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Strategies Technology Development Marketing Leaders Used to Commercialize a New Product Innovation

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Abstract

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MS, Palm Beach Atlantic University, 2006

BA, Rollins College, 2013

Doctoral Study Submitted in Partial Fulfillment

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Abstract

Strategies for commercialization of a new product innovation are critical for gaining a sustainable level of customer acceptance and financial performance. The purpose of this single case study was to explore the commercialization strategies used by 5 technology development marketing leaders from a healthcare company in Washington state. The conceptual framework for this study was commercialization of innovation theory (CoI). The data were collected through semistructured interviews and company documentation, and analyzed using Yin's 5-step data analysis process for case studies to identify and code themes. Analysis of data generated 3 major themes: strategies implemented during the prelaunch phase, strategies implemented during the pilot customer phase, and strategies implemented in the broader market launch phase of the CoI process. The results of this study revealed the set of commercialization decisions made by technology development marketing leaders in the case, the phase in which the CoI process-specific strategies were implemented, and some of the pitfalls of commercializing an innovation, especially a radical innovation. Results indicated the challenges with being a first-mover and having unclear positioning, branding, and messaging strategies. It is essential for technology development marketing leaders to gain a deeper understanding of the strategies that might influence commercial success and failure. Findings may contribute to social change by maximizing commercial success and the diffusion of new product innovations in healthcare, which might lead to better patient outcomes and enhanced ways of practicing medicine.

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Dedication

I dedicate this doctoral study to my daughter Alyssa Danos. Whether she knows it or not, she inspires me to be courageous and resilient. I also dedicate this study to my grandmother Earline Blount, who taught me to never run from struggle or disappointment, but to rise strong above it. I would not be the woman I am today without her influence.

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I have been guided and helped in this journey by many. First, let me thank God for giving me the wisdom, strength, perseverance, and energy to complete this challenging goal. I would like to thank my husband for his continuous encouragement, strong support, and endless belief in me. You are my biggest fan. I would like to thank Dr. Arnold Witchel and Dr. Melvin Holder from my master's program; you planted the first doctoral seeds and encouraged me to pursue this dream. I would also like to thank my committee members for their encouragement and dedication throughout the doctoral process, especially Dr. Bruce Lazar, my Chair Emeritus. Dr. Matthew Knight and Dr. Rocky Dwyer, thank you for your helping me cross the finish line. Thank you to my ABD coach, Dr. Melvia Scott, who in one simple weekend relit the fire in me to press on. Without your unyielding prodding, I would not have finished well. Ron Iden, Leigh Byers, and Cad Shannon, thank you for your inspiration in our Strive 4 Five group. Without our group, I would not have survived this tempestuous process. Lastly, I want to thank all my family and friends who prayed me through the finish line. Together, you have all changed my life forever.

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Section 1: Foundation of the Study

Business leaders continue to innovate as a key strategy to respond to changing market conditions (Keupp, Palmie, & Gassmann, 2012). Organizations may develop new product innovations, new services, new processes, or new business models (Datta, Reed, & Jessup, 2013; Teece, 1986). For this study, I focused on the commercialization of new product innovations. Commercialization is the costliest phase of the innovation process, yet it is often the least well-managed stage (Frattini, De Massis, Chiesa, Cassia, & Campopiano, 2012). Commercialization is a vital step for innovating firms (Chiesa & Frattini, 2011). Understanding what strategies technology development marketing leaders use to commercialize a new product innovation in the healthcare market is critical to reaching an adequate level of customer acceptance and financial performance.

Section 1 of this study includes (a) background of the problem, (b) the problem statement, (c) purpose statement, (d) research methodology and design, (e) the research question, (f) conceptual framework, and (g) an extensive literature review. Commercialization of innovation (CoI) theory grounds this study. In the literature review, I discussed each of the eight concepts in the CoI framework along with key themes found in the literature. There was extensive literature about each of the eight concepts in the CoI process, but concepts were explored and examined separately. Understanding how all eight strategic and tactical marketing concepts in the CoI framework might collectively influence market acceptance could help business leaders avoid market failure, better use organizational resources, and increase profits (Chiesa & Frattini, 2011; Frattini et al., 2012).

Background of the Problem

Datta et al. (2013) argued that new product innovation is often the lifeblood of a company, yet many innovations introduced into the market fail to commercialize (Frattini et al., 2012). Organizational leaders regularly invest massive amounts of money in new product innovation, yet in spite of being technically and functionally superior to competing solutions, studies showed firms repeatedly fail to reach commercial success and market acceptance (Chiesa & Frattini, 2011; Talke & Snelders, 2013). Business leaders may assume that developing new product innovations that customers' need or want will automatically result in market success; however, this is far from what previous research findings have indicated (Datta, 2011; Frattini et al., 2012; Teece, 1986).

Instead, new product innovation has commonly led to market success through the process of commercialization (Drucker, 2014). Chiesa and Frattini (2011) argued that commercialization is the most critical stage of the technological innovation process. Despite this fact, it was frequently the least well-managed phase of the entire innovation process (Chiesa & Frattini, 2011; Datta, 2011). Until recently, scholars did not have an integrated framework for studying the collective set of strategic and tactical concepts involved in the commercialization process (Chiesa & Frattini, 2011; Frattini et al., 2012). Literature addressing the commercialization process from a marketing perspective was relatively new, and most studies explored or examined the CoI concepts individually.

Problem Statement

New technology product innovations introduced into the market fail to commercialize at high rates (Frattini et al., 2012). In 2013, approximately 40% of new

product innovations brought into the market failed to reach an adequate level of customer acceptance and financial performance (Castellion & Markham, 2013). The general business problem was that business leaders who commercialize a new product innovation do so without adequately considering market acceptance. The specific business problem was that some technology development marketing leaders have limited strategies to commercialize a new product innovation in the healthcare market.

Purpose Statement

The purpose of this qualitative single case study was to explore what strategies some technology development marketing leaders used to commercialize a new product innovation in the healthcare market. The targeted population consisted of a large organization comprised of technology development marketing leaders that used strategies to commercialize new product innovations in the healthcare market in Washington state. The results from this study may contribute new knowledge or insights that would help healthcare business leaders avoid market failure. The implications for positive social change may include better delivery of healthcare results, healthcare innovations, and getting new products to the market, which may improve the health of individuals, mitigate medical errors, and reduce the costly burden of healthcare for individuals, organizations, and society at large.

Nature of the Study

I chose a qualitative methodology for this study. Researchers conduct qualitative studies to explore themes that emerge by talking to people and looking for explanations and patterns in the data (Marshall & Rossman, 2016; Yin, 2014). In contrast, researchers

use quantitative studies to test objective theories by examining the relationship among variables (Bernard, 2013). Given the differences between these two approaches, the qualitative method was more appropriate for this in-depth study of strategies technology development marketing leaders use to commercialize a new product innovation. A quantitative or mixed method approach would not work for this study, because the focus of this study was not to test an existing theory, but to explore new constructs.

Specifically, I chose an exploratory single case study design for this study. There are several qualitative research designs including ethnography, case study, phenomenological, and narrative research (Marshall & Rossman, 2016). A case study was the preferred design because the focus of this study was to explore the complexities of behavior and processes bounded by time within an organization (Yin, 2014). The case study design allowes the researcher to explore contemporary real-life experiences about a decision or set of decisions and to look at data from multiple sources (Yin, 2014). Other qualitative designs allow the researcher to acquire different types of data. For example, ethnography design allows researchers to explore cultural beliefs (Fields, & Kafai, 2009), and phenomenological design allows researchers to seek to understand lived experiences (Moustakas, 1994). For these reasons, a qualitative exploratory single case study was the most appropriate approach for this study.

Research Question

What strategies do technology development marketing leaders use to commercialize a new product innovation in the healthcare market?

Interview Questions

The purpose of my interview questions was to determine what strategies technology development marketing leaders used to commercialize a new product innovation in the healthcare market. The questions I used to conduct the interviews are as follows:

1. What strategies did you use throughout the commercialization process?
2. How did you use partnerships or alliances in bringing the new product innovation to market?
3. How did you define your target market for the new product innovation?
4. How did you determine what features and functionality to include in the product configuration at launch?
5. How did you determine the timing to launch your new product innovation?
6. How did you determine the price for the new product innovation?
7. How did you distribute the new product innovation?
8. How did you make the target market aware of the new product innovation?
9. How did you position the new product innovation?
10. What additional experiences have you had with the commercialization process that you would like to share?

Conceptual Framework

CoI theory grounds this study. Teece (1986) originally developed CoI theory to demonstrate how organizational leaders can earn a profit from technological innovation. Several scholars (Chiesa & Frattini, 2011; Datta, 2011; Frattini et al., 2012) later

extended the work of Teece. Frattini et al. (2012) used this theory to explain the set of decisions or activities required for successfully introducing a new product innovation to market. Key constructs underlying the theory include three substrategies through which new product technology innovation moves: (a) early adoption strategy, (b) adoption network configuration strategy, and (c) mainstream adoption strategy (Frattini et al., 2012). Two categories comprise a launch strategy: strategic and tactical (Frattini et al., 2012; Hultink, Griffin, Hart, & Robben, 1997). Within the strategic and tactical categories, there are eight dimensions of CoI including the following: (a) timing, (b) targeting, (c) positioning, (d) distribution, (e) pricing, (f) communication, (f) product, and (g) partnerships and alliances (Frattini et al., 2012). Each of these conceptual dimensions could indicate customer acceptance and financial performance achieved by the innovation (Frattini et al., 2012). As applied to this study, the CoI theory holds that I would expect the propositions advanced by the theory to allow participants to effectively explore strategies used to commercialize new product innovations in the healthcare market (see Figure 1).

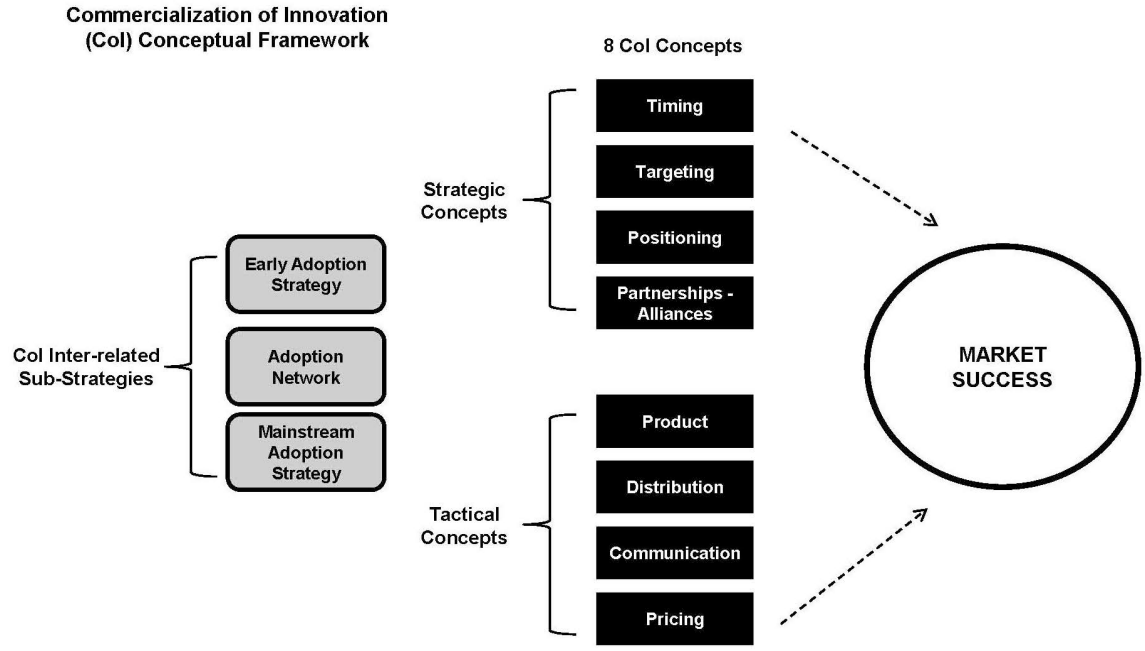

Figure 1. The CoI conceptual framework. Adapted from "Commercializing Technological Innovation: Learning from High-Tech Markets," by V. Chiesa and F. Frattini, 2011, *Journal of Product Innovation Management*, *28*(4), p. 441 and from "Bringing to Market Technological Innovation: What Distinguishes Success from Failure," by Frattini et al., 2012, *International Journal of Engineering Business Management*, *4*(15), p. 9-10.

Operational Definitions

The following are definitions of terms and expressions relevant to this study.

Adoption network: The firms that supply complementary products and services to the new product innovation are known as the adoption network (Frattini et al., 2012).

Commercialization of innovation (CoI): CoI is the set of decisions or activities required for introducing a new product innovation to market. Firms reach commercialization when the company begins to generate sales from the innovation (Hultink et al., 1997).

Commercial success: Commercial success comprises two measurements: the degree of customer acceptance and the financial performance achieved by the innovation (Griffin & Page, 1993).

Diffusion of innovation: A conceptual framework developed by Rogers (2004) that describes how and why innovations spread through five different market segments including (a) innovators, (b) early adopters, (c) early majority, (d) late majority, and (e) laggards.

Discontinuous innovations: Discontinuous innovations are innovations that require a significant change in the infrastructure that supports the innovation (Frattini et al., 2012).

Disruptive innovations: Disruptive innovations are new product innovations that create new markets and value networks (Reinhardt & Gurtner, 2015).

Early market customers: Early market customers are a market segment comprised of *innovators* and *early adopters*, two individual market segments from Roger's (2004) diffusion of innovation theory (Frattini et al., 2012).

Innovation: Innovation is a process firms employ to develop a new product, service, business model, or organizational process (Fuglsang & Sorensen, 2011).

Radical innovations: Radical innovations are new product innovations, most often technology, that drastically change consumers' behavior and consumption patterns (Frattini et al., 2012).

Sustaining innovations: Sustaining innovations are new product innovations that create new markets and value networks (Reinhardt & Gurtner, 2015).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions comprise the details a researcher assumes to be probably true (Foss & Hallerg, 2013). The following assumptions applied to this study. The credibility, transferability, dependability, and confirmability of findings for this study depended on the assumption that the organization studied has commercialized a technology innovation in the healthcare industry. I assumed that technology development marketing leaders used marketing strategies in the commercialization process. I assumed interview participants would answer the interview questions honestly. Another assumption was that data collected from interviews with technology development marketing leaders and a review of key documents would capture the essence of the commercialization process. The last assumption was that participants had experience with and could articulate strategies used to commercialize new product innovations in the healthcare market.

Limitations

Leedy and Ormrod (2013) defined limitations as potential weaknesses beyond the researcher's control that may influence the results of the study. The research design was an exploratory single case study, which may limit the transferability of findings to other firm sizes or geographic locations. Likewise, the findings from this study may not reflect the perspectives of all leaders within the organization. Participants may not accurately recall each decision made in the commercialization process. The last limitation was that participants might withdraw from the study at any time, which could have led to an

incomplete representation of the whole technology development marketing leaders' perspective from this case.

Delimitations

Delimitations are characteristics within the researcher's control that limit the scope and define the boundaries of the study (Yin, 2014). For this study, delimitations included the population for this study bounded by the technology development marketing leaders who had some experience with the decisions and activities in the commercialization process. The study did not include the consumers' point of view or any data about the diffusion of the innovation. The study did not include any direct observations of the decisions or activities made in the commercialization process. Lastly, the focus of his study did not seek to address or confirm any financial records.

Significance of the Study

Contribution to Business Practice

This study is of value to the practice of business because the results may be valuable to technology development marketing leaders in enhancing their understanding of the strategies used to commercialize new product innovations in the healthcare market. Companies bring new product innovations to market to create a competitive advantage, dominate current markets, and enter new markets (Datta et al., 2013; Keupp et al., 2012). Business leaders regularly invested massive amounts of money in new product innovations, yet in spite of being technically and functionally superior to competing solutions, studies showed firms repeatedly failed to reach commercial success (Chiesa & Frattini, 2011; Talke & Snelders, 2013). The study findings may contribute to effective

practice of business by helping to circumvent causes of market failure, aiding the adaptation of innovation strategies, and leading thereby to commercial success (Chiesa & Frattini, 2011; Keupp et al., 2012).

Implications for Social Change

Business leaders continue to innovate as a key strategy to meet the needs of changing market conditions (Keupp et al., 2012). The sustainability of healthcare is critical to the United States. Healthcare business leaders and the phenomenon of bringing new product innovations to the healthcare market are vital to mitigating the health crisis in America. The results of this study may lead to social change through better delivery of healthcare results, healthcare innovations, and getting new products to the market, which may improve the health of individuals, mitigate medical errors, and reduce the costly burden of healthcare for individuals, organizations, and society at large.

A Review of the Professional and Academic Literature

Review of the literature for this study began with CoI as the foundational framework for understanding the commercialization process of technology innovation and commercialization decisions that influenced market success and failure. I conducted an in-depth inquiry of historical and current literature concerning the marketing strategies and tactics involved in the process of bringing technology innovation to market. The purpose of this qualitative case study was to explore what strategies some technology development marketing leaders used to commercialize a new product innovation in the healthcare market. Research databases and search engines used to locate literature included ProQuest, Business Source Premier, and Google Scholar. Search terms included

adoption network, commercialization, CoI, commercialization strategies, early-mover advantage, entry, entry timing, first-mover advantage, healthcare innovation, launch messages, launch strategies, lean launch, market entry, new product innovation adoption, new product innovation launch, order of entry, pioneer advantage, price innovation, product innovation, strategic launch decisions, tactical launch decisions, technology innovation, and *timing strategies.* The 133 references that appear in this study include 114 scholarly peer-reviewed articles representing 85.7% of the total, eight non-peer reviewed articles representing 6.0%, three dissertations representing 2.3%, and eight scholarly seminal books representing 6.0%. The total number of these references published within the past 5 years were 115, which is 86.4% of the total number. The literature review contains 76 references, with 71 references published within the past 5 years, representing 93.4%, and 68 from scholarly peer-reviewed sources, representing 89.5% of the total.

The literature review follows the eight major categories that composed the strategic and tactical decisions made in the commercialization of new product innovation process: (a) timing, (b) targeting, (c) positioning, (d) partnerships and alliances, (e) product, (f) distribution, (g) communication, and (h) pricing (Chiesa & Frattini, 2011; Frattini et al., 2012). The review of literature begins with a summary of the CoI conceptual framework and the significance of the commercialization process to innovating firms. Next, I discuss innovation and the CoI substrategies. Finally, I discuss each of the eight concepts in the CoI framework along with key themes found in the literature. I include strengths and weaknesses by comparing and contrasting methods,

approaches, and findings from scholars through the lens of the CoI framework. Throughout the literature review, I incorporate Frattini et al.'s (2012) CoI theory to justify further and explain perspectives of previous and current research.

Conceptual Link and Significance

CoI was the conceptual framework guiding this study (see Figure 1). Teece (1986) originally developed the CoI theory to demonstrate how organizational leaders could earn a profit from technological innovation. According to Datta (2011), Frattini et al. (2012), and Teece, business leaders assumed that developing new product innovations that customers need or want would automatically result in market success; however, this was far from what previous research findings indicated. Instead, technological innovation commonly led to market success through the process of commercialization (Drucker, 2014). Chiesa and Frattini (2011) argued that commercialization was the most critical stage of the technological innovation process. Despite this fact, it was frequently the least well-managed phase of the entire innovation process (Chiesa & Frattini, 2011; Datta, 2011). Drawing from the fields of management, strategy, innovation, entrepreneurship, economics, and marketing, Chiesa and Frattini, Datta, and Frattini et al. all extended the work of Teece by proposing several theoretical models that could potentially lead organizations and leaders to greater economic returns from an innovation.

Chiesa and Frattini (2011) and Frattini et al.'s (2012) conceptions of the CoI framework were used to explain the set of activities or decisions required for introducing an innovation to market from a new product innovation concept to a single sale (Nerkar & Shane, 2007). Key constructs essential to the theory were three interrelated

substrategies through which technology innovation moves including (a) early adoption strategy, (b) adoption network configuration strategy, and (c) mainstream adoption strategy (Frattini et al., 2012). Each of these substrategies comprised important commercialization concepts. Within the CoI framework were two classes of concepts: strategic and tactical (Frattini et al., 2012; Hultink et al., 1997). Unlike strategic concepts published in the late 1990s by Hultink et al. (1997), Chiesa and Frattini (2011) and Frattini et al. (2012) concentrated on concepts that influenced market failure or success. Strategic concepts included the following: (a) timing, (b) targeting, (c) positioning, and (d) partnerships and alliances (Frattini et al., 2012). Tactical concepts included the following: (a) product, (b) distribution, (c) communication, and (d) pricing (Frattini et al., 2012). Each of these eight marketing concepts could influence customer acceptance and financial performance achieved by the innovation (Frattini et al., 2012).

Rival Theory

In contrast, Datta (2011) defined an integrative CoI framework based on the antecedents, mediators, and moderators of commercialization: (a) networks, (b) absorptive capacity, and (c) ambidexterity. Datta sought to identify why some organizations were better than others at bringing new product innovations to market. Datta described the ability to commercialize an innovation by a firm's capacity to manage three aspects of the innovation process: (a) identify a market for an innovation, (b) develop and manufacture the concept into a product, and (c) sell the product through distribution channels. In Datta's theoretical model, a firm's absorptive capacity and ambidexterity (ability to explore and exploit) and internal and external networks

(structures and collaboration within and between firms) influenced its ability to bring an innovation to market and reach the mainstream market.

Despite being interrelated, the two CoI theories were distinct and examined the CoI process from different levels of analysis. Datta (2011) and Frattini et al. (2012) looked at CoI at the organizational level. However, Datta studied CoI from more of a strategic management of innovation point of view while Frattini et al. explored commercialization decisions from a marketing perspective. I selected Frattini et al.'s CoI model as the conceptual framework to ground this study based on the main research question for this study. Few studies have explored the collective strategic marketing decisions business leaders made and their combined influence on the commercialization process. All eight concepts in the CoI framework may affect a firm's ability to launch a new product innovation, realize revenue, and influence the firm's performance and survival (Frattini et al., 2012). Therefore, it was critical to understand the role these strategies played in commercial success. As applied to this qualitative case study, Frattini et al.'s CoI theory holds that I would expect the propositions advanced by this conceptual model to allow technology development marketing leaders to explore strategies used to commercialize a new product innovation in the healthcare market.

Innovation

Due to technological advances (Altuntas & Dereli, 2012), globalization (Keupp et al., 2012), and rapidly changing customer tastes (Altuntas & Dereli, 2012), new product innovation has quickly become an important strategic activity for companies (Calantone & Di Benedetto, 2012). Business leaders often maintained that new product innovation

was a vital tool for competing in the marketplace and a key driver of growth and sustainability (Datta et al., 2013; Su et al., 2013). Siegel and Renko (2012) described innovation as a process or object developed by a firm to create something original or more effective.

Different taxonomies of innovation existed. Businesses may have developed new product innovations, new services, new processes, or new business models (Datta et al., 2013; Teece, 1986). Companies may have decided to enter new markets or existing markets (Keupp et al., 2012). Likewise, business leaders may have had to choose between developing radical or incremental innovations and between classifying the innovation as continuous or discontinuous (Datta et al., 2013; Frattini et al., 2012; Keupp et al., 2012). There were many strategies for business leaders to consider in the innovation process and the ability to commercialize new product innovations was an important component of a company's strategy (Datta et al., 2013; Keupp et al., 2012).

CoI

Business leaders bring new product innovations to market to create a competitive advantage, dominate current markets, and enter new markets (Datta et al., 2013; Keupp et al., 2012). Organizations regularly invest massive amounts of money in new product innovations, yet in spite of being technically and functionally superior to competing solutions, studies show firms repeatedly failed to reach commercial success (Chiesa & Frattini, 2011; Talke & Snelders, 2013). Until recently, scholars did not have an integrated framework for exploring the collective set of strategic and tactical marketing decisions that business leaders make in the commercialization process (Chiesa & Frattini,

2011; Frattini et al., 2012). Understanding what strategies business leaders used, the coherent set of strategic and tactical marketing decisions made, and the combined influence on the commercialization process may enable business leaders to increase commercial success (Frattini et al., 2012).

CoI Substrategies

According to Frattini et al. (2012), commercialization effectiveness was influenced by varying degrees of radicalness and discontinuity of an innovation. Business leaders launching a technology innovation reached commercial success by first distinguishing the characteristics of the innovation, the market being targeted, and the associated behavior and consumption patterns (Frattini et al., 2012). Launch decisions which maximized the likelihood of success were then assessed through the lens of three interrelated substrategies including (a) early adoption strategy, (b) adoption network configuration strategy, and (c) mainstream adoption strategy (Frattini et al., 2012).

Early adoption strategy is a set of commercialization decisions intended to fuel the diffusion of innovation in an early market resulting in a positive attitude by consumers toward the innovation (Frattini et al., 2012). Adoption network configuration strategy involved a set of launch decisions aimed at gaining support, thus enabling the diffusion of the innovation to extend to the mainstream market (Frattini et al., 2012). Similarly, the mainstream adoption strategy comprised a set of commercialization decisions meant to stimulate the diffusion of innovation within the mainstream market (Frattini et al., 2012). Each CoI substrategy requires a distinct set of commercialization concepts to maximize market acceptance.

Strategic Concepts

According to Chiesa and Frattini (2011), commercialization decisions were divided into two classes of concepts, strategic decisions and tactical decisions. Strategic decisions involved concepts within the overarching innovation strategy (Chiesa & Frattini, 2011) and mostly involved answering questions such as *what* to launch, *where* to launch, *when* to launch, and *why* to launch (Frattini, Bianchi, De Massis, & Sikimic, 2014). Business leaders made strategic decisions well before an innovation was developed and launched (Chiesa & Frattini, 2011). Strategic concepts that comprised the CoI framework included the following: (a) timing, (b) targeting, (c) positioning, and (d) partnerships and alliances (Frattini et al., 2012).

Timing. Timing or market entry decisions were often critical to commercial success (Suarez, Grodal, & Gotspoulos, 2013; Zachary, Gianiodis, Payne, & Markman, 2014). The timing concept was described as when a firm launched a new product innovation into the market, when the firm introduced the new product innovation with a preannouncement, and when a firm established partnerships and alliances (Chiesa & Frattini, 2011). When making timing decisions, business leaders must consider strategic intent, risk exposure, resource capabilities, partner relationships, market conditions, and industry evolution (Carmeli & Markman, 2011; Suarez et al., 2013; Teece, 1986; Zachary et al., 2014). There were three primary entry timing strategies that business leaders may have choose from when launching an innovation: first-mover, follower, and late entrant (Lieberman & Montgomery, 2013). Most researchers studied the advantages and disadvantages of first movers and followers with limited research on late entrants

(Levesque et al., 2013). Although researchers studied launch timing or market entry strategies for decades, entry-timing theories were still considered incredulous with many shortcomings (Fosfuri, Laznolla, & Suarez, 2013; Lieberman & Montgomery, 2013; Zachary et al., 2014).

For example, Zachary et al. (2014) reviewed 105 management and marketing articles on entry timing spanning 25 years. Continuing from Lieberman and Montgomery's seminal work in 1988, Zachary et al. examined articles from 1989 through 2013 to establish the current state of timing literature, differences in theories and methods, a conceptual model for entry, and pathways for future research. The majority of articles surveyed examined entry timing as an independent construct or variable (Zachary et al., 2014). Few researchers conducted studies that examined timing decisions and its impact on the innovation's performance (Calantone & Di Benedetto, 2012).

Despite the introduction of other theories, the first-mover advantage (FMA) theory was upheld as the predominant perspective among scholars (Zachary et al., 2014). However, almost half the articles studied explored contingency effects. Zachary et al. (2014) asserted this was because FMA findings were inconsistent. It was clear that entry timing decisions mattered; however, it was still difficult to garner an integrated theory with predictive power (Fosfuri et al., 2013; Zachary et al., 2014). When business leaders created a timing strategy for launch, it is important to consider how other strategic and tactical concepts within the CoI process worked together and contribute to commercial success (Chiesa & Frattini, 2011; Frattini et al., 2012).

First-mover timing strategy. According to Teece (1986), first-movers were those earliest firms to introduce innovations that created a new market or major subfield within a market. Researchers dedicated a large body of literature to the first-mover timing strategy (Lieberman & Montgomery, 2013; Zachary et al., 2014). A common misconception among business leaders was that innovations needed to be first to market to succeed or yield maximum results (Vidal & Mitchell, 2013). According to Vidal and Mitchell (2013), this belief is far from what research findings indicated. Rather, the benefits of the first-mover strategy were situational with advantages and disadvantages that business leaders must consider.

Advantages of the first-mover strategy were economies of scale, the ability to constrain resources and partnerships for latecomers, to create brand loyalty and a reputation for leadership, and to exploit switching costs (Datta et al., 2013; Markides & Sosa, 2013). According to research findings from Capone, Malerba, and Orsenigo (2013), first-movers could secure 100% survival rate combined with a monopolistic position when market demand was homogeneous due to switching costs. Early entry timing strategies only benefited firms when they were technologically strong (Fosfuri et al., 2013). Disadvantages of first-mover timing strategies were the high costs associated with R&D and the risks of misjudging technical features or other launch elements that often opened the door for late entrants to correct mistakes made by first-movers (Datta et al., 2013; Markides & Sosa, 2013). While some first-movers could have adapted, many firms lacked the resources or speed to adjust before other entrants (Vidal & Mitchell, 2013).

Follower timing strategy. In some cases, business leaders may have opted for a follower timing strategy. Levesque, Minniti, and Shepherd (2013) presented a mathematical model to identify the optimal conditions for a follower to enter a market by examining a follower's excess capacity and complementary assets related to the first-mover. Follower entry timing differed because capacity and assets differed (Levesque et al., 2013). Research findings indicated as the industry ages, followers may have had to enter markets more quickly when complementary assets were modest (Levesque et al., 2013). Likewise, as technology quickly changed, and early movers were deeply invested in older technologies, followers and late entrants had an advantage and a window of opportunity to make a move (Fosfuri et al., 2013).

Late entrant timing strategy. Late entrants were often able to learn from first-mover mistakes and adapt quickly to emerging markets (Vidal & Mitchell, 2013). Early mover advantages were not permanent and often diminished over time leading to windows of opportunity for late entrants (Lieberman & Montgomery, 2013). Late entrants could improve the potential for success by avoiding imitation, disrupting established competitors, and developing innovative business models (Markides & Sosa, 2013). Markides and Sosa (2013) argued the body of literature on timing strategies most often ignored contingency variables such as the firm's business model; therefore, it was difficult to assess the real implications of timing strategies on the firm's performance.

Window of opportunity. As the timing body of literature expanded, many scholars departed from the notion that first to market automatically equaled a competitive advantage or sure profits (Suarez, Grodal, & Gotsopoulos, 2015). Researchers believed

innovators had a strategic window of opportunity to introduce and establish new product innovations (Suarez et al., 2015). Technology innovations, which commonly had a volatile, fast-moving nature, often had a smaller window of opportunity (Frattini et al., 2012). Suarez, Grodal, and Gotsopoulos (2015) proposed a framework for identifying the beginning and end point for entry during an industry life cycle. The window of opportunity was defined as the point in time when a dominant category was identified until the time a dominant design had emerged (Suarez et al., 2015). Further research was needed using this model to understand the dynamics of positioning and communication, and the implications on firm performance (Pontikes, 2012; Suarez et al., 2015). Timing was a multifaceted concept that needed research attention in the context of other contingencies (Zachary et al., 2014).

Targeting. Audience targeting or market selection was the foundation of all business leaders' CoI decisions (Căpățînă, 2014; Chiesa & Frattini, 2011; Weinstien, 2014). The targeting concept described the strategic decisions business leaders made in defining the group or groups of customers who shared similar needs and buying behaviors, and were more likely to adopt the innovation (Chiesa & Frattini, 2011; Weinstien, 2014). Targeting was important because commercial success strongly depended on a firm's knowledge and understanding of the characteristics, needs, and buying intentions of early adopters (Frattini et al., 2012; Reinhardt & Gutner, 2015). According to Chiesa and Frattini (2011), innovators who failed to produce a positive postpurchase attitude among early adopters were those firms who failed to target a specific market segment. Business leaders who launched technology innovations applied

the concept of targeting to best identify markets to pursue, to adequately develop new product innovations that satisfied initial buyers, and to communicate specifically to particular markets during the launch process (Chiesa & Frattini, 2011; Frattini et al., 2012; Weinstien, 2014).

Segmenting the market. The commercial success of a new product innovation strongly depended on the innovating firm's leadership ability to understand the target market, especially the early customer market (Frattini et al., 2012). Rogers (2004), originator of the diffusion of innovation theory, described the "diffusion of innovation" as how and why technology innovations spread through different market segments at the consumer level. According to Rogers, there were five categories of adopters including (a) innovators, (b) early adopters, (c) early majority, (d) late majority, and (e) laggards. Each adoption category embodied distinct buying characteristics, which influenced the commercialization decisions business leaders make (Frattini et al., 2012; Rogers, 2004). With this in mind, Frattini et al. (2012) grouped the *innovators* and *early adopters* together into a single market segment, which represented the small group of customers who first purchase an innovation.

Frattini et al. (2012) argued the importance of distinguishing early market customers from the mainstream market, because different CoI decisions impacted these markets differently and this segment often represented radically different characteristics from the mainstream market. In fact, Frattini, Colombo, and Dell'Era (2013) maintained that an early adopter engagement strategy was vital when commercializing a technology innovation. Adapted from Roger's (2004) earlier work, Frattini et al. described the early

market customer segment as those with a high disposable income, those who were familiar with technologies, those who have the ability to assess the technology innovation's functionality, and those with broad exposure to mass media. Each of these target market categories reflected different adoption characteristics and behaviors driven by the type of innovation, culture, and field or industry.

The role of early adopters. Early market customers or *early adopters* (EAs) comprised approximately 13-14% of the potential market when business leaders launched a new product innovation (Frattini et al., 2014). EAs represented the market segment that purchased an innovation soon after launch and well before the mainstream market (Frattini et al., 2014). Early adoption was not the only role of adopters since EAs played a critical role in passing on knowledge about the innovation and influencing the attitude of others towards the innovation (Rogers, 2004). Launch decisions changed between platform (new product innovations with flexible configurations and many different applications) and nonplatform (new product innovations with rigid configurations and specific market applications) innovations (Frattini et al., 2014). EAs could facilitate two distinct roles in the launch process of platform and nonplatform innovations: dissemination (intentionally communicated their opinion about the value, advantages or disadvantages of the innovation) or imitation (inadvertently communicated their opinion which drives imitation behaviors) (Frattini et al., 2014).

For example, Frattini et al. (2014) conducted a qualitative exploratory study of eight industrial cases in Italy to determine what role EAs played in the diffusion process between platform and nonplatform innovations. Research findings indicated firms who

launched platform innovations should target EAs whose competitiveness was not affected by the purchase, target EAs in cohesive market niches, target EAs who were strong opinion leaders, and partnered with EAs during the new product innovation development and testing (Frattini et al. 2014). According to Frattini et al., the best targeting strategy for firms who launched nonplatform innovations were exactly opposite of the platform research findings.

Adoption differences. When business leaders made targeting decisions, it was important to understand the link between contextual differences and why some consumers became customers and others did not (Lim & Park, 2013). Consumers with independent self-perspectives (view themselves as separate from others) were more willing to adopt radical innovations, whereas, consumers with interdependent self-perspectives (views themselves as connected to others) were more willing to adopt incremental innovations (Ma, Yang, & Mourali, 2014). LeRouge, Van Slyke, Seale, and Wright (2014) conducted a qualitative study, which included 469 pharmacy benefit management members on health technology adoption differences between different generations. The research findings from the study indicated baby boomers were quite similar to younger adults in their readiness to adopt consumer health technologies when already familiar with the core technologies (health websites, email, call centers, medical video conferencing, and texting) (LeRouge et al., 2014). Still, baby boomers were less ready than younger aged groups when it came to adopting smartphones, blogs, wikis, kiosks, or podcasts for health purposes (LeRouge et al., 2014). Adoption risk and the

costs of learning the new technology led to a decreased adoption rate (LeRouge et al., 2014).

Besides age and self-perspective differences, national culture and innate innovativeness could also influence adoption (Lim & Park, 2013). Lim and Park (2013) conducted a cross-cultural quantitative study with the Unites States and South Korea on consumer innovativeness. The research findings from this study indicated greater innate innovativeness among consumers in the United States with an individualism culture versus consumers in South Korea with a collectivist culture. However, even among these innate innovative differences, South Koreans were still oriented to adopt new product innovations in specific categories such as technology due to consumer sociodemographics (Lim & Park, 2013). For this reason, business leaders watched for cultural and cosmopolitan differences among adopters (Lim & Park, 2013). Drawn from this set of findings, culture, age, and self-perspectives represented consumer characteristics that might have influenced buying behavior (LeRouge et al., 2014; Lim & Park, 2013; Ma et al., 2014). Business leaders increased the chance of reaching market acceptance when the concept of targeting was applied to suit adoption differences (Lim & Park, 2013).

Reinhardt and Gurtner (2015) argued that business leaders who ignore the type of innovation when segmenting EAs risk market failure, because different types of innovation attract different buyers and warrant different commercialization decisions. New product innovations are classified into two types of innovation: sustaining innovations (new product innovations which do not create new markets or value

networks) or disruptive innovations (new product innovations which create new markets and value networks) (Reinhardt & Gurtner, 2015). Reinhardt and Gurtner conducted a quantitative confirmatory factor analysis, which included data from 849 participants on differences between early adopters of disruptive and sustaining innovations. The research findings from this study indicated EAs of disruptive innovations were more knowledgeable about the product class, whereas, EAs of sustaining innovations were more interested in the product class (Reinhardt & Gurtner, 2015). In fact, Frattini et al. (2012) along with Reinhardt and Gurtner argued the degree of radicalness (revolutionary nature of the innovation), the discontinuity of an innovation (completely new or incrementally new), and the innovativeness (degree of consumer need to differentiate themselves) of the targeted market segment were critical factors to commercial success. Weinstein (2014) found a one-size-fits-all targeting strategy was the least effective approach to targeting. It was essential for business leaders to understand the similar and different characteristics among EAs because market acceptance was influenced by these traits (Frattini et al., 2012). Similar to other CoI concepts, launch decisions regarding targeting had the potential to be powerful factors of market acceptance and allowed business leaders to develop appropriate communications and distribution campaigns (Frattini et al., 2013; Weinstein, 2014).

Positioning. Once business leaders identified the target market for the innovation and understood early adopter characteristics, firms could make appropriate strategic decisions regarding the positioning concept. Positioning was described as how a new product innovation was intentionally placed in the hearts and minds of consumers relative

to competitors and substitute products (Chiesa & Frattini, 2011; Frattini et al., 2012). Scholars conducted little research on the effectiveness of positioning strategies from the consumers' perspective or how the performance of such strategies should be measured (Eryigit & Eryigit, 2014; Fuchs & Diamantopoulos, 2012), much less from the early adopter's point of view or through the lens of an integrated marketing/innovation framework such as CoI.

Fuchs and Diamantopoulos (2012) argued that new product innovations offer unique positioning challenges. Due to the often pioneering qualities of an innovation, consumers may not have been able to rate or measure product attributes compared to competitor or substitute products because they do not exist (Fuchs & Diamantopoulos, 2012). Particularly for new product innovation technology innovations, positioning decisions must involve important technical and sophisticated attributes as most early adopters make purchasing decisions based on these criteria (Chiesa & Frattini, 2011; Frattini et al., 2012). A conceptual framework for measuring positioning effectiveness from the consumers' perspective included focusing on the innovation as a whole instead of the attribute level, which was beneficial for technology innovations where customer wants and needs changed quickly (Fuchs & Diamantopoulos, 2012). Business leaders assessed other factors in the CoI process such as how the new product innovation was positioned within the firm's product portfolio (Fuchs & Diamantopoulos, 2012) and the current brand architecture (Rahman & Areni, 2013). Fuchs and Diamantopoulos conducted a quantitative study, which included 300 consumers on customer-perceived positioning effectiveness. Research findings from the study led to the development of an

instrument for business leaders to detect strengths and weaknesses in the positioning strategy (Fuchs & Diamantopoulos, 2012). Similarly, Rahman and Areni (2013) provided a framework business leaders could use to assess the new product innovation fit with existing products and the congruity of the positioning strategy between the new product innovation and the existing positioning strategy for the parent brand. Positioning was a critical concept in the launch process and requires deeper exploration in the CoI context (Frattini et al., 2012).

Partnerships and alliances. Regardless of size, innovating firms were rarely capable of successfully commercializing a new product innovation on their own and often-sought commercialization partners (Aarikka-Stenroos, Sandberg, & Lehtimaki, 2014). Partnerships and alliances were essential relationships external to the organization (Chiesa & Frattini, 2011). Network relationships served two main purposes: supplement resources and foster adoption (Aarikka-Stenroos & Sandberg, 2012; Partanen, Chetty, & Rajala, 2011). Aarikka-Stenroos et al. (2014) posited that partnerships and alliances contributed to the commercialization process in three key ways: (a) created markets, (b) performed commercialization tasks, and (c) facilitated new product innovation diffusion or adoption. Aarikka-Stenroos and Sandberg (2012) also argued that network partners might complicate the commercialization process and emphasized the importance for business leaders to be clear about tradeoffs and benefits.

Network relationships comprised a mix of long-term strategic and short-term tactical partnerships with network actors including (a) customers, (b) suppliers, (c) distributors, (d) media, (e) research institutes, (f) policy makers, (g) opinion leaders, and

(h) investors (Aarikka-Stenroos & Sandberg, 2012; Aarikka-Stenroos et al., 2014; Partanen et al., 2011). New and small firms often had limited resources, but augmented this resource deficiency by establishing external relationships or partnerships (Aarikka-Stenroos & Sandberg, 2012; Partanen et al., 2011). Well-known network partners may also offered new firms legitimacy and credibility (Aarikka-Stenroos & Sandberg, 2012; Partanen et al., 2011). Business leaders who procure the right combination of network relationships gained a competitive advantage and were well positioned for market acceptance (Aarikka-Stenroos & Sandberg, 2012).

Fostering adoption. Equally important to the commercialization process was the ability for business leaders to use partnerships and alliances to promote early adoption (Frattini et al., 2012). Convincing interrelated firms to adopt an innovation could be challenging and often required positive acceptance among key influencers in the adoption network in order to diffuse the product in the target market (Chiesa & Frattini, 2011; Frattini et al., 2012). As technology markets became more and more interconnected, the innovating firm's adoption network became just as critical to the firm's success as the other launch decisions (Frattini et al., 2012). The adoption network was described as a web of other firms involved in the distribution of the innovation and companies that supplied complementary products and services (Frattini et al., 2012).

Actor and network differences. Different kinds of innovation required different types and strengths of network relationships (Frattini et al., 2012; Partanen et al., 2011). Freytag and Young (2013) posited that the management of network relationships was often a part of the innovation process itself. Network relationships were complex,

dynamic, and either form strong or weak connections (Aarikka-Stenroos & Sandberg, 2012; Partanen et al., 2011). Partanen et al. (2011) proposed a framework of innovation types and network relationships to guide business leaders in selecting their portfolio of partnerships and alliances. Partanen et al. argued business leaders with radical (revolutionary) or autonomous (independent) innovations were more likely to require strong connections with customer partnerships and research institutes; whereas, weak connections were preferred with partners to overcome smallness and newness (Partanen et al., 2011). Frattini et al. (2012) argued business leaders who launch discontinuous innovations must recognize that simple transactions were often not enough to persuade the adoption network to support the innovation and required profit sharing. Gaining network support before the innovation diffuses was an important factor in the targeting strategy (Frattini et al., 2012).

Aarikka-Stenroos and Sandberg (2012) conducted a qualitative multicase study, which included two health and wellness companies on new product innovation commercialization and networks. The research findings from the study indicated companies that forged relationships during the product development phase transitioned better into the commercialization network phase even as new resources emerge (Aarikka-Stenroos & Sandberg, 2012). After analyzing 883 articles associated with the keywords "commercialization" and "network", Aarikka-Stenroos et al. (2014) proposed a conceptual framework for business leaders to decide what kind of support to expect from different partnerships and alliances including contributors, contributions, types, and modes of the commercialization network. Aarikka-Stenroos and Sandberg found firms

that integrated research and development networks with commercialization networks tended to create advantages and perform better. This network strategy led to deeper commitment and trust, where all partners benefitted from the innovating firm's success (Aarikka-Stenroos & Sandberg, 2012). In the end, business leaders who formed the best partnerships and alliances for their firm became the most successful (Partanen et al., 2011).

Tactical Concepts

In addition to the strategic class of CoI concepts outlined above, business leaders also made tactical decisions during the commercialization process (Frattini et al., 2012). Tactical decisions encompassed key components of the marketing mix made later in the process and were typically the operational parts of the CoI framework (Căpăţînă, 2014; Chiesa & Frattini, 2011). Drechsler, Natter, and Leeflang (2013) argued that marketing plays a greater role in new product innovation development than many other departments and was capable of linking strategies and tactics to the firm's financial performance. Tactical concepts that comprised the CoI framework included the following: (a) product, (b) distribution, (c) communication, and (d) pricing (Chiesa & Frattini, 2011; Frattini et al., 2012).

Product. Developing the right product at the right time was an essential concept of the CoI process (Chiesa & Frattini, 2011). Frattini et al. (2012) described the product concept as how a new product innovation was configured relative to early adopter needs, wants, and market acceptance. Frattini et al. (2012) argued that business leaders should completely configure new product innovations when innovations were commercialized.

On the contrary, Rasmussen and Tanev (2015) maintained that entrepreneurs face greater uncertainty than established firms and should focus on creating minimal viable products (MVPs) to survive the commercialization process. MVPs were product prototypes aimed to test the consumers' expectations.

Rasmussen and Tanev (2015) argued innovators must focus on discovering the right idea to develop, as quickly as possible, without any waste. Likewise, Frattini et al. (2012) posited that business leaders must ensure that preannouncement communications only mention the feature set that is part of the product configuration at launch. Otherwise, innovating firms ran the risk of poor postpurchase attitude by early adopters, which could significantly hinder mass adoption (Frattini et al., 2012). Product configuration was arguably extra important for high-tech environments where the time to market was rushed with a smaller window of opportunity (Frattini et al., 2012).

Lean startup. Business leaders often had limited resources available in their pursuit of developing and commercializing an innovation (Moogk, 2012). York and Danes (2014) defined the lean startup process as the innovation activities that underscored the importance of investing the innovator's limited resources into the creation of customer value. Frattini et al. (2012) argued that during the commercialization process, it was not just about creating value for *any* customers, but more importantly for business leaders to invest resources into creating value specifically for early market customers because they had the strongest influence on market acceptance.

The foundation of the Lean Startup framework was the assertion that a key ingredient to market acceptance was developing a minimal viable product, testing the

concept in the market, and then, with market validation, either moving forward in the same direction or changing the product strategy (Rasmussen, & Tanev, 2015). Frattini et al. (2012) warned innovating firms not to forget that early adopters required technical, sophisticated features that should not get overlooked in the rush to market. There were several models for new product innovation development decision-making.

Product innovation decision-making. Business leaders formed ideas for innovation by two approaches to product development: intuition and reason or rational thinking (York & Danes, 2012). The first approach, intuition, had a number of inherent biases that made innovations prone to failure: (a) selection bias, (b) representative bias, (c) acquiescence bias, (d) confirmation bias, (e) over confidence bias, and most common, (f) optimism bias (York & Danes, 2012). Using linear decision marketing models, incubators, and accelerators, business leaders could reduce bias through awareness, and increased reason and rational thinking (York & Danes, 2012). Subsequent literature drawn from the reason and rational approach proposed deeper collaboration with customers (Coviello & Joseph, 2012; Russo-Spena & Mele, 2012).

Cocreation. Business leaders often assumed that tapping into customers' knowledge base might be useful for identifying unmet needs; however, few had acknowledged the customer's contribution to identifying ideas to solve these problems (Poetz & Schreier, 2012). A conceptual framework for cocreation in innovation was a customer-driven approach that included five *co-s*: co-ideation, co-valuation, co-design, co-test, and co-launch (Russo-Spena & Mele, 2012). In this approach to new product innovation development, the consumer played a vital role in the creation of customer

value (Russo-Spena & Mele, 2012). This innovation process offered business leaders a framework for merging knowledge, actions, tools, languages, and artifacts to create new product innovations (Russo-Spena & Mele, 2012). Haavisto (2014) conducted a qualitative content analysis, which included 28 different discussion forms on innovation. The research findings in this study indicated valuable interactions between customers and firms led to promising ideas when company representatives direct discussions.

Conversely, Heidenreich, Wittkowski, Handrich, and Falk (2015) conducted four quantitative experimental studies, which included online panel discussion data from two digital transportation booking platforms on the consequences of service failure and cocreation. The research findings from this study indicated shortcomings of customer cocreation (Heidenreich et al., 2015). In particular, customer disappointment raised when firms did not meet customer expectations and customers blamed themselves for the failure; thus leading to overall customer dissatisfaction (Heidenreich et al., 2015). Still, other studies debated the value of cocreation. Poetz and Schreier (2012) conducted a quantitative study of the consumer goods industry for baby products on the value of new product innovation ideas from employees versus customers. The research findings from this study indicated that customers generated higher quality novel ideas with greater customer benefits; yet, many of the ideas were not feasible (Poetz & Schreier, 2012). There was still much debate on the advantages and pitfalls of cocreation for new product innovation development.

Distribution. Distribution partners provided products, services, and information to end users (Kou & Lee, 2015). The distribution concept involved decisions business

leaders made about which type of delivery channels were optimal and what critical functions each channel partner would perform in the commercialization process (Frattini et al., 2012). Selecting the right distribution channels was an essential decision in the commercialization process that influenced market acceptance and new product innovation diffusion, especially when devising the mainstream adoption strategy (Frattini et al., 2012).

Chiesa and Frattini (2011) argued that the CoI concepts were intertwined and business leaders must explore the concepts together. Căpățînă (2014) maintained that firms must align distribution channels with the target market's buying behavior as products were diffused. Similarly, business leaders might have chosen *specialized distribution partners* to strengthen the innovation's position within a niche market, or pick more *generalized distribution partners* to expand the firm's reach and diffuse the new product innovation quicker in the mainstream market (Căpățînă, 2014; Frattini et al., 2012). In spite of this, research on the application of the distribution concept in the commercialization process was limited (Căpățînă, 2014).

Innovator-distributor relationship. The inherent volatile and complex nature of the high-tech industry increased risk for business leaders and distribution partners due to shorter product life cycles, shorter delivery lead times, and recurring changes in demand (Frattini et al., 2012; Kou & Lee, 2015). These shared risks underscored the importance of deep trust among innovator-distribution relationships and created opportunities for business leaders to secure a competitive advantage (Kou & Lee, 2015). Establishing a mutually beneficial relationship was the key to success between innovators and

distributors, which commonly required a shared compensation plan (Căpățînă, 2014; Kou & Lee, 2015).

Communication and customer education were important functions of the innovator-distributor relationship (Frattini et al., 2012; Makkonen & Mervi, 2014). Business leaders used a firm's IT infrastructure to enable or disable the ongoing, dynamic communications required throughout the commercialization process between innovators and distributors; thus, influencing new product innovation performance and market acceptance (Makkonen & Mervi, 2014). Chang, Tsai, and Hsu (2013) argued that electronic procurement could influence supply chain performance. Customer education is an important function of the innovation diffusion process (Căpățînă, 2014; Frattini et al., 2012). Frattini et al. (2012) argued that distributors played a fundamental role in educating customers about the often technical and sophisticated features of a new product innovation. Căpățînă (2014) posited that distribution partners drove end-user adoption decisions and potentially accelerated innovation diffusion. Calantone and Di Benedetto (2012) posited that business leaders might have enhanced the innovator-distributor relationship with a lean launch strategy.

Lean launch. The commercialization process comprised many launch activities that business leaders must have coordinated with external stakeholders, including distribution partners (Calantone & Di Benedetto, 2012; Rasmussen & Tanev, 2015). Calantone and Di Benedetto (2012) argued launch delays could hinder distributor relationships, especially if distributors had large inventories. Business leaders who opted for a *lean* launch strategy may enhance interactions between innovators and distributors

(Calantone & Di Benedetto, 2012). A lean launch involved fewer resources, lower inventory, and a slower diffusion rate, which allowed innovators and distributors to adapt better to customer and market changes (Calantone & Di Benedetto, 2012).

Bricks and clicks. Besides deciding whether to select a specialized or general distribution channel, business leaders also made decisions regarding offline (bricks) and online (clicks) channels (Bilgicer, Jedidi, Lehmann & Neslin, 2015; Herhausen, Binder, Schoegel, & Herrmann, 2015). Business leaders were driven to multichannel strategies due to the convergence of technological change, intense competition, and changing customer expectations (Bilgicer et al., 2015). Herhausen et al. (2015) conducted three quantitative studies, which included three retailers with different distribution channel configurations: offline, online and online/offline. The research findings from this study indicated that customers sought different channel options at different stages of the buying process (Herhausen et al., 2015). Herhausen et al. posited that for business leaders to achieve an effective multichannel strategy, business leaders must ensure the multichannel approach created synergy in the commercialization process and not cannibalization. Herhausen et al. proposed a conceptual framework for exploring customers perceived service qualities and perceived risk at different channel levels. Herhausen et al. argued a multichannel, bricks and clicks strategy, might have led to a competitive advantage, positive channel integration (Herhausen et al., 2015), and increased spending per customer (Bilgicer et al., 2015). As a result, the distribution concept played a critical role in the CoI process and achieving market acceptance (Frattini et al., 2012).

Communication. Frattini et al. (2012) argued that business leaders must understand how each of the eight concepts in the CoI framework, including communication, influence performance achieved by the innovation. Similarly, Lopez and Sicilia (2012) maintained that communication was an essential element of new product innovation adoption. At the beginning of the commercialization process, consumers were not aware of the innovation's existence (Chuhay, 2013). After the target market was defined, business leaders made important CoI decisions regarding communication tactics to create awareness and interest (Frattini et al., 2012). The communication concept involved business leaders' decisions about what types of advertising and promotional channels, and what messages were used for effective product diffusion and market acceptance (Chiesa & Frattini, 2011; Frattini et al., 2012).

Advertising and promotional channels. Business leaders chose between advertising (communications promoted by the firm) or word-of-mouth (WOM) marketing (communications influenced by the firm but promoted from consumer to consumer) (Lopez & Sicilia, 2012). WOM marketing was either traditional face-to-face communications between consumers or electronic word-of-mouth (e-WOM), technology-enabled communications among consumers (Lopez & Sicilia, 2012). Chuhay (2013) posited that traditional communication channels for presenting new product innovations to consumers were not sufficient. Consumers had difficulty understanding the technical and sophisticated features commonly found in new product innovations during in a 10 second commercial, especially for technology products (Chuhay, 2013; Frattini et al., 2012). Similarly, consumers were initially not aware of the innovation's existence;

therefore advertising channels such as Google Adwords, used for consumer searches, are not effective solutions (Chuhay, 2013).

In a quantitative experimental study of 171 university students, research findings indicated WOM marketing was more effective at the awareness stage, whereas, advertising was more effective at the adoption stage (Lopez & Sicilia, 2012). Lopez and Sicilia (2012) argued that at first, business leaders should ask consumers for their opinion about the new product innovation to get them engaged and seek out bloggers and other opinion leaders to stimulate early adoption. Soliciting consumer input is especially important for e-WOM marketing where early market consumers can influence their network and spread positive reactions via technology and social networks (Bilgicer et al., 2015; Lopez & Sicilia, 2012). Advertising and promotional messages were also important decisions (Chiesa & Frattini, 2011).

Advertising and promotional messages. Business leaders made decisions in the CoI process concerning what messages to convey about the innovation and when to communicate to reach market acceptance (Chiesa & Frattini, 2011; Talke & Snelders, 2013). During the CoI process, business leaders had to clearly convey what the product was designed for, why the consumer need the product, and why the consumer should spend a large sum of money on it (Chuhay, 2013). Early market customers required different information from other target markets (Chiesa & Frattini, 2011; Talke & Snelders, 2013). Early adopters were motivated by the technical and sophisticated details of the innovation (Frattini et al., 2012). Chiesa and Frattini (2011) suggested that business

leaders should position new product innovations as revolutionary technology products rather than stressing the brand name or product line.

New product innovation preannouncements affected the innovating firm's reputation and often influenced market perceptions of the innovation (Chiesa & Frattini, 2011). A negative postpurchase attitude by early adopters was one of the main reasons for new product innovation market failure (Chiesa & Frattini, 2011). When firms did not align the preannouncement message with the product configuration at launch, consumers had a negative postpurchase attitude (Chiesa & Frattini, 2011). Talke and Snelders (2013) conducted three quantitative experiments, which included 416 university students. The research findings from the study indicated that firms achieved the highest rate of adoption when business leaders who communicated personal or social information and did so in an abstract way (Talke & Snelders, 2013). Results of the study emphasized the importance of triggering the consumers' imagination to stimulate adoption behavior (Talke & Snelders, 2013). Frattini et al. (2012) maintained that business leaders needed to understand the strategies associated with the communication concept to maximize market acceptance.

Pricing. Pricing was a key component of the marketing mix (Balan, 2014) and represented the last tactical concept from the CoI framework. Among other factors, such as customer and market demand, business leaders set prices to match the innovation's positioning and differentiation strategy (Balan, 2014). Poor pricing practices jeopardized market acceptance and diminished the business leader's chance of acquiring a product advantage (Ingenbleek, Frambach, & Verhallen, 2013). Ingenbleek et al. (2013)

conducted a quantitative study, which included 144 production and service companies on the effects on market performance and price level. The research findings from this study indicated that pricing decisions were pervasive and best driven by the firm's objectives, product conditions, and market conditions before business leaders selected a value, cost, or competition-based pricing strategy.

Pricing schemes for innovators. A review of the literature revealed a plethora of price-setting schemes, which business leaders considered when pricing a product or service (Ahmetoglu, Furnham, & Fagan, 2014; Chen, Marmorstein, Tsiros, & Rao, 2012; Grewal, Roggeveen, Compeau, & Levy, 2012; Schulz, Schlereth, Mazar, & Skiera, 2015). However, a large collection of articles focused on pricing strategies for established products or services, or unique pricing strategies as an alternative to product, service, or business model innovation (Hinterhuber & Liozu, 2012). Scholars commonly explored pricing research from two distinct slants: innovation in pricing models or pricing an innovation. For the purposes of this study, business leaders were concerned about pricing tactics in the context of new product innovation.

While firms often drove the pricing of established products and services by cost, competition, price sensitivity, and customer value (Hinterhuber & Liozu, 2014; Ingenbleek et al., 2013), the pricing of product innovations are normally set based on the firm's launch goals (Frattini et al., 2012). Customarily, business leaders choose from two common pricing strategies when launching an innovation: price skimming (high price lowered over time) and penetration (low price) (Shaw, 2012). Price skimming is used when business leaders sought to recover quickly the hefty costs commonly associated

with new product innovation development before competitors entered the market and drove down the price (Shaw, 2012). Shaw (2012) described penetration as the pricing strategy business leaders used when the goal was to swiftly diffuse the innovation through the market.

With the price skimming approach, business leaders historically decreased the price gradually over time; however, Frattini et al. (2012) cautioned innovating firms to make sure business leaders considerably reduced the price before approaching the mainstream market due to this market segment's price sensitivity. Frattini et al. noted that some business leaders did not sufficiently diffuse the innovation or reach profit goals. Consequently, some leaders opted to maintain the high price longer than usual, which could be detrimental to overall market acceptance (Frattini et al., 2012).

Pricing practices in healthcare. Unlike other concepts in the CoI framework where findings from the general practice of business might have easily transferred to other industries, pricing models were very different in healthcare. Government regulations and legislature such as the Affordable Care Act (ACA) historically drove payment structures and market demand (Hernandez, Machecz, & Robinson, 2015). Business leaders who launched a new product innovation to patients have to decide whether to price their innovation in line with the latest value-based payment models from Center for Medicare and Medicaid Services (CMS), which represented $201.7 million in payments from 2002-2013 (Hernandez et al., 2015); or circumvent the largest payer in healthcare and introduce novel pricing strategies outside the governing healthcare system and often rely on cash pay models. Besides the patient market segment, technology

development marketing leaders in healthcare might have produce innovations for healthcare payers or providers such as hospital systems. CMS introduced advanced payment models to incentivize physicians and hospitals to adopt innovative technologies (Hernandez et al., 2015); however, there was a major gap in the literature to understand better how new product innovation technology innovations were diffusing in the health market and what limitations or opportunities business leaders might have related to pricing innovations in healthcare.

Gaps in the Research

Successful commercialization was critical for innovating firm's to reach market acceptance (Chiesa & Frattini, 2011; Frattini et al., 2012). The body of literature addressing the commercialization process or launch issues from a marketing perspective was relatively new with many articles being published within the last 10-15 years (Calantone & Di Benedetto, 2012). There was extensive literature about each of the eight concepts in the CoI process, but concepts were explored and examined separately. While some studies included contingencies, there were gaps in the literature. First, CoI was a relatively new conceptual framework; therefore there were not any studies using the framework to explore how all eight strategic and tactical marketing concepts might collectively influence market acceptance. Second, roughly 70% of the articles on the CoI process were conducted internationally in diverse markets. A review of the literature indicated a need for research on the CoI process using the CoI framework in the United States. Another reason to explore the CoI phenomenon was to help business leaders know whether the CoI framework could be applied to new product innovation technology

innovations in the healthcare market. Hence, the purpose of this qualitative single case study was to explore what strategies some technology development marketing leaders used to commercialize a new product innovation in the healthcare market. Understanding the impact of these CoI concepts on the market acceptance and firm performance achieved by the innovation may help business leaders avoid market failure, better use organizational resources, and increase profits.

Transition

In section 1, I discussed the following: (a) topic of study, (b) background of the problem, (c) problem and purpose statement, (d) research methodology and design, (e) research question, (f) conceptual framework, and (g) an extensive literature view. Previous research on the commercialization process provided little to know insights into the how all eight marketing concepts in the CoI framework might collectively influence market acceptance. Additional research was required to understand better the strategies technology development marketing leaders used to commercialize a new product innovation in the healthcare market.

Section 2 contained more detail on the research method and design, and protocols I followed for this study. I included (a) role of the researcher; (b) participants; (c) research method and design; (d) population and sampling; (e) data collection instruments; (f) data analysis; and (g) how I maintained credibility, transferability, dependability, and confirmability. Section 3 contained the (a) presentation of findings from the research, (b) professional application, (c) implications for social change, and (d) recommendations for action and future studies.

Section 2: The Project

The focus of this qualitative case study was to explore what strategies some technology development marketing leaders used to commercialize new product innovations in the healthcare market. Previous research on the CoI process concentrated on individual concepts within the CoI framework with scant literature on how each of the eight concepts and their respective strategies collectively influenced market acceptance and performance of the innovation. In this section, I include (a) a restatement of the purpose statement; (b) the research method and design; (c) protocols I followed; and (d) how I maintained credibility, transferability, dependability, and confirmability in this study.

Purpose Statement

The purpose of this qualitative single case study was to explore what strategies some technology development marketing leaders used to commercialize new product innovations in the healthcare market. The targeted population consisted of a large organization comprised of technology development marketing leaders who have used strategies to commercialize new product innovations in the healthcare market in Washington state. The results from this study may contribute new knowledge or insights that would help healthcare business leaders avoid market failure. The implications for positive social change may include better use of organizational resources and increased profitability for business leaders.

Role of the Researcher

Researchers play a critical role in the research process (Yin, 2014). The role of the researcher begins with a review of the literature to gain a deeper understanding of the research topic (Yin, 2014). Data gathering for this study consisted of interviewing participants at the case study site. I was the primary instrument for data collection and performed all interactions with the participants. Qualitative interview questions encouraged participants to provide thorough answers (Applebaum, 2012). Technology development marketing leaders participated in semistructured, open-ended interview questions, so the participants could share the *what* and *how* behind strategies used in the commercialization process.

I disclosed any relationship I may have had with the topic, area, or participants to maintain the highest level of transparency. My professional experience included over 15 years of marketing practice with 8 of those years working in healthcare. I currently own and operate a healthcare marketing firm. I did not conduct this study with a firm or leaders for or with whom I had worked to mitigate researcher bias.

The Belmont Report acknowledged basic ethical principles a researcher should follow when researching human subjects, including respect for vulnerable populations, avoiding deception, and equal treatment for all participants (U.S. National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). I followed the ethical principles in the Belmont Report and the ethics training I received from the National Institutes of Health (NIH; Appendix B). Data gathering for this study

did not begin until I receive permission to proceed from Walden's Institutional Review Board (IRB).

Moustakas (1994) suggested researchers practice bracketing as another way to mitigate bias. In bracketing, researchers record preconceptions or biases throughout the research process to suspend or bracket their biases (Moustakas, 1994). I used bracketing, reflective journaling, and data collection techniques supported by previous case studies to reduce researcher bias. I mitigated researcher bias by following well-documented case study procedures.

The use of case studies offer little to no value if the researcher has preconceived beliefs about the phenomenon under study and leans toward supporting evidence, while ignoring opposing data (Baškarada, 2014; Yin, 2014). Consequently, to avoid researcher bias, researchers must practice ethical principles and follow documented research protocols (Yin, 2014). Applying Yin's (2014) recommendation, I conducted myself in a trustworthy manner throughout the case study to reduce bias. Similarly, I protected the privacy and dignity of participants by applying ethical research standards.

Yin (2014) maintained that the role of the interviewer was to introduce the topic of study to participants and ask key follow-up questions to understand better the phenomenon from the participants' perspective. According to Yin (2014), following an interview protocol was an important step to ensure the data collected by the researcher could answer the initial research question. I followed the interview protocol outlined in Appendix A. Case study researchers rely on multiple sources of evidence (Yin, 2014). In

addition to interviews, I analyzed a second source of data by reviewing digital resources and printed documents used in the commercialization process.

Participants

Researchers use sampling procedures as the basis for including or excluding participants from a study (Davis, 2013; Kolb, 2012). Census-based sampling is a sampling method used by researchers to study everyone in the target population (Daniel, 2012). I employed census sampling and interviewed all members of the targeted population from a single company that qualifies using the eligibility criteria, which in this study included five healthcare business leaders. The eligibility criteria consisted of all technology development marketing leaders within one large organization who have used strategies to commercialize new product innovations in the healthcare market in Washington state. The targeted sample was five technology development marketing leaders (managers, directors, or executives) from one large company who represent different disciplines including (a) strategy, (b) marketing, (c) technology, (d) product management, and (e) sales. Leaders from these departments generally made decisions associated with the commercialization process.

I used ethical standards to recruit the appropriate participants for this study. I received site permission from a primary contact person at one large organization that had used strategies to commercialize new product innovations in the healthcare market in Washington state. Potential participants from the target population came from the employee roster of the participating firm. Based on the contact information provided by the primary point of contact in the company, I followed up with initial phone calls and e-

mails to establish a working relationship with each participant. Working around each potential participant's availability, I invited each potential participant to contribute to the study by participating in an interview. In each conversation, I continued to establish a working relationship with the participants. I obtained signed consent and conducted interviews with all qualified participants at an offsite location established by participants and myself.

Research Method and Design

Qualitative case study was the research method and design for this study. I selected this approach based on the main research question and the contemporary nature of the phenomenon under study (Yin, 2014). The commercialization of technology innovation in healthcare was a newer phenomenon that business leaders needed to explore and better understand (Datta, 2011).

Research Method

The three approaches to inquiry or research methods were qualitative, quantitative, and mixed methods (Denzin, 2009). Researchers explore and understand individual perceptions, decisions, and processes more easily with the qualitative method (Yin, 2014). Unlike quantitative methods that test existing theories and examine correlations, qualitative methods allowed the researcher to ask participants what, where, and how questions about their lived experiences with the phenomenon under study (Yilmaz, 2013; Frels & Onwuegbuzie, 2013). The mixed methods approach employs a combination of quantitative and qualitative research to explore problems and solutions rather than solely seeking new insights (Torrance, 2012; Sparkes, 2014). Qualitative

research was the best choice for observing natural occurrences, discovering hidden themes, and creating meaning from the data (Denzin, 2009).

I used the qualitative method for this study. The qualitative method allowed exploration of the eight dimensions that comprised the CoI conceptual framework by reviewing the perceptions of technology development marketing leaders who attempted to commercialize a technology innovation (Frattini et al., 2012; Hultink et al., 1997). Incorporating a qualitative method in the study allowed me to discover themes that emerged by talking to people and looking for explanations and patterns in the data (Bansal & Corey, 2012; Marshall & Rossman, 2016; Yin, 2014). The quantitative and mixed methods approaches to inquiry were not suitable for exploring the phenomenon under study, because these approaches to inquiry did not allow me to discover solely new insights by talking to people, which excluded the quantitative portion.

Research Design

Four qualitative research designs include (a) ethnography, (b) phenomenological research, (c) narrative research, and (d) case studies. Researchers use case studies when they want to understand the decisions and motives behind a process by exploring evidence from multiple sources in the context of real life (Marshall & Rossman, 2016; Yin, 2014). When researchers want to study the culture of a group by immersing themselves in the day-to-day activities, ethnography is the best research design (Morse, 2015). Researchers conduct phenomenological studies when they wanted to understand the lived experiences of participants through extensive engagement (Marshall & Rossman, 2016). Scholars use narrative research when they wanted to combine a

collection of stories from one or more individuals and the researcher's own life to form a single narrative about the phenomenon (Stephens & Breheny, 2013). The case study design reflects the study of a bounded case with little or no control over events and the study of a contemporary phenomenon (Yin, 2014). Case study design is also appropriate for exploring newer phenomenon (Yin, 2014). I used a case study design because business leaders needed to understand better *how* CoI decisions influenced new product innovation market acceptance, and researchers had conducted limited research on this phenomenon.

The purpose of this single case study was to explore what strategies some technology development marketing leaders used to commercialize new product innovations in the healthcare market. Researchers conduct exploratory case studies when the situation being evaluated had no clear, single set of outcomes (Yin, 2014). Eisenhardt and Graebnar (2007) generally advocated for a multiple case study in lieu of a single case; however, I selected a single case study because literature about the phenomenon under study was limited and fragmented, and researchers still needed to explore this topic (Datta, 2011). Yin (2014) suggested a single case study to discover a more in-depth understanding of the specifics and unique characteristics of a particular case. I conducted a single case study.

A single exploratory case study was the most appropriate research design for this study because researchers had not explored this phenomenon before (Yin, 2014). Data saturation was critical to maintaining credibility, transferability, dependability, and confirmability of the study (Rennie, 2012). Scholars achieve data saturation when they

are no longer collecting new information during the research process (Kolb, 2012). While exploring the experiences of technology development marketing leaders, I continued to conduct interviews until it appeared that I had reached data saturation, and I did not collect any new information from interview participants. Confirmation of data saturation occurred in data collection and analysis when information from data produced little or no change to the themes and codes (Kolb, 2012). Given the importance of understanding the strategies used to commercialize new product innovations in the healthcare market, the qualitative exploratory single case study was the most appropriate approach for this study.

Population and Sampling

Population and sampling criteria were useful to ensure study participants have experienced the phenomenon of study and could answer the research question (Robinson, 2014). Alpha company is the pseudonym used in this study for the participating company to maintain confidentiality. The targeted population consisted of all technology development marketing leaders within one large organization, a total of five, who had used strategies to commercialize new product innovations in the healthcare market in Washington state. Sampling typologies offered a framework for researchers in exploring a population.

Sampling Typologies

Three basic sampling approaches are census, probabilistic, and non-probabilistic. Census sampling involves interviewing 100% of the population to collect all perspectives on the phenomenon (Daniel, 2012). A key advantage of census sampling is collecting

deep insights from all perspectives within the population of interest (Daniel, 2012). The disadvantage of census sampling is that it is very time-consuming, and it could be challenging to capture a large sample, which could lead to an incomplete picture of the phenomenon and then limited analytical generalizability (Daniel, 2012).

Probabilistic random sampling involves the random selection of participants in which individuals have an equal chance of being selected (Acharya, Prakash, Saxena, & Nigam, 2013). Advantages of probabilistic sampling are ease of use, convenience, and a high degree of representativeness (Daniel, 2012). Weaknesses of probabilistic sampling are that the sampling method is time-consuming and tedious (Patton, 2002). Non-probabilistic sampling does not involve the random selection of participants and results in selection bias (Acharya et al., 2013). Advantages of non-probabilistic sampling are convenience, cost effectiveness, and the ability to select participants based on the target population criteria (Patton, 2002). A major weakness of non-probabilistic sampling is that the degree of generalizability is questionable (Daniel, 2012).

I used a census sampling strategy. The targeted sample included all technology development marketing leaders (managers, directors, or executives) who represented different disciplines including (a) strategy, (b) marketing, (c) technology, (d) product management, and (e) sales. Leaders from these departments generally make decisions associated with the commercialization process. Census sampling was appropriate because the size of the population matched the particular characteristics for this study, was very small, and this sampling method worked well when using documentation as the second data source (Daniel, 2012). Using a census strategy, I was able to explore all perspectives

from technology development marketing leaders about the commercialization process and discovered common patterns in the data.

Sample Size

A census-based sampling included all members of the target population, which for this study included five technology development marketing leaders. Potential participants from the target population came from the employee roster from the participating firm. I interviewed all qualified participants, technology development marketing leaders (managers, directors, or executives) from one large company, who had an influence on the decisions made in the commercialization process until I reached data saturation. If the conceptual framework was clear and concise, even a low number of participants should be adequate in a case study (Rowley, 2012; Yin, 2014). While there were some health leaders and firms that only marketed a technology innovation, participants in this study were those who developed and marketed a new technology innovation.

Interview Setting

I set up interviews with all qualified participants once I received IRB approval and obtained the signed consent. I conducted interviews at an offsite location established by participants and myself. The interview setting was a private area free from distractions where participants felt comfortable answering the interview questions. Each interview took no longer than 30-60 minutes and the participant was able to stop the interview at any time.

Data Saturation

Data saturation was critical to maintaining credibility, transferability, dependability, and confirmability of the study (Denzin, 2009; Rennie, 2012; Yin, 2014). When no new information, no new codes, or no new themes occurred in the data collection and analysis process, data saturation was reached (Kolb, 2012). The company selected for this study was large enough to offer a sample size that could potentially lead to data saturation. Applying Yin's (2014) recommendations, I conducted interviews with all qualified participants until I reached data saturation.

Ethical Research

Conducting ethical research was a key characteristic of a good researcher (Yin, 2014). I obtained written permission from the Walden IRB and the participating organization to ensure ethical compliance before I conducted any research. Likewise, each participant signed a consent form before engaging in the study. The consent form included an overview of the research topic along with the risks and benefits of joining the study. I ensured participants understood participation was voluntary, and they could withdraw from the study by contacting me via phone or e-mail at any time without any negative consequences. If a participant decided to withdraw from the study, I would have removed and destroyed any notes, recordings, or electronic files associated with that individual's participation. Participants did not receive any incentives or compensation for joining the study.

Protecting human participants is an important aspect of conducting ethical research (Patton, 2002; Yin, 2014). To ensure participant confidentially, as suggested by

Marshall and Rossman (2016), I used generic names for each participant such as P1, P2, P3, and so on. I protected the privacy and confidentially of participants by securely storing the information in a safe or password-protected environment. I was the only person to know the identity of participants, and I will destroy all electronic and hard copies of the data after five years by permanently deleting the electronic files and shredding physical documents. Walden IRB approval number for this study was 01-14-16-0453978.

Data Collection Instruments

Researchers could collect case study evidence from six different sources including (a) documentation, (b) archival records, (c) interviews, (d) direct observations, (e) participant-observation, and (f) physical artifacts (Petty, Thomson, & Stew, 2012; Yin, 2014). Unlike laboratory experiments, case study researchers collected data in real-world contexts (Yin, 2014). Applying Yin's (2014) recommendations, I collected data for methodological triangulation using two sources of evidence: interviews and documentation. Before data collection, I obtained IRB approval and signed consent from each participant and the participating organization.

Interviews

Interviews were one of the most important methods of collecting data in a case study (Yin, 2014). Qualitative interviews comprised open-ended questions where researchers could probe for additional evidence (Yin, 2014). For this study, technology development marketing leaders participated in face-to-face semistructured interviews (see Appendix A). Semistructured interviews combined the flexibility of unstructured, open-

ended questions along with a predetermined collection of questions to set the agenda and guide the researcher (Yin, 2014).

Strengths of using interviews as a source of evidence were the researcher's ability to focus solely on the research topic and the ability to collect deep insights and personal views (Yin, 2014). Weaknesses of interviews were potential bias due to poorly articulated questions, response bias, data inaccuracy due to poor recall, reflexivity, and power dynamics between the interviewer and interviewee (Anyan, 2013; Ponterotto, 2014; Yin, 2014). As the researcher is human, it was impossible to avoid completely social, cultural, and personal differences between the interviewer and interviewee (Anyan, 2013; Ponterotto, 2014). However, awareness of potential differences and power dynamics allowed the researcher to minimize problems that may have hindered the data collection process (Anyan, 2013).

Researchers acted as the primary data collection instrument in qualitative studies (Pezalla, Pettigrew, & Miller-Day, 2012; Marshall & Rossman, 2016). I was the primary data collection instrument throughout all phases of this study. Researchers develop many questions in the interview setting to probe further and ensure rich data collection (Yin, 2014). To set the agenda and guide myself through the interview, I used the interview protocol outlined in Appendix A to capture participants' experience and perception of strategies used in the commercialization process. All interview questions related to the eight dimensions noted in CoI conceptual framework to ensure I answered the research question in this study.

Documentation Review

Documentation was a common source of evidence used in case studies (Yin, 2014). Document types could include letters, emails, agendas, meeting minutes, proposals, formal plans, and more (Yin, 2014). I used documentation as the second data source for methodological triangulation. For this study, I performed a document review of all files associated with the commercialization process including printed and digital material such as marketing plans, brochures, and the company website.

There were several strengths of documentation review including (a) the ability to review the data repeatedly, (b) the inconspicuous nature of the data because no one created it for the study, (c) researchers could capture data over a long time, and (d) documents could contain specific details of the process (Yin, 2014). Weaknesses of documentation included retrievability and bias; (a) bias if the information is incomplete, (b) bias if participants deliberately withheld data and (c) bias if the researcher could not identify the author (Yin, 2014).

Member Checking

Credibility and dependability were important elements of research to maintain trustworthiness in qualitative studies (Yin, 2014). Similar to Gibbons (2015), I did not plan to conduct a pilot case, but I allowed participants to clarify interview questions during the interview process. Member checking was the process of providing research participants with a summarization of the interpretations prepared by the researcher to verify accuracy and data saturation (Harper & Cole, 2012; Hudson et al., 2014). I summarized and synthesized the interview data, shared a copy with each participant, and

asked participants for feedback. I confirmed and corrected the interpretations of the data based on participant responses.

Data Collection Technique

Interviewing was the data collection technique I used for this study. Interviews were a common data source for case studies because this design was about understanding human subjects (Yin, 2014). One major weakness of conducting interviews was that researchers may have recorded, interpreted, and reported data that aligned with their preconceived beliefs about the phenomenon under study (Radley & Chamberlain, 2012; Wang, Conboy, & Pikkarainen, 2012). Advantages of interviews were insightfulness and the ability to focus on the research topic (Yin, 2014). All eligible technology development marketing leaders from a single healthcare company in Washington state participated in face-to-face semistructured interviews.

Yin (2014) recommended three different types of interviews for case study designs including (a) prolonged in-depth interviews, (b) shorter focused interviews, and (c) formal survey interviews. Prolonged in-depth interviews took place over an extended time, and formal surveys did not allow the researcher to probe further beyond the predetermined questions. Applying Yin's (2104) recommendation, I conducted shorter semistructured interviews, so I could collect a verbal report about the participants' personal meaning and experience in the commercialization process without the extensive time requirement. Jacob and Furgerson (2012) argued that researchers should conduct interviews in a quiet setting free from disruptions, so participants can give researchers

their undivided attention. I conducted interviews in a private setting. I expected interviews to last no longer than an hour.

I followed the subsequent step-by-step interview process. I began by setting the stage for the interview. I asked each participant the series of interview questions outlined in this study. Throughout the interview, I watched for non-verbal queues, paraphrased the participant's responses as needed, and ask follow-up probing questions to collect more in-depth information. Afterward, I conducted member checking to enhance dependability and credibility of the research. I emailed participants a synthesis of my interpretations of the data so interview participants could verify accuracy. If participants found any discrepancy in the data or interpretations, I modified the data accordingly. I continued member checking until no new data was collected.

Parallel to conducting interviews, I requested and reviewed documents associated with the commercialization process to achieve triangulation. Marshall and Rossman (2016) maintained that researchers used triangulation to achieve confirmability. The purpose of triangulation was to have multiple sources of evidence to support the results of the study (Kolb, 2012). I reviewed the interview data and company documentation to verify accuracy and potential data convergence from multiple sources. Company documents included planning materials, the company website, brochures, advertisements, and other print and digital communications used in the commercialization process.

The advantages of conducting a document review included the ability to repeatedly review the materials, documents covered many settings or events, and documents may contain specific details of the phenomenon under study (Yin, 2014). A

key disadvantage of document review was not receiving access to all documents that may have been involved in the topic of study (Kolb, 2012). To counteract any disadvantage, after gathering data from the company documents, during the member checking interviews, I probed participants further to corroborate the evidence.

Data Organization Technique

Researchers maintained data integrity and confidentiality by using data organization techniques including the management of journal articles, audio recordings, researcher notes, and assigning generic codes to participants (Anyan, 2013; Gibson, Benson, & Brand, 2012). I used Zotero™, an online tool that allowed me to store and categorize articles throughout the research process in a single cloud-based location. As applied by Davis (2013), with participant consent, I transcribed audio recordings of interviews into Word documents and then upload them into NVivo 11 for coding and data analysis. I upload typed notes from the data collection process and upload the information into NVivo 11. As suggested by Fein and Kulik (2011), all raw data will be stored safely and securely in a password-protected environment for five years.

Reflective Journaling

Reflective journaling was a data collection technique used to capture the researcher's personal assumptions, processes, and actions during the research process (Ortlipp, 2008). As the primary data collection instrument, I brought greater transparency to potential biases by making my personal views visible. Applying Lincoln and Guba's (1985) recommendation, I recorded biases, notes, and comments in a journal to mitigate bias and reflect upon the interviewer-interviewee dynamic. Ortlipp (2008) argued that

this reflection process should include changes made to the research process and why those changes were made.

Audio Recording

As long as the participants agree, I audio-recorded interviews using Audacity 2.06 audio recording software. Audio recording interviews was a valuable tool for qualitative researchers to maintain accuracy and data quality (Al-Yateem, 2012). Applying Al-Yateem's (2012) recommendation, I employed the following strategies to minimize any negative effects of audio recording interviews: (a) sought prior approval from participants, (b) arrived early to ensure recording equipment works properly, and (c) used a small unobtrusive recording device (such as Audacity 2.06 audio recording software). Based on Gordon's (2013) suggestion, I reviewed the recorder occasionally to make certain it was working properly. I was able to listen and relisten to audio recordings in the data analysis process to ensure I had a good understanding of the data. As suggested by Fein and Kulik (2011), all raw data will be stored safely and securely in a password-protected environment for five years.

Data Analysis

Researchers gained an understanding of a phenomenon in qualitative research by uncovering hidden patterns, concepts, and themes in the data analysis process (Bedwell, McGowan, & Lavender, 2015; Gioia, Corley, & Hamilton, 2012). I followed the theoretical propositions that led to this case study and used them to guide the data analysis process. I followed Yin's (2014) 5-step data analysis process for case studies to identify and code themes from the data including (1) compiling the data, (2) disassembling the data, (3) reassembling the data, and (4) interpreting meaning of the data, and (5) concluding the data.

Applying Marshall and Rossman's (2016) recommendations, I use methodological triangulation to enhance confirmability. Researchers used triangulation to increase objectivity by verifying data accuracy and convergence from multiple sources (Denzin, 2009; Yin, 2014). I analyzed two different sources of data: interviews with technology development marketing leaders and documentation associated with the commercialization process. I compiled and coded all data from the interviews and documents into NVivo 11 before the data analysis process began. I cross referenced themes from the interviews with themes from the document review to corroborate evidence and triangulate the data from these sources. I followed the data analysis process outlined to ensure I answered the research question for this study.

In step one, applying Trotter's (2012) recommendation, I compiled the data from the transcribed interviews, researcher notes, and documentation using NVivo 11 software. I read and reread the text and listened to audio recordings to grasp a good understanding of the data. I was able to identify if the data was or was not complete or understandable. I assessed the data to determine if it appeared that I collected the data in a biased way by reviewing the bracketing data recorded throughout the study. Step two, I coded and categorized data based on keywords and ideas identified in the eight concepts of the CoI framework and themes from the literature.

In step three, I used the search, query, and visualization tools in NVivo 11 to identify patterns and connections within and between the categories, and sorted and reassembled the data into themes. Applying Thomas's (2015) recommendation, if new themes emerged from the data, I created a new category and scan all the data again to

determine if I should code additional data with the new theme. Step four, I counted the number of times certain themes arose and show relationships among categories. In the last step of the data analysis process, step five, I critically thought about the data and what I learned about the strategies used in the commercialization process. I assessed what the categories and patterns meant, and what was really important based on the research question and the CoI conceptual framework. Throughout each step of the data analysis process, I consistently analyzed the data through the lens of the CoI framework and the key themes from the literature. I continued to use new current published studies to help substantiate emerging findings and to relate the results back to the conceptual framework and the general body of literature.

Credibility, Transferability, Dependability, and Confirmability

Scholars traditionally judged the quality of research by the reliability and validity of the study. However, Lincoln and Guba (1985) suggested researchers adopt new criteria for qualitative studies to maintain rigor and trustworthiness of qualitative research. The criterion included (a) credibility, (b) transferability, (c) dependability, and (d) confirmability (Jacob & Furgerson, 2012; Lincoln & Guba, 1985). By following these well-documented processes for case studies, future scholars may be able to replicate this study and maintain the trustworthiness of qualitative research (credibility, transferability, dependability, and confirmability).

Credibility

Credibility in qualitative research involved the confidence of the participants' assertions in the study (Harper & Cole, 2012). Participants described their personal

experience with the phenomenon, and they were the only ones who could judge the quality of the data (Harper & Cole, 2012). Transcript review was one method of attaining credibility (Harper & Cole, 2012). However, this approach only included participants' review of their transcript (Harper & Cole, 2012). To maximize the credibility of the data, I applied member checking. Member checking was the process of conducting follow-up interviews so participants could verify the accuracy of the data collected and researcher interpretations of the data (Hudson et al., 2014). I conducted the initial interview, interpreted what the participants shared, and then share the data and interpretations with participants, so they could confirm or correct the data. I then altered the interpretations based on participant feedback during the member checking process.

Transferability

Lincoln and Guba (1985) argued that researchers' transferability of case study results were limited to the case or type of case originally studied. Researchers used discretion when evaluating whether the findings from one study could be generalized or transferred to another context or setting (Donatelli & Lee, 2013). As applied by Houghton, Casey, Shaw, and Murphy (2013), I described the research context and assumptions in detail to maintain transferability and so researchers could determine whether the results from this study were transferable.

Dependability

Dependability occured when another researcher can replicate the research process to draw the same results (Houghton et al., 2013; Lincoln & Guba, 1985). It was impossible to duplicate indistinguishably the study because I could not go back in time.

However, as suggested by Donatelli and Lee (2013), I documented the details of the study, changes that occured, and how those changes possibly affected the research process and results to maintain research dependability.

Confirmability

Scholars described confirmability as the degree of neutrality or the extent which study findings were shaped by research participants and not researcher bias, motivation, or interest (Lincoln & Guba, 1985). One-way researchers addressed confirmability was to avoid researcher bias through reflective journaling (Lincoln & Guba, 1985). Reflective journaling was a data collection technique used to capture the researcher's personal assumptions, processes, and actions during the research process (Ortlipp, 2008). Throughout the interviews, I recorded my preconceptions, beliefs, values, and assumptions in a journal. This reflective journaling process allowed me to ensure that research findings emerge from participants' data and not from my predispositions.

Data Saturation

Data saturation was critical to maintaining credibility, transferability, dependability, and confirmability of the study (Ali & Yusof, 2012; Denzin, 2009; Rennie, 2012; Yin, 2014). The company selected for this study was large enough to offer a sample size that could potentially lead to data saturation. Applying Yin's (2014) recommendations, I conduct interviews with all qualified participants until I believed that a data saturation point had been met. Confirmation of data saturation occurred in data collection and analysis when information from data produced little or no change to the

themes and codes (Kolb, 2012). Therefore, I knew the data was saturated when there was no new information to obtain or analyze.

Transition and Summary

In section 2, I discussed (a) role of the researcher; (b) participants; (c) research method and design; (d) population and sampling; (e) data collection instruments; (f) data analysis; and (g) how I maintained credibility, transferability, dependability, and confirmability. Section 3 contained the (a) presentation of findings from the research, (b) professional application, (c) implications for social change, (d) recommendations for action and future studies, (e) personal reflections, and (f) the conclusions.

Section 3: Application to Professional Practice and Implications for Change

This section provides a comprehensive summary of the strategies used by technology development marketing leaders from one firm to commercialize a new product innovation in the healthcare market. Section 3 contains (a) an overview of the study, (b) presentation of the findings by the main themes, (c) application to professional practice, (d) implications for social change, (e) recommendations for action, (f) recommendations for further study, and (g) reflections on my experience as a researcher. I end this section with a summary and study conclusions.

Introduction

The purpose of this qualitative single case study was to explore the strategies some technology development marketing leaders in a single firm used to commercialize a new product innovation in the healthcare market. I conducted semistructured face-to-face interviews with five technology development marketing leaders from a healthcare company in Washington state. Participants responded to the 10 interview questions outlined in the interview protocol (see Appendix A). No interview lasted longer than 60 minutes. Additionally, I reviewed my reflective journal and Alpha company's print and digital commercialization documents to corroborate findings and triangulate the data. Company documents included (a) planning materials, (b) the company website, (c) a presentation, (e) summaries of company-conducted focus groups, and (f) white papers. I also conducted member checking interviews. I summarized and synthesized the interview data, shared a copy with each participant, and asked participants for feedback. I

confirmed and corrected the interpretations of the data based on the participants' feedback.

As outlined in Section 2, I followed Yin's (2014) 5-step approach to identify and code themes from the data. I transcribed the five interviews and gathered the company documents provided by the research partner. Afterward, I imported the data collected from the interviews, researcher notes, and the company documents into NVivo 11 for coding and data analysis. Based on the main research question and key ideas from the CoI framework and the literature, I identified 12 strategies.

After successfully selling its artificial intelligence customer engagement platform in the finance, travel, and recruiting industries for years, Alpha company decided to repurpose its technology into the healthcare market. The parent company created a separate healthcare brand and began to look for funding. Instead of securing investors, the leadership team leveraged one of their relationships in healthcare and found a pharmaceutical company that was willing to pay for the platform to be developed and configured. Alpha company chose to enter the healthcare market based on economics as healthcare trends indicated a great opportunity for their technology.

Presentation of the Findings

This section contains a discussion of the three major themes that emerged during the study. The overarching research question for this study was: What strategies did some technology development marketing leaders use to commercialize a new product innovation in healthcare? Based on the main research question and key ideas from the CoI framework and literature, 12 subthemes emerged. I grouped the subthemes into three

major themes: (a) strategies implemented during the prelaunch phase, (b) strategies implemented during the pilot customer phase, and (c) strategies implemented during the broader market launch phase. Strategies implemented during the prelaunch phase included (a) first-mover timing strategies, (b) market segmentation targeting strategies, and (c) cocreation product strategies. The specific strategies implemented during the pilot customer phase included (a) a mix of positioning the innovation as a real technological breakthrough and something more commonly known or incrementally innovative, (b) a mix of parent and subbrand branding strategies, (c) a skimming pricing strategy, (d) a mix of messages highlighting the sophisticated and technical product features and then communicating the innovation as something more commonly known in the market, (e) a thought leadership communication strategy, (f) a distribution strategy that utilized the pilot customer's existing customer base to field trial the product on patients, and (g) a partnership and alliance strategy of selecting an early adopter pilot customer who funded redeployment of technology for the healthcare market. Strategies implemented during the broader market launch phase included (a) penetration pricing and (b) targeting through identifying new sectors in healthcare and diseases that might benefit from the innovation market segmentation strategies. Table 1 shows the 12 strategies implemented within the eight strategy categories from the CoI framework during each phase of the commercialization process.

Table 1

Strategies Implemented During Each Phase of the CoI Process

Strategy Category	Prelaunch Phase	Pilot Customer Phase	Broader Market Launch Phase

Timing	First-mover strategy driven by Affordable Care Act		
Targeting	Segmented the market based on highest cost centers in healthcare and willingness to pay	Alpha company allied with one pilot customer to gain a foothold	Identified additional sectors in healthcare and more conditions that might benefit from the innovation
Positioning		Used an inconsistent mix of parent and subbrands when positioning the innovation throughout the CoI process; mixed positioning strategies by positioning the innovation as a real technological breakthrough and then sometimes positioning the innovation as something more commonly known or incrementally innovative	
Distribution		Utilized pilot customer's existing customer base to field trial the product on patients	
Pricing		Initially used a skimming pricing strategy	Transitioned to penetration pricing strategy
Communication		Mixed messages of highlighting sophisticated product features and then communicating the innovation as something more commonly known in the market; selected thought leadership as communication strategy to educate the market	
Product	Conducted focus groups for cocreation strategy re: product configuration at launch		
Partnerships & Alliance		Selected early adopter pilot customer who funded redeployment of technology for healthcare market	Pilot customer continued to make the app available for their patients to use as the company pursued other customers.

Emergent Theme 1: Strategies Implemented During the Prelaunch Phase

The first major emergent theme was strategies implemented during the prelaunch phase of the CoI process. The strategy categories represented in the data during this phase were (a) timing, (b) targeting, and (c) product strategies. As confirmed by interview data and company documents, the specific strategies implemented during the prelaunch phase

included (a) a first-mover timing strategy, (b) a market segmentation strategy based on highest cost centers in healthcare and willingness to pay, and (c) a cocreation product strategy. The three prelaunch strategies aligned with Frattini et al.'s (2012) early adoption substrategy from the CoI framework. As noted in the CoI framework timing, targeting, and product strategies were necessary to diffuse the innovation in the early market and build a positive attitude toward the innovation. Frattini et al. suggested considering communication strategies during this phase; however, communication strategies were not considered in this case until the pilot customer phase. Table 1 shows the three strategies implemented during the prelaunch phase of the CoI process.

Timing Strategies. Opportunity drove Alpha company's timing strategies. When the ACA was enacted, there was a shift from volume to value-based healthcare, which meant that healthcare organizations and consumers were going to be more motivated than ever to demonstrate outcomes and change patient behavior. Participants believed there was a huge need in healthcare for their technology, and it was an untapped market.

Participant responses from interviewees noted the use of first-mover timing strategies in the CoI process. As mentioned in Section 2, first-mover theory was upheld as the predominant view from scholars (Zachary et al., 2014). Suarez et al. (2015) posited that many scholars departed from the notion that being first to market automatically equaled market success. Kim, Min, and Chaiy (2015) argued that established companies often decided to enter new markets when they seek to increase the firms' profits. Supporting this idea, as pointed out by P1, P2, P3, and P4, Alpha company was an established business operating in other industries, but its leadership decided to enter the

healthcare market and launch a radical technology innovation motivated by economics. P1 noted, "You have to move with it [market shifts] and take advantage of the opportunities [that] come your way." P4 agreed with this point with several statements. "Healthcare is a big untapped market. . . . Nobody's using this kind of technology. . . . There's a huge need. . . . It's the biggest industry in the country except maybe agriculture." Firms may decide to enter new markets based on interfirm competition or benchmarking activities (Kim et al., 2015); however, none of the four participants who noted the implementation of timing strategies indicated any motivation beyond profit. The company documents from Alpha company did not mention any strategic consideration about the company's timing strategy or when they would enter the market.

Targeting Strategies. Alpha company's targeting strategies were selected based on (a) where was the biggest need for their technology, (b) who was going to benefit from the innovation, (c) who had the money to pay for the innovation, and (d) where the company had relationships. Medication adherence is a big problem in healthcare, and pharmaceuticals seemed to be where there was a convergence of need, desire, and willingness to invest to improve medical adherence. The leaders of Alpha company believed that patients, physicians, payers, and pharmaceutical companies would all benefit from the patient using their digital health platform.

In line with CoI theory, Alpha company documents and participant responses showed technology development marketing leaders from Alpha company implemented targeting strategies during the prelaunch phase of the CoI process. All five study participants affirmed that they used market segmentation as a targeting strategy (P1, P2,

P3, P4, and P5). P1 indicated, "We looked at where the money was being spent and picked seven disease states. . . . Based on the disease state, we figured out who's going to benefit the most and who has the biggest need for our technology." A review of the company documents validated P1's remarks by revealing an emphasis on the needs of different market segments and their distinct motivations to buy (Launch Announcement, 2014). Similarly, each of the two focus group summaries was designed and directed to different segments of the target market. P2 agreed that the target market was segmented based on which audiences could benefit from the innovation, where the money was, and what relationships the company could leverage. P5 echoed those remarks, "Pharma is considered early adopters because they have lots of money, and we had relationships [with them]."

Alpert and Saxton (2015) argued that understanding the benefits people want, or the attitudes and beliefs that are important to them might be more useful than just segmenting an audience based on demographics. P3 declared, "We chose our point of entry based on two things: where we could provide the most value with our technology and where we believed we could drive adherence." Study participants spoke of their need to make the best use of their finite resources by identifying the most appropriate segments to serve. In the innovation launch announcement e-mail, in the "Who is this for?" section, I found the following segments defined:

- "Doctors can achieve better outcomes for patients."
- "Payers can reduce risk of costly hospital admissions."

- "Pharmaceuticals can gain a competitive edge for their customers (doctors) and their drugs" (Launch Announcement, 2014).

P5 expressed the challenge in assessing who would buy and why they would buy an innovation in an emerging market.

Product Strategies. With pharma identified as Alpha company's first pilot customer, the product was configured to match the needs of patients with neurological disorders (ND); a specific therapy class linked to one of pharma's top drugs. Cocreation was a heavily used product strategy. P1 and company documents confirmed that Alpha company conducted four focus groups to determine the most common challenges ND patients faced in managing their health, the tools they currently used, and feedback on product features (Focus Group Summary 1; Focus Group Summary 2). P5 noted that they determined the product configuration from specifications applied in the company's other markets. Alpha company proceeded with a beta launch to uncover additional insights from the marketplace and then planned to reconfigure the product based on customer feedback.

Aligned with CoI theory, company documents from Alpha company and participant responses confirmed the company implemented cocreation product strategies during the prelaunch phase of the CoI process. As noted in Section 1 in the literature review, cocreation was a new product strategy business leaders used in the CoI process. Company documents reflected support for this strategy as indicated in four focus group sessions conducted by Alpha company (Focus Group Summary 1; Focus Group Summary 2). Technology development marketing leaders collected customer insights

about the most common challenges they faced in managing their health, tools they currently used, and feedback on product features (Focus Group Summary 1; Focus Group Summary 2). Lynch, O'Toole, and Biemans (2014) maintained new product innovators involved customers in the new product development process to reduce uncertainty and increase the likelihood of customer acceptance and market success.

P1 validated the implementation of cocreation strategies via three Alpha Company focus groups. However, P1 noted, "People feel agreeable in a focus group for the most part." P1 remarked Alpha company proceeded with a beta launch to uncover additional insights from the marketplace and reconfigure the product. P2 asserted the company selected the product configuration at launch based on specifications from previous industries. P2 and P5 stated Alpha company secured a large customer with a wide reach and involved the customer in the new product development process. Not all cocreation relationships lead to new product success; the degree of interaction, the amount of information shared, the structuredness of interaction, and customer motivators influence the benefits of cocreation activities (Lynch et al., 2014; Theilacker, Lukas, & Snow, 2016).

Adding to this view, Chuang, Morgan, and Robson (2015) found customer orientation, relying on customers to know their future needs, does not always lead to new product success. In fact, business leaders seeking to launch a new product, especially a radical innovation, were advised not to lean completely on customer guidance when planning product configurations (Chuang et al., 2015). A mix of customer-oriented learning and the firm's new product competence provides the right exchange of ideas to

produce new products prone for market success. Jang and Chung (2014) confirmed these findings by claiming customer input was only valuable for incremental innovations and short-term benefits; the firm's own research and development was the driver for long-term performance. Lynch et al. (2014) argued it was more about the interactions between customers and firms throughout the innovation process rather than what networks were involved in new product development.

Emergent Theme 2: Strategies Implemented During the Pilot Customer Phase

The second major emergent theme was strategies implemented during the pilot customer phase of the CoI process. The strategy categories present in this phase were (a) positioning (b) distribution, (c) pricing, (d) communication, and (e) partnerships and alliances. As confirmed by interview data and company documents, the specific strategies implemented during the pilot customer phase included (a) a mix of positioning the innovation as a real technological breakthrough and something more commonly known or incrementally innovative, (b) a mix of parent and subbrand branding strategies, (c) a skimming pricing strategy, (d) a mix of messages highlighting the sophisticated and technical product features and then communicating the innovation as something more commonly known in the market, (e) a thought leadership communication strategy, (f) a distribution strategy that utilized the pilot customer's existing customer base to field trial the product on patients, and (g) a partnership and alliance strategy of selecting an early adopter pilot customer who funded redeployment of technology for the healthcare market. Frattini et al. (2012) argued that positioning and partnerships and alliances were critical for gaining support that is necessary for diffusing the innovation in the

mainstream market. In this case, positioning strategies were inconsistent, and partnerships and alliances were limited. Table 1 shows the five strategy categories and specific strategies implemented during the pilot customer phase of the CoI process.

Positioning Strategies. Alpha company implemented a mix of positioning the innovation as a real technological breakthrough and something that was more commonly known or incrementally innovative during the pilot customer phase. One of the biggest challenges Alpha company faced was positioning the innovation. Each participant and various company documents described the innovation as something different. Because the technology was so revolutionary to this market, the company found it difficult to explain what their solution was and how it fit into the existing infrastructure. If the company described the technology as artificial intelligence, the market seemed uncertain and afraid of the platform. If the company described the innovation as a digital health platform, the innovation seemed to be perceived as a substitute product for hundreds of other digital health solutions in the market. Describing the innovation as something the market was familiar with seemed to position the innovation as a me-too product. Whereas, describing the innovation as something distinct and unique seemed to create confusion and uncertainty. The only things that do what Alpha company's technology does are human beings. The new product innovation would replace what humans are currently doing.

Aligned with CoI theory, all five participants confirmed Alpha company's technology development marketing leaders used positioning as a strategy during the pilot customer phase of the CoI process. As noted in the literature review in Section 1, when

launching radical innovations, which often include pioneering qualities, business leaders may encounter unique challenges with developing positioning strategies because consumers have trouble comparing competitor or substitute products that do not exist (Fuchs & Diamantopoulos, 2012). P5 asserted the market for their new product innovation did not exist. “The only competitive product out there is humans doing it right now (P5).” P1 stated, “Some people would say we’re a mobile app, but we’re not…I think we’re a digital health solution…we could compete against other tracking and measuring applications…we could compete against existing services companies, any sort of patient engagement technology.”

Within the positioning category, Alpha company also implemented a mix of parent and subbrand branding strategies. Some company documents had the parent brand, others had the new company brand the company developed for healthcare, and other documents had the product brand and then the brand the company developed for their conference or thought leadership initiative. This type of inconsistency in the brand portfolio made the positioning unclear and diluted the limited resources the company had to invest in branding. With this approach, the company had to invest and manage a multitude of brands.

Asberg (2015) found when marketing managers have inconsistent views on the brand portfolio it may lead to an unclear positioning of new products and warrants attention from leadership. Chiesa and Frattini (2011) argued that an unclear positioning of the innovation might lead to limited support from the adoption network and hinder market success (Chiesa & Frattini, 2011). P4 posited that Alpha company positioned the

new product innovation as an “advanced A.I. engine that can speak to people and motivate them and help change their behavior.” P4 continued, “We’re defining it as a motivational agent.” P2 claimed Alpha company positioned the innovation as a patient engagement platform and ecosystem. Further, P1 presented the following position statement, “It’s about the person and not the technology.”

P3 indicated the company created a new subbrand to position Alpha company as a healthcare business instead of other markets where the parent company competed. After reviewing Alpha company documents, I discovered the company used the following mix of branding (a) a the subbrand on one of the internal presentation documents; (b) the parent brand was used on one white paper, (c) the product brand was used on four of the company documents including an internal marketing document, a focus group summary, and two white papers; and (d) the parent brand and subbrand were used on the website. One of the focus group summaries also highlighted the use of a second product brand, which represented a slightly different product configuration directed at a different segment of the market. Asberg (2015) maintained differing views of the brand portfolio structure could influence support for the brands and lead to underperforming brands and problematic brand positions.

Distribution. When I asked participants about distribution strategies, they all stated that they didn’t have any distribution strategies in place yet. Alpha company viewed the pharma company that funded the initial development for the ND platform as a customer, not a distributor. Because each customer and disease state would require a different product configuration, they didn’t see distribution channels as an option just yet.

However, Alpha company implemented a distribution strategy that utilized the pilot customer's existing customer base to field trial the product on patients.

Within CoI theory were three interrelated substrategies that require a distinct set of commercialization concepts or strategies to maximize market acceptance (Frattini et al., 2012). Frattini et al. (2012) maintained business leaders should implement distribution strategies during the mainstream adoption phase of the commercialize process and were meant to stimulate the diffusion of innovation within the mainstream market. One of the roles distributors play is diffusion to the mainstream market, but this innovation appeared to be still diffusing through the innovator/early adoption market.

All five participants from Alpha company confirmed the company did not use distribution strategies in the CoI process, and noted participants were focused on direct sales and had not implemented a distribution strategy (P1, P2, P3, P4, & P5). Technology development marketing leaders were still focused on the early adoption strategy in the CoI process and had not considered distribution channels yet. P2 noted, “The new product innovation was not an off-the-shelf solution.” As Alpha company grew closer to constructing a product configuration that did not require customization, they may have explored distribution channels (P2). Restuccia, Brentani, Legoux, and Ouellet (2016) asserted distributors help new product developers achieve differentiation and competitive advantage by acting as “problem informers, solution advisors, solution implementers and solution managers.”

Pricing Strategies. When it came to pricing the innovation, Alpha company began with a skimming pricing strategy. Initially, the company charged the pharma pilot

customer a fixed fee, which was used to fund the development of the platform. Of the five interviewees, only two participants from Alpha company indicated the company implemented a pricing strategy in the CoI process. P3 and P5 claimed a high price, or price skimming strategy, was used initially at launch. Price skimming was applied when business leaders want to recoup quickly the substantial financial investments made in the development of the innovation (Shaw, 2012). Company documents did not mention a pricing strategy, but other scholars confirmed the importance of implementing a pricing strategy when launching an innovation. Kuester, Feurer, Schuhmacher, and Reinartz (2015) maintained it was difficult for innovators, especially for radical innovations, to price new products when equal or similar products do not exist yet.

Communication Strategies. Alpha company implemented two strategies from the communication category in the CoI framework. There was a mix of messages highlighting the sophisticated and technical product features and then communicating the innovation as something more commonly known in the market, and there was a thought leadership communication strategy during the pilot customer phase of the CoI process. While Alpha company appeared to have success with their thought leadership strategy, the messaging strategy was problematic. P1 acknowledged that modifying the message to something that people understood was one of their biggest challenges. Frattini et al. (2012) argued that positioning and messaging remain difficult with radical innovations like this technology.

Alpha company relied heavily on thought leadership as their communication strategy. Participant responses from interviews and Alpha company's CoI documents

confirmed the primary communication strategy used by the technology development marketing leaders was thought leadership (P4, P5). Alpha company launched a new extension brand to facilitate industry conferences and seminars with the goal of creating a discussion around industry challenges and potential solutions (P1, P3). Company documents affirmed this strategy with the new logo and event information available online (Company Website). P5 noted the communication strategy of enhancing the CEO's personal brand and digital presence as a thought leader in the new market of healthcare. Four of Alpha company's print documents and four digital documents online confirmed the thought leadership strategy (Website, Whitepapers 1, 2, 3, & 4).

P5 stated, "We're not selling technology, we're selling a healthcare solution." "No one wants to buy technology; they want to buy solutions to their problems" (P5). P1 supported this claim by expressing "initially we messaged it [the new product] as a technology launch, then we refined it as a solutions launch." "Our biggest problem was modifying the message to something people understood" (P4). Alpha company's documents supported the responses of P1 & P4 and revealed solution oriented messages (White Papers 1 & 4). Heidenreich and Kraemer (2015) posited marketing leaders should use advertising to reinforce the new product innovation's compatibility with common practices to overcome cognitive passive resistance. In conflict with this view, Frattini et al. (2012) argued early adopters were motivated to buy with messages based on sophisticated, technical, and more revolutionary features.

Partnerships and alliances. Similar to the participant's view about distribution strategies, the technology marketing leaders from this case maintained that partnerships

and alliance strategies were not implemented. Participants viewed the pharma company as a customer, not a partner. Participants claimed they did a lot on their own and were still in the process of identifying partners to help them go to market. However, Alpha company implemented a partnership and alliance strategy of selecting an early adopter pilot customer who funded redeployment of technology for the healthcare market.

Frattini et al. (2012) and Matikainen, Rajalahti, Peltoniemi, and Parvinen (2015) argued partnerships and alliances, or network relationships, were arguably the most critical determinants in fostering customer acceptance and stimulating adoption. However, all five participants from Alpha company confirmed partnership and alliance strategies were not implemented in the firm's CoI process and noted partnerships and alliances was a strategy still being developed (P1, P2, P3, P4, & P5). P2 noted Alpha company had a lot of partnership opportunities. P1 stated, "We did a lot on our own…we're still in the process of identifying partners that can help us go to market." I corroborated these finding with Alpha company's documents as none of the CoI documents supplied by the firm mentioned the use of partnerships or alliances. Matikainen et al. (2015) confirmed the use and viability of partnerships and alliances by business leaders and noted companies who align with key opinion leaders (KOLs) early enough in the commercialization process may benefit from building market awareness, focusing on unique customer benefits, and meeting unmet market needs. Chiesa and Frattini (2011) maintained that a lack of support from the adoption network remains a major hindrance to reaching market success.

Emergent Theme 3: Strategies Implemented During the Broader Market Launch Phase

The third major emergent theme was strategies implemented during the broader market launch phase of the CoI process. The strategy categories present in this phase were targeting and pricing. Within these two strategy categories, as confirmed by interview data and company documents, Alpha company implemented a targeting strategy of identifying new sectors in healthcare and diseases that might benefit from the innovation and a penetration pricing strategy. I discovered that Alpha company transitioned from the initially adopted strategy to another approach. In this case, the market segmentation strategy expanded over time and Alpha company transitioned from a skimming pricing strategy to a penetration pricing strategy. Table 1 shows the two strategy categories and the specific strategies implemented during the broader market launch phase of the CoI process.

Targeting Strategies. During the broader market launch phase, Alpha company decided to start exploring other market segments in healthcare to grow revenues and profitability. As indicated above by P1, the company "Looked at where the money was being spent." There were other sectors in healthcare and other disease states that might benefit from the company's technology. Specialty pharmacy was another segment they began to explore because this sector was increasingly responsible for demonstrating improved health outcomes. Although the specialty pharmacy market does not usually have the same large revenues and profits as pharma to pay for these types of innovations,

Alpha company believed their innovation could drastically reduce operational costs, which might make the innovation more attractive.

Pricing Strategies. After initially implementing a skimming pricing strategy, the company transitioned to a penetration strategy. Alpha company decided the skimming strategy was not sustainable and chose to secure funding on its own to build the product, so it could sell the platform based on market value and penetrate the market quicker. Hinterhuber and Liozu (2014) asserted that unlike established products and services, which may build their pricing strategy on costs, competition, and customer value, business leaders often price innovations based on launch goals (Shaw, 2012). P3 and P5 confirmed their pricing strategy evolved throughout the launch process to a penetration strategy, which meant lowering the price. P3 indicated, "We removed the risk from our pricing strategy giving us a product that was faster to deploy." Consumer acceptance of new products was influenced by perceived price fairness and judgments on as-similar-as-possible reference transactions (Kuester et al., 2015). P5 supported this view by affirming they [Alpha company] went back to a "what makes something consumable," "what makes sense to our buyer" strategy. The time gap to close new business was shortened by almost a year by making the change to our pricing strategy and thus improving the perception of price fairness (P3). Kuester et al. (2015) claimed highly innovative consumers, who were more likely to purchase radical new products, generally viewed high launch prices more favorably than less innovative consumers.

How Findings Tied to Conceptual Framework

The results of this research study tied to the conceptual framework by identifying what CoI strategies technology development marketing leaders implemented in this single case throughout three phases of the CoI process. The findings of this case study supported Chiesa and Frattini (2011) and Frattini et al. (2012) with regard to the importance of (a) timing, (b) targeting, (c) positioning, (d) product, (e) communication, (f) pricing, (g) distribution, and (h) partnership and alliance strategies. The results of this study aligned with Frattini et al.'s argument that timing, targeting, and product strategies were critical to the early adoption strategy and their argument that partnerships and alliances were critical to enabling diffusion of the innovation in the mainstream market. In this narrow case, the findings from this study supported Chiesa and Frattini and Frattini et al. by highlighting the inherent challenges with commercializing a high tech, radical innovation.

How Findings Tied to Existing Literature

The findings from this research study also tied to existing literature published on the commercialization strategies used for effective business practice including CoI product strategies (Lynch et al., 2014), positioning strategies (Asberg, 2015), targeting strategies (Alpert & Saxton, 2015), and communication strategies (Heidenreich & Kraemer, 2015). Although the findings from this study indicated that technology development marketing leaders did not fully leverage distribution strategies within their current CoI process, Restuccia et al. (2016) still emphasized the importance of distribution strategies for effective new product commercialization. The difficulty in

appropriately positioning a new product innovation aligned with Fuchs and Diamantopoulos's (2012) findings and the disadvantages of being a first-mover aligned with Zachary et al.'s (2014) findings. Chiesa and Frattini (2011) and Frattini et al. (2012) confirmed the use of all eight CoI strategies for reaching market success and effective commercialization of new product innovations. As noted by Kuester et al. (2015), Theilacker et al. (2016), and Chuang et al. (2015), multiple articles validated the implementation of CoI strategies for effective business practice.

Application to Professional Practice

The enactment of the Affordable Care Act initiated an explosion of innovation in healthcare. Although healthcare business leaders are producing innovations that meet market needs and are superior to other products on the market, Frattini et al. (2012) maintained that an overwhelming number of commercialized innovations would not reach market success. Some healthcare business leaders have a limited understanding of the strategies that influence commercial success and failure. The findings from this study are relevant to improving business practice because the findings revealed the set of commercialization decisions made by technology development marketing leaders in the case, what phase of the CoI process specific strategies were implemented, and some of the pitfalls of commercializing a innovation, especially a radical innovation.

The findings of this study may help healthcare business leaders optimize market success by being aware of some of the strategies used in this case. Healthcare business leaders might choose a pilot customer or early adopter to fund the development of the innovation. This strategy may help businesses that need additional capital to develop or

launch the innovation. Participants in this case also used a cocreation product strategy to determine the optimal configuration at launch. Other healthcare business leaders may choose this product strategy to maximize the use of resources by identifying which features or functionality are most important to early adopters.

Business practice might be improved by extending knowledge about what strategies were used throughout different phases of the CoI process. Frattini et al. suggested that effective commercialization was maximized when specific strategic decisions were made through the lens of three interrelated substrategies: (a) early adoption strategy, (b) adoption network, and (c) mainstream adoption. In this case, some of the strategic categories used during the prelaunch, pilot, and broader market phases aligned with this CoI framework; whereas, in other instances some of the strategic decisions did not align. Healthcare business leaders might enhance their commercial success by better understanding the significance of implementing specific strategic categories during precise phases of the CoI process.

The findings of this study may also help healthcare business leaders circumvent failure by avoiding some of the pitfalls of commercialization identified in this case. Being first to market with an innovation does not always guarantee market success (Zachary et al., 2014). The findings from this case demonstrated the challenges with being first to market, especially with bringing a radical innovation to market. Launching an artificial intelligence platform to meet some of the needs in healthcare was unprecedented and healthcare business leaders struggled with reaching potential customers who were less risk averse. Healthcare business leaders were unsure how to position, brand, and message

the innovation. The unclear positioning, branding, and messaging resulted in limited support from the adoption network and a more narrow diffusion of the innovation throughout the market. Healthcare business leaders might enhance their commercial success by gaining a deeper understanding of the strategies that influence commercial success and failure.

Implications for Social Change

There are several implications for social change from the findings of this study. The sustainability of healthcare is critical to the United States and the world. Healthcare business leaders and the phenomenon of bringing new product innovations to the healthcare market are vital to mitigating the health crisis not just in America, but also around the globe. In the new value-based world of healthcare, many of the innovations brought to market seek to drive improvements in the quality and cost of healthcare. Increasing commercial success and the diffusion of new product innovations might lead to better ways of managing individual health and healthcare communities. New product innovations might lead to breakthroughs in information gathering, research, treatments, and communications, which give medical providers new tools to work with and fresh ways to practice medicine. Better delivery of healthcare results, healthcare innovations, and getting new products to the market may improve the health of individuals, mitigate medical errors, and reduce the costly burden of healthcare for individuals, organizations, and society at large. As technology development marketing leaders better understand the strategies that might influence commercial success and failure, organizations who optimize market success have the potential to act as an economic catalyst in the markets

they serve, which may lead to additional jobs in new or existing markets and foster better worker self esteem.

Recommendations for Action

The shift from volume to value-based healthcare necessitates effective business practices more than ever for company sustainability and profitability. Similarly, there is a new explosion of technology innovation and entrepreneurship in the healthcare market. The trends reshaping the healthcare industry place greater demand on technology development marketing leaders, healthcare business leaders, and innovation management professionals. The following four recommendations may assist healthcare leaders with understanding what and how different strategies might influence market success and failure.

My first recommendation is that technology development marketing leaders consider the strategic decisions from all strategic categories within the CoI framework since each decision might influence commercial success or failure. The second recommendation is for technology development marketing leaders to gain a deeper understanding of the coherent set of strategic and tactical marketing decisions well before the innovation is developed and launched because different types of innovation require a different set of commercialization strategies to achieve success. The third recommendation is for technology development marketing leaders to better understand how the commercialization decisions within each substrategy in the CoI framework could help fuel or quell the diffusion of the innovation. The last recommendation is that technology development marketing leaders distinguish the characteristics of the

innovation, the market being targeted, and the target market's associated behavior and consumption patterns to avoid some of pitfalls in commercialization.

The findings of this study are helpful for technology development marketing leaders in any healthcare organization. I will disseminate the results of this study to bridge knowledge gaps between academia and business practice. I will share the findings from my study with other business professionals through scholarly journals and other business publications. I will also share the study findings through my company blog, industry conferences, and social media channels.

Recommendations for Further Research

Recommendations for further research are studies (a) in different geographical locations, (b) of different firm sizes, (c) of different phases of the company life cycle, (d) which are a multiple case study, and (e) conducted concurrent with the CoI process. The explosion of new product innovation within healthcare businesses warrants a deeper exploration of the commercialization strategies used to reach market success and the strategies used to improve commercialization practices in healthcare businesses. Researchers should conduct further studies to address the limitations of this study. This research study was limited to one healthcare technology company located in Washington state. The first recommendation is to conduct future research with a different market segment of technology development marketing leaders outside the healthcare market and outside of Washington state. Additional research with other firm sizes and other regional locations may provide added insights into what commercialization strategies are being implemented and overlooked by business leaders.

This study was also limited to a single case. I would also recommend a multiple case study to compare strategies from one case to another. A comparative study among cases with businesses at various stages of a company's lifecycle such as what commercialization strategies were used for a start-up versus a mature company might be useful for business leaders. Another limitation is that participants had to rely on their recollection of commercialization practices. I also recommend future scholars consider collecting data while the CoI process is taking place instead of a historical look back on the commercialization decisions made in the past to ensure a complete representation of the commercialization process. Technology development marketing leaders should analyze the impact of specific strategies on new product innovation performance to inform healthcare business leaders on what strategies have the greatest impact on reaching market success.

Reflections

From the beginning of selecting the business problem I would explore to developing a synthesis of the literature to conducting research for my study, I always believed there would be a wide gap between academia and business practice on this topic, especially in healthcare. In my professional experience as a healthcare marketing consultant and owner of a healthcare marketing firm, I witnessed the healthcare industry's lag behind most other industries in the application of effective business practice. I believed most technology development marketing leaders would not be aware of some of the strategies within CoI theory nor many critical strategic considerations identified in the literature. I was aware of these preconceived ideas and made certain to

record them in my reflective journal. Throughout the data analysis process, I referred back to my reflective journal to mitigate bias and ensure I was not leaning toward supporting evidence, while ignoring opposing data. I was surprised to discover that Alpha Company's pilot customer funded the development of the innovation and that participants viewed the pilot customer as a customer instead of a partner. I expected to see participants struggle with some of the strategies used and that was confirmed with the challenges they faced with positioning, branding, and messaging strategies. I was somewhat surprised to learn that Alpha company initially used a skimming pricing strategy and transitioned to a penetration pricing strategy. Participants changed pricing strategies to optimize diffusion of the innovation. After completing the study, my beliefs about technology development marketing leaders' limited understanding of the strategies and substrategies required to reach market success were reinforced.

Summary and Study Conclusions

The ultimate purpose of developing new products in healthcare businesses is commercialization. The success of new product commercialization depends heavily on the strategies technology development marketing leaders implement during each phase of the CoI process. The purpose of this qualitative single case study was to answer the main research question: what strategies did some technology development marketing leaders use to commercialize a new product innovation in the healthcare market? Five technology development marketing leaders from one healthcare company in Washington state participated in semistructured interviews. In addition to interview data, I analyzed my reflective journal and company documents from the CoI process.

After collecting and analyzing data, three major themes emerged including (a) strategies implemented during the prelaunch phase, (b) strategies implemented during the pilot customer phase, and (c) strategies implemented during the broader market launch phase. Strategies implemented during the prelaunch phase included (a) first-mover timing strategies, (b) market segmentation targeting strategies, and (c) cocreation product strategies. The specific strategies implemented during the pilot customer phase included (a) mix of positioning the innovation as a real technological breakthrough and something more commonly known or incrementally innovative, (b) a mix of parent and subbrand branding strategies, (c) a skimming pricing strategy, (d) a mix of messages highlighting the sophisticated and technical product features and then communicating the innovation as something more commonly known in the market, (e) a thought leadership communication strategy, (f) a distribution strategy that utilized the pilot customer's existing customer base to field trial the product on patients, and (g) a partnership and alliance strategy of selecting an early adopter pilot customer who funded redeployment of technology for the healthcare market. Strategies implemented during the broader market launch phase included (a) a penetration pricing strategy and (b) a targeting strategy of identifying new sectors in healthcare and diseases that might benefit from the innovation.

The specific business problem for this study was that some technology development marketing leaders have limited strategies to commercialize new product innovations in the healthcare market. Although limited to a narrow set of commercialization strategies, the results of this study included findings that might have the potential to influence the success of a new product innovation and help business

leaders avoid market failure, apply better use of organizational resources, and increase profitability. The study participants and company documents demonstrated the strategies that were used by technology development marketing leaders in this single case. Organizational leaders must make their own assessment and select the strategies that make the most sense based on market research and their type of innovation. Healthcare business leaders must identify whether they are launching a radical or incremental innovation since different types of innovation require a different set of commercialization strategies.

The results of this study demonstrated the challenges associated with being a first-mover, having an unclear positioning strategy, and not having the right partnerships and alliances in place to stimulate diffusion of the innovation. An additional contribution of this study is an illustration of how the three prelaunch strategies from this case aligned with Frattini et al.'s (2012) early adoption substrategy from the CoI framework, which stated that timing, targeting, and product strategies were necessary to diffuse the innovation in the early market and build a positive attitude toward the innovation. In this case, positioning strategies were inconsistent, and partnerships and alliances were limited.

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Appendix A: Interview Protocol

<table>
<tr><th colspan="2">Interview Protocol</th></tr>
<tr><td>What you will do</td><td>What you will say—script</td></tr>
<tr><td>Introduce the interview and set the stage—often over a meal or coffee</td><td>First let me thank you for your participation in this study.

You were invited to take part in this study because you are a manager, director, or executive in your company who made decisions associated with the new product innovation commercialization process.

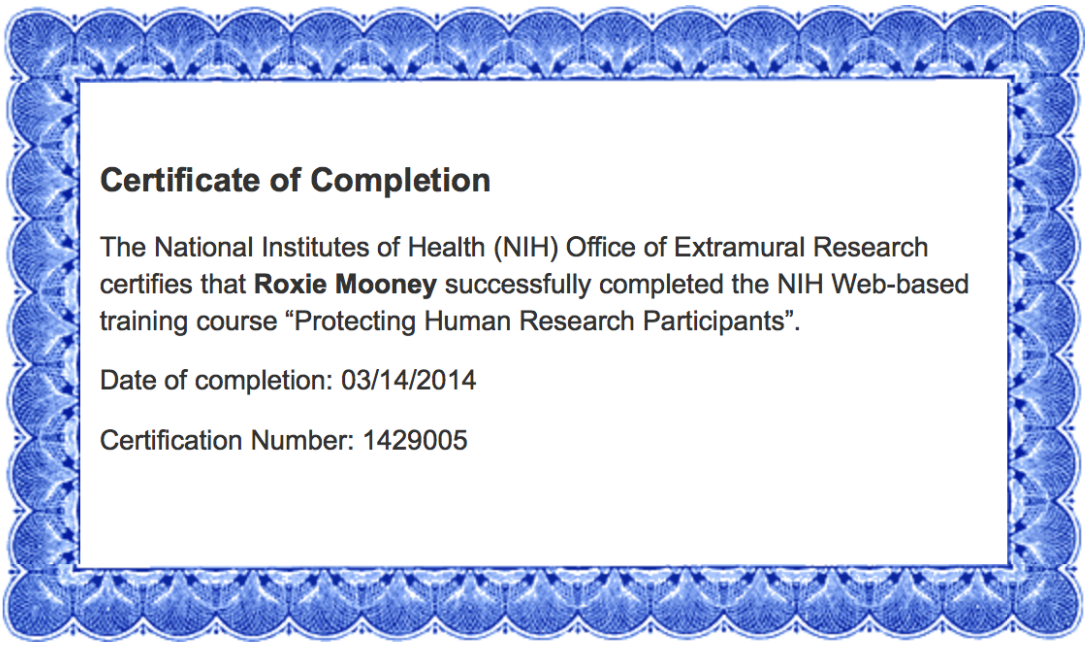
The interview is scheduled to last no longer than one hour. During this time, I will ask you several questions. This study does not aim to evaluate your techniques or experiences. Rather, we are trying to learn more about what strategies business leaders use to commercialize a new product innovation.

To augment my note taking, I would like to audio record our conversations today. Are you okay with that? Only I, as the researcher, will listen to the recording. It will be destroyed after 5 years with the rest of the data collected. Do you have any questions? So let us get started.</td></tr>
<tr><td rowspan="6">• Watch for non-verbal queues
• Paraphrase as needed
• Ask follow-up probing questions to get more indepth</td><td>1. What strategies did you use throughout the commercialization process?</td></tr>
<tr><td>2. How did you use partnerships or alliances in bringing the new product innovation to market?</td></tr>
<tr><td>3. How did you define your target market for the new product innovation?</td></tr>
<tr><td>4. How did you determine what features and functionally to include in the product configuration at launch?</td></tr>
<tr><td>5. How did you determine the timing to launch your new product innovation?</td></tr>
<tr><td>6. How did you determine the price for the new product innovation?</td></tr>
</table>

	7. How did you distribute the new product innovation?
	8. How did you make the target market aware of the new product innovation?
	9. How did you position the new product innovation?
	10. What additional experiences have you had with the commercialization process that you would like to share?
Wrap up interview thanking participant	Thank you so much for your time today. Your insights were helpful in understanding better the strategies business leaders use to commercialize new product innovations. As next steps, I will synthesize your answers and conduct a follow up interview in the next couple days, so you can verify if the data and my interpretations of the data were accurately recorded.
Schedule follow-up member checking interview	When is the next time you are available to review your responses?
Follow–up Member Checking Interview	
Introduce follow-up interview and set the stage	Thanks again for your time. As I mentioned before, the purpose of this interview is to make sure I recorded the correct meaning of what was said. This interview should not last any longer than 30 minutes. Let us get started.
Share a copy of the succinct synthesis for each individual question Bring in probing questions related to other information that you may have found—note the information must be related so that you are probing and adhering to the IRB approval. Walk through each question, read the interpretation and ask: Did I miss anything? Or, What would you like to	Question and succinct synthesis of the interpretation— perhaps one paragraph or as needed
	1. Question and succinct synthesis of the interpretation—perhaps one paragraph or as needed
	2. Question and succinct synthesis of the interpretation—perhaps one paragraph or as needed
	3. Question and succinct synthesis of the interpretation—perhaps one paragraph or as needed
	4. Question and succinct synthesis of the interpretation—perhaps one paragraph or as needed
	5. Question and succinct synthesis of the interpretation—perhaps one paragraph or as needed
	6. Question and succinct synthesis of the interpretation—

add?	perhaps one paragraph or as needed
	7. Question and succinct synthesis of the interpretation—perhaps one paragraph or as needed
	8. Question and succinct synthesis of the interpretation—perhaps one paragraph or as needed
	9. Question and succinct synthesis of the interpretation—perhaps one paragraph or as needed
	10. Question and succinct synthesis of the interpretation—perhaps one paragraph or as needed

Appendix B: National Institutes of Health (NIH) Ethics Training Certificate



Certificate of Completion

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

Date of completion: 03/14/2014

Certification Number: 1429005

Appendix C: Research Partner Permission Form

LETTER OF COOPERATION FROM A RESEARCH PARTNER: PERMISSION TO USE PREMISES, NAME, AND SUBJECTS

Community Research Partner Name: [redacted]

Official's Name and Position: [redacted]

Contact Information: [redacted]

Date: December 28, 2015

Dear Roxie Mooney,

Based on my review of your research proposal, I hereby authorize Roxie Mooney, a doctoral student at Walden University, to use the premises, names and subjects requested within the [redacted] to conduct a study entitled Exploring Strategies Technology Development Marketing Leaders Use to Commercialize New Product Innovations. I also authorize Roxie Mooney to reach out to potential participants from the employee roster, which I will provide.

We understand that our organization's responsibilities include:

- Provide the researcher with contact information for the potential participants.
- Voluntarily participate in an interview with the researcher regarding commercialization strategies use to launch a new product technology innovation The duration of the interview will be 30-60 minutes.
- The interview will be audiotaped to ensure the accuracy of the data collected.
- Voluntarily participate in a follow-up interview to ensure the researcher's interpretations of the data are accurate. The duration of the interview is expecte to last 30-60 minutes.
- Voluntarily provide print and digital company documents associated with the commercialization process.

We reserve the right to withdraw from the study at any time if our circumstances change.

As part of this study, I authorize you to recruit individuals in this organization to participate. I will provide you a list of names of individuals that meet your inclusion criteria and you may contact them directly or I may forward an invitation to employees directing them to contact you directly if they are interested in participation. Individuals' participation will be voluntary and at their discretion.

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 Institutional Review Board (IRB).

[redacted]

Signature of Authorization Official

1/6/2014

Date

[redacted]

Title

[redacted]

Organization

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).