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Strategies in Outsourcing R&D Processes to Maintain Market Competitiveness

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Abstract

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by

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Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

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Abstract

In the 21st century, managing outsourced research and development (R&D) processes is critical to an organization's success. Guided by the logistic outsourcing theory developed by de Boer, Gaytan, and Arroyo, the purpose of this single case study was to explore strategies and processes organizational leaders used to manage outsourced R&D to maintain market competitiveness. Semistructured interviews were conducted with 5 purposefully selected business leaders who were responsible for outsourcing R&D in a single Fortune 500 corporation in the Mid-Atlantic region of the United States. Company records were also gathered as data. Yin's 5-step process for a case study and key words in context analysis were used to analyze the data. Findings included 3 main themes: (a) the outsourcing decision-making process with internal and external constraints, (b) the effectiveness of managing outsourcing services and processes, and (c) the influence of outsourcing on business effectiveness and new products. Findings also indicated no practical system to measure effectiveness of outsourced R&D services on market competitiveness. The lack of measurement effectiveness was due to a lack of processes in place to measure R&D performance and no practical approach to measure impact of R&D on market competitiveness. Findings offered insight into strategies used by business leaders to manage outsourced R&D processes. Findings may also have implications for positive social change such as impacting communities through employment, generating government revenues through taxes, and creating a positive impact on job creation in the industries that promote R&D outsourcing.

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Dedication

I dedicate this doctoral study to my daughters, Ayla and Hana; my wonderful husband, Dragan; my parents, Mirsad and Dr. Sedika; my brother Ismar; and my grandparents, Hajrudin and Hadji Senija.

I would like to thank my wonderful husband, Dragan Yerkic, for your love, patience, encouragement, and support. I am proud to be your wife and the most proud being called mama by our two wonderful daughters, Ayla Yerkic and Hana Yerkic. As intellectually draining as this journey has been, it would not have been possible without the wonderful smiles and laughter of my dear daughters. Dragane, Ayla, and Hana you mean the world to me. I love you.

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Lastly, I would like to thank my late grandmother, Hadji Senija Handzic, and my late grandfather, Hajrudin Handzic, for instilling integrity, accountability, ethics, faith, hope, and hard work. I am forever thankful for having had the privilege knowing you and enjoying the short time with you while you were alive. I miss you and will forever cherish the memories and be thankful for our short time together. Thank you sincerely. I love you.

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I would like to take this opportunity to acknowledge and thank my chair, Dr. Matthew Knight (Dr. Matt), for his support, patience, and continued guidance while I developed my study. I would like to also thank Dr. Jorge Gaytan, Dr. Lionel de Souza, and Dr. Richard Snyder for their thoughtful and valued feedback and reviews of my doctoral study.

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Section 1: Foundation of the Study

World economic conditions influence organizational leaders' decisions to compete and become more competitive in the market space (Dan Shang & Chia Chun, 2013). Pisano (2012) suggested that organizational leaders employ research and development (R&D) as a strategy to compete. Improved R&D performance directly correlates to increased competitiveness in the marketplace (Pisano, 2012). Successful organizational leaders with R&D strategies provide consistent, coherent, and aligned decision-making over time (Pisano, 2012). To remain competitive in the marketplace and sustain technological and scientific advances (Belderbos, Leten, & Suzuki, 2013), organizational leaders outsource some of the R&D activities. Through outsourcing, organizational leaders need to manage complexities such as communication, coordination, decision-making, and execution of outsourcing activities (Belderbos et al., 2013). I conducted a single case study to learn the strategies that organizational leaders used to manage outsourced R&D processes to maintain market competitiveness in one corporation in the Mid-Atlantic region of the United States. Section 1 of this study includes the (a) background of the problem, (b) problem statement, (c) purpose statement, (d) nature of the study, (e) overarching research question, (f) conceptual framework, and (g) comprehensive literature review.

Background of the Problem

Outsourcing is a critical tool used by organizational leaders to retain competitive advantage and cost reduction (Naru & Truitt, 2013). By outsourcing, organizational leaders enhance organizations' financial statements with benefits, such as cost reduction

and the ability to strengthen the competency in the marketplace (Naru & Truitt, 2013). In addition to cost reduction, organizational leaders outsource R&D to increase and strengthen innovation. R&D innovation is the essence of organizations and is essential to competing in the market (Datta, Reed, & Jessup, 2013; Pisano, 2012). Although many organizational leaders have continued outsourcing to keep pricing consistency, collaboration with outsourcing companies provides increased benefits (Pisano, 2012). According to de Vries, Schepers, van Weele, and van der Valk (2014), collaboration with outsourcing partnerships leads to further knowledge enrichments within organizations. However, outsourcing requires management of partnerships with outside companies. Organizational leaders often do not have the luxury to manage the outsourced activities (de Vries et al., 2014).

In this study, I explored the strategies that organizational leaders used to manage outsourced R&D processes to maintain market competitiveness. A lack of efficient management and financial strength in managing outsourced processes affects R&D organizational strategy effectiveness. The framework of processes to maintain market competitiveness includes drivers and current practices used for outsourcing. Outsourcing R&D enables networks but includes risks of long-term strategic loss of internal R&D growth (Lowman, Trott, Hoecht, & Sellam, 2012). Section 1 includes a review of literature on strategies organizational leaders used in outsourcing of R&D services and an overview of decision-making processes, effective outsourcing, and influence of outsourcing on business competitiveness.

Problem Statement

Outsourcing R&D processes within an organization may lead to cost reduction; however, when unmanaged, the outsourcing process adds to operational costs, terminated agreements, and strategic loss of internal R&D growth (Lowman et al., 2012; Nassimbeni, Sartor, & Dus, 2012). The average R&D outsourcing agreements last over 7.53 years while 50% end within 4 years due to outsourcing process issues (Martinez Noya, Garcia Canal, & Guillen, 2012). The general business problem was that some organizational leaders outsource R&D without adequately managing the process. The specific business problem was that some organizational leaders lack strategies and processes to manage outsourcing of R&D to maintain market competitiveness.

Purpose Statement

The purpose of this qualitative case study was to explore strategies and processes organizational leaders used to manage outsourced R&D to maintain market competitiveness. The targeted population included organizational leaders of a Fortune 500 company in the Mid-Atlantic region of the United States who used effective strategies to manage the outsourcing of R&D including engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies, while maintaining competitiveness. The business implications include opportunities for organizational leaders to capitalize on techniques for assessing long-term implications of R&D outsourcing. Findings from the study may be used to enhance companies' return on investment, decrease operational costs, and impact

communities through employment and generating government revenue through taxes. Efficient management of outsourced R&D processes including engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies may lead to effective use of time within organizations, which in turn may lower the operating costs. This study's results may also have implications for positive social change such as the potential to create a positive effect on job creation, unemployment, and economic environment in the technology industry in the Mid-Atlantic region of the United States.

Nature of the Study

Venkatesh, Brown, and Bala (2013) identified three research methods (a) quantitative, (b) qualitative, and (c) mixed methods. The quantitative research method is appropriate when testing a hypothesis and the researcher can use numerical data evaluation to generate observations about relationships (Rijgersberg, 2013). There was no hypothesis to test in this study; therefore, employing quantitative or mixed-methods research methodologies was not appropriate. In mixed-methods studies, the researcher uses both quantitative and qualitative methods to integrate the benefits of both, such as the use of statistical data and interpretive analysis (Hesse, Biber & Johnson, 2013; Polsa, 2013). The qualitative research method was suitable for this study to explore the understanding of practices and experiences (Yin, 2014). Yin (2014) indicated that the qualitative approach allows for the exploration of the *why* and *how* during the research. The qualitative research method relies on (a) observations, (b) interviews, and (c) pattern

relationships (Hyett, Kenny, & Virginia Dickson-Swift, 2014; Yin, 2014). I used the qualitative research method to gain a holistic understanding of strategies used by organizational leaders to manage outsourced R&D processes.

The qualitative research method includes multiple design approaches: (a) narrative, which focuses on individual or small groups' life stories; (b) phenomenological, which focuses on lived experiences of participants; (c) ethnographic, which focuses on the culture or community of small groups; and (d) case study, which focuses on how and why questions (Hyett et al., 2014; Yin, 2014). Applying Yin's (2014) recommendation, I employed a case study design to provide an in-depth exploration and comprehensive review of the business problem. Hyett et al. described the case study as an in-depth investigation of a phenomenon in real life. As recommended by Ridder, Hoon, and McCandless Baluch (2014), this case study involved in-depth interviews with participants. The objective was to explore strategies that could add value to businesses and strategies that organizational leaders could use to manage the outsourcing of engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies within the R&D department. Included in this study were both internal and external boundaries and processes involved in measuring R&D processes to maintain market competitiveness

Research Question

The overarching research question for this qualitative case study was the following: What strategies and processes do organizational leaders use to manage outsourced R&D processes to maintain market competitiveness?

Interview Questions

The interview questions designed to answer the overarching research question were as follows:

1. What different organizations have you worked for in your career and what roles have you had?
2. How many years of experience do you have in your current role and overall?
3. What are your responsibilities as an organizational leader in the company?
4. What factors might influence the decision-making process within your organization on managing outsourced R&D processes?
5. What are the implications of outsourcing R&D processes on your business's competitiveness?
6. What are the processes your organization follows to manage outsourced R&D decision-making?
7. What factors establish effective outsourcing strategies that promote business competitiveness?
8. What are your strategies to manage outsourced R&D processes to maintain business competitiveness?

9. What type of strategies would you recommend to effectively manage outsourced R&D processes?
10. What are any other remarks you would like to add that might have not been addressed in our discussion?

Conceptual Framework

The logistic outsourcing theory was the conceptual framework and the foundation of this study. Developed in 2006 by de Boer, Gaytan, and Arroyo, the logistic outsourcing theory includes the decision-making processes that make up the framework for outsourcing logistics activities. Researchers later extended the work of de Boer et al. by questioning and adding to the long-term value of outsourcing and the ability to capitalize on outsourced benefits (Benaroch, Webster, & Kazaz, 2012; Berchicci, 2013; Martinez Noya et al., 2012; McIvor, 2009). The postulations of framework theory enable scholars to explain the decision-making process of leaders in logistic outsourcing activities and guide the practices of efficient logistic outsourcing processes. Key constructs essential to this framework are (a) decision-making process, (b) effective outsourcing, and (c) influence of outsourcing on business competitiveness. According to the conceptual framework, logistic outsourcing of R&D drives product innovation and the ability to remain competitive in the marketplace (Saxton, Oh, & Kishore, 2013). The participants reported effective strategies needed to enhance organizational competitiveness in the market place. These strategies were linked through analysis to the postulations of framework theory. According to de Boer et al., outsourcing logistics include both internal and external boundaries. In this study, I explored the internal and

external boundaries and processes involved in measuring R&D processes to maintain market competitiveness.

Operational Definitions

There were specific terms used throughout this study that had specific meaning based on the subject matter. The purpose of providing the definitions is to promote understanding of how these terms were used in the study. The definitions originated from several sources such as journals, peer-reviewed articles, academic publications, and business glossaries.

Corporate social responsibility (CSR): CSR is the requirement that organizational leaders impose on supply chain to ensure that the outsourcing decisions include additional consideration, such as social responsibility as supplier imposes (Zentes, Morschett, & Schramm-Klein, 2017).

Fortune 500 corporation: Fortune 500 corporation is a term used to describe the top 500 corporations in the United States, as measured by *Fortune* magazine.

Globalization: Globalization is an integration of progression of investments in which many stages of the supply chain come together, including integration of capital and labor within the global markets (Kilic, 2015).

Insourcing: Insourcing is bringing services provided by a third party back into the company, such as vertical integration (Foerstl, Kirchoff, & Bals, 2016).

Outsourcing: Outsourcing is passing of the performance of an activity from one organization to a third party. Outsourcing is also referred to as subcontracting. Outsourcing is also defined as increasing an organization's competitiveness by

internalizing external expertise. The key element of outsourcing is managing the supplier who provides the external expertise, which requires the use of contracts to bind both organizations (Dolgui & Proth, 2013; Han & Bae, 2014; Spithoven & Teirlinck, 2015).

Vertical integration: Vertical integration is an organizational arrangement that encompasses supply chain economic and strategic position within the same organization (Atalay, Hortaçsu, & Syverson, 2014).

Assumptions, Limitations, and Delimitations

This section covers topics related to the assumptions, limitations, and delimitations of the study. Assumptions are generally accepted unverified facts (Leedy & Ormrod, 2013). Limitations are problems or weaknesses in the study (Leedy & Ormrod, 2013; Simon, 2011). Delimitations are choices and boundaries set to narrow the study scope (Simon & Goes, 2013).

Assumptions

I made three assumptions by accepting as generally true and vetting through processes of validation (see Leedy & Ormrod, 2013). The first assumption was that the participants would provide honest and reliable answers to the interview questions. The second assumption was that the designated participants would be representative of the population. The final assumption was that the interview questions would elicit the data needed to answer the research question.

Limitations

Leedy and Ormrod (2013) and Simon (2011) stated that limitations are problems or weaknesses in a study. I identified two limitations. The first limitation was the research

design and methodology. The primary limitation of the qualitative method is that it allows interpretive analysis. A mixed-methods study is more robust, allowing for the inclusion of both quantitative and qualitative data, and includes statistical and interpretive analysis (Hesse Biber & Johnson, 2013; Polsa, 2013). Researchers employing quantitative analysis use statistical evidence to support their findings (Tsang, 2013). The use of quantitative or mixed-methods approaches was not appropriate because there was no hypothesis to test.

The second limitation was that different levels within an organization, such as directors and mid-level managers, might have diverging views about outsourcing of R&D. Such understandings might influence the selection of the participants. The participants might provide differing views, which could weaken the study because of the perceived discrepancy in the answers (Simon, 2011).

Delimitations

Simon and Goes (2013) stated that researchers use delimitations to narrow the scope by stipulating areas that were not included in the study. The target population in this study included five participants in one organization in the Mid-Atlantic region of the United States. The results of the study may have been different if I had included multiple organizations throughout the United States or internationally.

Significance of the Study

In this section, I describe the significance of this study, including the contributions to business practice and the implications for social change. I explored strategies organizational leaders used to manage outsourced engineering services such as

design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies, which enhance a company's return on investment, decrease operational costs, and have an effect on communities through employment and generating government revenue through taxes. This study may be significant in that organizational leaders could use the outsourcing strategies to maintain market competitiveness, increase return on investment, generate employment, and create revenue through taxes. The study findings may add to the existing literature for assessing long-term implications of outsourcing engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies. The findings may offer clarity regarding organizational leaders' strategies used in managing outsourced R&D processes to maintain market competitiveness. Professional application of this study's findings may include the potential to apply the recommendations and strategies by organizational leaders to manage outsourced R&D processes to maintain competitiveness.

Implications for Social Change

This study's results have implications for positive social change, such as the potential to create a positive effect on job creation, unemployment, and economic development in the Mid-Atlantic regions of the United States. This study may have an impact on individuals and the community. Job growth and overall economic improvement may enhance the worth, dignity, and development of individuals and the community by providing steady incomes for families and increased tax revenues that can

be invested to improve infrastructure and government services.

Contribution to Business Practices

Exploring strategies organizational leaders used to manage outsourced R&D processes including engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies could provide organizational leaders opportunities to improve return on investment and maintain operational costs. Efficient management of outsourced R&D processes could lead to effective use of time within organizations, which in turn may lower the operating costs. Organizational leaders may find that the findings from this study are relevant to the logistic outsourcing conceptual framework. The business implications included opportunities for organizational leaders to capitalize on techniques for assessing long-term implications of outsourcing engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies. Overall, organizational leaders could connect the linkages between internal R&D and the external partner to enhance efficacy in outsourced services (Love, Roper, & Vahter, 2014).

A Review of the Professional and Academic Literature

The focus of the literature review is on the management of outsourcing R&D processes to better understand the decision-making processes. The purpose of this qualitative case study was to explore strategies that organizational leaders used to manage outsourced R&D processes to maintain competitiveness. The literature review includes

the conceptual framework with an emphasis on the (a) factors influencing organizational leaders' decisions to outsource R&D, (b) processes used to manage outsourcing processes that lead to cost reduction, and (c) influence of outsourcing on business competitiveness.

The key terms used during the literature search included *R&D outsourcing*, *outsourcing risks*, *outsourcing R&D contracts*, *outsourcing success*, *R&D outsourcing decision*, and *R&D innovation and outsourcing*. Additional search terms included *services outsourcing*, *outsourcing cost savings*, *R&D product outsourcing*, and combinations of these words. The sources included in the literature review section of this study came from multiple databases such as ProQuest Dissertations and Theses, Emerald Management Journals, and ABI/ INFORM. I also used the Google Scholar search engine and government websites.

I included 134 references in this study, of which 120 were scholarly peer-reviewed articles, which represented 89.6% of the total references. The total number of references published within 5 years was 114, which was 85% of the total. The literature review contains 67 references.

The literature review comprises five general categories and four organizational categories. The five categories include (a) application to the business problem, (b) outsourcing and supply chain management and historical development, (c) conceptual framework, (d) outsourcing effects, and (e) future of outsourcing. The four organizational categories include (a) brief historical development of outsourcing; (b) review of prior studies on the conceptual framework including organizational leaders' decision-making process and managing the outsourcing process; (c) analysis of short- and long-term

outsourcing effects, benefits, and risks; and (d) the future of outsourcing, innovation, and long-term value of outsourcing. Throughout the literature review, I incorporate the logistic outsourcing conceptual framework developed by de Boer et al. (2006). I also include the theory of long-term value of outsourcing by Benaroch et al. (2012), Berchicci (2013), Martinez Noya et al. (2012), and McIvor (2009) by questioning the ability to capitalize on outsourced benefits to justify and explain perspectives of previous and current research.

Application to the Business Problem

In this doctoral study, I explored strategies organizational leaders used to manage outsourced R&D processes to maintain competitiveness, what drives organizational leaders to outsource, and the current outsourcing practices. I included a framework, developed from the study findings, for strategies that organizational leaders could use in the decision-making process to promote effective outsourcing and business competitiveness. The literature review includes four organizational categories: (a) outsourcing and supply chain management and historical development, (d) conceptual framework, (c) outsourcing effects, and (d) future of outsourcing. The literature review also includes the historical development of outsourcing, a review of prior studies on the conceptual framework of decision-making and managing the outsourcing process, an analysis of short- and long-term outsourcing effects, benefits, risks, future of outsourcing, innovation, and long-term value of outsourcing.

Outsourcing and Supply Chain Management and Historical Development

After the manufacturing improvements of the 20th century, outsourcing became a way to offset the rise in costs (Hirst, Thompson, & Bromley, 2015). The globalization movement of the later part of the 20th century enabled outsourcing to become interwoven in every segment of the U.S. economy and organizational business strategies (Hirst et al., 2015; Zimmer, 2014).

Outsourcing and supply chain management. Outsourcing is passing on the performance of an activity from one organization to a third party (Dolgui & Proth, 2013). Outsourcing is also referred to as subcontracting and is defined as increasing an organization's competitiveness by internalizing external expertise (Han & Bae, 2014). The key element of outsourcing is managing the supplier who provides the external expertise, which requires the use of contracts to bind both organizations (Spithoven & Teirlinck, 2015). Supply chain management decisions are embedded within outsourcing decision-making to include considerations such as contractual obligations as they relate to intellectual property (IP), deliverables, quality, and timely execution (Zentes et al., 2017).

Market drivers for outsourcing increase competition and create a need for an increase in outsourcing (Benaroch et al., 2012). For example, Verhaeghe (2014) argued that a sector with high levels of intellectual property (IP), such as R&D bioanalytics, increases the amount of outsourcing activity. Although outsourcing R&D creates networks and alliances, long-term negative traits include a more long-term strategic loss of internal R&D growth (Love et al., 2014; Lowman et al., 2012). The benefits of

outsourcing R&D include reduced development costs, access to a pool of specialized intellectual knowledge, and shorter development times (Becker & Zirpoli, 2017). However, these benefits also have negative consequences such as loss of retaining internal knowledge over time (Becker & Zirpoli, 2017). For example, leadership at the auto manufacturer Toyota has decided to take full control of R&D outsourcing supply chain management by building internal architectural systems to retain the long-term knowledge (Becker & Zirpoli, 2017).

Historical development. After the industrialization progress in the 20th century, standardization of manufacturing production followed the concept of economies of scale (Hirst et al., 2015). Businesses started mass production manufacturing; however, with the rise of labor costs and unions, business leaders within manufacturing sectors searched for opportunities to reduce costs, including outsourcing (Hirst et al., 2015). Outsourcing became prominent during the early 1960s and became increasingly global in the second half of the 20th century (Dolgui & Proth, 2013; Hirst et al., 2015).

Outsourcing as a strategy would not have thrived without globalization (Zimmer, 2014). Globalization is a progression in which many stages of the supply chain come together and incorporate all processes into a global marketplace (Kilic, 2015). Zimmer (2014) claimed that globalization started to flourish once organizational leaders from many countries became involved. Globalization evolved and progressed mostly in the late 1980s and 1990s (Hirst et al., 2015). Technological advances and the Internet enabled organizational leaders to search for the most efficient production process (Hirst et al., 2015). Electronic forms of communication through the World Wide Web have enabled

organizational leaders to communicate effectively despite time differences (Hirst et al., 2015). Over time, interactions between organizational leaders who reside in different geographic regions were enabled and strengthened through the Internet (Hirst et al., 2015).

Over the past several decades, outsourcing increased and enabled the development of skills in many of the economic sectors including R&D (Martinez Noya & Garcia Canal, 2014). R&D outsourcing has increased over the past 15 years (Spithoven & Teirlinck, 2015). Organizational leaders often face the strategic decision whether to outsource specialized skills developed to fulfill unique proficiencies (Linares Navarro, Pedersen, & Pla Barber, 2014). During the late 1990s, organizational leaders outsourced more of the core functions such as manufacturing (Martinez Noya & Garcia Canal, 2014). However, the downside of being reactive toward short-term outsourcing, such as manufacturing, contributes to the loss in planning for the long-term strategy (Gobble, 2013; McIvor, Humphreys, & McAleer, 1997). Pisano (2012) argued that the decision whether to outsource R&D is strategic due to competitive business strategies. Specialized activities such as R&D are core to the competitive business strategy and not recommended for outsourcing (Pisano, 2012). However, market pressures influence organizational leaders to outsource R&D. With outsourcing of R&D, organizational leaders realize the scales of benefits achieved by tapping into an existing knowledge pool (Martinez Noya & Garcia Canal, 2014). Gains achieved from outsourcing activities with high nonpatentable knowledge are high (Martinez Noya et al., 2012).

Conceptual Framework

The logistic outsourcing conceptual framework developed by de Boer et al. (2006) includes the decision-making processes that make up the framework for outsourcing logistics activities. Researchers later extended the work of de Boer et al. by questioning and adding to the long-term value of outsourcing and the ability to capitalize on outsourced benefits (Benaroch et al., 2012; Berchicci, 2013; Martinez Noya et al., 2012; McIvor, 2009). This framework helps scholars explain the decision-making process of leaders in logistic outsourcing activities and guide the practices of efficient logistic outsourcing processes. Constructs essential to this framework are (a) decision-making process, (b) effective outsourcing, and (c) influence of outsourcing on business competitiveness. In accordance with the postulations of the logistic outsourcing theory, logistic outsourcing of R&D allows organizational leaders to drive product innovation and remain competitive in the marketplace (Bello & Ivanov, 2014; Saxton et al., 2013).

Decision-making process. Many organizational leaders consider whether to outsource R&D service due to a potential effect on the performance and ability to increase innovation (Lee, Kou, & Wei, 2014). Over the past several years, leaders have utilized contract manufacturers' knowledge and capabilities to enhance R&D value (Lee et al., 2014; Bertrand & Mol, 2013). Although one school of thought promotes the benefits of outsourcing to generate innovation, another argues that the fast-changing business environment reduces the potential of outsourced services. Innovation and strategy in new product development are crucial for a company's survival and growth (Slater, Mohr, & Sengupta, 2014).

Organizational leaders connecting the linkages between internal R&D and the external partner ensures efficacy in outsourced services (Love et al., 2014). The ability to connect the outsourced service to a domestic product deliverable lies solely on the organization. Martinez Noya and Garcia Canal (2014) argued that the greater the technological capability within an organization, the higher the likelihood of outsourcing R&D.

Outsourcing R&D decision-making includes two elements: *what* is outsourced and *who* is outsourcing these activities (Martinez Noya & Garcia Canal, 2014). Although the first element relates to the outsourcing task, the second element relates to the resources impacted by outsourcing. Regarding the resource aspect of outsourcing, organizational leaders can tap into a knowledge network pool (Martinez Noya & Garcia Canal, 2014). For example, pharmaceutical firms are increasingly tapping into an established knowledge pool to take advantage of the process design (Martinez Noya & Garcia Canal, 2014).

Organizational leaders in the IT industry prefer the flexibility of outsourcing, especially because outsourcing avoids fixed infrastructure investments (Qu, Pinsoneault, & Oh, 2011). Fixed infrastructure investments include resources and related benefits tied in with the resources. Qu et al. (2011) stated that organizational outsourcing decisions should include advancements and development of the industry. Outsourcing of resources is one of the components that organizational leaders should consider. Two additional considerations should be involved as they relate to the method of outsourcing and the

geographical location. Outsourcing in different geographical areas should incorporate factors such as culture, institution, and language (Khan & Azeem, 2014).

Effective outsourcing. Elements of a successful R&D strategy begin with the desire to succeed (Pisano, 2012). Often organizational leaders outsource activities by displacing in-house processes to outside third parties. Many theories exist that include insights into companies' dynamics and address the decision-making process (de Vries et al., 2014). The conceptual framework comprises the decision-making processes. De Vries et al. (2014) argued that competitive advantage of outsourcing includes competencies that organizational leaders cannot easily replace using third parties. Other skills with minimal influence on an organization's performance are more suitable for outsourcing (McIvor, 2009).

Conducting research and development in-house compared to outsourcing often depends on the size of the business. Many organizational leaders benefit from outsourcing R&D activities (Andries & Thorwarth, 2014). Nassimbeni et al. (2012) argued that outsourcing provides many benefits such as cost reduction, flexibility, and the ability to leverage skills across industries. According to de Boer et al. (2006), since the1960s organizational leaders have been concerned more with measuring the output of R&D than the effectiveness of R&D. Such measurements have included patents, publications, and products. Measuring a number of patents and publications is not a useful effectiveness-measurement tool (de Boer et al., 2006). Deficiency in measuring R&D effectiveness leads to an ability to calculate R&D's direct link to financial benefits such as profits.

Pisano (2012) argued that, due to a lapse in time, it is difficult to evaluate R&D's effect on a company's performance. For example, the downfall of British Petroleum's (BP) model is that from the time R&D employees create an invention, a significant time elapses before the product sells and leaders can attribute substantial financial benefit to the invention. Organizational leaders do not measure effectiveness as it relates to organizational strategy and lack methods to measure the effectiveness of R&D. The outsourcing effectiveness of R&D, as developed by Vining and Globerman (1999), includes a framework of measurement components such as project planning, technical capability, and application of skills; de Boer et al. (2006) applied effectiveness and efficiency measures in outsourcing the R&D activities.

Organizational leaders supplement the lack of competencies within their organizations by working with outside companies (Spithoven & Teirlinck, 2015). Utilizing outside resources and partners to develop stronger products enables organizations to remain competitive. Alliance with outside organizations to supplement internal services partakes in two kinds of activities, including: (a) outsourcing and (b) collaboration (Spithoven & Teirlinck, 2015). While maintaining reduced cost drives outsourcing activities, collaboration inspires exchange and access to knowledge.

Achieving competitive advantage through external relationships is a way to strengthen the business strategy (Gerbl, McIvor, Loane, & Humphreys, 2015; Spithoven & Teirlinck, 2015). Outsourcing activities is becoming more typical, especially with organizational leaders focusing on outsourcing of core competencies. Creating

engagements and partnerships with outside organizations resulted in patent creations in 63% of the companies (Spithoven & Teirlinck, 2015).

Implications of outsourcing on business competitiveness. Organizational leaders measure outsourced R&D effectiveness by the necessity to outsource such services. Combining the internal capabilities with the outsourced services has a direct effect on a company's success (Naru & Truitt, 2013). Although companies retain internal expertise, acquiring new knowledge through outsourcing has the potential to generate success. While companies may have difficulties to keep their competitive edge, outsourcing becomes a necessity to maintain a competitive market advantage (Han & Bae, 2014; Naru & Truitt, 2013). Outsourcing yields gains in innovation and efficiencies and it also causes long-term adaptability issues (Plugge, Borman, & Janssen, 2016).

Outsourcing new product development has its positive and negative aspects. The positive aspect of outsourcing new product development is that it creates networks and alliance-lavish functions. The negative aspects involve a more long-term strategic loss of internal research and development growth (Lowman et al., 2012). Additional negative aspects of outsourcing R&D include angst within organizations because it creates added costs and risks for which organizational leaders may not be ready to handle (Lowman et al., 2012). When it comes to the question of financial implications of outsourcing new product development, research shows little direct correlation between performance and results (Raassens, Wuyts, & Geyskens, 2014).

Outsourcing R&D product development is becoming more popular. However, many companies encounter problems when outsourcing the design and engineering of

R&D product development (Lowman et al., 2012; Raassens et al., 2014) because it is not an easy task. Occasionally, companies experience negative consequences when trying to outsource R&D activities. Thus far, no practical solution exists in outsourcing product development (Lowman et al., 2012; Raassens et al., 2014).

Strategies to manage R&D outsourcing. The decision to outsource R&D activities entails many elements. Even though achieving competitive advantage through the outsourcing of R&D activities is a standard way of doing business, most often organizational leaders retain overseeing contract managers to ensure quality from contract suppliers. While this type of sourcing provides a long-term cost advantage, business leaders move to a more efficient supply chain that causes a more effective impact. Globalization endorses outsourcing as a financially benefiting alternative. Outsourcing has the encouraging effect on shareholder value of the outsourcing firm and many unknowns exist about the long-term performance implications (Kalaignanam, Kushwaha, Steenkamp, & Tuli, 2012; Pattit, Raj, & Wilemon, 2014).

A decision-making framework is necessary when evaluating outsourcing. In the spare parts maintenance outsourcing, Godoy, Pascual, and Knights (2014) found that a join strategy sets optimal profitability. The optimal profitability in this case consists of preventive maintenance and improved supply chain practices.

Organizational leaders of the 21st century use outsourcing as a standard business strategy; however, this was not always a business practice (Bremmer, 2014). Increasingly, organizational leaders realize the misunderstanding of outsourcing benefits. While outsourcing is increasing the return on investment and profitability, it also reduces

the number of jobs and overseeing power of the contract supplier to ensure quality of the services (Naru & Truitt, 2013).

Business leaders with financial resources can manage relationships with the outsourced partners (de Vries et al., 2014). On the other hand, organizational leaders in startup organizations take advantage of the outsourced service because of an insufficient number of internal resources to perform the tasks (Spithoven & Teirlinck, 2015). Spithoven and Teirlinck (2015) argued that the business leaders in the startup organizations do not have resources to manage the outsourced relationship and that they outsource services that have a small effect on competitiveness. Business leaders in small companies have few financial resources to manage internal growth and the intent of outsourcing provides mitigation of potential risks (Murpy et al., 2012).

Many leaders implement outsourcing to retain a competitive advantage (Spithoven & Teirlinck, 2015). While outsourcing generates benefits such as cost reduction, primary advantages reside to enhance innovation through the outsourced R&D services. Another benefit is the ability to learn and take advantage of a design performed by a third party, implement product improvements, and innovation within the company (Spithoven & Teirlinck, 2015). While it is necessary for business leaders to absorb the outsourced knowledge and turn it into an overall strategic advantage, the establishment of the back-end process depends on the outsourcing upfront circumstances. Logistics management is a necessary step to ensure a reliable supplier is in place while achieving organizational alignment.

Outside factors influencing outsourcing. Outside factors influencing decision-making include access to foreign talent and the ability to reduce costs. Organizational leaders outsource R&D services to foreign countries in geographic locations such as Asia. Countries such as China, India, Korea, and Taiwan have access to low-cost labor resources to build technologically competing products (Naru & Truitt, 2013).

To retain competitive positioning in the marketplace, organizational leaders search for opportunities to increase innovation and reduce costs. Outsourcing is becoming inevitable to preserve jobs and a competitive positioning in the market (Gobble, 2013). The U.S. government policies have an effect on outsourcing strategic decisions (Gobble, 2013). To sustain the outsourcing competitive advantage, organizational leaders need to develop an outsourcing strategy (Gobble, 2013; Wirtz, Tuzovic, & Ehret, 2015). By outsourcing services, companies' leaders need to develop strategies to protect the technical knowledge (Fredendall, Letmathe, & Uebe-Emden, 2016).

The government leaders encourage organizations to outsource services. For example, the Free Trade Zone (FTZ), as a concept, was set up to encourage employment in underdeveloped areas (Friedman, 2013). Germany, Europe's largest economy, depends on the FTZ to remain Europe's largest economy. Historically, leaders of the FTZ created several associations to promote free trade in specific geographic locations. Free trade zone increase the welfare of the countries involved in the free trade (Friedman, 2013). Political leadership promotes the FTZ because of its effect on the commerce. Organizational leaders support the FTZ to achieve market penetration in geographic locations with cheaper labor and lower taxations (Friedman, 2013). From a business

perspective, this strategy provides benefits for future growth and increased profits (Chuang, Chang, & Lin, 2015). In conclusion, the FTZ provides financial benefits to corporations.

Outsourcing is adding a complex value chain to the organizations. The complexity is evident in the decision making. The benefits of outsourcing overshadow the complex decision making. By outsourcing activities within the company, organizational leaders benefit from reduced overhead costs, such as recruiting, training, and retaining a qualified workforce (Cesarani, 2014). While outsourcing may create benefits in the organization, it is most beneficial for organizational leaders to outsource one part of R&D activity, such as (a) architecture, (b) people, (c) portfolio, and (d) processes. Organizations in developing countries compete with new product development by duplicating the designs and outputs to make a profit. For this reason, organizational leadership in Western countries views IP as a competitive advantage. Buss and Peukert (2015) argued that outsourcing R&D services promoted IP infringement. The R&D infringement caused technological diffusion and an indirect effect on market outcome (Buss & Peukert, 2015).

Brewer, Ashenbaum, and Ogden (2013) investigated the reasons behind organizational leaders' decision to outsource R&D services. The outsourcing of R&D offers cost reduction opportunities while being able to take advantage of the specialization in the particular fields (Berchicci, 2013; Brewer et al., 2013). With the fast-changing business environment, many organizational leaders are increasing the boundaries by utilizing external resources through outsourcing. The R&D departments are under more pressure to innovate while generating profits for the company. To

enhance innovation, Berchicci (2013) found that companies rely on R&D outsourcing. Berchicci found that the long-term loss of outsourcing is higher for companies with larger R&D and technological capabilities.

Organizational leaders measure the value of outsourcing compared to performing the work in-house. Brewer et al. (2013) argued that organizational leaders search for outsourcing opportunities when internal employees' resources and expertise are not necessary or are replaceable. Outsourcing allows organizational leaders to acquire new R&D opportunities and take advantage of the external pool of resources (Brewer et al., 2013).

In addition to focusing on business growth, organizational leaders need to focus on innovation and brand management (Jullens, 2013). Organizational leaders are under pressure to develop products in a very short time (Datta, Reed, et al., 2013). Innovation is critical for organizations to remain competitive in a global marketplace (Datta, Reed, et al., 2013). As the demand slows and competition increases, organizational leaders should have an active brand plan with innovative, competitive products (Jullens, 2013).

While the competition is growing, many business leaders face tough decisions whether to focus on the core or innovate (Xi, Xu, & Todo, 2013). One of the ways to accelerate product development is through outsourcing the R&D activities. As the competitive markets demand more innovation and cost reduction, organizational leaders react to these changes by outsourcing the core R&D activities, such as product innovation and design.

Mukherjee, Gaur, and Datta (2013) suggested that organizational leaders restructure management stages to prepare the corporate culture to become more adaptable to outsourcing. These steps include the restructuring of internal resources, leveraging the external knowledge, and acquiring offshore resources. Schwarz, C. (2014) evaluated alternative models for measuring outsourced service effectiveness.

Outsourcing Effects

Outsourcing of R&D jobs has short-term and long-term effects. The impressions of workforce resonate in work-culture results. The cultural effects of outsourcing include long distance workforce teams and the ability to communicate effectively. Outsourcing R&D services promotes the outsourcing of highly technical jobs and has an adverse effect on the workforce (Naru & Truitt, 2013).

Fortune 500 companies work with outside R&D partners located in many international cultures. Organizational leaders expect their employees to work seamlessly with their outsourced partners. In R&D environments, innovation teams are most productive when diversity and inclusion exist. As a result, it is important for employees to be able to work efficiently with cross-cultural teams.

Long- and short-term effects of outsourcing. Outsourcing manufacturing jobs has short-term effects on organizational performance, including job loss. However, the loss of manufacturing jobs has a direct effect on industries that provide support services to the industrial sector. The service-sector jobs, such as IT and engineering jobs, are significantly affected (Gobble, 2013). As manufacturing jobs have a direct bearing on the service industry, there are additional effects on the development and transpiration

industry (Gobble, 2013). Since technological advances occur at a rapid rate, organizational leaders' objectives are to decrease the cost through automation. Automation requires capital and long-term investments that organizational leaders are not willing to make. As a result, organizational leaders choose to outsource services.

Government policies have an effect on outsourcing, especially as policies relate to export activities. While the drivers for outsourcing are reactive to the location where the markets are moving, government infrastructure is a key component that endorses outsourcing. The government policies have a direct effect on export and import activities. With the current tax structure, the businesses with an overseas workforce fall into a favorable taxation structure. To retain jobs within the United States, government leaders should create more incentives for companies. Government leadership should create a favorable business environment for the creation of new venture businesses (Pergelova & Angulo-Ruiz, 2014).

Outsourcing effect on organizational culture. Organizational leaders place emphasis on outsourcing that leads to strategic cost reduction as an efficient way to exploit available resources (Shishank & Dekkers, 2013). By outsourcing services, organizational leaders face interaction with different cultures and potentially different languages. In addition, organizational leaders need to manage complexities such as communication, coordination, decision-making, and execution of outsourcing activities (Belderbos et al., 2013). Oh and Hong (2013) estimated that there is a significant time effect to project timelines due to inadequate communication. Lack of communication occurs because of differences in culture, language, and some of these differences may

negatively affect clear communication between the development teams (Klitmøller & Lauring, 2013).

Organizational leaders of large corporations with internal research and development teams often work with outside partners to develop technologies and enhance existing products (Klitmøller et al., 2013; Naru & Truitt, 2013). New product development is crucial for business growth. Efficient relationships with development partners and original equipment manufacturers are necessary for business growth (Naru & Truitt, 2013).

For the business to succeed in a multi-cultural environment, it is important to keep business fundamentals, such as marketing strategy, product development, pricing, and distribution (Kotlarsky, van den Hooff, & Houtman, 2015; Sivasubramaniam, Liebowitz, & Lackman, 2012). While the focus on the basic business fundamentals allows business leaders to be successful, it is not a guarantee of success. In a complex business environment, people make the business successful. Business leaders' ability to integrate the knowledge from the cross-functional and cross-cultural teams into operations will lead to the team's success (Frankel & Mollenkopf, 2015; Kotlarsky et al., 2015). A business manager able to understand the cultural differences and societal norms should be an expectation (Kotlarsky et al., 2015). Understanding the diversity of people with whom organizational leaders make business transactions is a significant step toward success (Frankel & Mollenkopf, 2015). Besides the cultural norms, a difference exists in the laws and the legal and economic system. The values embraced by a culture have an important impact on the way people behave.

New product development and manufacturing process have become somewhat traditional within the virtual world and business leaders are learning to prosper in these environments (Montoya, Massey, Hung, & Crisp, 2009; Sivasubramaniam et al., 2012). With the arrival of technological advancements, such as communication, team members within the virtual world can easily communicate and collaborate. While outsourcing offers opportunities, teams learn to adapt and cope with the challenges that come with working within these global environments (Montoya et al., 2009). Organizational leaders outsource products and processes to achieve business efficiencies and increased return on investment (Sivasubramaniam et al., 2012). Therefore, the success of business efficiencies fostered the interdependency with other businesses in other countries.

Technology is at the forefront of virtual teams and, without the Internet, e-mails, videoconferencing, and audio bridges, virtual teams would not exist in this global environment (Sivasubramaniam et al., 2012). This is especially true within the manufacturing and product development areas. Virtual teams offer high flexibility and enable organizational leaders to respond faster to increasing competition (Pinjani & Palvia, 2013). While virtual teams quickly harness the knowledge employees possess regardless of location, virtual teams also create numerous challenges, such as appropriate leadership, trust, effective communication, meeting deadlines, maintaining product quality, and achieving team cohesiveness (Montoya et al., 2009). Globalization has created interdependence between organizations across time, geographically, culturally, and functionally (Montoya et al., 2009; Pinar, Zehir, Kitapçi, & Tanriverdi, 2014).

Pinar et al. (2014) stated that virtual teams often lack leadership. Coordination requirements, resource constraints, measurability of improvements, and approximation of assignment limit and team limits are important issues that a leader should handle (Pinar et al., 2014). Cultural background has a significant impact on virtual leadership. For virtual teams, the company culture is superior to the national culture. Researchers have conducted studies related to culture and have found that 70% of the world's population has a collectivist culture (Pinar et al., 2014). In multinational teams, the virtual leader needs to be sensitive to cultural norms (Pinar et al., 2014).

R&D outsourcing benefits. For companies to outsource jobs or processes, organizational leaders need to consider cost, reliability, and IP. However, organizational leaders make an outsourcing decision based on bottom-line impacts, such as cost reduction (Naru & Truitt, 2013). Companies should not be outsourcing core competencies, rather short-term activities that would create competitive business opportunities (Naru & Truitt, 2013). For example, organizational leaders outsource information systems mostly due to strategic reasons rather than cost reduction (Naru & Truitt, 2013). Outsourcing R&D activities enables organizational leaders to avoid long-term fixed investments (Qu et al., 2011). Organizational leaders can take advantage of technological and professional skill level by outsourcing R&D services.

Access to workforce outside the R&D organization could lead to cost savings. Many organizational leaders take advantage of outsourcing R&D due to cost reduction and access to a talent pool (Naru & Truitt, 2013). Organizational leaders believe that

outsourcing increases flexibility, productivity, speed to market, innovation, access to innovative processes, and decreased costs (Levy, 2013; Naru & Truitt, 2013).

Organizational leaders have to ensure that two steps are in place within the supply chain when outsourcing. The first step is the financial health support system that enables efficient supply chains (Costinot, Vogel, & Wang, 2013). Converting raw materials into finished products and reducing inventory costs lead to efficient supply chains. The second component is an adaptable supply chain (Schoenherr & Swink, 2015). The importance of the adaptability on the supply chain is the supplier's willingness to comply with additional quality requirements and imposed quality systems (Schoenherr & Swink, 2015). Supplier quality programs ensure that suppliers have processes in place that prevent potential product quality concerns that could lead to recalls (Raede, 2013).

While outsourcing creates cost reduction, Foerstl et al. (2016) argued that organizational leaders could gain the competitive advantage by insourcing services and vertically integrating (Atalay et al., 2014). Companies that choose to integrate vertically must take into consideration the future of their markets (Foerstl et al., 2016). With vertical integration, the return on investment (ROI) will increase due to the future of the offshore drilling market (Foerstl et al., 2016). Because of technological advances, such as the Internet and communication, many organizational leaders choose to outsource R&D at a higher rate. Brewer et al. (2013) indicated that technological advances allow organizational leaders to make strategic decisions that effect outsourcing at remote locations.

R&D outsourcing risks. Outsourcing R&D services including engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies, internationally creates opportunities for project team members to experience different cultures, languages, and varied experiences. In such instances, organizational leaders face opportunities to onboard teams and create a multicultural environment (Khan & Azeem, 2014). The drawback of project teams that work across cultures and different geographic locations is that these teams will never reach the same level of cohesion as a team that is geographically in the same location (Klitmøller et al., 2013). While team productivity might be a concern to organizational leaders, additional risks associated with outsourcing R&D services exist, such as cultural, environmental, and information exchange (Klitmøller et al., 2013).

While organizational leaders attempt to reduce the number of risks associated with outsourcing R&D, the risks assessment becomes difficult to assess properly and predict potential supply chain liabilities (Chaudhuri, Mohanty, & Singh, 2013). By outsourcing product development initiatives, organizational leaders face many risks. Chaudhuri et al. (2013) recommended companies perform supply chain risk assessments. Risk-managing supply chain is an important factor in mitigating material and financial problems (Chaudhuri et al., 2013).

The acceptance of cultural diversity is necessary for both, the business environment and the employee. Cultural diversity comprises of characteristics such as race, heritage, and language (Pinar et al., 2014). Multicultural acceptance within

organizations includes four development points. The first development point is the diversity acceptance and tolerance. For teams to be effective and efficient, the team members need to embrace diversity. The second development point is the multicultural etiquette. Certain behaviors that are acceptable in one culture may be unacceptable in other cultures. The third development point is the organizational structure. Each team needs to understand how it fits into the organization and the decision-making process. The fourth development point includes organizational policies and procedures. This development point ensured that each employee adheres to the company's policies. Bagchi, Kirs, Udo, & Cerveny (2014) argued that organizational leaders prefer outsourcing R&D. Bagchi et al. (2014) claimed that Hofstede's work on cultural dimensions impact R&D project deliveries.

Klitmøller et al. (2013) determined that the cause of failures that globalization has on cross-cultural working teams is due to general communication breakdown within groups. Being able to communicate effectively and work well together are additional causes of failure in globalization (Klitmøller et al., 2013). The failures' emphasis is surfacing through a lack of trust and the cultural differences that affect the groups because face-to-face communication does not occur.

Future of Outsourcing

Many organizational leaders outsource to take advantage of the reduced labor costs, technological improvements, and talent pools. Many organizational leaders consider these developments when deciding whether to outsource services. Zentes et al. (2017) argued that the outsourcing decisions include additional considerations, such as

supplier reliability and the ability to take advantage of short-term benefits. Supplier's reliability incorporates IP and the ability to comply with Corporate Social Responsibility (CSR). Zentes et al. claimed that benefits brought to the organization through outsourcing relate directly to the contracted output requirements. In studies across the globe, Zentes et al. found that European firms tie contract obligations to specific outputs, such as deliverable and quality. In these instances, the organizational leaders evaluate the product based on the delivered quality.

Innovation through outsourcing. While outsourcing is becoming predominant, outsourcing manufacturing processes can lead to greater flexibility to cut expenses in times of crisis or change. For example, the financial crisis of 2007 caused an economic recession that affected the car industry (Drauz, 2014). The car companies had many outsourced processes, which they insourced to remain competitive (Drauz, 2014). With the loss of subject matter expertise through outsourcing, Drauz (2014) argued that insourcing activities and vertical integration are the long-term solution for companies to remain competitive.

While Drauz (2014) believed that insourcing might be a solution for remaining competitive, there are risks related to outsourcing R&D innovation. The risks associated with outsourcing R&D innovation create stress in organizational processes and systems. Spithoven and Teirlinck (2015) suggested that organizational leaders choose to outsource innovation understand that information systems used for collaboration need secure trespasses. Spithoven and Teirlinck stated that outsourced supplier innovation thrives in early R&D engagement due to early social and environmental evaluations. As technology

is rapidly advancing through globalization, innovation is becoming a strategic initiative in many companies (Altuntas & Dereli, 2015). Many companies choose to adopt development of innovative ideas by incorporating them into the overall company strategy (Datta, Ho, & Bhattacharyya, 2013; Mitchell, & Leiponen, 2014). The ability to commercialize innovation is important for company's success and, likewise, business leaders choose to either keep the innovation in-house or outsource it (Datta, Ho, et al., 2013).

Historically, business leaders in the Western hemisphere have focused on innovation and product sales in the developing countries; however, this practice is slowly fading out. Henderson (2013) stated that the highest job growth through 2022 would be visible in the service-providing sector. Govindarajan and Trimble (2012) stated that investment in innovation in the new emerging economies from the developing countries is increasing. As suggested by Govindarajan et al., exporting goods innovated in developed countries do not fit into the lifestyle of developing countries; therefore, organizational leaders realize the benefits of innovation through outsourcing. International outsourcing creates a positive effect on innovation activity (Govindarajan et al., 2012).

Long-term value of outsourcing R&D. The organizational leader's ability to integrate R&D activity into a long-term company strategy enforces the successful execution of business strategy (Mitchell et al., 2014; Bertrand et al., 2013). Long-term effects of outsourcing include the loss of subject matter experts within the organization. Organizational leaders confront the loosing of subject matter expertise when considering

outsourcing. This type of loss is a byproduct of outsourcing (Haughton, Bankoff, & J Coulthard, 2015).

Most often, companies neglect to account for intangibles, such as soft costs associated with outsourcing, while only focusing on the tangible benefits such as cost reduction (Naru & Truitt, 2013). Outsourcing business activities can offer a competitive advantage; however, in some cases poor quality can be associated with short-term outsourcing (Naru & Truitt, 2013). While outsourcing services, such as engineering, development, and human resources for short-time periods enables organizational leaders to foster more innovative and flexible work environments, vertical integration has many limitations (Naru & Truitt, 2013).

Outsourcing is more flexible than vertical integration; however, from a long-term perspective, it is questionable whether the long-term benefits outweigh the short-term cost reduction. Steven, Dong, and Corsi, (2014) stated that the poor quality of outsourcing reduces benefits by far. Choosing to outsource for cost savings leads to lower quality in the long-term (Steven et al., 2014). While organizational leaders see the bottom-line effects and benefits of the low-cost option in the short run, over the long term, outsourcing leads to an increase in expenses. Lower wages attract employees with higher rates of turnover and absenteeism. Steven et al. argued that the pursuit of short-term benefits, such as cost reduction, is a questionable benefit and recommends that organizational leadership assess outsourcing as long-term evaluations.

Business leaders of global companies go beyond monitoring codes of conduct and help solve the problem of poor working conditions at its source through collaboration

with the suppliers (Carroll, 2015). An example of collaboration includes implementation of new management systems, including sustainability that varies from company to company (Carroll, 2015). Successful supply chains originate from many aspects, such as capital funding, innovation, and CSR. Corporate social responsibility is a form of self-regulation integrated into a business model that took off in the 1960s. Organizational leaders include CSR in business models to ensure compliance with the law and ethics, both locally and internationally, if applicable. Business managers use CSR to encourage a positive impact on the environment through its activities. CSR has an effect on sales revenue and market share by improving customers' perception of a company. Operating with a perspective, without neglecting the economic role of business, enables leaders to increase profits in the long run. Examples of not following CSR lead to adverse publicity, long-term drop in sales, and potential legal hurdles (Carroll, 2015). CSR does not influence the way business leaders conduct business; rather, CSR ensures that the profits come from responsible practices (Carroll, 2015).

Greatest innovation occurs within outsourced services where company leadership invested into CSR (Luo & Du, 2015). These services are most useful to the third parties in industries such as co-packing, co-manufacturing, and labeling. While many business leaders are outsourcing globally, they encounter many poor working conditions (Boulouta & Pitelis, 2014). Business leaders outsourcing services globally monitor CSR to ensure they are following local laws. Following CSR enables organizational leaders' compliance with basic environmental, health, and safety conditions. While the standards of living within those countries are increasing, the wages and production costs are going

up. As a result, the business leaders are innovating, increasing costs, and finding other suppliers that offer lower wages (Boulouta & Pitelis, 2014). In summary, the CSR programs allow business leaders to take advantage of the stakeholder networks with demand for innovation (Luo & Du, 2015).

For example, outsourcing to China provides many business leaders the benefit of lower wages; however, one of the hidden costs over time is currency change. Currency exchange causes a fluctuation in the labor wages, which causes the manufacturing leadership to shift outsourcing to other countries, such as Argentina, Indonesia, Vietnam, and Turkey (Naru & Truitt, 2013). Additional costs, such as shipping and raw materials, also affect product cost and provide enough long-term fluctuations that influence the bottom-line profits. However, the question remains as follows: why do foreign business leaders continue to conduct sourcing in China even though the outsourcing costs are becoming increasingly expensive? (Naru & Truitt, 2013). For example, Swedish business leaders in the textile and clothing industry have shown that sourcing in China is becoming both costs and strategy driven (Eriksson, Hilletofth, & Hilmola, 2013). Corporation leaders that are pursuing lower production costs most probably consider leaving China, whereas organizational leaders with the long-term strategic intent and a high level of business ethics, such as CSR, will retain most or all sourcing in China (Eriksson et al., 2013). CSR affects sales revenue and market share by improving customers' perceptions of a company. Operating with an outlook towards corporate social responsibility and a long-term perspective without neglecting the economic role of business enables organizational leaders to increase profits in the long run (Eriksson et al.,

2013).

Organizational leaders should evaluate the company's strategic plan before outsourcing R&D services. Malhotra (2014) argued that companies should evaluate both the positive and negative effect of outsourcing before deciding which direction is the most beneficial. The decision to outsource or insource activities is a complex decision for which organizational leaders need to perform a thorough evaluation (Kumari & Kumar, 2013). While outsourcing strategies increase companies' ROI, insourcing requires organizational leaders to create long-term investments (Kumari & Kumar, 2013).

Transition

Section 1 included the problem statement for this study, which has to do with organizational leaders often lacking strategies to manage outsourced R&D processes to maintain market competitiveness. This section included the background of the problem, purpose statement, nature of the study, overarching research and interview questions, conceptual framework, operational definitions, assumptions, limitations, and delimitations, significance of the study, and literature review. In section 2, I provided an overview of the researcher's role, research method and design, ethical research, data collection and organization techniques, data analysis, and reliability and validity. In section 3, included are the results from data collection, presentation of findings, application to professional practice, implications for social change, conclusion, and recommendation for action and further research.

Section 2: The Project

This section of the study includes an overview of the research method and design employed to answer the research question. I describe the data collection and organization technique, data analysis process, and the reliability and validity of the study. I also include the purpose statement, researcher's role, and ethical research standards.

Purpose Statement

The purpose of this qualitative case study was to explore strategies and processes organizational leaders used to manage outsourced R&D including engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies, to maintain market competitiveness. The targeted population included organizational leaders of a single Fortune 500 company in the Mid-Atlantic region of the United States who have used effective strategies and processes to manage the outsourcing of R&D while maintaining competitiveness. The business implications include opportunities for organizational leaders to capitalize on techniques for assessing long-term implications of R&D outsourcing. Strategies organizational leaders used to manage outsourced engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies may enhance a company's return on investment, decrease operational costs, and impact communities through employment and generating government revenues through taxes. Efficient management of outsourced services within R&D including engineering services such as

design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies, may lead to effective use of time within organizations, which in turn may lower operating costs. This study's results may also have implication for positive social change such as the potential to create a positive effect on job creation, unemployment, and the economic environment of a Fortune 500 corporation in the Mid-Atlantic region of the United States.

Role of the Researcher

My role as researcher commenced with gaining a deeper understanding of the research topic through a literature review. The data gathering process included two sources. The first source included interviews with the participants. As the primary data collection instrument, I used open-ended interview questions as shown in Appendix A. Yin (2014) stated that open-ended questions in a qualitative study provide clarity, offer flexibility, encourage complete answers, and address the *why* and *how*. Yin stated that a researcher should be familiar with the case study and the theoretical constructs. The scope of the case study was narrow and focused (Baskarada, 2014). I also gathered data by reviewing archival records and printed documents. The documentation included a review of company policies that have a direct or indirect impact on the outsourcing of R&D services. The archival records included a review of data on outsourcing from the U.S. Bureau of Labor Statistics (Henderson, 2013).

In a qualitative case study, the role of the researcher is to design and conduct the research study and act in agreement with the university's guidelines. I applied Johnson

Hanson, Corey, Eldridge, & Mitchell's (2014) ethical research standards for conducting case study research. Before conducting the study, the institutional review board (IRB) provided the approval to conduct the research. The IRB number is 06-17-16-0158491. In addition to IRB approval, included is a certificate from the National Institutes of Health (NIH) Office of Extramural Research, as shown in Appendix B, that certified my completion of a course in ethical research.

A holistic view of the research problem is a suitable approach when conducting case study research (Baskarada, 2014). The interview questions shown in Appendix A were open-ended and aligned with the overarching research question. I was familiar with the research topic due to working in a Fortune 500 corporation and explained personal work experience to each participant before the interview. Participants with no prior professional relationship participated and followed the interview protocol to mitigate researcher bias.

Applying Elo, Kääriäinen, Kanste, Pölkki, Utriainen, and Kyngäs' (2014) recommendation to ensure credibility, I interviewed the respondents, took notes during interviews, and analyzed the responses without bias. As a researcher, the critical role in this case study was to exclude any preconceived beliefs by applying the technique of bracketing to reduce bias regarding the study topic (Baskarada, 2014; Yin, 2014). Practicing ethical research as required by the NIH was necessary (Yin, 2014). Applying Chan, Fung, and Chien's (2013) recommendation, bracketing by recording any personal preconceptions or biases before the start of the research was critical in diminishing bias. To ensure decreased bias, documenting the data collection and analysis process before

the start of this research study was essential in mitigating bias during the data collection. During the research, following the data collection process was essential to mitigate potential bias.

To protect the privacy and dignity of the participants (Yin, 2014), I followed all steps and measures to ensure ethical research practices in accordance with the NIH certification. Following the principles as laid out by the Belmont Report was critical in this study (Mitchell & Wellings, 2013; U.S. National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). According to the Belmont Report, a researcher conducting research with human subjects should ensure equal treatment of all participants (Mitchell & Wellings, 2013; U.S. National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979).

Participants

The target population consisted of business leaders in a single Fortune 500 corporation implementing strategies to manage the outsourcing of R&D including engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies, while maintaining market competitiveness in the Mid-Atlantic region of the United States. The business leaders included midlevel managers and directors. Following Palinkas, Horwitz, Green, Wisdom, Duan, and Hoagwoodet's (2015) recommendation, I used a nonprobabilistic purposive sampling procedure by selecting elements from the target population with the purpose of the study

and specific inclusion and exclusion criteria in mind. The purposive sample included five business leaders in one large company who demonstrated the ability to manage the outsourcing of R&D while maintaining competitiveness. Participant selection included employees with varied working experiences, as recommended by Palinkas et al. (2015). A researcher can answer the overarching research question with an appropriate sample size that allows for in-depth analysis and data saturation (Marshall, Cardon, Poddar, & Fontenot, 2013; Palinkas et al., 2015). Data saturation was reached after multiple interviews when no new information emerged from participants (Palinkas et al., 2015).

Working for a Fortune 500 corporation enabled me to contact participants for the study by collecting contact information for midlevel managers and directors as potential participants. Participant selection consisted of evaluating prospective participants' direct or indirect involvement in decision-making strategies to manage the outsourcing of R&D including engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies. The process of contacting the participants included e-mails and phone calls. Each contact method involved a scripted request for participation in the study. The participants confirmed their understanding of the purpose, timeframe, and expected outcomes of the study. The data collection process started after approval from Walden's IRB and lasted 1 month.

Research Method and Design

The research method is a tool for examining the research problem (Baskarada, 2014). The research method depends on (a) the form of the research question, (b)

controlling of events, and (c) the issues being studied (Yin, 2014). Within the study, the method is a lens to dive into the details of the research (Baskarada, 2014; Yin, 2014). Yin (2014) indicated that the research question determines the research design. In this study, I employed a qualitative research method with a case study design.

Research Method

Venkatesh et al. (2013) identified three research methods commonly used to undertake a study: (a) quantitative, (b) qualitative, and (c) mixed methods. A qualitative method was more suitable for this study because the research question focused on the *why* and *how* (Roy, Zvonkovic, Goldberg, Sharp, & LaRossa, 2015; Yin, 2014). Research questions such as *who, what, where, how many*, and *how much* are more appropriate for the quantitative method (Yin, 2014). The mixed-methods approach is a combination of both quantitative and qualitative methods (Zohrabi, 2013).

Venkatesh et al. (2013) suggested that exploration of practices and experiences is critical in a qualitative study. Researchers often use a qualitative method as a tool for understanding a holistic picture of the research problem (Baskarada, 2014). The conditions for using a qualitative method include (a) observation of people or events that occur in a natural location, (b) not employing a control variable, and (c) asking questions and allowing the participants to express *how* and *why* (Yin, 2014). This study met all three qualitative research principles; therefore, the qualitative method was a good fit for employing observations, interviews, and pattern relationships, as recommended by Venkatesh et al. The interviews took place in the natural location setting established by

the participants and me. The interview questions shown in Appendix A were open-ended to allow participants to provide answers in their own words.

The quantitative research method is appropriate when a researcher uses numerical data evaluation to generate observations about relationships (Hoare & Hoe, 2013; Rijgersberg, 2013). Researchers use the quantitative method to test a hypothesis, whereas qualitative research methodology does not include statistical procedures to answer the research question (Yin, 2014). The quantitative research method is acceptable when researchers embrace a particular research topic by narrowing the exploration through stating of the hypothesis. Researchers who employ the quantitative method focus on the proof and validity of the hypothesis (Zohrabi, 2013). In quantitative research, data capturing occurs through experiment or survey and statistical analyses. Researchers conducting quantitative analyses use data-driven evidence to support their research (Tsang, 2013). The quantitative method was not appropriate in this study because no hypothesis was tested.

Mixed-methods research is a combination of qualitative and quantitative methods (Zohrabi, 2013) to integrate statistical data and interpretive analysis (Hesse Biber & Johnson, 2013; Polsa, 2013). The disadvantage of the mixed-methods approach for my study was that it includes the quantitative method. Due to time constraints, I did not employ the mixed-methods approach. Although the mixed-methods approach includes both qualitative and quantitative methods, only the qualitative method was appropriate for my study. I used the qualitative method as a tool for understanding a holistic picture of the research problem, as recommended by Baskarada (2014).

Research Design

The qualitative method includes multiple designs such as (a) narrative, which focuses on an individual or small group's life story; (b) phenomenological, which focuses on people's experiences related to a common event; (c) ethnographic, which focuses on culture of small groups; and (d) case study, which focuses on answering the how and why questions (Yin, 2014). In this study, I employed a single case design to conduct an in-depth investigation and comprehensive review of the business problem (see Yin, 2014). Hyett et al. (2014) described the case study as an in-depth investigation of a phenomenon in real life. This single case study involved in-depth interviews with participants to explore strategies organizational leaders used to manage the outsourcing of R&D services including engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies to remain competitive (see Ridder et al., 2014). The objective was to identify strategies that could add value to businesses with outsourced R&D services (Yin, 2014). Yin (2014) stated that the case study process with six stages is the optimum way to conduct a case study. Figure 1 shows the six-stage process.

Yin (2014) suggested that the research question determines the research design. In a qualitative research study, researchers include rich portrayals of in-depth investigations and a comprehensive view of the business problem (Yin, 2014). Hyett et al. (2014) described the case study as an in-depth investigation of a phenomenon in real life. The case study involved in-depth interviews with participants in identifying strategies

organizational leaders used to manage the outsourcing of R&D to remain competitive, as recommended by several scholars (Ridder et al., 2014). The objective was to discover strategies that could add value to businesses with outsourced R&D services over time and defined activities.

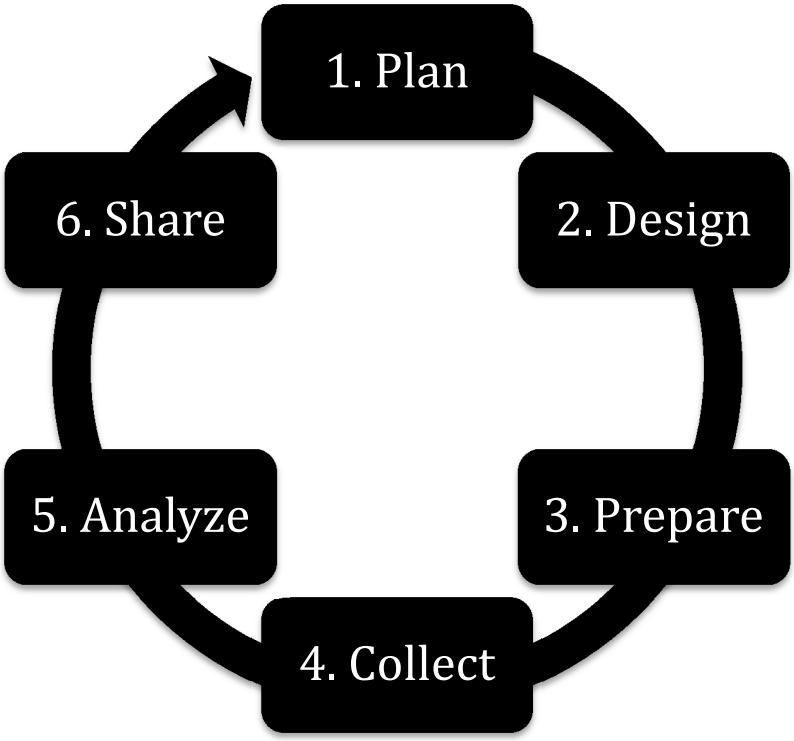

Figure 1. Case study process (Baskarada, 2014; Yin, 2014).

The first step in the case study process was the planning stage. At this stage, ensuring alignment between the research question, problem statement, and the purpose statement was critical (Baskarada, 2014; Yin, 2014). The second step was the defining phase and identifying the research design (Baskarada, 2014; Yin, 2014). At the third step, the preparation, preparing and learning the skills needed to conduct the case study research were essential (Baskarada, 2014; Yin, 2014). While at the fourth stage, it was

important to collect sources to support the case study (Baskarada, 2014; Yin, 2014). The fifth stage was about analyzing the information gathered (Baskarada, 2014; Yin, 2014). The sixth stage is the last stage accentuating a summary of all materials (Baskarada, 2014; Yin, 2014). Yin (2014) defined the research steps needed for the case study. Yin's case study process shown in Figure 2 represents the steps followed in this study, interviewing the participants, gathering in-depth information, and achieving data saturation.

Applying Meneses, Coutinho, and Pinho's (2014) recommendation that data saturation is achieved after no new information emerges; I achieved data saturation after the fourth interview. The fifth interview was conducted to ensure no new information and knowledge emerged from the subsequent participant. The interviewing process stopped after the fifth interview, as no additional information emerged. After the interviews, member checking enabled in-depth research that contributed toward achieving data saturation. Data saturation was visible when no additional themes arose (Meneses et al., 2014; O'Reilly & Parker, 2013).

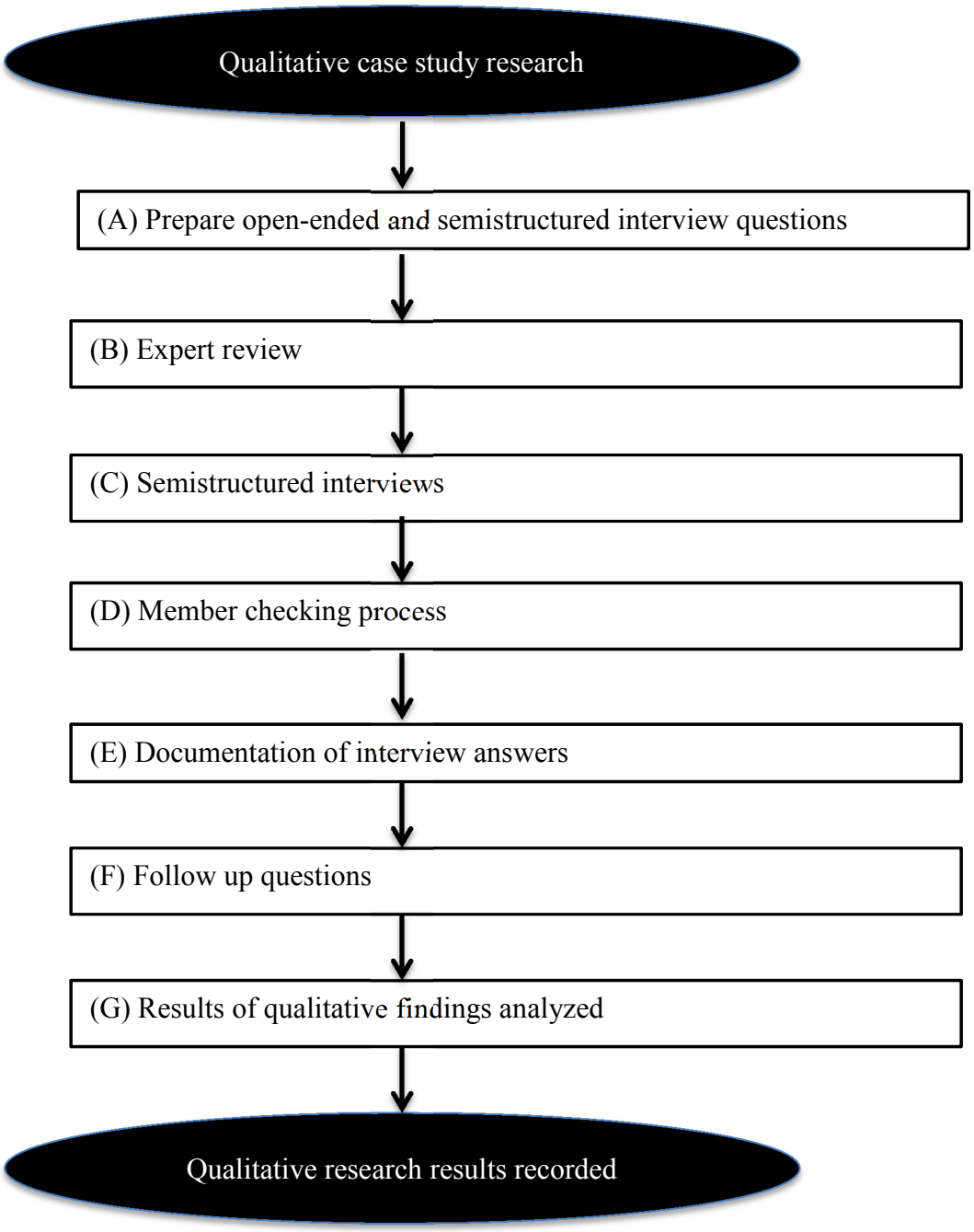

Figure 2. Qualitative case study research.

Population and Sampling

The focus of this qualitative case study was to explore strategies that organizational leaders used to manage outsourced R&D to maintain market competitiveness. The participants in this study were organizational leaders who worked within the same R&D and procurement departments and had contributed to decision making as to whether to outsource engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies. They work within an R&D and procurement departments in the Mid-Atlantic region of the United States. Applying Yin's (2014) recommendation, the participants participated in face-to-face and over the phone interviews at a time that was convenient for them. There were a total of four face-to-face interviews and one over the phone interview. Morse and Coulehan (2015) noted advantages of speaking with participants over the phone include: (a) mitigating bias, (b) promoting flexibility, and (c) confidentiality.

As suggested by Palinkas et al. (2015), the participant selection occurred purposely so that employees with varied experiences could participate. Applying Bernard's (2013) snowball sampling method, the study participants suggested potential contributors. The assumption was that participants would know other senior level leaders who directly and indirectly influence R&D outsourcing. One of the participants recommended potential participant originally not identified. Following the same interviewing criteria and by including the additional participant suggested by the respondent, allowed for the inclusion of additional discoveries.

To undertake and complete the study, the number of participants was dependent on data saturation, as recommended by Palinkas et al. (2015). Data saturation occurred after conducting four interviews and participants offered no new information (Palinkas et al., 2015). The fifth interview was conducted to ensure no new information and knowledge emerged from the subsequent participant. The interviews were halted after the fifth interview, as no additional information emerged. Data saturation occurred when no additional themes arose (Meneses et al., 2014; O'Reilly & Parker, 2013).

Ethical Research

To ensure compliance with ethical standards, the data collection for this study started after approval from Walden University's IRB. The IRB reviewed this research study to ensure compliance with all ethical standards, as recommended by Johnson et al. (2014). Upon review, the IRB assigned an approval number. The approval number is 06-17-16-0158491. Included is a certificate from the NIH Office of Extramural Research, as shown in Appendix B, which certifies that I have completed a course of ethical research.

Informed Consent

Informed consent was part of the interview, and the participant had the option to either accept or decline participation in this study. Each participant acknowledged and accepted the consent form by signing it. The consent form includes details related to the purpose of the study, the nature of the study, participant's rights, contact information of the Walden University's representative, and the researcher's contact information. Each participant received a copy of the consent form before scheduling the interview. The contact information for Walden University appears on the consent form. The participant

had the option to ask for clarification or additional information. Applying Vainio's (2013) recommendation, the interviewees understood that participation in the study was voluntary and confidential. There were no incentives for participating, and withdrawal from this study at any time was an option. After the interview, the participants received a thank you note. Upon study approval, the participants who participated in the study will receive a copy of the final study. Any participant could have withdrawn from the study by simply informing me, using a phone call, e-mail, or in-person. Morse et al. (2015) noted advantages to speaking with participants over the phone included helping mitigate bias, promoting flexibility, and enhancing confidentiality. Applying Vainio's recommendation, treating all information provided by the participants as confidential was essential. If the participants were to have withdrawn from the study during the data analysis and data reporting process, their contribution to this study would still be included.

Removing all participants' names and any other identifiable information about individuals or organizations was essential to preserve confidentiality. Each participant's interview session included coding via alphanumeric code for privacy and confidentiality. Summarizing data collected for each participant and transferring onto a computer thumb drive followed the interviews. The electronic data on a thumb drive is password protected and locked securely. Applying Morse and Coulehan (2015) recommendation to protect the confidentiality of participants, all electronic data and hard copies, such as consent forms, will be kept for the next 5-years in a fire safe box. Five years after the completion of this study, all papers and thumb drives will be destroyed with a shredder to comply

with ethical standards for research.

Data Collection Instruments

I was the primary data collection instrument and used semistructured interviews, with open-ended questions, as shown in Appendix A. In addition to the literature review and the open-ended interview questions, additional data gathering occurred. The additional review of data included archival records and printed documents of organizational leaders. The open-ended, interview questions promoted conversation with the interviewees. The research instrument contains questions that enabled exploring strategies that organizational leaders used to manage outsourced R&D processes to maintain market competitiveness as shown in the interview protocol in Appendix A. In-depth analysis included use of the structured data collection process, open-ended questions and semistructured interviews recommended by Palinkas et al. (2015).

The structured data collection process included the following steps:

1. Expert review.
2. Semistructured interviews with open-ended questions.
3. Member checking.
4. Documentation and follow-up questions.

An important step in this study was to utilize the expert review. Three candidates who had no association with this research study reviewed the open-ended questions to ensure the credibility of the data collection instrument. The expert reviewers provided input on the open-ended interview questions. Following the completion of the expert reviews, the participants were contacted via e-mail and phone calls to schedule the

interviews. Phone interviews promote confidentiality and mitigation of bias (Morse et al., 2015).

All participants received the consent form in advance of the interview. Following Yin's (2014) recommendation, after the expert review, four interviews were conducted in-person and one over-the-phone interview so that the participants had an opportunity to ask and clarify any potential misunderstandings. Before each interview started, the allotted interview time was 45 to 60 minutes. Participants provided permission to record the interview using researcher's cell phone. During each interview, the participants acknowledged the recording of the interviews.

Holding in-person interviews outside of participants' work locations maintained participants' confidentiality. The interviews were held one day apart to allow for review, summary, and recording of the responses. As the participants worked at the same location, the interviews were spaced to ensure confidentiality of the participants. Interviews conducted in a private setting and timing that was convenient for the participants increased participant's comfort level with the interview process. The in-person interviews had a meet-and-greet session at the beginning of the interview. The participants reviewed the consent form before the start of the interview. For the over-the-phone interview, the interview lasted about 35 minutes. The first few minutes of the interview were used as a meet-and-greet session and a review of the consent form. For the over-the-phone interview, the participant e-mailed the signed consent form to me.

After each interview, each participant had an opportunity to engage in member checking via e-mail to clarify his or her quotes, interpretations of the data, and a

summary of answers, as needed. This action was a deliberate step, where each participant received documentation that included interview responses, quotes, conclusions of the data, and a summary (Yin, 2014). Four of the five participants responded to the member checking e-mail to review and provide comments on the interviews. Participant INT4*f* did not respond to the member checking email request. Participants INT1*f*, INT2*f*, INT3*f*, and INT5*p*, replied to my e-mail indicating they received the transcription of quotes, summary and conclusion of the data. Participant INT1*f* and INT5*p* supplied corrections. Participant INT1*f* provided additional information for question 10, and participant INT5*p* corrected the answer to questions 2 and 3 on how many years of experience he or she has in the current role and the current responsibilities. The participants provided the specific time spent in each role in their career. Participants INT1*f*, INT2*f*, and INT3*f*, did not offer any corrections.

In addition to the interviews, review of documentation and archival records on R&D outsourcing occurred. The documentation included a review of company policies that have a direct or indirect effect on outsourcing of R&D services. The archival data included procedures, guidelines, and sample terms used in outsourcing contracts. The procedures and guidelines reviewed included two subjects. The first subject included supplier management procedures, communication, assessments, and relationship management, and the second subject included guidelines on how and when to file invention disclosures and patents. The sample contractual terms reviewed included details on IP protection, periodic supplier assessments, and quality reviews. The supplier assessments and quality reviews included detailed reviews and scoring requirements. The

procedures and guidelines on supplier management focused on ensuring effective relationship management while the guidelines on how and when to file invention disclosures and patents focused on a strategic competitive advantage.

Data Collection Technique

The process of data collection started once Walden University's IRB granted permission using an interview protocol as shown in Appendix A. Applying Palinkas et al. (2015) and McCarthy's (2011) recommendation to conduct an in-depth analysis using the structured data collection process, open-ended questions and semistructured interviews was critical. The interview questions, shown in Appendix A, were open-ended in nature to ensure that participants' responses would not be limited. Interpreting data without remaining objective, such as relying on my existing beliefs is a downfall of conducting interviews (Yilmaz, 2013). There are alternate ways of collecting data, such as field observation and focus groups for a qualitative study (Hyett et al., 2014). The advantages of the interviews included that they were in-depth and insightful sessions (Yin, 2014). The open-ended interview questions intended to encourage participation and discussion by the participants.

I recorded the interviews and downloaded them onto a thumb drive. The recorded interviews will be securely stored on a thumb drive in case there is need to retrieve the recordings in the future (Yin, 2014). The thumb drive will be password protected and stored for the next 5 years. After downloading the interview recordings onto the thumb drive, they were deleted from the recorder. To encourage participants' trust and participation, Gibson, Benson, and Brand (2013) recommended starting the interview

with an introduction and following with confirmation about the confidentiality of the participation and the interview.

Upon completion of the interview, the participants confirmed their understanding that their confidentiality would remain in place. Each interview ended 10 to 15 minutes ahead of its time so that the participants had additional time to ask any questions related to the doctoral study. Upon completion of the interviews, I thanked the participants for their time and participation and confirmed the next step would be a follow up member checking process.

The member checking process comprised of reviewing, interpreting, and summarizing the interview recordings including creating a concise summary for each interview question. Irvine, Drew, and Sainsbury (2013) recommended that researchers always follow-up with the participants to ensure that the synthesis represents the content of their responses. Yin (2014) suggested that researchers should continue the member checking process until no new data arises.

Based on the follow-up conversation with each respondent, I updated the summarized responses to reflect the changes. Reilly (2013) conducted a qualitative study and found that participants provided additional information during the member checking process. The advantages of member checking were to confirm the summary of the interview and enhance dependability and credibility of the research. An additional benefit of the member checking process was that members had an opportunity to provide feedback about the interviews, verify synthesis, and confirm quotes.

Pilot studies are common in research projects and doctoral studies. The research design structure was clear and defined the pool of participants used in this study. The research process was clear in this case study; therefore a pilot study was not necessary.

Data Organization Technique

Brinkmann (2016) stated the importance of the interview process and that it could have an impact on the findings of the research. Brinkmann highlighted the importance of a regulated interview process and that it influences the interviewee's responses. Before the start of the interviews, I began accumulating data on each interview, such as requests to reach out for the participation in the interview. Palinkas et al. (2015) recommended that to have an effective interview, the interviewer should build a rapport with the respondent. The rapport should include building trust by ensuring confidentiality of the participant. To ensure confidentiality, participants' names were coded (Gibson et al., 2013). Immediately after the interview, transcription of all the major points and quotes occurred.

Four in-person interviews and one over-the-phone interview enabled data collection. Phone interviews promote confidentiality and elimination of bias (Morse et al., 2015). Using a coding system kept the confidentiality of the respondents (Dincer & Dincer, 2013; Gibson et al., 2013). The in-person interviews were distinguished from the phone conversation by selecting a code for the in-person interview as *f* and the code for the phone interview as *p*. The coding system included INT for each participant while adding a number designated the number of participants such as INT1*f*, INT2*f*, INT3*f,* INT4*f*, and INT5*p.*

I removed all information that might breach the confidentiality of the participant from the research documents. The interview recordings were password protected on two levels and stored on a thumb drive. The password protection included the electronic document and the thumb drive. All data on the thumb drive, along with all backup notes and hard copies, will remain protected and locked for 5 years. Lee and Gostin (2009) suggested that the disposal of the data include deletion of research data from the hard drive and shredding of paper copies of research data. This security protocol was followed in this study.

Data Analysis

I followed Yin's (2014) 5-step data analysis process for a case study to (a) compile data, (b) disassemble the data, (c) reassemble the data, (d) interpret the data, and (e) conclude the data. For the data analysis phase, the key words in context (KWIC) analysis was used (Baskarada, 2014). By entering the data into an Excel® spreadsheet and color-coding the responses, the themes emerged by using the KWIC coding method (Baskarada, 2014). Baskarada described KWIC as a method to search for key words in qualitative research. The color code was based on the relevance by using three colors, including green (most relevant), yellow (maybe relevant), and red (not relevant). By utilizing the KWIC color-coding method, the themes emerged in patterns and relationships, which informed the research question.

Through the data analysis, I gained an understanding of themes and patterns produced from the qualitative research (Bedwell, McGowan, & Lavender, 2015). The overarching research question for this study was as follows: What strategies do

organizational leaders use to manage outsourced R&D processes to maintain market competitiveness? The response grouping included overarching codes and themes. Using the validated open-ended interview questions, as listed in Appendix A, allowed for response grouping into overarching themes (Irvine et al., 2013).

The coding for the recorded and written participants' answers was INT1*f*, INT2*f*, INT3*f*, INT4*f,* and INT5*p.* Listening to, transcribing, and reading the responses for each participant's open-ended interview question was critical in ensuring accuracy in data analysis. Reviewing the bracketing conducted before the start of the study ensured if the information was understandable and biased. The process for each response included encapsulating two to three keywords that represent the answer, analyzing the content of all participants for each question, and looking for overarching themes.

I evaluated the relationship of the themes emerging from the data analysis and the conceptual framework (Klag, & Langley, 2013). The logistic outsourcing theory developed by de Boer et al. (2006) was the conceptual framework and the foundation of this study. The conceptual framework, developed by de Boer et al., included the decision-making processes that made up the framework for outsourcing logistics activities. Based on the responses from the participants and literature review inputs into conceptual framework, the emerging themes linked to and expanded the conceptual framework. The conceptual framework key constructs were expanded through the research findings. Key constructs essential to this framework were (a) decision-making process, (b) effective outsourcing, and (c) implications of outsourcing on business competitiveness. The conceptual framework key constructs were expanded through the research findings by

yielding three main themes and nine subthemes. While the three main themes linked to the conceptual framework key constructs, the nine emergent subthemes expanded the conceptual framework through the case study research and in-depth analysis of the interviews. Applying Klag and Langley's (2013) recommendation, embracing the ideas, and identifying new emerging concepts were critical. Reviewing newly emerging concepts and identifying relationships between categories was critical in analyzing the meaning of the patterns and categories and how they relate to the management of outsourcing R&D services.

Often researchers use data triangulation to increase objectivity by including multiple sources (Yin, 2014). This study included methodological triangulation and utilization of data from different sources (Hussein, 2015). The triangulation process included responses from the interview questions and company's archived documents. The company's archived documents included procedures such as supplier management procedures, communication, assessments, management; IP application guidelines; and sample contractual terms used in R&D outsourcing processes.

Reviewing company archival documents, yielded insights into managing outsourcing effectiveness and IP procedures. The documents that yielded insights into outsourcing effectiveness included supplier management procedures such as supplier communication, assessments, and relationship management. The supplier assessments included a strength, weakness, opportunity, and threat analysis (SWOT). The SWOT analysis served as a basis for the assessments that included financial strength, alternate locations, quality returns, and supply on time delivery. The supplier communication and

relationship management procedures further elaborated the frequency of the required supplier performance reviews. The IP procedures included guidelines for IP applications, how and when to file invention disclosures. The organizational leadership emphasized the importance to file for invention disclosures during research and development processes to protect the knowledge prior to outsourcing. In instances where the outsourcing requests generated IP by the suppliers, the organization preempted this by including IP coverage clauses in the contractual agreements. The contractual clauses allowed for the IP to become ownership of the organization rather than the supplier.

By utilizing methodological triangulation of different sources, the likelihood increased that the data from one source corroborated the other (Hoque, Covaleski, & Gooneratne, 2013). Obtaining data from different sources included semistructured interviews and company procedures and guidelines. Data credibility included the use of peer-reviewed sources, interviews, member checking and cross-referenced themes from the interviews with the themes from the literature review documentation.

Reliability and Validity

In qualitative research, researchers strive to achieve trustworthiness through the use of four elements including: (1) dependability, (2) credibility, (3) transferability, and (4) confirmability (Elo et al., 2014). These four elements address the credibility and trustworthiness of the results (Elo et al., 2014). These criteria are measurable and they establish that the participants' views and outcomes of the study are believable (Lapan, Quartaroli, & Riemer, 2011). I ensured data credibility through objectivity by (a) defining open-ended interview questions and collecting data accurately, (b) data characterization

through coding, (c) data analysis and conclusion. The transferability of the study ensures that when and if a researcher were to repeat the study, same or similar outcomes would result (Campbell, Quincy, Osserman, & Pedersen, 2013).

Dependability

When conducting research, it was essential to ensure data dependability was present. The researchers often describe data dependability as future researcher's ability to follow the same study steps to obtain same or similar research results (Katz, 2015). The dependability of the data included: (a) peer-reviewed literature review, (b) open-ended interview questions, and (c) data analysis and characterization through coding. In this study included is an exhaustive literature review enhancing data dependability and credibility. Applying Peredaryenko and Krauss' (2013) recommendation, I was the primary data collection instrument. Gioia, Corley, and Hamilton (2013) stated that the use of open-ended interview questions would not include any leading questions. In accordance with Gioia et al., during the semistructured interviews, adhering to and following the open-ended questions ensured consistency (Gioia et al., 2013).

Credibility

In this study included were data from different sources such as (a) semistructured interviews, (b) literature review documentation, and (c) additional follow-up interviews. The quality of the research transpires through the implementation of the data collection and analysis (Yin, 2014). To enhance credibility, member checking strategy was adopted to ensure trustworthiness (Beck, 2014). The advantage of member checking was to confirm my interpretation of the interview and verify participants' quotes. The member

checking approach was a measure adopted to ensure trustworthiness (Beck, 2014; Reilly, 2013). Using the follow-up member checking strategy facilitated obtaining to attain in-depth data and to reach data saturation, representing the stage when new information emerged. Obtaining in-depth data contributing toward achieving data saturation was a direct result of member checking. The researcher improves the credibility and quality of the study through data saturation (Houghton, Casey, Shaw, & Murphy, 2013). I achieved data saturation when no new themes emerged.

Transferability and Confirmability

Employing methodological triangulation and utilizing of data from different sources enhanced credibility and transferability (Hussein, 2015). The triangulation process included responses from the interview questions and company's archived documents such as supplier management procedures, communication, assessments, management; IP application guidelines; and sample contractual terms used in R&D outsourcing processes. The credibility of data includes peer-reviewed sources, interviews, and member checking. Included in this study are detailed, consistent, and comprehensive process steps in acquiring information and executing the research study (Houghton et al., 2013). Researchers often describe confirmability of data as objectivity in quantitative research studies (Katz, 2015).

From readers' and future researchers' standpoint, the transferability of the study provided the ability to repeat the study for future research. In summary, this step was also an audit trail (Campbell et al., 2013). The effectiveness of transferability of this study represents a relationship exhibited by the reader and potential future research (Elo et al.,

2014). The transferability of the study is the ability of the future researcher to repeat or apply the research and findings of the study (Elo et al., 2014).

Transition and Summary

Section 2 included a justification for selecting a qualitative case study. The participants included midlevel managers and directors of one company in the Mid-Atlantic region of the United States. I was the primary data collection instrument using open-ended questions in semistructured interviews. Furthermore, Section 2 included an overview of the researcher's role, research method and design, ethical research, data collection and organization techniques, and data analysis, reliability, and validity. Section 3 included the results from data collection, presentation of findings, application to professional practice, implications for social change, conclusions, reflections, and recommendation for action and further research.

Section 3: Application to Professional Practice and Implications for Change

Section 3 includes the findings of the study. Included are the results from data collection, presentation of findings, application to professional practice, implications for social change, conclusions, reflections, and recommendation for action and further research. The purpose of this qualitative case study was to explore strategies and processes organizational leaders used to manage outsourced R&D to maintain market competitiveness.

Included in this study is a case study design to answer the overarching research question: What strategies and processes do organizational leaders use to manage outsourced R&D processes to maintain market competitiveness? The participants included leaders of a Fortune 500 company in the Mid-Atlantic region of the United States who participated in semistructured interviews. The interviews took place in an environment where participants felt comfortable with providing responses to the interview questions. The results from the interviews include responses from each participant (Marshall et al., 2013). In addition to the interviews, I reviewed archival data and compared them with the data obtained from the semistructured interviews to ensure triangulation.

This study included methodological triangulation and utilization of data from different sources (Hussein, 2015). The triangulation process included responses from the interview questions and company's archived documents. The company's archived documents included supplier management procedures for R&D outsourcing, supplier communication procedures, supplier assessment procedures, IP application guidelines for

newly discovered R&D innovations, and sample contractual terms used in R&D outsourcing processes domestically. Reviewing company archival documents yielded insights into managing outsourcing effectiveness and IP procedures. The documents that yielded insights into outsourcing effectiveness included supplier management procedures such as supplier communication, assessments, and relationship management. The supplier assessments included SWOT analysis. The SWOT analysis served as a basis for the assessments that included financial strength, alternate locations, quality returns, and supply on time delivery. The supplier communication and relationship management procedures further promoted the frequency of the required supplier performance reviews. This was further validated through the interview responses in which the respondents emphasized the importance of supplier assessments and reviews.

The IP procedures included guidelines for applications, notably how and when to file invention disclosures. The participants emphasized the need to file for invention disclosures during research and development processes to protect the knowledge prior to outsourcing. Although the respondents did not talk explicitly about the process for invention disclosures, they did emphasize the advantage of protecting IP and having an IP advantage in the marketplace. In instances where the outsourcing requests generated IP by the suppliers, the organization preempted this by including IP coverage clauses in the contractual agreements. The contractual clauses allowed for the IP to become property of the organization rather than the supplier. In addition to IP protection clauses, the additional sample contractual terms reviewed included frequent supplier assessments and

quality reviews. This was further validated through the interviews in which the respondents emphasized the need for supplier management and assessments.

By utilizing methodological triangulation of different sources, the likelihood increased that the data from one source corroborated the other (Hoque, Covaleski, & Gooneratne, 2013). Data collection included semistructured interviews and company procedures and guidelines. Data credibility was enhanced through member checking. I cross-referenced themes from the data analysis with themes from the literature review.

Data analyses of the interview responses yielded three main emergent themes: (a) outsourcing decision-making process with the internal and external constraints, (b) effectiveness of managing outsourcing services and processes, and (c) implications of outsourcing on business effectiveness and new products. All main themes and subthemes that emerged were significant contributors to answering the overarching research question. Efficient management of outsourced R&D processes including engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies could lead to effective use of time within organizations, which in turn could lower operating costs. The from this study may contribute to the understanding of the strategies and processes organizational leaders have used to manage outsourced R&D processes to maintain market competitiveness.

Presentation of Findings

In this qualitative study, open-ended questions were asked during semistructured interviews to answer the overarching research question: What strategies and processes do

organizational leaders use to manage outsourced R&D processes to maintain market competitiveness? In addition to conducting open-ended interviews, I also reviewed the company's archived documents that included supplier management procedures for R&D outsourcing, supplier communication procedures, supplier assessment procedures, IP application guidelines for newly discovered R&D innovations, and sample contractual terms used in R&D outsourcing processes domestically.

Data analysis was multidimensional and included literature review, interview responses, and review of archived documents. Employing methodological triangulation through collection of data from different sources enhanced credibility and transferability (Hussein, 2015). The triangulation process included analysis of the responses from the interview questions and company's archived documents, which included supplier management procedures for R&D outsourcing, supplier communication procedures, supplier assessment procedures, IP application guidelines for newly discovered R&D innovations, and sample contractual terms used in R&D outsourcing processes domestically. The credibility of data included peer-reviewed sources, interviews, and member checking. Included in this study are detailed, consistent, and comprehensive process steps in acquiring information and executing the study (Houghton et al., 2013).

The focus of this study was R&D outsourcing of engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies. The participants worked in the R&D and procurement department and had direct influence over outsourcing the activities within R&D. The outsourcing

activities included engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies. The outsourced services and processes included in this single case study were outsourced domestically. The functions within R&D included outsourcing services to supplement either lack of resources or availability of resources. Outsourcing of environmental assessments was a one-time specialized event.

The archived document review included procedures that detailed processes on how to manage and assess outsourced R&D service effectiveness against contractual terms used in R&D outsourcing processes domestically. The processes included (a) measuring effectiveness of suppliers against contractual obligations, (b) effective capturing of the IP, and (c) understanding of consumer behavior to drive new product development. However, the archived documents review it was concluded that the organizational leaders do not have an established and practical system to measure effectiveness of outsourced R&D services on market competitiveness. The lack of the measurement effectiveness can be attributed to (a) no processes in place to measure R&D performance and (b) no practical approach to measuring impact of R&D on market competitiveness.

The semistructured interviews took place in an environment where participants felt comfortable providing responses to the open-ended interview questions. The in-person interviews lasted between 45 and 60 minutes, while the phone interview lasted about 35 minutes. Included in this section were the data from the semistructured

interviews.

The participant's role in the organization was a crucial component in selecting participants for the study. The target population consisted of business leaders in a single Fortune 500 corporation in the Mid-Atlantic region of the United States who possessed strategies to manage the outsourcing of R&D while maintaining market competitiveness. The business leaders included midlevel managers and directors. I applied Palinkas et al.'s (2015) recommendation to use nonprobabilistic purposive sampling to select elements from the target population in line with the purpose of the study.

Demographic Data From the Semistructured Interviews

The participants provided answers to the first three demographic questions addressing the type of role and organization in which the participant was involved, the number of years of experience and years in the current role, and the specific responsibilities. All participants worked at multiple companies before working at the organization used in this study. The participants held leadership positions within their department, and years of experience ranged from 16 to 28 years.

Participants' experience included working in multiple industries and multiple departments. The industries included large and small consumer packaging goods, power generation, manufacturing, pulp, paper biotechnology, pharmaceutical, and engineering design. The departments included R&D, engineering, procurement, commercialization, packaging, and production. Over the course of the participants' careers they had a variety of experiences including working as engineers, project managers, project engineers,

analysts, managers, senior managers, and directors. At the time of the interview, the participants' roles included senior management and director level positions.

Participants' collective working experience included 99 years of expertise. INT1*f* stated having 16 years of experience with 4 years in the current role as a procurement senior manager. INT2*f* indicated having 20 years of experience and 4 years in the current role as a procurement senior manager. INT3*f* conveyed having 17 years of experience with 3 years in the current leadership role as procurement director. INT4*f* reported having 18 years of experience with 3 years in the current role as an R&D product development senior manager. INT5*p* indicated having 28 years of experience with 3 years in the current role as an R&D product development director.

The participants were senior managers and directors with a full range of responsibilities. INT1*f*'s responsibilities included moving projects forward in the supply chain, making supplier determinations, conducting frequent supplier assessments and reviews, and outsourcing R&D concept development of products and standardized laboratory measurements. INT2*f*'s responsibilities included modernization and transformation of the purchasing function, a 5-year plan to reduce net working capital, managing suppliers to provide standardized laboratory measurements, and specialized one-time research such as environmental studies. INT3*f*'s responsibilities included supplier selection for R&D service outsourcing such as engineering services, technology research and development, oversight and strategic relationship negotiations of suppliers for R&D, resource alignment within procurement, and legal support for procurement

contractual obligations. INT4*f*'s and INT5*p*'s responsibilities included developing products, while INT5*p* also managed additional resources to develop products.

Factors Influencing the Decision-Making Process

Participants reported factors that influence the decision-making process to outsource R&D services including engineering services such as design, technology research and development, concept development of products, standardized laboratory measurements, and specialized one-time research such as environmental studies. INT1*f* indicated that factors influencing decision-making to outsource R&D concept development of products and standardized laboratory measurements included supplier due diligence and capacity constraints, timelines, budgets, supplier's experience with the processes and services being outsourced. Reviewing company archival documents yielded insights into managing outsourcing effectiveness and IP procedures. The company's archived documents included supplier management procedures for R&D outsourcing, supplier communication procedures, supplier assessment procedures, IP application guidelines for newly discovered R&D innovations, and sample contractual terms used in R&D outsourcing processes domestically. The documents that yielded insights into outsourcing effectiveness included R&D supplier management procedures such as supplier communication, assessments, and relationship management.

INT2*f* manages the suppliers to provide standardized laboratory measurements, and oversees specialized one-time research such as environmental studies. INT2*f* indicated that evaluating external capabilities and calculating value of R&D versus return such as ROI is a significant factor in profitability while taking into account the supplier

innovation and IP. INT3*f* reported that factors affecting the decision-making process of R&D outsourcing included (a) the capability and quality of suppliers; (b) resources, organization design, costs, and technical expertise; (c) the maturity of current processes and the implementation complexity from insourcing to outsourcing; (d) the ability/confidence of the R&D outsourcing manager to grasp company culture, marketing, and brand goals (i.e., product identity) and to provide innovation and development on new product technologies at reduced cycle time; and (e) the knowledge base for new technologies and the cash flow for investments in R&D. INT4*f* responded that assessment of the maturity of current process and product development is critical and implementing complex changes such as outsourcing that could benefit product growth. INT5*p* emphasized the importance of assessing the cost reduction goals and measures with suppliers to achieve metrics such as on-time performance, pricing, cost, and profitability. INT5*p* is a product developer who manages others to develop products and evaluates the need to outsource by assessing the internal constraints such as resources and technical expertise. INT5*p* mentioned that outsourcing product development to capable suppliers may yield new IP and innovation of technologies for new products, which can influence new consumer behavior.

Implications of Outsourcing R&D Processes

Implications of outsourcing R&D processes on business competitiveness include assessments of suppliers of particular expertise against internal capabilities as indicated by INT1*f*. Supplier management takes time and has an affect project managers' time. INT2*f* responded that change in governmental regulation such as compliance to

technological standards related to new product development had a significant effect on profitability.

Consumers drive new product development as they seek product variety. INT3*f* indicated that using third party suppliers allowed for more opportunities in inventions and technologies and providing consumer needs. INT3*f* suggested that organizational leaders could free up resources to focus on other activities while engaging the outsourced firm in providing innovations and handling multiple priorities for R&D. If the supplier had the IP on the new technology, then the supplier could threaten the company's competitive advantage if the supplier were to sell to others in the industry.

However, while reviewing the archival documents on the IP procedures such as guidelines for applications, how and when to file invention disclosures yielded emphasis on filing for invention disclosures during research and development processes. While the respondents did not directly talk about the process for invention disclosures, they did emphasize on the advantage to protect the IP and having an IP advantage in the marketplace. In instances where the outsourcing requests generated IP by the suppliers, the organization preempted this by including IP coverage clauses in the contractual agreements. The contractual clauses allowed for the IP to become property of the organization rather than the supplier. In addition to IP protection clauses, the sample contractual terms reviewed included frequent supplier assessments and quality reviews. This was further validated through the interviews where the respondents emphasized the need for supplier management and assessments.

New products may lead to new consumer behavior that could lead to new products. INT4*f* indicated the importance of IP, new inventions, and forming partnerships with suppliers to leverage their expertise and to provide faster cycle turns for new product releases. INT5*p* suggested that outsourcing was necessary to develop new products if the capability did not exist internally. If the supplier had the IP on the new technology, the supplier could gain competitive advantage; therefore, forming strategic alliance partnerships was critical.

Processes to Manage Outsourcing R&D

Following product development processes and having an understanding of supplier capacity and capability is essential as noted by INT1*f*. INT1*f* also noted employing supplier due diligence processes, management procedures, and assessments by contractual obligations was essential in managing outsourced R&D decision-making. INT2*f* listed these processes: (a) product development, (b) contractual obligations, (c) weekly check-ins, (d) supplier reviews, and (e) project managers' self-management of suppliers. INT3*f* identified these processes: product development and benchmarking against other industries. INT4*f* provided the following processes: (a) product development, (b) supplier management and monitoring, and (c) contractual obligations. INT5*p* suggested that these processes are necessary to manage R&D outsourcing decision making: product development process and procurement supplier assessment.

Effective Outsourcing Strategies

Strategies to promote business competitiveness include: (a) supplier innovation; (b) supplier IP advantage; (c) supplier pricing, quality, geographic location, and turnaround

timing; (d) economies of scale after R&D; and (e) budgetary constraints. INT1*f* and INT2*f* validated these strategies through: (a) supplier relationships, (b) long-term planning effectiveness, (c) consumer behavior and brand changes projections into the future, and (d) business need (e.g. new invention or product must either meet operations need or a product need, and produce a return on investment). Based on INT3*f*'s responsibilities being responsible for supplier selection for R&D service outsourcing, INT3*f* validated the strategies to promote business competitiveness through: (a) leveraging outsourced suppliers' expertise, (b) capital for faster cycle turns, (c) new product releases, (d) risk management, (e) front-facing impacts to customers, and (f) marketing strategies. INT4*f* indicated that in order to promote business competitiveness it is essential to have effective R&D development long-term plans and to incorporate new inventions into new products. INT5*p* suggested that IP and innovation lead to new knowledge base, which is translated to technologies for new products. As a result the new products incorporate the new technologies, which influence new consumer behavior.

The strategies to manage outsourced processes include check-ins with stakeholders to review pricing quotes and bids, review deliverables, encourage open communication, ensure cross-functional reviews, and provide transparent discussions as indicated by INT1*f*. INT2*f* validated that it was important to review plans to ensure proper alignment with marketing and operations. To maintain business competitiveness, INT3*f* suggested that it was important to follow supplier management procedures and reviews, enforce supplier terms and conditions, and conduct frequent supplier assessments. Internal, supplier, and market assessments before supplier engagement were

crucial. Check-ins with suppliers on a regular basis were important to ensure timely execution. INT4*f* denoted the importance of supplier management and monitoring and check-ins with suppliers and stakeholders. INT5*p* indicated the importance of the product development process to ensure consistency across the board and utilization of qualified suppliers.

INT1*f* recommended marketing, including brand goals, such as product identity, quick innovation, such as reduced cycle time, clearly defined project scope, deliverables for each project, and having a cutoff date to make changes to requests; and following product development processes. INT2*f* indicated that internal alignment within the organization was crucial to meet operations and product needs. Conducting internal, supplier, and market assessments was essential when managing outsourced R&D processes. INT3*f* recommended instituting regular supplier management evaluations. INT4*f* advocated the following strategies: (a) supplier assessments against scorecards, (b) supplier management evaluations, and (c) cost reduction measures. INT5*p* suggested reviewing plans considering available budgetary restrictions, implementing regular supplier management evaluations, and monitoring to ensure on-time project deliveries. INT1*f* provided additional thoughts about effects on project management during organizational downsizing, especially with competing priorities within the organization. INT2*f* indicated that if the technology did not exist internally, outsourcing became an option. INT4*f* responded that product development with direct view on return on investment was essential for competitive strategy.

Emergent Themes and Research Findings

Applying Meneses et al. (2014) recommendation that data saturation is achieved after no new information emerges; data saturation was achieved after the fourth interview. The fifth interview was conducted to ensure no new information and knowledge emerged from the subsequent participant. As no additional information emerged from the fifth interview, the interview did not continue. Data saturation was visible when no additional themes arose (Meneses et al., 2014; O'Reilly & Parker, 2013). After the interviews, the member checking commenced after the interviews and was a deliberate step where each participant received a summary of the participant's responses to the interview questions. This step was used to confirm data saturation was achieved.

Yin's (2014) 5-step data analysis process for a case study was followed to (a) compile data, (b) disassemble the data, (c) reassemble the data, (d) interpret the data, and (e) conclude the data. Following Yin's 5-step data analysis, for the first step I started entering all data into Excel. The second step, data compilation, includes disassembling and coding of the data. Data analysis involved working through data to discover themes, patterns, and descriptions to assist the researcher in answering the research question (Yin, 2014). Using the KWIC coding method, the data analysis process started with color-coding the responses, and cross-referencing the themes through constant comparison (Baskarada, 2014). Baskarada (2014) described KWIC as a method to search for keywords in qualitative research. The color code included three colors: green (most relevant), yellow (maybe relevant), and red (not relevant). By utilizing the KWIC color-coding method, the themes emerged in patterns and relationships to answer the research

question. The Figure 3 below shows the percentage of statements coded as relevant, maybe relevant and not relevant.

Coding	N	%
Green (Most Relevant)	83	74
Yellow (Maybe Relevant)	17	15
Red (Not Relevant)	12	11

Total N=112

Figure 3. Key words in context codes.

The research findings led to the identification of main themes and subthemes as shown in Figure 4. Based on the similarities within the nine subthemes, I have further grouped the research findings into three main themes. Each main theme consisted of three subthemes. The first main theme was (a) the outsourcing decision-making process with internal and external constraints, which was broken down into three subthemes. Under the first main theme, the subthemes included: (a.1) internal resource and competing constraints, (a.2) external supplier capability and experience, and (a.3) innovation and IP drivers. The second main theme was (b) the effectiveness of managing outsourcing services and processes, which was broken down into three subthemes. Under the second main theme, the subthemes included: (b.1) supplier timelines and scope; (b.2) supplier communication, assessments, and relationships; and (b.3) insufficient resources to manage outsourced services. The third main theme was (c) the implications of outsourcing on business effectiveness and new products, which was broken down into three subthemes. Under the third main theme, the subthemes included: (c.1) new

consumer behavior and driver for innovation, (c.2.) profitability of outsourcing and effect on product cost, and (c.3) new product development as the driver for outsourcing R&D.

I identified and grouped the nine subthemes into three main themes as shown in Figure 4. The subthemes contained similarities allowing for further grouping and alignment with the research question. The three main themes encompassed: (a) outsourcing decision-making process with internal and external constraints, (b) effectiveness of managing outsourcing services and processes, and (c) implications of outsourcing on business effectiveness and new products.

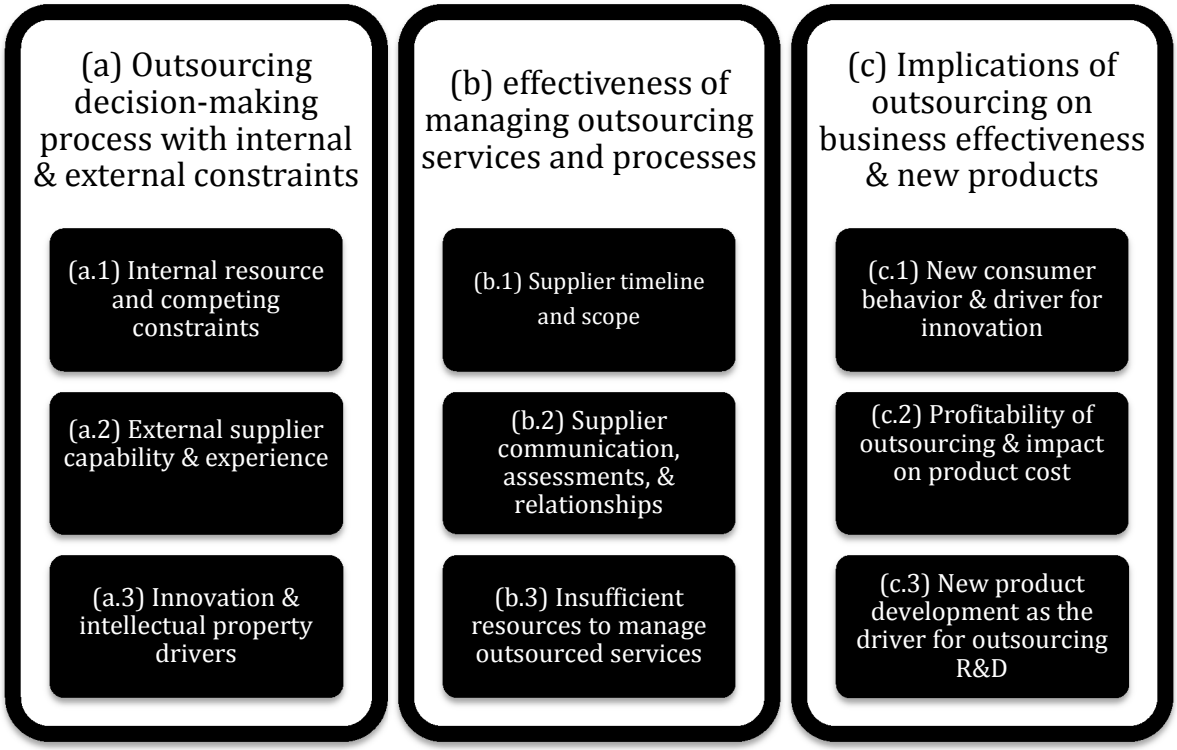

Figure 4. Research results.

Triangulation

The triangulation process included responses from the interview questions and company's archived documents. The company's archived documents included supplier

management procedures for R&D outsourcing, supplier communication procedures, and supplier assessment procedures; IP application guidelines for newly discovered R&D innovations; and sample contractual terms used in R&D outsourcing processes domestically. Following Hussein's (2015) recommendation, methodological triangulation included data from different sources. By utilizing methodological triangulation of different sources, corroboration or variance can be found between the sources (Hoque et al., 2013). Utilizing methodological triangulation, the likelihood increased that data from one source corroborated the other (Hoque et al., 2013).

Reviewing company archival documents, such as supplier management procedures, communication, assessments, management; IP application guidelines; and sample contractual terms used in R&D outsourcing processes, yielded insights into managing outsourcing effectiveness and IP procedures. The documents that yielded insights into outsourcing effectiveness included supplier management procedures such as supplier communication, assessments, and relationship management. The supplier assessments included a SWOT analysis, which served as a basis for the assessments that included financial strength, alternate locations, quality returns, and supplier on time delivery. The supplier communication and relationship management procedures further promoted the frequency of the required supplier performance reviews. Comparing the findings from the archival data with the research findings and literature review corroborated the research discovery. This was further validated through the interview responses where the respondents advised the importance of supplier assessments and reviews. The participants indicated that the company had insufficient resources to

manage outsourced services; however, the findings from the review of the detailed procedures on supplier management indicated emphasis on supplier outsourcing without addressing the resources needed.

The IP procedures included guidelines for applications, how and when to file invention disclosures. The organizational leadership emphasized the importance to file for invention disclosures during research and development processes to protect the knowledge prior to outsourcing. While the respondents did not directly talk about the process for invention disclosures, they did emphasize on the advantage to protect the IP and having an IP advantage in the marketplace. In instances where the outsourcing requests generated IP by the suppliers, the organization preempted this by including IP coverage clauses in the contractual agreements. The contractual clauses allowed for the IP to become ownership of the organization rather than the supplier. However, participants indicated through the interviews that the drivers for R&D outsourcing are due to the lack of internal inventions. In addition to IP protection clauses, the sample contractual terms reviewed included frequent supplier assessments, and quality reviews. This was further validated through the interviews where the respondents emphasized the need for supplier management and assessments.

Figures 5a, 5b, and 5c include participants responses and how they link to the subthemes and the main theme. Figure 5a includes responses related to the first main theme the decision-making process, Figure 5b includes responses on the second main theme effective outsourcing, and Figure 5c includes responses on the third main theme implications of outsourcing on business.

INT1*f* indicated that suppliers may have an advantage in the IP space; therefore, outsourcing was crucial to achieving a competitive advantage at the company. The participants indicated that forming alliances with suppliers might reduce supplier's IP competitive advantage. INT2*f* corroborated this finding by stating that outsourcing also occurred if the technology does not exist internally. If the supplier has IP on the new technology, the organizational leaders from the company may form partnerships to reduce potential IP threats and to gain competitive advantage. By outsourcing R&D services, the organizational leaders could potentially benefit from the contributions of outsourced suppliers. These findings were significant and are an indication of the reasons behind organizational leaders engaging in outsourcing opportunities.

Literature Review and Research Findings

This section included an analysis in what ways research findings confirm and extended new knowledge in managing outsourced R&D processes. I compared and contrasted the research study results with the literature review. In summary, findings from the main themes and subthemes did not entirely align with the literature review. While the archival data procedures focused on supplier management process, the interviews yielded information that the company had insufficient resources to manage outsourced services despite the findings from archival data showing detailed procedures on supplier management.

Figures 5a, 5b, and 5c include participants' responses and how they link to the subthemes and the main theme. Figure 5a includes responses related to the first main theme: the decision-making process, Figure 5b includes responses on the second main

theme: effective outsourcing, and Figure 5c includes responses on the third main theme: implications of outsourcing on business.

Main Theme	Sub Theme	Participant's Statements
(a) decision-making process	(a.1) internal resources and competing constraints	INT1f: The suppliers offer specific expertise which needs to be assessed against internal capabilities. INT3f: Resources, organization design, costs, and technical expertise, should be evaluated. INT4p: It would be good to assess the maturity of current process and implementation complexity from insourcing to outsourcing.
	(a.2) external supplier capability and experience	INT1f: Prior to contract signature understanding supplier capacity and capability is important. INT1f: Supplier's experience with the subject matters. INT2f: R&D depends on suppliers capability and has a direct effect on R&D success. INT3f: Capability and quality of suppliers has an impact on decisions making which supplier to choose. INT4p: Leverage the outsourced suppliers expertise and capital for faster cycle turns and new product releases. INT5f: Outsourcing to supplier that already has the capability and technical abilities to produce the new products.
	(a.3) innovation and intellectual property drivers	INT1f: Marketing and brand goals (product identity) as well as ability to quickly provide innovation and development on new product technologies at reduced cycle time. INT2f: Internal alignment crucial to meet operations need and or a product need. INT3f: Manage risks associated and minimize front facing impacts to customers/marketing strategies. INT5f: Use product development process to ensure consistency across the board.

Figure 5*a*. Participants' statements: decision-making process.

Decision-making process with internal and external constraints. This first main theme included three subtheme elements: (a.1) internal resource and competing constraints, (a.2) external supplier capability and experience, and (a.3) innovation and IP drivers. The literature review and study findings were mostly in line with participants' overall responses that the decision to outsource R&D had an effect on the organizational performance (Lee et al., 2014). Included in the study findings were participants' decision-making processes in assessing of internal and external capabilities, constraints, and effect on innovation. Overall, research findings included that the organizational leaders ensured efficacy in outsourced services. INT4*f* indicated, "to ensure organizations manage outsourced R&D decision-making, supplier management, and monitoring are key and critical in ensuring productive suppliers." Archival data and the literature review corroborated this finding. The critical linkages included internal R&D and the external partner to ensure efficacy in outsourced services (Love et al., 2014).

Internal resource and competing constraints. R&D outsourcing implicated long-term strategic loss of internal research and development growth (Lowman et al., 2012). Participant INT4*f* suggested that while outsourcing R&D allowed more opportunities to free up resources to focus on other activities, "the long-term implications such as loss of internal R&D growth and bench strength might be inevitable." Outsourcing R&D brought angst within organizations because it created added costs and risks that organizational leaders might not be ready to handle (Lowman et al., 2012).

External supplier capability and experience. Participants INT1*f*, INT3*f*, and INT4*f* suggested that outsourcing to competent suppliers with specific capabilities and

technical abilities led to new product development and faster cycle turns. This research finding was corroborated through the literature review as it related to the resource aspect of outsourcing; organizational leaders could tap into a knowledge network pool (Martinez Noya & Garcia Canal, 2014). INT1*f* indicated, "an organization needs to ensure that prior to contract signature it would be necessary to understand supplier capacity and capability so that the outsourcing R&D can be effectively measured." Outsourcing R&D services to companies with specific knowledge and experience base had often enabled organizational leaders to tap into the knowledge pool and obtain faster cycle times on new product development.

Innovation and intellectual property drivers. Participants INT1*f*, INT2*f*, and INT3*f*, suggested that it was crucial for marketing and brand goals to translate into innovation and development of new product technologies. INT3*f* indicated, "extending knowledge by outsourcing R&D is essential in managing risks associated and minimizing front facing effect to marketing strategies." The literature review findings corroborated that many organizational leaders had considered whether to outsource R&D services due to a potential effect on the performance and ability to increase innovation (Lee et al., 2014). The study findings denoted that outsourcing R&D increased innovation and IP growth. Innovation and strategy in new product development were crucial for a company's survival and growth (Slater et al., 2014). Participant INT2 suggested, "outsourcing R&D might be advantageous to the company if the supplier has IP advantage and innovations that have not been tapped into." However, participant INT2*f*'s response was in alignment with Bzhalava's (2016) findings of innovation effects on

outsourcing R&D. Bzhalava confirmed that outsourcing R&D generated an increased number of inventions.

Main Theme	Sub Theme	Participant's Statements
(b) effective outsourcing	(b.1) supplier timelines and scope	INT1f: Supplier management impacts project managers time. INT3f: Check in with supplier on a regular basis is important to ensure timelines are met. INT4p: Scope cutoff date to make changes is important. Contractual obligations are essential. INT5f: Supplier management and monitoring ensures on time projects.
	(b.2) supplier communication, assessments, and relationships	INT1f: Supplier due diligence process is essential. INT2f: Self management of suppliers by the project managers. INT3f: Internal assessment, supplier assessment and market assessment prior to supplier engagement. INT4p: Supplier management and monitoring is key for productive suppliers. INT5f: Supplier service levels, regular supplier management evaluations/meetings on performance
	(b.3) insufficient resources to manage outsourced services	INT1f: Competing priorities internally, resource constraint internal vs. supplier assessment. INT3f: Multiple priorities for R&D. INT4p: Benchmarks and research of other similar industry companies to determine the success, pitfalls and learnings to be successful in evaluating the option to insource or outsource R&D activities. INT4p: Effective long-term planning. INT5f: Review plans versus available budgetary restrictions.

Figure 5*b*. Participants' statements: effective outsourcing.

Effectiveness of managing outsourcing services and processes. The consistency between participants' responses and the literature review was evident. Effectiveness of managing outsourcing services and processes has a key dependency on timelines, scope, communication, and competing priorities (Belderbos et al., 2013). Overall, the research findings included the need to manage complexities such as communication, coordination, decision-making, and execution of outsourcing activities (Belderbos et al., 2013). However, the research findings were that the organization leaders in the company did not have time to manage the supplier communication, coordination, decision-making, and outsourcing of the activities. As indicated by INT1*f* the "supplier management takes time and has an effect on project managers' time." Kamuriwo and Baden-Fuller (2016) stated that outsourcing R&D demanded product and system integration, which required efficient communication and sufficient resources. The research outcomes were grouped into three subtheme elements: (b.1) supplier timelines and scope; (b.2) supplier communication, assessments, and relationships; and (b.3) insufficient resources to manage outsourced services.

While there was corroboration between research findings and literature review, reviewing company archival data yielded insights about essential factors contributing to the management of outsourcing of R&D services. Included in the data analysis was an extension of insights into managing outsourcing effectiveness. The research findings and literature review corroborated the discovery found in archival data. However, the reviews of archival data from the company and research findings were not entirely aligned. While the archival data procedures focused on how supplier management should be conducted,

the interviews yielded information that the company had insufficient resources to manage outsourced services despite the findings from archival data showing detailed procedures on supplier management.

Supplier timelines and scope. Project timelines and scope management had a direct effect on outsourcing effectiveness. Project managers working with outsourced suppliers had a direct impact on effects of successful supplier product outcome (Klitmøller et al., 2013; Oh & Hong, 2013). Participant INT1*f* suggested that successful supplier management took up a project manager's time, while participant INT3*f* validated this by indicating that having "regular supplier check in is and checking against contractual obligations" ensured on time project execution. Participant INT4*f* indicated, "managing efficiently outsourced services ties directly to contractual terms and obligations are essential to capture scope changes timeline impacts."

Supplier communication, assessments, and relationships. Oh & Hong (2013) indicated that there was a significant time effect to project timelines due to inadequate communication. Literature review yielded that the lack of communication could have occurred due to differences in culture and language, and some of these differences may negatively affect clear communication between the development teams (Klitmøller et al., 2013). Participant INT1*f* suggested, "open communication with suppliers is a key contributor to effective outsourcing and management." Supplier functional reviews were key progress checks for suppliers' effectiveness, while both participants INT3*f* and INT4*f* said that supplier management was a necessary process for maintaining business competitiveness, INT3*f* specified, "supplier reviews contribute to maintaining

competitive advantage."

Insufficient resources to manage outsourced services. Organizational downsizing contributed to insufficient resources to manage outsourcing activities. This was validated by the respondents INT3*f* and INT4*f*. When supplier management was effective, INT3*f* added, "pitfalls of effective R&D outsourcing management makes the resources invisible." Leaving the supplier without its supplier manager is a side effect of resource reduction that occurred through downsizing or moving to other departments. Outsourcing allowed organizational leaders to acquire new R&D opportunities and take advantage of the external pool of resources (Brewer et al., 2013). Participant INT4*f* suggested, "using a third party allows for more internal opportunities and frees up resources to focus on long-term strategic initiatives." While the research findings yielded results that the company had insufficient resources to manage outsourced services, the review of archival data yielded insights that the company had detailed procedures on supplier management. The archival data included supplier management procedure encompassing supplier communications, assessments, and relationship management.

Main Theme	Sub Theme	Participant's Statements
(c) implications of outsourcing on business	(c.1) new consumer behavior and driver for innovation	INT2f: Supplier innovation, supplier IP and advantage.
		INT3f: New products lead to new consumer behavior that leads to new products.
		INT5f: IP and innovation lead to new technologies for new products, which can influence new consumer behavior.
	(c.2.) profitability of outsourcing and impact on product cost	INT1f: Budgetary constraints have an impact on outsourcing which has an indirect impact on profitability and potential product cost.
		INT2f: Calculating value of R&D vs. return such as ROI is significant factor in profitability.
		INT3f: Knowledge base for new technologies and cash flow for investments in R&D.
		INT3f: Economies of scale are key in ROI calculations when implementing new IP.
		INT4p: Check in with stakeholders to review pricing quotes and bids.
		INT5f: Cost reduction goals/measures with supplier to have on time budget, pricing, cost, profitability.
	(c.3) new product development as the driver for outsourcing R&D	INT1f: Suppliers may have IP advantage therefore outsourcing is crucial to achieve competitive advantage.
		INT2f: If technology not existing internally needing to outsource.
		INT5f: Outsourcing is needed to produce new products if not available internally.

Figure 5*c*. Participants' statements: implications of outsourcing on business.

Implications of outsourcing on business effectiveness and new products. The participants' responses added to the literature review findings that outsourcing implications have effects on business effectiveness. Overall, study findings yielded that the organizational leaders outsource products and processes to achieve business efficiencies and increase return on investment (Sivasubramaniam et al., 2012). The outcomes grouping included three essential subthemes: (c.1) new consumer behavior and drivers for innovation, (c.2) profitability of outsourcing and effect on product cost, and (c.3) new product development as the driver for outsourcing R&D.

While there was corroboration between research findings and literature review, reviewing company archival data yielded insights about essential factors contributing to IP procedures. The research findings and literature review corroborated the discovery found in archival data. However, the reviews of archival data from the company and research findings were not aligned. The misalignment came from the semistructured interview with the participants. While the archival records included procedures and guidelines on how and when to use invention disclosures and patent filings, the research findings indicated that the drivers for R&D outsourcing are due to the lack of internal inventions. By outsourcing, the organizational leaders have a potential for benefiting from the IP pool of knowledge.

New consumer behavior and driver for innovation. New consumer behavior created drivers for innovation. Participants INT3*f* and INT5*p* indicated that outsourcing R&D led to new product development which in turn, the "new products lead to new consumer behavior that impact strategic product development and leads to new product

innovation." The innovation cycle kept repeating, and the need for new product innovation increased. Outsourcing became inevitable to preserve competitive positioning in the market (Gobble, 2013). To retain competitive positioning in the marketplace, organizational leaders searched for opportunities to increase innovation and reduce costs.

Profitability of outsourcing and effect on product cost. Included in this study were findings relating to financial implications of outsourcing new product development. Outsourcing had an encouraging effect on shareholder value in the short-term, while many unknowns existed regarding the long-term performance implications (Kalaignanam et al., 2012). Participant INT2*f* suggested that it was important to "understand the value of outsourcing R&D and return on investment. Calculating value of R&D was a significant factor in profitability." Participant INT1*f* validated this by indicating that R&D outsourcing management might have had an effect on organizational budgets and overall organizational profitability.

New product development as the driver for outsourcing R&D. Innovation and strategy in new product development were crucial for a company's survival and growth (Slater et al., 2014). Participant INT5*p* suggested that drivers for outsourcing were a symptom of the need for innovation such as "in instances in which innovation is not present internally, organizational leadership seeks opportunities to deliver business objectives even if it means to outsource." While Qu et al. (2011) noted that outsourcing decisions should include advancements and development of the industry, participant INT3*f* validated that outsourcing R&D included advancements to new product development.

While there was a relationship between research findings and the literature review, reviewing company archival data yielded insights about essential factors contributing to IP procedures. The archival records included guidelines on how and when to file invention disclosures, and when to file for a patent. However, participants indicated through the interviews that the drivers for R&D outsourcing were due to the lack of internal inventions. INT5*p* indicated, "if the supplier has the IP on the new technology, then it could threaten competitive advantage. That is why the company forms partnerships to enhance strategic positioning." The participants indicated that it was of the strategic interest to form partnerships with suppliers to reduce suppliers' IP competitive advantage. Participant INT2*f* corroborated this finding by stating, "outsourcing occurs if a supplier has innovation and IP, and if specific skills are needed which are not found internally, the company will form a partnership to reduce potential IP threats and to gain competitive advantage." By outsourcing R&D services, the organizational leaders could potentially benefit from the contributions of outsourced suppliers and the IP pool of knowledge. These findings were significant and indicated that the drivers for R&D outsourcing included the lack of internal inventions.

Conceptual Framework and Research Findings

The logistic outsourcing theory developed by de Boer et al. (2006) was the conceptual framework and the foundation of this study. Included in the logistic outsourcing conceptual framework were the decision-making processes that made up the framework for outsourcing logistics activities (de Boer et al., 2006). Other researchers extended the work of de Boer et al. by questioning and adding to the long-term value of

outsourcing and the ability to capitalize on outsourced benefits (Benaroch et al., 2012; Berchicci, 2013; Martinez Noya et al., 2012; McIvor, 2009). According to the conceptual framework, logistic outsourcing of R&D drove product innovation and the ability to remain competitive in the marketplace (Saxton et al., 2013). The participants' responses supported the logistic outsourcing conceptual framework. Based on the responses from the participants and literature review inputs regarding conceptual framework, the emerging themes linked and expanded the conceptual framework. The conceptual framework key constructs expanded through the research findings. The research findings yielded three main themes and nine subthemes. While the three main themes linked to the conceptual framework, the nine emergent subthemes expanded the conceptual framework through the case study research and in depth analysis of the interviews. Applying Klag and Langley's (2013) recommendation, embracing the ideas and identifying new, emerging concepts was critical. Reviewing newly emerging concepts and identifying relationships between categories was critical in analyzing the meaning of the patterns and categories and how they relate to the management of outsourcing R&D services.

Summary

The research findings aligned with the purpose of this research study. All main themes and subthemes that emerged were crucial to the understanding of the overarching research question. This study could contribute to the understanding of the strategies and processes organizational leaders used to manage outsourced R&D processes to maintain market competitiveness. Organizational leaders should evaluate the company's strategic plan and align resources before outsourcing R&D services. Malhotra (2014) argued that

companies should evaluate both the positive and negative effect of outsourcing before deciding which direction is the most beneficial. The decision to outsource or insource activities was a complex decision for which organizational leaders needed to perform a thorough evaluation (Kumari & Kumar, 2013).

Application to Professional Practice

The findings from this research study could be meaningful to business leaders in gaining a better understanding of the strategies and processes organizational leaders used to manage outsourced R&D processes successfully to maintain market competitiveness. Outsourcing R&D processes may lead to cost reduction; yet, when unmanaged, the outsourcing process added to operational costs, terminated agreements, and strategic loss of internal R&D growth (Lowman et al., 2012; Nassimbeni et al., 2012). Organizational leaders may find that the findings from this study are relevant to the logistic outsourcing conceptual framework.

Professional application of this study's findings could include potential application of the recommendations and strategies by organizational leaders to manage outsourced R&D processes successfully and to maintain competitiveness. The participants' decision-making processes included assessment of internal and external capabilities and constraints and effect on innovation. Overall, organizational leaders could connect the linkages between internal R&D and the external partner and would experience efficacy in outsourced services (Love et al., 2014). Organizational leaders outsourced products and processes to achieve business efficiencies and increased ROI (Sivasubramaniam et al., 2012). While outsourcing, the organizational leaders needed to

manage complexities such as communication, coordination, decision-making, and execution of outsourcing activities (Belderbos et al., 2013).

The business implications included opportunities for organizational leaders to capitalize on techniques for assessing long-term implications of R&D outsourcing. Efficient management of outsourced R&D processes could lead to effective use of time within organizations, which in turn can lower the operating costs. Exploring strategies organizational leaders used to manage outsourced R&D processes supported a company's ROI, maintained operational costs, and affected communities positively through employment and taxes.

Implications for Social Change

In this study, nine subthemes emerged from conducting interviews with the five participants. All of the themes provide insight into strategies of R&D outsourcing effectiveness. With effective R&D outsourcing, organizational leaders create a potential opportunity to increase the organizational revenue. Increase in revenue could have a direct effect on organizational financial performance, which in turn would have a direct effect on spending within the communities.

This study may be significant to the larger community because organizational leaders could use the outsourcing strategies to generate employment and government revenue through taxes, which can be used to fund infrastructure improvements and social programs. Implementation of these strategies could contribute to the effectiveness of R&D outsourcing and processes organizational leaders use, having a positive effect on

society through the generation of employment. This research study's findings may add to the existing literature for assessing long-term implications of R&D outsourcing.

Researchers could apply the findings of this study to propagate a greater understanding of CSR. Organizational leaders use CSR to encourage a positive effect on the environment through its activities. While many business leaders are outsourcing globally, they often encounter poor working conditions (Boulouta & Pitelis, 2014). Business leaders outsourcing services globally should monitor CSR to ensure they are following local laws. Following CSR enables organizational leaders to comply with basic environmental, health, and safety conditions. Operating with an outlook towards CSR and a long-term perspective without neglecting the economic role of business enables organizational leaders to increase profits in the long run (Eriksson et al., 2013).

Recommendations for Action

Organizational leaders may consider assessing their strategies alongside the research findings portrayed in the main themes: (a) the outsourcing decision-making process with internal and external constraints, (b) the effectiveness of managing outsourcing services and processes, and (c) the implications of outsourcing on business effectiveness and new products. Malhotra (2014) argued that companies should evaluate both the positive and negative effect of outsourcing before deciding which direction is the most beneficial. If organizational leaders decide to outsource R&D, they should evaluate the company's strategic plan and align resources before outsourcing R&D services.

The findings from this study appeared relevant to the logistic outsourcing conceptual framework. The findings indicated that organizational leaders are having an

effect on the need to perform a thorough evaluation prior to outsourcing R&D services. The application of effective R&D outsourcing process management could allow organizational leaders to include opportunities to capitalize on techniques for assessing long-term implications of R&D outsourcing. Efficient management of outsourced R&D processes could lead to effective use of time within organizations, which, in turn, can lower operating costs.

Organizational leaders might benefit from the results of this doctoral study. In particular, organizational leaders having direct responsibility for outsourcing R&D processes may benefit from the results of this study. I will disseminate the results of this study through conferences, scholarly and business journals, training, and seminars.

Recommendations for Further Research

Recommendations for future research include conducting additional exploration of strategies and processes for organizational leaders to manage outsourced R&D processes to maintain market competitiveness. Future researchers could conduct studies to explore further and address limitations and delimitations. While I used a qualitative research method, a primary limitation of the qualitative research method is that it allows interpretive analyses. A mixed-methods research study is more robust, allows for the inclusion of both the quantitative and qualitative research methods, and future researchers could find it advantageous to use data-driven evidence to support their research (Tsang, 2013). While the participants in this study consisted of senior managers and directors, there could be an opportunity for future research to select participants at lower levels as they might have diverging views on the research topic.

This study included research of one Fortune 500 Company in the Mid-Atlantic region of the United States. Research conducted in different geographic regions in the United States or another country could enhance the findings. Furthermore, researchers could conduct research studies involving multiple organizations or a larger sample size. Also, researchers could compare public versus private sector organizations. The findings of this research study warrant further examination and exploration of R&D outsourcing to determine the effect of outsourcing on profitability. Finally, R&D outsourcing has an effect on resource constraints and long- and short-term implications.

Reflections

The process of conducting this research study was enlightening and eye opening. My perspective and understanding of the research I conducted expanded my knowledge. The research study process is very intensive and challenging. The data collection process evolved from theory to practical application. Understanding the research and confidentiality protocol enabled me to conduct an effective interview process. The overwhelming data that emerged from semistructured interviews and review of company records increased my comprehension of the research problem.

To help mitigate bias, contacting participants with whom I do not have any professional relationship enabled following of the interview protocol. Before the interviews, the participants were aware of my work experience. Applying Chan et al.'s (2013) recommendation, practicing bracketing by recording any personal preconceptions or biases before the start of the research helped diminish bias. Documenting the data collection and analysis process before the start of this research study helped mitigate bias

during data collection. The findings of this study affected me personally by broadening knowledge and tying into the R&D outsourcing experience. In addition to the knowledge broadening, recognizing similarities and challenges that organization leaders face when managing outsourced R&D processes was a key discovery. The findings from this research study exposed me to strategies and practices employable in my career.

Conclusion

In the 21st century, managing outsourced R&D processes is critical to an organization's overall success. Guided by the logistic outsourcing theory, the purpose of this qualitative, single case study was to explore strategies and processes organizational leaders in a Fortune 500 corporation in the Mid-Atlantic region used to manage outsourced R&D to maintain market competitiveness. Employing semistructured interviews and member checking, along with the review of company records was essential. Five business leaders possessing strategies to manage the outsourcing of R&D while maintaining market competitiveness participated in the semistructured interviews.

Three main emergent themes resulted in data collection and analysis. I grouped the research findings into three main themes, and each main theme consisted of three subtheme elements. The first main theme was (a) the outsourcing decision-making process with the internal and external constraints, which was broken down into three main elements. The three subtheme elements included: (a.1) internal resource and competing constraints, (a.2) external supplier capability and experience, and (a.3) innovation and IP drivers. The second main theme was (b) the effectiveness of managing outsourcing services and processes, which was broken down into three subtheme

elements. The three subtheme elements included: (b.1) supplier timelines and scope; (b.2) supplier communication, assessments, and relationships; and (b.3) insufficient resources to manage outsourced services. The third main theme was (c) the implications of outsourcing on business effectiveness and new products, which were broken down into three subtheme elements. The three subtheme elements included: (c.1) new consumer behavior and driver for innovation, (c.2.) profitability of outsourcing and effect on product cost, and (c.3) new product development as the driver for outsourcing R&D.

In conclusion, the organizational leadership has processes in place to (a) measure effectiveness of suppliers against contractual obligations, (b) effectively capture the IP, and (c) understanding of consumer behavior to drive new product development. However, the organizational leaders do not have a practical system to measure effectiveness of outsourced R&D services on market competitiveness. The lack of measurement effectiveness can be attributed to the following: (a) no processes are in place to measure R&D performance and (b) no practical approach exists to measure impact of R&D on market competitiveness.

If R&D services management is beneficial for corporations, this study's value is the contribution to the identification and resolution of issues that companies face when outsourcing R&D services. The study may contribute to the understanding of the strategies and processes organizational leaders used to manage outsourced R&D processes to maintain market competitiveness. Organizational leaders should evaluate their companies' strategic plans and align resources with these plans before outsourcing R&D services. This study's results may also have implications for positive social change

such as (a) impact communities through employment and generating government revenues through taxes and (b) create a positive impact on job creation in the industries that promote R&D outsourcing.

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Appendix A: Interview Questions

Appendix A includes the open-ended questions used to explore the strategies that organizational leaders need to manage outsourced R&D processes to maintain market competitiveness.

1. What different organizations have you worked for in your career and what roles have you had?
2. How long have you been in your current role and how many years of experience do you have?
3. What are your responsibilities as an organizational leader in the company?
4. What factors might influence the decision-making process within your organization on managing outsourced R&D processes?
5. What are the implications of outsourcing R&D processes on your business's competitiveness?
6. What are the processes your organization follows to manage outsourced R&D decision-making?
7. What factors establish effective outsourcing strategies that promote business competitiveness?
8. What are your strategies to manage outsourced R&D processes to maintain business competitiveness?
9. What type of strategies would you recommend to effectively manage outsourced R&D processes?

10. What are any other remarks you would like to add that might have not been addressed in our discussion?

Appendix B: Certificate of Completion

NIH Certification

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Berina Yerkic-Husejnovic** successfully completed the NIH Web based training course "Protecting Human Research Participants."

Date of completion: 07/12/2013

Certification Number: 1212765

Appendix C: Letter of Cooperation

Letter of Cooperation

June 28, 2016

Dear Berina Yerkic-Husejnovic,

Based on my review of your research proposal, I give permission for you to conduct the study entitled *Managing Strategies in Outsourcing R&D Processes to Maintain Market Competitiveness* within the [redacted] As part of this study, I authorize you to conduct interview, data collection, memberchecking, and results dissemination activities. Participation will be voluntary and at participants own discretion.

We understand that our organization's responsibilities include: employees own time and their discretion. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

[redacted]

Sincerely,

[redacted]

Walden University policy on electronic signatures: An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically. Electronic signatures are regulated by the Uniform Electronic Transactions Act. Electronic signatures are only valid when the signer is either (a) the sender of the email, or (b) copied on the email containing the signed document. Legally an "electronic signature" can be the person's typed name, their email address, or any other identifying marker. Walden University staff verify any electronic signatures that do not originate from a password-protected source (i.e., an email address officially on file with Walden).