P1P's response, because the managers Similarly, P2P expressed that customers provided feedback through repeat business. P2P said, "And then have them continuously call you regarding more of the same product or new solutions to new problems." P2P capability statement described customer feedback as a learning process between the manufacturer and the customer, which furthered the relationship with customers.

P3PC described both the importance of repetitive business as the customer feedback discussed by P2P and incorporation of customer feedback in developing of products and services stated by P1P. P3PC described customer feedback measured in

metrics, such as an increase in same customer sales. Also, P3PC stated, “Using our own products to perform service processes and we were able to take our input from clients and keep developing the product to make the product as superior as it could be.” P3PC’s capability statement summarized the importance of customer feedback to satisfy customers with strategic service innovations. P3PC’s capability statement described listening to the customer to gain a deep understanding of client’s needs and objectives to leverage business resources to support customers’ goals. Manufacturing managers offering business services approached customer feedback as a critical element to customer focus in this study.

The participants expanded the role of customer feedback beyond Sundbo’s (1997) assertion customer feedback was limited to the development stage of manufacturing managers offering business services. Rau et al. (2017) described customer feedback as critical in several stages of designing and developing products and services manufacturing managers use to provide value to propositions to customers. P1P and P3PC’s discussion on customer feedback aligns with Rau et al.’s (2017) findings and Sundbo’s (1997) conceptual framework that manufacturing managers develop strategic service innovations with customers’ feedback. However, Hakanen et al. (2017) concluded both taking customers’ feedback to develop service offerings and measuring the customer's feedback in sales served as a critical element to manufacturing managers effectively offering business services. The findings from participants data expand the body knowledge in the conceptual framework. Manufacturing managers in this study

sought customer feedback to develop strategic service innovations and measured the effectiveness of service offerings through repetitive sales.

Theme 3: Resources Consideration Strategies

Manufacturing managers offering business services aligned with the conceptual framework as resources consideration strategies emerged as a theme in this study. Manufacturing managers effectively offer business services through consideration of resources (Sundbo, 1997). Hakanen et al. (2017) concluded manufacturing managers offering business services evolved to consider resources in both tangible and intangible formats. Participants' data collected in this study pointed to two critical elements of resources consideration as a theme in this study, including (a) internal resources, and (b) knowledge resources. All the participants and supporting documentation discussed resources consideration as a strategic service innovation strategy throughout the data collected.

Table 3

Findings for Theme 3, Resources Consideration Strategies

References	Frequencies
Internal Resources	70
Knowledge Resources	64

Note. Table 3 displays the participants' references and their frequencies in interviews and documents for the third theme; resources consideration strategies.

Internal resources. In this study, manufacturing managers offering business services considered internal resources when describing strategic service innovations. Sundbo's conceptual framework described how manufacturing managers analyzed

internal resources in strategic decisions about offering service innovations to customers. Kanninen et al. (2017) found manufacturing managers effectively offered business services through consideration of internal resources integration. Manufacturing managers need to make decisions based on internal resources to offer services value propositions to customers. Managers considering internal resources was a critical element of the resources theme and present in both data collected from participants, conceptual framework (Sundbo, 1997), and recent literature (Kanninen et al., 2017).

P1P provided examples of how manufacturing managers consider internal resources, such as balancing finances, training, staff, time, and service offerings. For example, when P1P was asked about overcoming market condition challenges to implement service innovation strategies, P1P replied,

> Again, what I am seeing is just simple economics. It costs money to train people and when you have people in training versus out in the field earning revenue and finding the right time to do it, because right now we are so shorthanded. It is hard to pull people out of the rotation and send them for training for a few days.

P1P's supporting document discussed how the success of the business depended on the skill, professionalism, and dedication of employees. P1P's response and assertions in the supporting documentation show how managers consider internal resources in the forms of finance, trained staff, and time as both a limitation and a method to effectively offer business services.

P2P supported the concept of manufacturing managers consideration of internal resources in offering business services to customers. P2P recognized to grow into service

offerings the business requires growth in capabilities in service areas. For example, P2P stated, “I have gone to the company and said we need to grow our abilities in these certain areas if we want to grow in these certain markets.” Similar, to P1P’s statements P2P described manufacturing managers’ strategic consideration of internal resources to grow into offering service innovations. P2P’s capability statement showed managers relied on the experience of employees as an internal resource to offer service solutions to customers. P2P’s and P1P’s supporting documentation both asserted internal resources as experienced and skilled staff serve as offerings of service innovations to customers. P3PC stressed managers both consider internal resources as a balance of effective use of resources and an opportunity to provide service solutions to customers. For example, in response to the question of howP3PC used resources to implement service-based innovation strategies, P3PC expressed managers consider limitations of internal resources, but managers use internal resources to offer business services. P3PC replied,

> First, we are a small group, so we are quite resource limited. I started to empower my employees to free up time, basically to free up resources or better yet not tie up resources unnecessarily. So, the idea is to use empowerment to become more efficient to free up resources to start to go out and be able to look at besides daily operational task, besides that, to be able to look at new challenges.

P3PC highlighted the use of internal resources to support innovative service offerings when P3PC stated, “So we were able to pick up a few projects that now use our existing expertise and apply it to this very custom niche market.” Also, P3PC’s capabilities statement discussed how knowledgeable and experienced people served as internal

resource manufacturing managers consider to offer business service innovations effectively.

Participants and supporting documentation aligned with Sundbo's (1997) strategic service innovation concepts and recent literature. For example, Zhang and Banerji (2017) found manufacturing managers faced barriers to strategic service innovation, including, internal resources to offer customers services. Manufacturing managers used strategy to align service innovations with customers' needs and limited internal resources to effectively offer business services to customers (Sundbo, 1997). Additionally, Coreynen et al. (2018) found manufacturing managers considered the limitation of internal resources as both an area to improve, such as retraining staff and seeking internal efficiencies to offer business services to customers. Findings of this study show internal resources was a critical element to strategic service innovation strategies for manufacturing managers to effectively offer business services.

Knowledge resources. A critical element of the resources theme was knowledge resources, which differs from internal resources. Experience of staff served as an internal resource in the findings of this study. However, knowledge resources expanded beyond internal resources of employees' experience to networking and technological resources used to obtain and provide knowledge for manufacturing managers to effectively offer business services. In this study, knowledge resources showed scarcity with participants considering how to obtain and retain knowledge resources and to strategically take advantage of knowledge resources to offer innovative services to customers. Hakanen et al. (2017) concluded manufacturing managers effectively offered services through

increased requirements for knowledge transactions to for the manufacturer to obtain and retain knowledge about the customer's needs and the customer to acquire knowledge through services from the manufacturer.

Participants in this study showed strategic service innovations through obtaining knowledge as a strategic internal resource and service innovation development to offer customers knowledge-based solutions. P1P expressed the importance of knowledge resources throughout the discussion about how during economic turbulence limited knowledge resources for both P1P's business and customers. P1P stated,

> And because you had that big ramp up after such a sharp drop off, the industry is left with a lot of people who are in my opinion way under qualified… And if you do not understand why step 2 is step 2, then you have a hard time understanding the consequences of if we are going to do step 2a instead. So, what I see happening is a lot of things in the field taking a lot longer than they should, because people cannot improvise on the fly because they do not have that overall product knowledge.

P1P further discussed the opportunity to take advantage of the lack of customer knowledge resources. P1P described a competitive advantage with internal knowledge of products and processes to train customers as service innovation. Participants sought opportunities to leverage internal knowledge as a service to fulfill the needs of customers who lacked knowledge in specific areas. For example, P1P stated,

> I was able to see that not only service companies like myself, but my competitors were affected by this kind of reduction of general knowledge, but the customer base as well.

P1P's supporting document stated that the success of the business relied on the knowledge of employees. P1P considered knowledge as a resource from two perspectives, including as an internal resource requirement for internal operations, and as an opportunity to provide existing knowledge externally as a service to customers.

Likewise, P2P described how manufacturing managers gained precious knowledge resources over time through changes in the industry cycle. P2P stated,

> I have been in the business for over 35 years and have seen the business grow and fall and seen a couple of different things happen. So, I brought a lot of things with me including field-based knowledge and customer base, or potential customer base, because I have come to know a lot of people over the past 35 years.

Similar to P1P, P2P sought to take advantage of the opportunity to provide knowledge resources as a service to customers as a service. For example, P2P replied,

> Well I would do some investigation and find out well it looks all the same on the outside, it is all different on the inside. So, I offer a backing of the situation, including engineering, information, guidance, and support to try and explain to people, 'Look this is what you had, but you changed your operation, so this is not going to work for you anymore. And we need to change gears a little bit, and I have something that will possibly help you.'

P2P's supporting documentation relied on offering a large amount to experience to successfully provide services aligned with knowledge resources stated in the interview. P2P's supporting document does not discuss taking advantage of a lack of customer knowledge resources, because business managers use the document to focus on capabilities of the business, not to discuss customers' weaknesses.

P3PC aligned with both P1P and P2P views of knowledge resources as both an internal resource need for manufacturing and service operations and as an external opportunity to fulfill customers' needs. P3PC recognized the need to grow internal knowledge resources by developing expertise in niche functional areas to produce products and provide services. Additionally, P3PC sought the opportunity where customers lacked the knowledge to provide expertise as a service in specific functional areas. P3PC's capabilities statement described how the company provides services through knowledgeable and experienced people with advanced technology to provide valuable products and services to meet customers' needs.

Recent literature and the conceptual framework align with the participants' assertions on knowledge resources as a success strategy. Manufacturing managers lack knowledge resources, including tacit knowledge and reputation to shift strategies from providing products to services (Kanninen et al., 2017). Valtakoski (2017) found manufacturing managers offering services consider knowledge as both an internal resource, where employees possess the tacit knowledge to make products and provide services, and external opportunity to fulfill customers' needs for complex solutions. Sundbo (1997) described manufacturing managers strategically adapted to provide

service innovations in complex and knowledge-intensive functional areas. Similar, to both the participants' descriptions and the conceptual framework, Coreynen et al. (2017) discussed manufacturing managers offering service innovations strategies to take advantage of internal product knowledge to train and educate customers lacking knowledge resources.

The findings of this study demonstrated resources as a key theme aligned with the conceptual framework. Manufacturing managers in this study sought internal resources and knowledge resources as a critical element of strategic service innovation offerings. Participants recognized both the importance of the key elements in the resources theme through internal resources such as finances, and skilled employees, and knowledge resources needed to both continue internal operations and provide external service offerings to customers lacking functional knowledge.

Theme 4: External Networks Strategies

Manufacturing managers offering business services aligned with the conceptual framework as an external network emerged as a key theme in this study. Sundbo (1997) described manufacturing managers' strategy to consider external networks and customers in service innovation offerings to customers. Manufacturers considered external markets to innovate service offerings through strategically leveraging relationships with stakeholders for resources and opportunities (Raddats et al., 2017). Participants described two critical elements of the external network within the thematic analysis (a) external markets, and (b) relationships.

Table 4

Findings for Theme 4, External Networks Strategies

References	Frequencies
External Market	73
Relationships	25

Note. Table 4 displays the participants' references and their frequencies in interviews and documents for the fourth theme; external networks strategies.

External market. Manufacturing managers offering business services in this study showed the importance of external markets in managers' strategic decisions to innovate to offer services to sustain their business. Sundbo (1997) theorized services innovations as mostly market-driven and framed through managers' strategy. Manufacturing managers considered external market conditions when developing value propositions to satisfy customers' service needs (Sakyi-Gyinae & Holmlund, 2018). All participants and their supporting documents described the external market as a critical element of the external network.

P1P surveyed the external market of both product and service customers to determine what manufacturing managers capabilities fit customers' service needs. For example, P1P said,

> They did not feel the current service base is up to snuff and they were seeing a general labor shortage in their business for the next three years. It was their concern as to how they were going to be able to support their business for the next 3 to 5 years.

P1P's surveillance of the external market allowed P1P to find customers faced a labor shortage of skilled employees. P1P's consideration of external market developed multiple service solutions to satisfy customers' needs for training and experienced employees. In P1P's publicly available capabilities statement document supported a focus on the external market in the description of the business role in communities. The managers wrote that communities benefit from managers operating the business as a "good corporate citizen." P1P's supporting document demonstrates the managers consider external market through consideration for communities.

Similarly, P2P expressed how focusing on changes in the external market lead to opportunities to innovate services. For example, P2P stated, "But in the past 10 years the entire market has changed the volume of gas, the type of gas, the processes, the environmental concerns, and everything has changed." P2P explored external market trends, changes, and challenges in consideration of how to strategically innovate to offer services to customers. For example, P2P stated,

> Also, I see the trend in the oil and gas business, and what I feel they need 3, 5, and 10 years down the road, I try to begin to look at our products and services to do what I think is a possible need for them down the road.

P2P's supporting document showed the managers focus on taking advantage of trends in the external market. P2P's capabilities statement recognized the opportunity of new markets for solutions as customers' processes changed to new innovative methods. P2P described a trend in the external market for customers to reduce labor by increasing the

workload of skilled labors to monitor more business assets based on technological advances.

P3PC described an external market focus as the managers focused on changes and challenges in the market provide innovative service solutions. P3PC explored the business managers external market as a critical strategy in service innovations. P3PC stated,

> In order to excel, we find markets that are very specialty-driven. And about two to three years ago there was some federal regulation that affected existing customers of ours or the entire company, industrial customers. And so, we became experts in this product, and we got in front of customers and tried to help them deal with this regulation.

P3PC's recognition of customers' challenges from changes in the external market aligns with the other participants expressed strategies to survey the external market to take advantage of opportunities in changes, which challenge customers to provide innovative services.

Manufacturing managers exploring external markets in consideration for strategic service innovations align with relevant literature and the conceptual framework for this study. Like P1P's surveillance of the external market to find trends in labor shortages and the need for training as a service. Kreye (2017) found manufacturing managers offering services explored external market trends to identify a risk of lack of qualified labor required to produce products and offer services and developed innovative approaches by partnering with external sources to train and educate future employees. Sundbo (1997)

described managers seeking opportunities to provide services based on changes in the external markets as a key element in the conceptual framework. Manufacturing managers offering business services must understand the external market to strategically innovate services to provide solutions to customers challenges (Kanninen et al., 2017). Also, participants described providing solutions to customers by leveraging technological changes in the market, which aligned with Sayar and Er (2018) integration of products and services through the Internet of Things to analyze external market requirements. All participants expressed the importance of the strategy of considering the external market to develop service innovations a critical element of this study.

Relationships. Manufacturing managers leveraged relationships to provide strategic service innovations in this study, which aligned with literature discussing the conceptual framework. Managers leveraged relationships as a critical element to offer service innovations to solve customers' problems in the market (Sakyi-Gyinae & Holmlund, 2018). Sundbo (1997) described how manufacturing managers providing services developed close relationships with customers to align service innovations strategically. Participants in this study described the importance of relationships to provide strategic service innovations aligned with literature and the conceptual framework.

P1P leveraged relationships to establish trust with customers as an expert through technology and listening to other experts on service innovation topics to engage customers. P1P focused on establishing a connection as a trusted expert through use of posting videos sharing functional process applications through social media video content

to develop relationships with customers lacking skills and experience. For example, P1P demonstrated how to establish a relationship with customers as P1P expressed,

> So, when the customer actually needs to make a purchase or call vendors into view products, we would be at the top of the call list because again we have our name associated with these product lines, because of these videos they just watched.

P1P described the importance of a relationship based on trust between customers and manufacturing managers to allow strategic service innovation offerings. P1P established a link between manufacturers sharing knowledge resources and customers' trust when offering services. P1P's publicly available supporting document expressed the relevance of the relationship with stakeholders "built on a framework of mutual benefit and trust." P1P's strategy to establish a relationship with customers was consistent with other participants.

Similarly, P2P used relationships to offer innovative services through the establishment of trust. However, P2P focused on establishing a relationship through personal relationships to establish trust in contrast to P1P's use of social media to establish relationships. P2P described the importance of knowing customers by name and their individual preferences in a relationship. For example, P2P stated, "So, definitely try to gain a more personal relationship with them. We absolutely have to be on a first name basis." While P1P and P2P contrasted on the medium of establishing a trust-based relationship both participants agreed on the need for trust-based relationships to offer services to customers.

Also, P2P described the importance of establishing a network of industry experts through trust-based relationships to solve customers' problems. For example, P2P said, "So, if I have an issue and I cannot figure it out or understand it myself, I start to call these people, hundreds of them. All the numbers in the Rolodex are the most important thing you can have." P2P's statement aligned the capabilities statement, which managers described the ability to access multiple outside service providers to assist with solutions to customers' service challenges. P2P's statements aligned with P1P's strategy to leverage relationships through a social media network channel to be at the top of customers' list when a customer needs assistance.

Additionally, P3PC described leveraging relationships from other departments in the company to offer service innovations to customers. P3PC's capability statement showed a focus on relationships within the broader community based on the establishment of trust. P3PC described the need to take responsibility for the impact of their work on the surrounding community and being good stewards to establish relationships based on trust. All the participants focused on establishing relationships on trust to provide service innovations to customers and leveraged networks to provide solutions to customers' challenges. However, all participants showed different mediums in establishing trust-based relationships, including social media engagement, personal first name basis, and leveraging other departments coupled with dedicated responsibility to the broader community.

Manufacturing managers focused strategy on developing deep relationships with customers to innovate service offerings (Raddats et al., 2017). Like the participants in this

study, Coreynen et al. (2017) found manufacturing managers leveraged long-term relationships by offering customized service innovation solutions. Additionally, manufacturing managers leverage relationships within the broader market (Kanninen et al., 2017), through technology advancements, and community networks (Spring & Araujo, 2017). Similarly, Sundbo (1997) recognized manufacturing managers offering services strategically developed close relationships with customers to offer service innovations.

Participants described the importance of relationships as a critical element to external networks in this study. Also, participants explore external markets to align service innovations with customers' needs strategically. Both elements in the external network as a thematic finding in this study aligned with the conceptual framework. For example, Sundbo (1997) described managers' strategy to consider market conditions as the most crucial success factor for service innovations. Manufacturing managers offer service innovations through strategies to leverage external markets and relationships to sustain their business (Sakyi-Gyinae & Holmlund, 2018).

The findings of this study include four main themes, including service innovation, customer focus, resources, and external networks. The themes from this study aligned with manufacturing managers strategic service innovation strategies discussed in the conceptual framework. Technological advances change the mediums manufacturing managers used to strategically innovated services, such as the Internet of Things (Sayar & Er, 2018). However, the themes of this study aligned with assertions of Sundbo (1997) and relevant literature discussed in this study.

Applications to Professional Practice

Business managers may use the findings of this qualitative multiple case study to apply professional practices formed on strategic service innovation strategies from three successful manufacturing managers. Specifically, manufacturing managers may apply the findings of this study to develop strategies to increase the success of manufacturing business service offerings and increase business stability through reduced risk of product market economic instability. Manufacturing managers use effective service innovation strategies to leverage opportunities to sustain the business and reduce uncertainty (Kreye, 2017). Business managers may apply strategies described in the findings of this study to sustain their business beyond 5 years.

Manufacturing managers must understand how to use strategic service innovation strategies to sustain their business. Manufacturing managers from this study used service innovation strategies, including manager's control in developing strategic innovation services. Manufacturing managers offering services depend on the flexibilities of strategic innovations to take advantage of opportunities (Cheng & Krumwiede, 2017). Manufacturing managers strategically approach service innovation to gain a competitive advantage (Baines et al., 2017). Manufacturing managers offering services sustained their business effectively by establishing a dual organizational structure considering both products and services (Kuijken et al., 2017). Manufacturing managers standardize business processes to offer services within different functional organizational structures (Sayar & Er, 2018). Manufacturing managers effectively offer services through the

application of service innovation strategies considering strategic innovation, competitive advantage, dual organization, and standardization.

Manufacturing managers offerings services relied on customer focus strategies to effectively sustain their business beyond 5 years. Manufacturing managers focused on customers' needs to provide value propositions meeting customer's needs (Sakyi-Gyinae & Holmlund, 2018). Manufacturing managers developed an understanding of customer's knowledge resources to offer service innovations (Bohm et al., 2017). Manufacturing managers offering services focused on gaps in customer's knowledge resources to make adaptation decisions (Rabetino et al., 2017). Manufacturing managers offering services change focus from product-focused strategies to strategies to provide customers with solutions to problems (Chakkol et al., 2018). When employees and customers commit to developing a relationship to solve problems, manufacturing managers can effectively offer business services to customers (Kreye, 2017). Manufacturing managers leveraged relationships solving problems with the customer to gain feedback to effectively offer business services (Hakanen et al., 2017). Manufacturing managers offering services can sustain their business beyond 5 years through strategies focused on customers' needs, understanding customers' knowledge resources, solving customer's problems, committing to relationships with customers, and gaining customer's feedback.

Manufacturing managers offering services can apply resource strategies, including internal resources and knowledge resources to successfully sustain their business beyond 5 years. Manufacturing managers take inventory of limitations of internal resources to gain efficiencies in business processes to effectively offer customers

services (Coreynen et al., 2018). Manufacturing managers effectively offered business services through the integration of internal resources (Kanninen et al., 2017). Manufacturing managers utilized employees' tacit knowledge to improve products and provide services to fulfill customers' needs for solutions to complex problems (Valtakoski, 2017). Manufacturing managers effectively sustain their business by applying resource strategies to gain efficiencies through leveraging internal resources and improving services based on knowledge resources.

Manufacturing managers offering service innovations to sustain their business for 5 years effectively used external network strategies. External network strategies consist of manager's consideration of external markets and leveraging relationships to gain a competitive advantage. Manufacturing managers offering services reconnoitered external market trends to provide customers solutions, such as some managers recognized the lack of qualified labor and partnered with external sources to develop a qualified labor pool through industry training (Kreye, 2017). Manufacturing managers provided customized service innovations establishing long-term relationships to grow customer's dependency on the manufacturer's products and services (Coreynen et al., 2018). Manufacturing managers can apply strategic service innovation strategies to consider external networks through external market analysis and leverage relationships to successfully sustain their business beyond 5 years.

Manufacturing managers may use the findings of this study to apply strategic service innovation strategies to sustain their business beyond 5 years. Manufacturing managers can strategically develop service-based innovations through understanding the

need to resource strategic innovation processes adequately. Managers can apply strategies found in this study to understand providing service innovations to customers requires the process to evolve continuously, and the process does not end with one final solution to customers' problems. Manufacturing managers can apply the strategies in this study to understand the requirement of continuous adaptation to the external market through a strict focus on customers' needs and application of resources. Business managers may apply the findings of this study to understand what effective strategies managers of manufacturing business offering services use to sustain their business successfully beyond 5 years and replicate those strategies to contribute to effective business practices to increase the longevity of the business.

Implications for Social Change

Manufacturing managers may use the results of this study to contribute to positive social change through the strategies within the findings to increase business longevity, improve socioeconomic conditions of the community, and increase employment opportunities for residents of communities with petroleum and coal manufacturing companies in the mid-Atlantic region of the United States. For example, business managers in resource sectors increase the socioeconomic sustainability of surrounding communities by developing alternative economic opportunities to counter business declines in manufacturing (Fordham et al., 2017).

Participants in this study sustained their business beyond 5 years through economic turbulence using the strategies analyzed in this study to avoid substantial reductions in workforce employment opportunities. According to the U.S. Department of

Labor, Bureau of Labor Statistics (2015), on average, managers whose business successfully remained in business for 5 years showed double the employment opportunities of their manufacturing businesses over the same 5-year period. Managers, who succeed in sustaining their business beyond 5 years, can increase employment opportunities (Strydom, 2017). Managers of manufacturing businesses offering services may adopt effective service-based innovation strategies from this study to enable more businesses to be competitive in the broader U.S. and global markets and increases in employment opportunities in their communities.

Recommendations for Action

The four major themes from this study inspired several recommendations for action. Manufacturing managers, energy business consultants, energy business publications, and regional petroleum or coal professional networking associations possess the best opportunities to implement the recommendations to sustain manufacturing businesses in the petroleum and coal industry by offering service innovations. Professional networking associations include Virginia Oil and Gas Association, Pennsylvania Independent Oil and Gas Association, Virginia Coal & Energy Alliance, Inc., West Virginia Manufacturers Association, and other industry networking associations. Recommendations for action suggested implementing management strategies to sustain business beyond 5 years, including service innovations, customer focus, resources, and external network.

The first recommendation is for manufacturing managers offering services to control a strategic innovation process in changing the business focus from how a

manufacturer produces products to multiple functions efforts to provide services, too. Manufacturing managers pursued service innovations through a strategic process to gain a competitive advantage (Szasz et al., 2017). Manufacturing managers offering services should establish dual organizations to encourage the development of service innovations. Manufacturing managers offering services can take advantage of opportunities to standardize service processes to gain a competitive advantage through training staff on service innovations. Also, managers should develop joint customer manufacturer training on field processes to strategically innovate to offer services.

Manufacturing managers offering services can center strategies to focus on customers' needs through evaluating customer's knowledge resources and developing a line of communication for feedback. Managers leverage employees and customers' relationships, identify customers' knowledge resources to find gaps and provide solutions to fulfill customers' needs. Manufacturing managers offering services focused on customers' needs to strategically transition to service innovations (Brax & Visintin, 2017). Manufacturing managers offering services increase the depth of business relationships by solving customers' problems (Rabetino et al., 2017). A recommendation is manufacturing managers, energy business consultants, Chambers of Commerce, and regional petroleum or coal professional networking associations engage in joint problem-solving seminars or industry days to develop capabilities to provide solutions to customers problems.

Manufacturing managers and energy business consultants should develop mechanisms to take advantage of resources strategies, including internal resources and

knowledge resources. Manufacturing managers improve some internal resources by retraining staff and seeking efficient use of internal resources to effectively offer business services to customers (Coreynen et al., 2018). A recommendation is for manufacturing managers and consultants to develop inventories of internal resources, such as qualified labor pools, and tacit knowledge resources to offer services. Manufacturing managers and energy consultants should map internal resources to service innovation processes to improve efficient uses of internal resources. Manufacturing managers and energy business consultants should develop and publish process training, how-to job aids, and lessons learned to aid in development expanding knowledge resources.

Manufacturing managers offering services must develop external networks by surveying the external market and developing relationships. Manufacturing managers strategically survey the external market to innovate service offerings to customers (Kanninen et al., 2017). Manufacturing managers offering service innovations take advantage of internal product knowledge to train and educate customers lacking knowledge resources (Coreynen et al., 2017). A recommendation is manufacturing managers jointly with regional professional industry associations should develop both historical repositories of business managers' experiences from external market changes. Also, both the manufacturing manager and regional professional industry associations should strengthen manufacturers providing services and customers relationships through jointly publishing YouTube videos, how-to job aids, and lessons learned to advertise knowledge resources. Manufacturing managers offering services should develop relationships with customers as experts through publishing knowledge resources on

industry processes through YouTube videos, how-to job aids, and lessons learned to assist both up and downstream producers, service providers, and customers.

Business managers can use the findings of this study to improve business practices by following the strategies to offer services based on service innovation processes, developing customer focus, considering resources, and leveraging external resources. Manufacturing managers can use the strategies of this study to focus on building feedback mechanisms to focus on customers through joint problem solving, leveraging relationships, and offering knowledge resources to gain trust. Managers can build a focus on customers by instilling a key strategy for guiding employees to find a customer's problem and solve it. Manufacturing managers in this study applied the strategies described to increase their competitive advantage and take advantage of opportunities to sustain their business throughout product lifecycles and economic cycles.

There are several main arteries to disseminate the recommendations presented in this study to manufacturing managers offering services. Organizers of regional petroleum or coal professional networking associations, such as Virginia Oil and Gas Association, Pennsylvania Independent Oil and Gas Association, Virginia Coal & Energy Alliance, Inc., West Virginia Manufacturers Association, and other industry associations may disseminate relevant findings and recommendations for action from this study in discussions at meetings and seminars. Regional petroleum or coal professional networking associations provides an opportunity for researchers, service providers, and manufacturing managers engage in various industry forums. Also, some academic

publishers may publish my findings and recommendations in industry publications, such as *Northeast ONG* or other industry publications,

Additionally, the results of this study are available to academics, researchers, and manufacturing managers through ProQuest/UMI database. I will provide a copy of this study and a summary to participants and answer any relevant questions, such as *Energy Journal* or *International Journal of Operations & Production Management*, academic conferences, such as the *International Conference on Business Servitization*, and regional professional conferences and training seminars.

Recommendations for Further Research

The purpose of this qualitative, multiple case study was to explore effective service-based innovation strategies that manufacturing managers use to offer business services to sustain their businesses beyond 5 years. The population for this study was three manufacturing managers offering business services, from petroleum and coal manufacturing companies, who sustained their business in the mid-Atlantic region of the United States beyond than 5 years. Four major themes related to strategic service innovations emerged from this study for managers to use as strategies to sustain their business operations. Recommendations for further research provides researchers opportunities to expand the body of knowledge strategic service innovation phenomenon.

The specific industry limitations for participation in this study may cause generalizability challenges to apply the findings and recommendations for action to all manufacturing managers offering services. While the selection of manufacturing managers offering business services, from petroleum and coal manufacturing companies

from the mid-Atlantic region of the United States was to fill voids in the body of knowledge. Further research replicating the study with a sample population of manufacturing managers offering services in different geographic regions or industries may provide rich and deep data leading to other strategies.

Participants of this study provided documentation limited to those documents publicly available. In this study, participant's documents served as a primary source of data collected. In future research, manufacturing managers offering services may expand on strategic service innovation strategies through participation in focus groups interviews or participant observations at customers' field sites. Analysis of data collected from this study with data collected in future research through focus groups or participant observations could facilitate triangulation.

Also, manufacturing managers offering services participated through semistructured interviews for this study. Future research may include customers of the manufacturing managers offer services. Customers could participate in a focus group to expand on strategic service innovation strategies. Understanding strategic service innovation strategies from customers' perspectives through a focus group and from the manufacturing managers offering services in this study establishes triangulation.

Limitations discussed in this study offer recommendations for future research in exploring strategic service innovation strategies manufacturing managers offering services use to sustain their business beyond 5 years. Further research may contribute through replicating the study with participants from other geographic locations or industries. Future research may explore the perspectives of manufacturing managers

offering services or their customers to expand on strategic service innovation strategies. Additional research may involve other primary data sources, such as focus group interviews or participant observations at customers' field sites to explore strategic service innovation strategies.

Reflections

I framed my relationship with this research topic from my professional experience in the U.S. military serving in petroleum and logistics fields and contract management focused on innovations, strategy development, and acquisitions of products and business services. The innovative and resilient people Appalachia, who work through the business problem of this study and other socioeconomic challenges, influenced my interest in studying strategy in energy markets near my home in Virginia and choosing the sample population for this study. From the wake of the 2008 economic downturn, I desired to gain an understanding of successful strategic service innovation strategies and share the information with other manufacturers to develop resiliency in employment opportunities during turbulent commodity lifecycle crashes. Plans consist of incorporation of my experience and the findings of this study into several organizations, including my military unit, my civilian employer, and my courses as an adjunct at a public university to mentor future managers on strategy.

I learned recruiting participants was challenging. I struggled to find participants through social media. Initially, I believed recruiting through social media would yield the most participants. After multiple attempts, I realized recruiting participants through social media was not an effective recruitment strategy. Instead, I used social media to research

potential participants' backgrounds. However, I was able to gain participants by attending professional industry networking events, telephone calls, and face-to-face engagements directly with managers. If I conducted this study again, I would not attempt to recruit through social media and focus on attending industry professional networking events.

After completing this rigorous academic journey, I appreciate the learning experience and research skills I gained. I was motivated to complete this study to finish the requirements to earn a terminal degree. However, I wanted my research to contribute to the success of other managers and build resiliency into employment opportunities in the petroleum and coal industry. As the expansion of connectivity between products and services continues to grow through the Internet of Things and artificial intelligence, I believe the importance of effective strategic service innovation strategies will grow in relevance to managers. I seek to take advantage of my findings on effective strategic service innovation strategies and the academic research skills I learned from experiences enrolled in Doctor of Business Administration program at Walden University.

Conclusion

This study began with the discussion of manufacturing managers taking advantage of innovations to transition from a product focus to incorporate successful service innovation strategies. Manufacturing industry lost over 2 million jobs following the 2008 economic decline. However, most manufacturing managers' initiatives to transition from a product-focused strategy to offering services failed, expanding the challenges of sustaining employment for approximately 12 million manufacturing employees in the United States. Manufacturing managers of energy companies,

traditionally dependent on energy commodities as a source of revenue, experienced significant employment declines following the 2008 economic decline.

Manufacturing managers turned to offer services as a path to sustain their business. Manufacturing business failures affect business stakeholders, employees, and the surrounding community. Effective service-based innovation strategies were critical to establishing resiliency for manufacturing managers sustaining business operations beyond 5 years. Additionally, manufacturing managers offering business services served as a barrier to additional unemployment increases and more severe negative economic impacts to communities dependent on manufacturing industries, including the petroleum and coal industry in the mid-Atlantic region of the United States.

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Appendix A: Interview Protocol

Administrative Data

Location: _____

Participant: _____

Date/Time: _____

Name of Study:

Effective Manufacturers' Strategies for Service Innovations

Conduct the Interview

The interview will be 90 minutes maximum and recorded:

1. Introduction (5 minutes)
    - Thank the manufacturing manager for allowing the interview today.
    - Introductions
    - Main Research Question: What effective service-based innovation strategies do manufacturing managers, offering business services, use to sustain their businesses beyond 5 years?
2. Informed Consent (Provide consent form to potential participant (15 minutes))
    - Key points (brief to the potential participant):

The purpose of this qualitative multiple case study is to explore effective service-based innovation strategies manufacturing managers offering business services, use to sustain their businesses beyond 5 years. The target population for this study is manufacturing managers offering business services, from three petroleum and coal manufacturing companies, who have sustained their business in the mid-Atlantic region

of the United States longer than 5 years. The implication for positive social change includes the potential to provide manufacturing managers with effective strategies to increase the longevity of business operations, and thereby positively affecting the socioeconomic conditions of communities relying on manufacturing. Other manufacturing managers may be able to use the findings this study to achieve sustainable employment opportunities and affect the overall economic benefits of residents of local communities.

- I will share how manufacturing managers use service-based innovation to create a competitive advantage. Sharing these experiences may lead to an increase sustainment rate of businesses and positively contribute to increasing economic success of residents of the mid-Atlantic region of the United States, such as through sustainment employment security.
- This study is voluntary. Any participant may stop at any time without any retribution.
- All information provided by participants is confidential.
- I will not use your personal information for any purposes outside of this research project.
- You must make an informed and conscious decision to consent to participate or decline participation in this study.
- I will maintain your privacy and identity of the organization confidential by assigning a tracking code number, which will not include any personal information nor easily identifiable information from your participation in the study. I will not disclose

your identity nor the identity of the organization by replacing any easily identifiable information with the tracking code number or completely removing the easily identifiable information from this study.

- I will maintain participant's data secure, backed up, and password protected electronically within my computer and external removable storage device. I will lock the external removable storage device in a safe in a building monitored by a security system.
- I will keep participant's data for 5 years, and then destroy it.
- Do you have any questions regarding the informed consent form?
- Please, sign the consent form, if you do not have any further questions and wish to continue to participate.
- Interview Rules:
    - You may defer any question to answer later.
    - Your honest answers are important in defining your business experiences.
    - Your responses are important and respected.
    - Please remember everything said during the interview is confidential.
    - May I have your permission to record the session at this time?
- Any questions, before we begin?
- I will start the recording now. **Start the recording!**

3. Interview Questions: (45 Minutes)

- Opening interview questions
- Key study questions
- Probing questions

- Concluding questions

4. Interview Wrap-Up (5 Minutes)

- Remember the information shared today may create positive social change, through responsible strategy to sustain, which others can use to promote values and positive social change.
- Your identity and interview responses will remain confidential.
- Please, contact Walden University IRB, IRB email listed on the consent form, for any questions or concerns.

Thank you for allowing me the opportunity to conduct this interview, I will provide you analysis of the data for you to check to ensure I understand the meaning of the data collected.

Appendix B: Interview Questions

Opening Questions (to ask on the website):

1. What is the name of your business?
2. In what type of industry is your business?
3. How long has your business you are considering discussing in this study?
4. Do you offer services, as well as manufacture products?
5. How would you describe the performance of your business?

Opening Questions (in person)

1. How did you start your business?
2. How did you develop the name of your business?

Key Study Questions

1. What service-based innovation strategies did you use to create a competitive advantage over your competitors with your service offerings?
2. How did you use service-based innovation strategies to offer business services to customers?
3. What guidance did you provide stakeholders to implement and control service-based innovation strategies?
4. How did you use resources to implement service-based innovation strategies?
5. What market conditions challenges did you overcome to implement service-based innovation strategies?
6. How did you organize your business to generate service-based innovations you use to sustain your business?

7. How did you assess the effectiveness of the service-based innovation strategies you used?
8. What other experiences about service-based innovation strategies would you like to share?

Concluding Questions

1. Can you provide a copy of your strategic business plans, financial data, or publicly available capabilities statements or websites?
2. Is there anything you would like to add?
3. Should I ask any other questions?

Probing Questions

1. Can you give an example of what you mean?
2. Could you tell more about it?
3. Could you explain your answer?
4. How did you determine it to be successful or unsuccessful?
5. How did you find out about it?