

Leader Behaviors for Sustaining the Implementation of Lean Methodologies in Multi-National
Companies: A Qualitative Case Study

by

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Abstract

Increasing global competition has led many business leaders to implement Lean methodologies to drive operational improvement and deliver increased customer satisfaction. However, not all business leaders have been successful in sustaining Lean implementation with the majority failing within the first three years. In addition, the challenge related to implementing Lean in multi-national companies is exacerbated by the cultural differences associated with the various business units involved. Recent research has suggested that business leaders who have sustained their Lean implementations have utilized specific behaviors to do so. Therefore, this study explored how leaders of multi-national companies utilized specific behaviors to sustain the implementation of Lean methodologies. Research for this study utilized case study methodology to investigate how three multi-national companies have sustained Lean implementation for more than three years. This approach consisted of open-ended interviews with leaders, on-site observations, and document reviews to develop a rich base of data for analysis. The findings of this study explain how leaders sustained the implementation of Lean. Also, the associated discussion explores the implications of these findings for the contemporary Lean leader and offers recommendations for future research and application. The intent of the recommendations is to contribute to the improvement of the rate at which Lean implementations are sustained.

Key words: leadership, leadership behavior, Lean, Lean implementation, multi-national

Dedication

This study is dedicated to my grandmother, Gertrude Vance and my mother, Annette Vance. My grandmother instilled in me a love for education and she nourished my inquisitive nature. My mother has always been my greatest supporter and she provided great encouragement all through the process of completing this study.

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Table of Contents

List of Tables.....	ix
Section 1: Foundation Of The Study	1
Background Of The Problem	1
Problem Statement.....	3
Purpose Statement.....	4
Nature Of Study	5
Research Question	9
Conceptual Framework.....	10
Selected theory.....	10
Relation of selected theory to study.....	12
How selected theory informed expectations of study.....	13
Definition of Terms.....	14
Assumptions, Limitations, and Delimitations.....	15
Assumptions.....	15
Limitations.....	15
Delimitations.....	16
Significance of Study.....	16
Reduction of gaps.....	16
Implications for biblical integration.....	17
Relationship to field of study.....	21
A Review of the Professional and Academic Literature	23
Leadership.....	24

Leader behavior and lean implementation.....	38
Transition and Summary.....	60
Section 2: The Project.....	62
Purpose Statement.....	62
Role of the Researcher.....	63
Participants.....	63
Research Method and Design.....	65
Method.....	65
Research design.....	67
Population and Sampling.....	71
Data Collection.....	72
Instruments.....	73
Data collection technique.....	73
Data Organization Techniques.....	75
Data Analysis Technique.....	77
Reliability and Validity.....	80
Reliability.....	81
Validity.....	82
Transition and Summary.....	83
Section 3: Application to Professional Practice and Implications for Change.....	84
Overview of Study.....	84
Presentation of the Findings.....	88
Case study companies.....	89

How leaders utilize specific behaviors to sustain Lean implementations.....	91
How leaders utilize specific behaviors to address cultural differences.	112
How findings relate to conceptual framework.....	116
Applications to Professional Practice	121
How leaders utilize specific behaviors to sustain Lean implementations.....	122
How leaders utilize specific behaviors to address cultural differences.	134
Biblical framework implications.....	136
Field of study implications.....	141
Recommendations for Action	144
Apply general principles.	145
Apply specific tools.	147
Learn from experts.....	149
Recommendations for Further Study.....	150
Recommendation 1: Investigate the impact of cultural differences.....	151
Recommendation 2: Investigate if culture change is an outcome or a precursor....	152
Recommendation 3: Investigate if empowerment is an outcome or a precursor. ...	152
Reflections	152
Researcher biases.....	153
Changes in thinking.	153
Biblical principles.	154
Summary and Study Conclusions	154
References.....	157
Appendix A: Participant Recruitment Email	170

Appendix B: Participant Consent Form 171

Appendix C: Personnel Interview Questions 173

List of Tables

Table 1. Hierarchical Taxonomy of Leadership Behaviors.....	34
Table 2. Codes for Participants and Companies	64

Section 1: Foundation of the Study

Increasing global competition has required businesses to continuously improve the quality, delivery, and cost of their products and services. This requirement has led business leaders to seek out methods for improving their business processes. One such method utilized by business leaders is Lean. The effective implementation of Lean methodologies has enabled companies to deliver increased customer satisfaction and make significant improvement in quality, productivity, and employee satisfaction (Liker & Convis, 2012). However, nearly 60% of Lean implementations fail within the first three years and over 92% fail within ten years (Pope, 2016). In addition, Found, Hines, Griffiths, and Harrison (2008) postulated that leaders of multi-national companies frequently failed to adjust Lean implementation strategies and tactics to account for cultural differences that existed within their companies. Therefore, this study explored how leaders of multi-national companies utilized specific behaviors to sustain the implementation of Lean methodologies.

As a foundation to the overall study, this section provides important information about the problem to be explored and the overall purpose to be achieved. Also, the approach utilized for research is described, several key terms and assumptions are presented, and the significance of the study is discussed. Finally, a thorough review of the associated professional and academic literature is presented. This literature review compares and contrasts different points of view found in previous research and examines their relationship to this study.

Background of the Problem

Lean is a management philosophy and strategy with long-term perspective that can be summarized as doing more with less (Liker, 2004). The intent of Lean is to enable organizations to provide customers with the product or service they need, exactly when they need it, while

simultaneously identifying and eliminating sources of waste in order to achieve and maintain high quality and low manufacturing costs (Shah & Ward, 2003). Chief principles of the Lean approach include respect for people, putting the customer first, continuous improvement, and elimination of waste. In order to implement these Lean principles, several tools have been developed including value stream mapping, mistake-proofing, standardized work, just-in-time inventory management, changeover reduction, and preventative maintenance of equipment. Many of these tools originated with the methodologies of Total Quality Management and the Toyota Production System, which several researchers posited were precursors to Lean (Jones & Womack, 2011; Krafcik, 1988; Liker, 2004; Naslund, 2013). While the practice of Lean involves many principles and tools, it is essentially a philosophy that guides the user to the associated tools when they are needed (Liker, 2004).

Many multi-national manufacturing companies have introduced their own Lean programs, especially in the last decade. Caterpillar, DuPont, Electrolux, Heinz, Honeywell, Johnson Controls, Siemens, Volvo, and Whirlpool are a few examples (Netland & Ferdows, 2014). These programs are a collection of Lean principles, methods, tools and techniques with the goal of providing a clear and stable structure for instilling a culture of continuous improvement in every location within the company (Netland & Ferdows). Significant benefits have been derived from the sustained implementation of Lean methodologies. According to Plenert (2012), the benefits have included more than a 40% decrease in process cycle times, 75% lead-time reduction, 93% reduction in order processing time, 99% increase in record processing efficiency, and greater than 90% accuracy in data input quality (an increase from less than 20%).

However, a high percentage of companies have failed to sustain their Lean implementation (Bhasin & Burcher, 2006; Found et al., 2008; Pope, 2016). An inherent

challenge in implementing these programs domestically and internationally is that every location is different with variation in culture, language, size, history, technology, labor situation and other circumstances (Netland & Ferdows, 2014). These variations can become a barrier to the effective implementation of Lean and may greatly limit its effectiveness (Jadhav, Mantha, & Rane, 2014). This is especially true in multi-national companies where efforts to effectively communicate and standardize are exacerbated by the variation in culture, language, and social norms (Found et al.).

This inability to sustain the Lean implementation represents an important gap in current business practices (Jadhav et al., 2014). This challenge is made more difficult within multi-national companies when leaders failed to adjust their implementation strategies and tactics to account for cultural differences (Found et al., 2008). Several potential solutions for closing this business practice gap identified in the literature involve the behaviors of the organizational leader. According to Dibia, Dhakal, and Onuh (2014) effective leadership is critical to the successful implementation of Lean methodologies and several key functions must be well-understood by leaders. A few of the fundamental leadership behaviors include communication of the need for change, clear and consistent communication of the organization's vision, and long-term commitment (Dumitrascu, 2014; Liker & Convis, 2012). Similarly, Gieskes, Hyland, and Magnusson (2002) posited that leaders must recognize and accommodate differences in competence levels and time pressure tolerance to successfully manage in a multi-national company.

Problem Statement

Companies throughout the world have been implementing the continuous process improvement methodology known as Lean for over thirty years (Rymaszewska, 2014). While

some companies have achieved staggering improvements in quality and productivity, the great majority have failed to implement or have fallen well short of their desired targets (Rymaszewska). According to van der Merwe, Pieterse, and Lourens (2014), a high percentage of companies failed to achieve the benefits of increased customer satisfaction, revenue, and profit due to an inability to successfully implement Lean. More specifically, researchers have estimated that the Lean implementation failure rate was in the range of 50% to 70%, with some suggesting it may have been as high as 90% (Bhasin & Burcher, 2006; Found et al., 2008). Pope (2016) found that nearly 60% of companies had abandoned Lean implementation efforts within three years and over 92% failed within ten years.

The specific problem addressed by this study is the inability of leaders of multi-national businesses to sustain the implementation of Lean. According to Dibia et al. (2014), leadership was not only important, but was actually the most critical factor in the implementation of Lean. Similarly, Liker (2004) posited that leaders who fail to lead and embrace the Lean implementation inevitably interrupt or derail the effort. One key reason identified for Lean implementation failure was the lack of the leaders' knowledge of the behaviors associated with a successful Lean implementation (Jadhav et al., 2014). Therefore, the focus of this study was the identification of the critical behaviors exhibited by the leaders of multi-national businesses that had sustained their Lean implementations for at least three years.

Purpose Statement

The purpose of this qualitative case study was to increase the empirical knowledge of multi-national company leader behaviors required to sustain the implementation of Lean methodologies for at least three years. More specifically, the intent of this investigation was to make the relationship between leader behavior and sustained Lean implementations better

understood. According to Stake (2010), such an increase in the understanding of a key relationship is a leading purpose of scholarly and applied research.

In addition, this study was intended to identify and communicate specific leader behaviors that supported sustained Lean implementations. The intention of communicating these leader behaviors was to better equip business leaders to address the problem of the relatively poor Lean implementation sustainment rate described in the Problem Statement. Therefore, the ultimate purpose of this study was to improve the practice of Lean implementation so that higher rates of sustainment would be achieved. Such improvement in business practice is a key purpose of scholarly research (Creswell, 2012; Merriam, 2009).

Several steps were taken to accomplish the purpose of this study. A review of the associated professional and scholarly literature was conducted to establish the current understanding of this topic. In addition to the information gleaned from the literature review, new research data was gathered by investigating three multi-national companies that had sustained their Lean implementations for more than three years. This approach included personal interviews, direct observation, and a review of relevant documents.

Nature of Study

The nature of this study guided the research method and design that was utilized. According to Creswell (2014), the three types of research methods are:

Quantitative - a means for testing objective theories by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures.

Qualitative - a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging

questions and procedures, data typically collected in the participant's setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data.

Mixed methods - an approach to inquiry that combines or associates both qualitative and quantitative forms. It involves philosophical assumptions, the use of qualitative and quantitative approaches, and the mixing of both approaches in a study.

The qualitative research method was selected for this study of critical behaviors of the leaders of multi-national companies implementing Lean methodologies. This method was selected because the study was interpretive (gained insights through the discovery of meanings) and naturalistic (the research took place in real world settings as they unfolded naturally), which are two key elements of the qualitative method according to Stake (2010). In addition, this approach was chosen because the study largely involved words and open-ended questions rather than numbers and statistics, which is often the distinction between qualitative and quantitative methods (Corbin & Strauss, 1990; Creswell, 2014).

This study did not include the testing of an objective theory by analyzing data with statistical procedures, which was a condition for quantitative methods according to Creswell (2014). Also, this study did not involve precise numerical findings, large random samples, or inanimate data collection instruments, which Merriam (2009) purported are characteristics of quantitative research. Therefore, the quantitative approach was not appropriate. Finally, this study was not a mixture of quantitative and qualitative approaches, which is a required condition for mixed methods approach according to Creswell and Yin (2009); therefore this approach was not utilized.

According to Merriam (2009), the designs of the qualitative method are narrative analysis, ethnography, phenomenology, grounded theory, and case study. Each of these designs has something to offer for this study, however, the qualitative design deemed as the most appropriate for this study was the case study approach. Creswell (2012) posited that the “case study design is an in-depth exploration of a system (e.g. activity, event, process, or individuals) that is bounded by specific time, place, or physical boundaries” (p. 465). This description fits well with this study as it is focused upon the system of Lean implementation and is bounded by the associated time and place.

Additionally, Yin (2009) posited that the selection of the qualitative design is dependent upon three conditions: the type of research question posed (how, why? or who, what, where, how many, how much?), the need for investigator control over actual behavioral events of the participants (yes or no), and the focus on contemporary as opposed to historical events (yes or no). For this study, the research question was a how question (How were leaders of multi-national companies able to utilize specific behaviors to sustain the implementation of Lean methodologies within their organizations?), which fit Yin’s first condition for the case study design. Also, Yin’s second case study condition was met as control over the behavioral events of the study participants was not required. Finally, this study focused solely on how leaders are currently implementing Lean methodologies, thus Yin’s third case study condition was met. The other qualitative designs (narrative analysis, grounded theory, ethnography, and phenomenology) were not selected for this study for the reasons cited in the following paragraphs.

According to Creswell (2012), narrative analysis involves “qualitative procedures in which researchers describe the lives of individuals, collect and tell stories about these individuals’ lives, and write narratives about their experiences” (p. 22). As the name implies, the

narrative analysis is best used to tell a story to help make sense of a person's experience (Merriam, 2009). An example of a narrative analysis would be the utilization of first-person stories of students in an attempt to better understand the classroom experience (Creswell). For the study of leader behaviors in Lean implementations, the researcher believed that gathering information through personal interviews (a form of storytelling) was important, however, other methods of data collection were also deemed useful. In order to base conclusions on more than personal accounts, it was desired to use direct observations and document reviews as well. Because of these additional dimensions of data collection, the narrative analysis approach was not the most appropriate option for this study.

Ethnographic designs seek to “describe, analyze, and interpret a cultural group's shared patterns of behaviors, beliefs, and language that develop over time” (Creswell, 2012, p. 21). According to Merriam (2009), the heart of ethnography is the thick description of a group's culture. For the study of leader behaviors in Lean implementations, the researcher believed that it was important to learn about the impact of culture and the behaviors of leaders (which are aspects of ethnography); however, the data was to be collected over a very short period of time as opposed to a long-term study. Therefore, the ethnographic approach was not the most appropriate option for this study.

Phenomenology seeks to describe experiences as they are lived (Merriam, 2009). The experiences are associated with a specific phenomenon or event and they are best conveyed through interview and direct observation to elicit the perceptions and feelings of the participants (Merriam). For the study of leader behaviors in Lean implementations, the researcher believed that it was important to learn from leaders who experienced the phenomenon of Lean implementations, however, the intent was more related to fact finding as opposed to an

understanding of feelings or perceptions. Therefore, the phenomenology approach was not the most appropriate option for this study.

Grounded theory designs are used to generate a general explanation for a process or action that is grounded in the views of the participants (Creswell, 2012). According to Merriam (2009), the focus on building theory is what differentiates grounded theory from the other qualitative designs. For the study of leader behaviors in Lean implementations, the researcher believed that it was important to explore certain leadership theories and their applicability for Lean implementations within multi-national organizations; however, the intent was not to build new theories. Therefore, the grounded theory approach was not the most appropriate option for this study.

Research Question

This study explored the critical leader behaviors associated with the sustained implementation of Lean methodologies in multi-national companies. Lean implementation has been the subject of a significant amount of scholarly research (Dibia et al., 2014). However, academic research of specific leader behaviors associated with Lean implementation remains limited (Goodridge, Westhorp, Rotter, Dobson, & Bath, 2015; van Dun, Hicks, & Wilderom, 2016). In addition, this study focused on Lean implementation in multi-national companies which has not seen significant study (Boscari, Danese, & Romano, 2016; Found et al., 2008). The critical leader behaviors associated with the implementation of Lean methodologies in multi-national companies were examined by exploring the research question with respect to three multi-national companies that have sustained Lean implementations for at least three years. This information could be very valuable to leaders of multi-national companies who are considering

the implementation of Lean methodologies and desire to learn from those who have preceded them. To undergird this study, the following research question was utilized:

1. How were leaders of multi-national companies able to utilize specific behaviors to sustain the implementation of Lean methodologies within their organizations?

Conceptual Framework

Selected theory.

The conceptual framework for this study was built upon the idea that leadership is a process whereby the leader influences a group of individuals to achieve a common goal (Bass, Bass, & Bass, 2008; Burns, 1978; Northouse, 2013). According to Yukl (2013), leaders influence a group of individuals most directly through their behavior. This behavior-based approach to the conceptualization of leadership resulted in the development of the Behavioral Theory of leadership (BT) in the middle part of the 20th century (Hall, 2013). BT is classified as such because it focuses on the study of specific behaviors of a leader (Yukl). Leadership behavioral theorists posited that leader behavior is the best predictor of leadership influence and as a result, is the best determinant of leadership success (Derue, Nahrgang, Wellman, and Humphrey, 2011; Yukl). Because the purpose of this study was to better understand the relationship between leader behavior and Lean implementation, BT was selected to ground the associated research.

According to Northouse (2013), the emphasis on leader behavior distinguishes this theory from “the trait theory, which emphasizes the personality characteristics of the leader, and the skills theory which emphasizes the leader’s capabilities” (p. 75). Similarly, Hall (2013) posited that BT dealt with what leaders actually do as opposed to their inborn traits or capabilities. A compelling strength of this theory of leadership is the possibility of defining leadership success

in terms of describable actions that can be learned. Theoretically, it is easier to teach and learn behaviors than to adopt or develop the more ephemeral “traits” or “capabilities” (Yukl, 2012). Therefore, BT was a big leap from Trait Theory and Skill Theory because it assumed that leadership capability can be learned, rather than being inherent. Because of this underlying assumption, BT greatly broadened the possibilities associated with leadership development. Instead of subjecting employees to psychometric assessments in an attempt to judge their leadership potential, the goal would be to teach the desired leader behaviors to existing and aspiring leaders. The identification of the desired behaviors can be facilitated by assessing leadership outcomes and correlating specific behaviors with successful outcomes. In addition, behaviors which contribute to failure can be identified, thus adding a second layer of understanding (Fishbein & Ajzen, 2010).

Stogdill’s (1948) efforts to explore behavior-based leadership served as a major impetus for other similar studies (Yukl, 2012). The studies at Ohio State, Michigan, and by Blake and Mouton all broke important ground in this emerging leadership theory (Northouse, 2013). Researchers at Ohio State found that leaders’ behaviors clustered around two general types of behaviors: initiating structure and consideration (Stogdill, 1974). The research efforts at Michigan identified two types of leadership behavior: production orientation and employee orientation (Northouse). Finally, research performed by Blake and Mouton (1964) resulted in a model emphasizing two key leadership factors: concern for production and concern for people (Yukl, 2012). In each of these studies, the two categories of leader’s behavior addressed how leaders provided structure for employees and how they nurtured them. Researchers have categorized these two general kinds of behavior as task-based and relationship-based (Yukl, 2013). The task-based behaviors aided in the achievement of objectives, while relationship-

based behaviors assisted employees to feel more comfortable with themselves, their co-workers, and their situations (Northouse). A chief aim of BT was to assist in the explanation of how leaders' task-based and relationship-based behaviors combine to influence employees in their achievement of objectives.

Relation of selected theory to study.

BT relates to this study because several Lean researchers have emphasized the importance of leadership and leader behavior in the implementation of Lean methodologies. Dibia et al. (2014) proposed that leadership was not only important, but was actually the most critical factor in the implementation of Lean. This proposition was based on the presumption that leaders must provide a sense of purpose; set and communicate the vision, strategy, and goals; encourage and facilitate the integration of all infrastructure and people; assign resources; and inspire the employees (Dibia et al.). According to Liker (2004), leadership that fails to take action and embrace the Lean implementation would inevitably interrupt or derail the effort.

Specific leader behaviors were identified in the literature as supportive of Lean implementation. For example, according to Laureani and Antony (2015) and Naslund (2013), the most important behaviors for leaders implementing Lean were the facilitation of cultural change, linking Lean to the existing business strategy, and actions that empowered employees. Additionally, Worley and Doolen (2006) posited that demonstrated management support and communication are the two most important behaviors affecting the success of a Lean implementation. Overall, the five most consistently referenced leadership behaviors were actions that demonstrated management commitment, the facilitation of cultural change, actions that empowered employees, communication, and linking Lean to the existing strategy.

In addition, illustrations of the two types of leader behaviors (task-based and relationship-based) were found in the Lean literature. For example, Deming's (1985) fourteen management points include task-based elements (eliminate inspection for quality) and relationship-based elements (drive out fear from the organization). Similarly, Liker's (2004) description of The Toyota Way included task-based behaviors (implementation of "pull" systems) and relationship-based behaviors (grow leaders and develop people). Also, the five leader behaviors predominantly identified in the literature as critical to sustained Lean implementation (actions that demonstrated management commitment, the facilitation of cultural change, actions that empowered employees, communication, and linking Lean to the existing strategy) offer illustrations of both task and relationship-based behaviors. For example, to demonstrate management commitment, researchers found that leaders should participate in Lean projects (task-based) and spend time with employees to develop excitement for the Lean implementation (relationship-based).

How selected theory informed expectations of study.

BT informed the expectations of this research in three important ways. First, the underlying premise that leader behaviors correlate to leadership success is extremely useful (Yukl, 2012). The research question of this study was: How were leaders of multi-national companies able to utilize specific behaviors to sustain the implementation of Lean methodologies within their organizations. This question was based on the presumption that there was a correlation between leader behaviors and organizational outcomes (e.g. successful Lean implementations), which was grounded in BT (Blake & Mouton, 1985; Stogdill, 1974; Yukl, 2012). Second, the purpose of this study was to better equip business leaders for Lean implementation by communicating desired leader behaviors. The idea that desired leader

behaviors can be identified and taught to others was grounded in BT, thus this expectation of the study is sound (Stogdill, 1974; van Dun, Hicks, & Wilderom, 2016; Yukl, 2012). Third, the researcher assumed that there may be “soft” (working relationship-centered) and “hard” (task-centered) leader behaviors necessary for successful Lean implementation. This combination of behavior types was confirmed by the inclusion of task-based and relationship-based behaviors within BT norms (Blake & Mouton; Stogdill, 1974; Yukl, 2012). Therefore, the researcher’s efforts to identify both types of behaviors were grounded in this theory.

Definition of Terms

The focus of this study was the leader behaviors associated with the sustained implementation of Lean in multi-national companies. The following definitions are provided to clarify the intended use of these terms in this study:

Leader: An individual utilizing a process to influence a group of individuals to achieve a common goal (Northouse, 2013).

Leader behaviors: How leaders influence the tasks and relationships of subordinates in their efforts to reach a goal (Yukl, 2012).

Lean: A system of techniques and activities for running an operation with the core idea being to maximize customer value while minimizing waste. Simply, Lean means creating more value for customers with fewer resources (ASQ online glossary, n.d.).

Lean implementation: The transformation of each and every value-adding activity by relentlessly removing the waste and letting value flow to the customer (Byrne, 2013).

Multi-national company: An enterprise operating in several countries but managed from one (home) country. Generally, any company or group that derives a quarter of its revenue from

operations outside of its home country is considered a multi-national corporation (businessdictionary.com, n.d.).

Assumptions, Limitations, and Delimitations

Assumptions.

There are two important assumptions associated with this study. First, it was assumed that the researcher had adequate access to the leaders of the multi-national companies and that the related information obtained was an accurate reflection of the actual events. To help ensure that this was the case, the principal investigator strove to secure the appropriate participants and remained diligent and thorough while collecting data through participant interviews, direct observation, and document review. Further, the techniques associated with triangulation, which are discussed in detail in Section 2, were utilized for this purpose to aid in the interpretation of data from multiple perspectives. Second, it was assumed that the multi-national companies implementing Lean methodologies had done so across the entire company. The intent of this research was to learn about the implementation of Lean methodologies in various locations and cultures, so it was important that the multi-national companies studied did so. Therefore, the principal investigator probed this issue with participants to ensure that it was indeed the case.

Limitations.

Two potential weaknesses of this study are the lack of generalizability and the challenges associated with gathering full and accurate data from the study participants. Both Yin (2009) and Merriam (2009) purported that the qualitative case study method has been perceived to offer limited opportunity to draw general conclusion about a population based on the findings of a single case. One approach recommended by Yin to counter this challenge was the use of multiple cases so that a wider sampling could be obtained. For this case, three multi-national

companies were studied to mitigate this potential limitation. To moderate the potential limitation resulting from incomplete or inaccurate data, the triangulation approach along with the diligent and thorough data collection efforts discussed in the previous paragraph were employed.

Delimitations.

The scope of this study was the behaviors of leaders of multi-national companies that have sustained their implementations of Lean methodologies for at least three years. Therefore, non-multi-national companies as well as those who had not yet implemented Lean methodologies were outside of the scope of this study. Further, multi-national companies that had failed to sustain the implementation of Lean methodologies for at least three years were outside of the scope of this study.

Significance of Study

Reduction of gaps.

The significance of this study is that the information obtained may reduce the existing gap in the knowledge of critical leader behaviors needed for sustaining the implementation of Lean methodologies in multi-national companies. Because researchers have estimated that the Lean implementation failure rate is in the range of 50% to 70%, with some suggesting it may even be as high as 90% (Bhasin & Burcher, 2006; Found et al., 2008), any reduction in that gap would be important. Well informed business practitioners will be better equipped to understand the particulars of this topic and to make more effective decisions regarding implementation. This understanding will increase the leadership knowledge in this area and will aid in the reduction of the existing gap in the effectiveness of Lean implementation.

Implications for biblical integration.

The research question for this study was: How were leaders of multi-national companies able to utilize specific behaviors to sustain the implementation of Lean methodologies within their organizations? Therefore, this study dealt closely with the topics of leader behavior, Lean, cultural differences, and business in general. The implications for biblical integration associated with each of these topics were explored and reflected upon.

The Bible contains considerable information about leaders and leadership. The implications for biblical integration of leader behaviors were explored by examining the behaviors of various leaders who are chronicled throughout the Bible. Both the Old and New Testament contain descriptions of the biblical concepts of leadership as revealed by the behaviors of the leaders chosen by God.

From the Old Testament of the Bible, Noah, Abraham, Joseph, and Joshua provide examples of the behavior of biblical leaders. Noah's predominant behavior was doing what was right in God's eyes even when all others around him were not. This was emphasized when God said to Noah, "Go into the ark, you and all your household, for I have seen that you alone are righteous before me in this generation. (Genesis 7:1, NRSV). Two significant behaviors of Abraham were taking risks and staying the course when faced with uncertainty. This was demonstrated when Abraham responded in the affirmative when God instructed, "Go from your country and your kindred and your father's house to the land that I will show you. (Genesis 12:1, ESV). Joseph behaved persistently as he responded to several adverse situations described in Genesis 37-47. For example, even after being sold into slavery by his brothers and eventually imprisoned for a crime he did not commit, Joseph continued to demonstrate his faith in God by praying to Him and praising Him publicly. Joshua was the acknowledged leader of the Israelites

and he led them by modeling specific behavior. When faced with the option of serving the God who led the Israelites out of Egypt or the gods of the surrounding lands, Joshua stated, “But as for me and my house, we will serve the Lord (Joshua 24:15, ESV).

From the New Testament of the Bible, John the Baptist, Jesus, and Peter provide examples of the behavior of biblical leaders. In Matthew 3, John the Baptist was approached by religious leaders wanting to be baptized because they believed it was the popular thing to do and not because they actually wanted to change their ways. John the Baptist demonstrated a willingness to speak in honesty and with conviction when he rebuked the insincere religious leaders by stating, “Even now the axe is laid to the root of the trees. Every tree therefore that does not bear good fruit is cut down and thrown into the fire” (Matthew 3: 10, ESV). Jesus provided one of the most powerful examples of biblical leadership when he washed the feet of the disciples. When Jesus finished, He said to the disciples, “You call me Teacher and Lord, and you are right, for so I am. If I then, your Lord and Teacher, have washed your feet, you ought to wash one another’s feet. For I have given you an example, that you also should do just as I have done to you” (John 13:13-15, ESV). Jesus wasn’t just talking about washing feet; he was teaching the disciples that leaders focus on serving those who they lead. Peter, one of Jesus’s disciples, demonstrated that leaders don’t give up in the face of failure and they learn from their mistakes. After denying that he even knew Jesus while He was being persecuted (Matthew 26: 69-75, ESV), Peter later publicly praised Jesus in what is described as the first sermon of the gospel message (Acts 2:14-41, ESV).

In addition to examining leadership behavior from a biblical perspective, the implications of the integration of biblical concepts and Lean were explored. According to Shah and Ward (2003), the intent of Lean is to enable organizations to provide their customers with the product

or service they need exactly when they need it while simultaneously identifying and eliminating sources of waste in order to achieve and maintain high quality and low manufacturing costs. The concepts of high quality and waste elimination are consistent with the biblical concepts of excellence and stewardship, respectively. For example, in his letter to the Colossians Paul wrote, “So as to walk in a manner worthy of the Lord, fully pleasing to him, bearing fruit in every good work and increasing in the knowledge of God.” (Colossians 1:10, ESV). The call to walk in a manner worthy of the Lord beckons the reader to do so in an excellent way. Also, the writer of Proverbs offered this sage advice pertaining to stewardship: “A good man leaves an inheritance to his children's children, but the sinner's wealth is laid up for the righteous” (Proverbs 13:22, ESV) and “Precious treasure and oil are in a wise man's dwelling, but a foolish man devours it.” (Proverbs 21:20, ESV). In both cases the reader is encouraged to avoid wasting the resources that they have and are warned against the peril associated with not heeding this advice. Therefore, the implication is that the improved implementation of the Lean concepts of high quality and waste elimination will result in the increased practice of the biblical principles of excellence and stewardship.

Another relevant area examined were the implications of integrating biblical concepts and the issues related to cultural differences found in multi-national companies. According to Netland and Ferdows (2014), an inherent challenge in implementing Lean methodologies in multi-national companies is that every location is different with variation in culture, language, history, technology, labor situation and other circumstances. This challenge is made more difficult when leaders failed to adjust their implementation strategies and tactics to account for cultural differences (Found et al., 2008). According to Van Duzer (2010), God delights in the diversity of the created order and several scripture passages emphasize the importance of

recognizing that the whole is made up of several parts, all of which are necessary (e.g. 1 Corinthians 12:12-30). Therefore, the implication is that effective implementation of Lean methodologies within multi-national companies requires the recognition of and adjustment for cultural differences.

The final implication of the integration of biblical concepts to be examined was that of the field of business. Van Duzer (2010) posited that work and business have significant biblical implications and importance. According to Van Duzer, “If Christians can understand that the work they are doing is God’s work they can bring a sense of joy, meaning, purpose, and hope to their tasks that might otherwise elude them” (p. 19). Similarly, Hardy (1990) purported that “by working we actually participate in God’s ongoing providence for the human race” (p. 47). Van Duzer expanded upon the work of the individual and described God’s purpose for business:

There are two legitimate, first-order, intrinsic purposes of business: as stewards of God’s creation, business leaders should manage their businesses (1) to provide the community with goods and services that will enable it to flourish, and (2) to provide opportunities for meaningful work that will allow employees to express their God-given creativity. (p. 42)

Van Duzer (2010) based this on the grand narrative of the Bible (i.e. creation, fall, redemption, and consummation) as opposed to a specific set of scripture passages. However, Van Duzer does draw upon verses from Genesis to describe God’s original intention for His creation, which by extension includes business. For example, according to Van Duzer, the call for mankind to be stewards of God’s creation (including business) stems from Genesis 2:15, “The Lord God took the man and put him in the Garden of Eden to work it and take care of it”.

The integration of business and God’s purpose for humanity had implications for this study as it dealt with business leaders and practices associated with Lean implementation.

Business leaders were not able to consistently sustain Lean implementations as nearly 60% failed within the first three years and over 92% failed within ten years (Pope, 2016). These failure rates were problematic because the benefits of sustained Lean implementations included 40+% decrease in process cycle times, 75% lead-time reduction, 93% reduction in order processing time, and 99% increase in record processing efficiency (Plenert, 2012). Therefore, providing empirical information that aided in the improved sustainment of Lean implementation resulted in business leaders being better equipped to improve their businesses and achieve God's purpose for business.

In conclusion, the implications described above combine to form a biblical framework from which this study may be applied. The overarching aspect of this framework is the biblical view of the leader and leader behavior. The other key elements of the framework include the pursuit of excellence and stewardship, delighting in the diversity of God's creation, and God's purpose for business. Each aspect of this framework is explored by this study of how leaders of multi-national companies were able to sustain the implementation of Lean methodologies within their organizations.

Relationship to field of study.

The researcher's field of study is leadership as it relates to business. Therefore, this study was directly related to the field of leadership in the business setting as it explored how leaders of multi-national companies were able to sustain the implementation of Lean methodologies within their organizations. This study focused upon the implementation of Lean methodologies in multi-national companies, which is heavily guided and influenced by leaders and their behaviors (Dibia et al., 2014; Dumitrascu, 2014; Liker & Convis, 2012). Because of this focus on leader

behaviors, the specific theory of leadership that was integrated in this study was the Behavioral Theory (BT).

Leadership researchers have developed numerous theories over the past several decades to provide systematic frameworks for the study of leadership (Bass et al., 2008; Bryman, 1992; Day & Atonakis, 2012; Rost, 1991). BT is one of those frameworks and its proponents sought to identify key leader behaviors that could be taught. An important objective of BT research was to identify aspects of behavior that explained leader influence on the performance of a team, work unit, or organization (Yukl, 2012). Further, early BT researchers posited that leadership consisted of two general kinds of behavior: task-based and relationship-based (Yukl). The task-based behaviors aided in the achievement of objectives, while relationship-based behaviors assisted employees to feel more comfortable with themselves, their co-workers, and their situations (Northouse, 2013). The chief aim of the BT approach was to assist in the explanation of how leaders' task-based and relationship-based behaviors combined to influence employees in their achievement of objectives (Derue et al., 2011). The chief aim of this study with respect to the field of leadership was to identify and communicate specific leader behaviors that supported sustained Lean implementations. The intention of communicating these leader behaviors was to better equip business leaders to address the problem of the relatively poor Lean implementation sustainment rate (Byrne, 2013). According to Liker (2004), leaders that fail to perform specific behaviors and embrace the Lean implementation would inevitably interrupt or derail the effort.

Other aspects of the leadership field that were less significantly connected to this study include global leadership and change management. Global leaders in multi-national companies face varying cultures in each location. Indeed, Netland and Ferdows (2014) found that the effectiveness of the communication of the organization's key initiatives, such as Lean, is often

less than ideal because every location within an organization is different with variation in culture, language, size, history, technology, labor situation, and other circumstances. These variations can become barriers to the effective implementation of Lean and may greatly limit its effectiveness (Jadhav et al., 2014). According to Cudney and Elrod (2010), cultural and language barriers introduce particular challenges for inclusively implementing Lean techniques globally. In addition, a common challenge faced by leaders pursuing Lean implementation is the need for organizational change. According to Spector (2013), “change implementation consists of the actions taken by organizational leaders in order to support strategic renewal and achieve outstanding performance” (p. 3). Leader behaviors that support open communication, top-level support, employee involvement, accountability, adequate resources and expertise, organizational integration, and appreciation of company culture have been identified as critical to successful organizational change management (Peus, Gerhardt, Fischer, & Traut-Mattansch, 2009; Spector). According to McCreery, Mazur, and Ruthenberg (2011), there is increasing evidence that success in achieving sustainable Lean transformation is at least partially attributable to the effectiveness of the change management process. Therefore, this study of how leaders utilized specific behaviors to sustain Lean implementation involved a limited amount of exploration of global leadership and change management.

A Review of the Professional and Academic Literature

The purpose of this literature review was to provide a foundation for the understanding of the relationship between leader behaviors and Lean implementation. The literature reviewed was related to the study’s problem statement as expressed in the research question: How were leaders of multi-national companies able to utilize specific behaviors to sustain the implementation of Lean methodologies within their organizations? The researcher explored the Leadership

literature to learn about the theory-based information describing the general connection between leader behaviors and organizational outcomes and examined the Lean literature to better understand the link between leader behaviors and sustained Lean implementations. Peer-reviewed academic journals and associated professional books were reviewed to define the most important aspects of the study's theory for understanding and explaining the role of leaders' behavior in Lean implementation.

The summarization of this review of the Leadership and Lean literature provides a synthesis of multiple points of view and the relationship of the study to previous research and findings. The first major section covered is Leadership which consists of the sub-sections of Leadership Definition; Leadership Theory Development–Trait, Skill, Behavior, and Situation; Selected Leadership Theory for the Study-Behavioral Theory, and Behavioral Theory Examination. This is followed by the second major section entitled Leader Behavior and Lean Implementation which is comprised of the sub-sections of Lean Overview and Specific Leader Behaviors That Support Lean Implementation.

Leadership.

To begin understanding how leaders of multi-national companies utilized specific behaviors to sustain the implementation of Lean methodologies within their organizations, a broad overview of leadership was explored. The exploration consisted of an examination of the definition of leadership and the study of the several theories of leadership to identify the theoretical groundwork for the relationship between leader behaviors and organizational outcomes (e.g. the implementation of Lean).

Leadership definition.

According to Yukl (2012), the essence of leadership is the process of influencing and facilitating collective efforts to accomplish shared objectives. Similarly, Larsson and Vinberg (2010) posited that leadership consists of a process whereby an individual influences a group to achieve a common goal. Both of these definitions emphasized four key components: influence, process, groups of people, and common goals. In addition, Dumitrascu (2014) provided further definition by delineating four key functions of leadership: structuring and communicating the vision for the future of the organization; obtaining and assigning resources; providing encouragement and motivation; and managing the change process. The one performing these functions of leadership is known as the leader, who Northouse (2013) defined as an individual utilizing a process to influence a group of individuals to achieve a common goal. These defining elements established the guidelines for identifying the leaders that were to be the subject of this study.

Leadership theory development – Trait, skill, behavior, and situation.

In addition to providing evolving definitions for leadership and leader, researchers have developed numerous leadership theories over the past several decades (Bass et al., 2008; Bryman, 1992; Day & Atonakis, 2012; Rost, 1991). From the earliest theories, which placed the focus upon the traits of the leader, to more recent theories which emphasized behavior and situations, much has been researched and written on the subject (Bennis & Nanus, 2007; Maslanka, 2004). According to Northouse (2013), the broad categories of leadership theory include Trait, Skill, Behavior, and Situation.

The trait-based leadership theories represent one of the first systematic attempts to study leadership (Bass et al., 2008; Mann, 1959; Stogdill, 1948). The theories that were developed

were called “Great Man” theories because they focused on identifying the innate traits of known great leaders. It was believed that people born with these traits were leaders. Mann (1959), Stogdill (1974), Lord, DeVader, and Alliger (1986), and Zaccaro, Kemp, and Bader (2004) conducted extensive research to identify the key leadership traits. Some of the traits that were central to those studies included intelligence, self-confidence, determination, integrity, and sociability (Northouse, 2013). One of the criticisms of the trait-based theory of leadership is the lack of a definitive list of commonly accepted traits (Yukl, 2013).

As researchers struggled to identify a definitive list of leader traits, Katz (1955) attempted to transcend this obstacle by addressing leadership as a set of developable skills. The skill-based leadership theories represented another of the efforts to systematically define key aspects of a leader. Katz posited that leader skills were technical, human, or conceptual competencies utilized to accomplish an objective. Several years later, Mumford et al. (2000) conducted extensive studies of US Army officers to develop a skill-based model for leadership. At the heart of this model were three competencies: problem-solving skills, social judgment skills, and knowledge (Northouse, 2013). Regardless of the chosen model, the leadership skills theorist consistently posited that a significant benefit of this approach, versus the trait approach, was the notion that leadership skills could be learned while leadership traits were inherent to the individual (Yukl, 2012).

As the study of leader traits and skills continued, it became clear that the circumstances associated with leadership situations and employee experiences also mattered (Maslanka, 2004). Thus, situation-based leadership theories focused on leadership in situations and the developmental level of the employees involved in the situation (Northouse, 2013). The situational leadership theories represented another of the proposed frameworks for the key facets

of leadership. According to Blanchard (1985), an effective leader must adopt the leadership style to fit the demands of different situations. Situations required both supportive and directive behaviors from the leader and the employee developmental level also required specific types of behavior (Hersey & Blanchard, 1977). Similarly, contingency theory is dependent upon the situation and those being led. Fiedler and Chemers (1974) identified contingency theory as a leader-match theory and they posited that to understand leader performance, it was essential to understand the situations in which leaders led. Fiedler and his colleagues produced grounded generalizations about the styles of leadership that were best and worst for given conditions based upon the analysis of hundreds of leadership situations. Fiedler (1967) postulated that by characterizing three factors associated with a leadership situation and assessing the leadership style of the leader, it was possible to predict the effectiveness of the leader of the situation. The factors include leader-member relations (good or bad), task structure (high or low), and position power (strong or weak).

Yet another effort to identify the basis of leadership resulted in the behavior-based leadership theories. This systematic attempt to study leadership and provide a framework for the key aspects of a leader sought to identify key leader behaviors that could be taught. An important objective in this area of the leadership research was to identify aspects of behavior that explained leader influence on the performance of a team, work unit, or organization; thus the leadership behavior approach emphasized leader behavior (Yukl, 2012). Further, early researchers studying the leadership behavior approach posited that leadership consisted of two general kinds of behavior: task-based and relationship-based (Blake & Mouton, 1985; Fleishman et al., 1991; Mann, 1959; Stogdill, 1974; Yukl). The task-based behaviors aided in the achievement of objectives, while relationship-based behaviors assisted employees to feel more

comfortable with themselves, their co-workers, and their situations (Northouse, 2013). The chief aim of the leadership behavior approach was to assist in the explanation of how leaders' task-based and relationship-based behaviors combined to influence how employees achieved objectives (Derue et al., 2011).

Selected leadership theory for this study – Behavioral Theory.

The leadership theory that was determined to be the most applicable to the study of leader behaviors and Lean implementation was the Behavioral Theory (BT). That is because the purpose of this study was to identify and communicate specific leader behaviors that supported sustained Lean implementations. The intention of communicating these leader behaviors was to better equip business leaders to address the problem of the relatively poor Lean implementation sustainment rate (Byrne, 2013). According to Liker (2004), leaders that fail to perform specific behaviors and embrace the Lean implementation would inevitably interrupt or derail the effort. Therefore, it was important to establish a solid grounding in the theory of leadership through the lens of leader behaviors and their connection with organizational outcomes. BT concepts provided this grounding, while the trait, skill, and situation-based leadership theories were less well-suited for this study.

The relative weakness of the Trait Theory was three-fold. First, the research has not resulted in a definitive list of leadership traits, so the actual traits needed for effective leadership remain unclear (Northouse, 2013; Yukl, 2012). Second, according to Derue et al. (2011), leader behaviors are better predictors of leader effectiveness than leader traits. Third, leadership traits are inherent, so they cannot be taught to potential leaders. This was problematic for the study because a key aspect of implementing Lean was that existing leaders would be required to lead

the effort, regardless of their inherent traits (Byrne, 2013). It would not be possible to imbue existing leaders with desired traits, even if a definitive list were available.

Similarly, many of the “skills” associated with the Skill Theory are typically considered to be individual attributes or traits (Northouse, 2013). Therefore, the Skill Theory was not the best choice to undergird this study because of the aforementioned weaknesses associated with the Trait Theory. In addition, because much of skills model research was based on samples from US Army personnel, there is some question if the findings can be generalized to other populations (Mumford et al., 2000).

The chief concern regarding the Situation Theory as a theoretical basis for this study was the failure to explain what organizations should do when there is a mismatch between the leader and the situation in the workplace. With BT, it was possible to envision identifying and teaching key behaviors to help equip leaders for given situations (e.g. Lean implementation), but the Situation Theory only aids in the identification of fit without indicating what is to be done when the fit is not good (Northouse, 2013). In addition, the robustness of the Situation Theory research seems to be lacking when compared to other theories. Only a few research studies have been conducted to justify the assumptions and propositions set forth by the theory, thus questions about the theoretical basis of the approach exist (Northouse, 2013; Vecchio & Boatwright, 2002; Vecchio, Bullis, & Brazil, 2006).

Behavioral Theory (BT) examination.

BT emphasized the behavior of the leader and sought to explain how leader behaviors influenced subordinates in their efforts to reach a goal. Because BT was the basis for this study, the associated literature was closely examined. The history, description, taxonomy, and relation to organizational outcomes were explored in depth.

BT history and description.

The BT conceptualization of leadership was classified as such because it focused on the study of specific behaviors of a leader as the best predictor of leadership influences and the best determinant of leadership success (Yukl, 2013). A significant amount of research has been conducted in this area as evidenced by the 65 distinct classifications of leader behaviors identified by Fleishman et al. (1991) in their review of the BT literature. Early behavioral researchers differentiated between authoritarian, democratic, and laissez-faire leadership behaviors (Lewin, Lippitt, & White, 1939). The later studies of Ohio State (1964), Michigan (1978), and Blake and Mouton (1985) broke important ground in this emerging leadership theory (Northouse, 2013). Examination of these three studies provided a picture of the underpinnings and implications of the BT approach.

In 1945, the Ohio State Leadership Studies began the exploration of descriptive dimensions of leadership behavior and led to the development of the Leader Behavior Description Questionnaire (LBDQ). The LBDQ was composed of 150 questions that were formulated from 1,800 items that described different aspects of leader behavior (Northouse, 2013). Through the administration of the LBDQ to hundreds of people in educational, military, and industrial settings, researchers at Ohio State found that leaders' behaviors clustered around two general types of behaviors: initiating structure and consideration (Stogdill, 1974). The initiating structure behaviors included such tasks as organizing work, defining roles and responsibilities, and scheduling work while the consideration behaviors included such relational activities as rapport-building and mentoring. According to Stogdill, these two distinct and independent types of behavior enabled leaders to provide structure and nurturing for their

subordinates. The Ohio State researchers did not explore the relative effectiveness of the two behavior types nor the preferred balance between the two (Northouse).

At approximately the same time as the Ohio State studies were being conducted, researchers at The University of Michigan performed a similar examination of leader behavior. The objective of the Michigan studies was to identify the principles and types of leadership styles that led to greater productivity and enhanced job satisfaction among workers (Likert, 1961). The studies identified two broad leadership styles - an employee orientation and a production orientation as well as three critical characteristics of effective leaders - task-oriented behavior, relationship-oriented behavior and participative leadership (Northouse, 2013). The employee orientation and production orientation behavior types corresponded with the consideration and initiating structure behavior types (respectively) identified by the Ohio State studies (Likert, 1961; Mann, 1959). According to Bowers and Seashore (1966), leaders with an employee orientation approach subordinates with a strong human relations emphasis and take an interest in them as human beings. The production orientation is comprised of leadership behaviors focused upon technical and production aspects of a job with the leader viewing the subordinate as a resource for accomplishing work (Bowers & Seashore). Similar to the Ohio State studies, the Michigan researchers posited that the two behavior types were distinct and independent. Interestingly, more recent studies have attempted to identify the optimal balance of the task and relational behaviors. However, the findings were largely unclear and contradictory (Yukl, 2013).

Building on the work of the researchers at Ohio State and Michigan, Blake and Mouton (1964) performed studies that resulted in a leadership model that emphasized two key leadership factors: concern for production and concern for people (Yukl, 2012). These leadership factors

closely paralleled the task and relational behavior types identified by the Ohio State and Michigan studies. According to Blake and Mouton (1964), concern for production referred to such organizational tasks as policy decisions, workload, and sales volume while concern for people referred to such relational tasks as providing good working conditions, maintaining a fair salary structure, and building trust. A major contribution of this work was the introduction of the Leadership Grid (Yukl). This tool was used to graphically portray a leader's style with respect to concern for people and concern for production. Northouse (2013) described the grid thusly:

On this grid, the horizontal axis represented the leader's concern for production and the vertical axis represents the leader's concern for people. Each of the axes is drawn as a 9-point scale on which a score of 1 represents minimum concern and 9 represents maximum concern. Each of these areas of concern was rated from 1 to 9 and by plotting scores from each axes, various leadership styles can be illustrated. The grid portrays five major leadership styles: authority-compliance (9,1), country-club management (1,9), impoverished management (1,1), middle-of-the road management (5,5), and team management (9,9) (p. 79).

Blake and Mouton (1985) posited that leaders typically have a dominant leadership style that can be demonstrated by the Leadership Grid.

BT taxonomy.

As was described in the previous section, from about 1950 to 1980 BT researchers categorized leader behaviors as task-oriented and relations-oriented (Yukl, 2012). Since the 1980s, additional categories were added by researchers to account for behaviors that didn't fit into the task or relational categories. As the categories grew, specific taxonomies were put forward to aid in the ordered classification of leader behavior groupings (Yukl). In an effort to

combat confusion surrounding the differing BT taxonomies generated by thousands of studies over a fifty-year period, Yukl sought to integrate results from a large number of studies to develop a comprehensive behavior taxonomy (see Table 1). According to Yukl, “leader behavior categories should be observable, distinct, measurable, and relevant for many types of leaders and taxonomies of leader behaviors should be comprehensive and parsimonious” (p. 66).

Understanding of the BT taxonomies was important for the study of leader behavior and Lean implementation especially regarding the relationship between specific leader behavior categories and the associated organizational outcomes.

According to Yukl (2013), the predominant leadership behaviors that influenced the performance of a team, work unit, or organization could be captured within four meta-categories: task-oriented, relations-oriented, change-oriented, and external. In addition, Yukl identified the fifteen most significant leader behaviors that research had shown to enhance a leader’s effectiveness. The addition of the change-oriented meta-category was supported by the identification of four change-related behaviors that were not task or relations-oriented. Similarly, the addition of the external meta-category was deemed necessary due to the identification of three behaviors that were neither task, relations, or change-oriented. Interestingly, in a meta-analysis of the BT literature conducted at about the same time as that of Yukl, Derue et al., (2011) identified the meta-categories of task, relations, and change-oriented behaviors, but the fourth meta-category was passive leadership as opposed to external. Nevertheless, Yukl’s taxonomy enhanced the ability of researchers to consistently and universally categorize the leader behaviors that most significantly enhance a leader’s effectiveness (Hoption, 2016). In addition, it enabled practicing leaders to understand which behaviors were most likely to contribute toward their own effectiveness. However, some researchers cautioned that it would be

important to continue to validate and modify the taxonomy based upon further studies (Hopton; Yukl).

Table 1

Hierarchical Taxonomy of Leadership Behaviors

Meta-Categories	Behaviors	Behavior Examples
Task-oriented <i>Primary objective is to accomplish work in an efficient and reliable way.</i>	Clarifying	explaining work responsibilities; assigning tasks; communicating objectives, priorities, and deadlines; setting performance standards; and explaining rules, policies, and procedures
	Planning	making decisions about objectives and priorities; organizing work; assigning responsibilities; scheduling activities; and allocating resources among different activities
	Monitoring operations	directly observing activities; examining recorded activities or communications; examining reports; and holding performance review sessions
	Problem solving	problem identification and categorization; root cause identification; corrective action development, communication, and implementation; damage control with customers and employees; disciplinary action
Relations-oriented <i>Primary objective is to increase the quality of human resources and relations.</i>	Supporting	showing concern for the needs and feelings of individual team members; listening carefully when a team member is worried or upset; providing support and encouragement when there is a difficult or stressful task; and expressing confidence that a team member can perform a difficult task
	Developing	providing helpful career advice; informing people about relevant training opportunities; making assignments that allow learning from experience; providing developmental coaching; and asking a team member to help another
	Recognizing	presenting an award in a public ceremony; recommending a promotion or pay increase; and praising the work of a team member privately or publically
	Empowering	giving team members more autonomy and influence over work decisions; asking for input when making decisions; delegating authority and decision making; utilizing participative leadership
Change-oriented <i>Primary objectives are to increase innovation, collective learning, and adaption to the external environment.</i>	Advocating change	providing competitive or industry information that demonstrates the need for change; communicating potential negative outcomes if change is not made; involving team members in change process
	Envisioning change	developing and communicating the vision for change; clearly describing the desired outcome of the change; “sell” the benefits of change
	Encouraging innovation	encouraging team members to look at problems from different perspectives, think “outside the box”, and experiment with new ideas; creating a safe environment for experimentation and potential failure
	Facilitating collective learning	implementing organizational “lessons learned” practices; actively supporting formal education and industry benchmarking; rotating work assignments so that team members learn about other processes; participating in industry organizations and utilizing information gained from them
External <i>Primary objectives are to acquire necessary</i>	Networking	attending meetings, professional conferences, and ceremonies; joining relevant associations, clubs, and social networks; socializing informally or communicating with network members; and using relationship-building tactics
	External	studying relevant publications and industry reports; conducting market

<i>information and resources, and to promote and defend the interests of the team.</i>	monitoring	research; studying the decisions and actions of competitors; analyzing information about relevant events; and identifying potential external threats and opportunities
	Representing	lobbying for resources and assistance; promoting and defending the reputation of the team; negotiating agreements; and coordinating related activities

Leader behavior relation to organizational outcomes.

In addition to the categorization of leader behaviors discussed in the previous section, the link between leader behaviors and organizational outcomes was also explored. Several studies that were designed to explore this link through a meta-analysis of other existing studies were examined. A meta-analysis is a quantitative statistical analysis of several separate but similar experiments or studies in order to test the pooled data for statistical significance. Another common approach to this research problem was the factor analysis of information gained through the survey of multiple respondents. Discussion of a few examples of these studies follows.

Burke, Stagl, Klein, Goodwin, Slas, and Halpin (2006) performed a meta-analysis of over 50 studies to explore the relationship between leader behaviors and team performance outcomes. In essence, the study was designed to determine the correlation between task and relations-oriented leader behaviors and team productivity, team learning, and perceived team effectiveness. The results indicated that the use of task-oriented leader behavior was positively related to team productivity and perceived team effectiveness (Burke et al.). Interestingly, the results indicated that the use of relations-oriented leader behavior was also positively related to team productivity and perceived team effectiveness, although to a lesser degree than task-oriented leader behaviors (Burke et al.) Relations-oriented leader behavior was also found to be positively related to team learning, while the task-oriented leader behavior was not. In the concluding remarks of the study, Burke et al. posited that the results suggest that both task- and

relations-oriented leader behaviors are important in perceived team effectiveness and team productivity which provided support for the recommendation that leaders need to be trained in both types of behavior.

In another meta-analysis study, Derue et al. (2011) synthesized 79 studies to determine the validity of the relationship between both leader traits and leader behaviors (task and relations-oriented) and leader effectiveness, group performance, follower job satisfaction, and satisfaction with the leader. Overall, results indicated that the positive correlation between leader behaviors and the performance variables was greater than that of leader traits (Derue et al.). Results also indicated that the task-oriented leader behaviors had the most positive correlation with group performance, while the relations-oriented leader behaviors had the most positive correlation with leader effectiveness, follower job satisfaction, and satisfaction with the leader (Derue et al.). Finally, results indicated that the correlation between task- and relations-oriented leader behaviors and all four of the leadership effectiveness outcomes was positive (Derue et al.). Therefore, just as Burke et al. (2006) had recommended, Derue et al. suggested that leadership development programs touch upon both task- and relations-oriented behavior as both contribute to leader effectiveness.

Yukl, O'Donnell, and Taber (2009) conducted a study to explore the relationship between leader behaviors (task- and relations-oriented) and the quality of the leader-team member relations. This survey of 248 American respondents from a diverse set of industries, organizations, and occupations asked respondents to complete the LMX7 instrument to rate their specific situation. Results indicated that four out of five relations-oriented leader behaviors were strongly related to good leader-team member relations while the task-oriented behaviors were not significantly related to leader-team member relations. The four specific relations-oriented

behaviors were supporting, recognizing, consulting, and delegating (Yukl et al.). According to Yukl et al., leaders who utilized relations-oriented behaviors improved their relationship with subordinates and experienced increased job satisfaction, task motivation, and performance by subordinates.

In another survey study, Wang, Tsiu, and Xin (2011) examined the relationship between CEO leadership behaviors (task- and relations-oriented), organizational performance, and employee attitudes. Surveys were completed by 739 middle managers from 125 firms in China. Consistent with aforementioned studies, results from this study indicated that CEO's task-oriented behaviors were directly related to organizational performance while relations-oriented behaviors were directly linked to employee attitudes (Wang et al.). According to Wang et al., the practical implications were:

Both task- and relations-oriented leadership behaviors are important for the CEO.

Ideally, a CEO should be able to demonstrate both types of behavior. Such behavioral flexibility is important to strategic leadership according to Boal and Hooijberg (2000). If a CEO is inclined toward only one set of behaviors or is singular in focus, the missing behaviors should be provided by another executive in the top management team to ensure the firm's optimal performance (p. 104).

In summary, as a starting point for understanding how leaders of multi-national companies utilized specific behaviors to sustain the implementation of Lean methodologies within their organizations, the Leadership literature was explored. Leadership was defined as the process of influencing and facilitating collective efforts to accomplish shared objectives (Yukl, 2012) and several theories of leadership were explored. BT was identified as the leadership theory that provided the most suitable grounding for this study. Within the BT literature, it was

found that two key categories of leader behavior were task- and relations-oriented. Several studies indicated a strong positive correlation between the task- and relation-oriented leader behaviors and desired organizational outcomes (Burke et al., 2006; Derue et al., 2011; Wang et al., 2011; Yukl et al., 2009). The application of this general correlation will be explored in the following section as the specific case of leader behaviors and Lean implementation was examined.

Leader behavior and lean implementation.

To further understand how leaders of multi-national companies utilized specific behaviors to sustain the implementation of Lean methodologies within their organizations, the Lean literature was explored. The exploration began with an overview of Lean consisting of the definition, history, and implementation challenges. This was followed by an in-depth examination of the important relationship between leader behaviors and sustained Lean implementation. As an indication of this important relationship, Laureani and Antony (2015) found that when study participants were asked to indicate if they agreed (using the Likert scale) that leadership behavior was important to sustained Lean implementation, the average of the ratings provided was 4.14 out of 5.

Lean overview.

The term *Lean* was first coined by Krafcik (1988) and made popular worldwide by Womack and Jones in their best-selling book, *The Machine That Changed the World* (TickFei, YuChun, Ashutosh, & FooSoon, 2015). According to Liker (2004), Lean is a management philosophy and strategy with long-term perspective that can be summarized as doing more with less. The chief focus of Lean is the identification and elimination of waste. According to Plenert (2012), “lean is a systematic approach that focuses the entire enterprise on continuously

improving safety, quality, delivery, and cost by seeking to eliminate waste, create flow, and increase the velocity of the system's ability to meet customer demand" (p. 53). Another purpose of Lean is to create an environment where employees are able to contribute their ideas and provide input regarding their work content and design (Antony, 2014). Key principles of Lean include respect for people, putting the customer first, continuous improvement, and elimination of waste (Liker, 2004). While the practice of Lean involves many principles and tools, it is essentially a philosophy that guides the user to the associated tools when they are needed (Bhasin & Burcher, 2006). Lean has attracted a great deal of attention within academic and practitioner literature because it suggests an approach that leaders have utilized to deliver higher performance and continuous improvement (Jayaram, Vickery, & Droge, 2008; Jones & Womack, 2011; Marley & Ward, 2013; Shah & Ward, 2003).

The precursors to what eventually became known as Lean were Total Quality Management (TQM) and the Toyota Production System (TPS) (Mann, 2008). Beginning early in the 1900s, Toyota utilized TQM and TPS to eventually develop into the leading producer of automobiles in the world (Holweg, 2007; Spear & Bowen, 1999). This resulted in global interest from business leaders who sought to replicate Toyota's success by implementing Lean (Holweg). According to Holweg, the oil crisis of 1973 served as an impetus for better understanding of global manufacturing efficiency and quality, including that of Toyota. At about this time, Ohno and Shingo published some of the first literature about TPS in English, which was of great interest to a growing number of westerners (Liker, 2004). Also, researchers from the Massachusetts Institute of Technology headed the International Motor Vehicle Program which began a study entitled *The Future of the Automobile* (Holweg). The purpose of this study was to determine the range of productivity performance for automobile manufacturers around the globe

(Krafcik, 1988). The study results documented the effectiveness of TPS which was highlighted in a 1980 documentary entitled *If Japan can....Why can't we?* (Macdonald, 1998).

As global interest in TPS grew, the International Motor Vehicle Program, headed by Womack, began its second phase of automobile operations research (Holweg, 2007). This provided material for Womack to publish two books: *The Machine that Changed the World* (Womack, Jones, & Roos, 1990) and *Lean Thinking* (Womack & Jones, 1996). These books provided a significant catalyst for the broad application of TPS (Holweg, 2007; Liker, 2004; Schonberger, 2007). According to Plenert (2012), a race to mimic TPS ensued and the broader names of Lean Manufacturing and Lean evolved. Through the 1980s, 1990s, and 2000s, Lean spread to nearly every manufacturing and business sector and then migrated into healthcare, government, and higher education (Naslund, 2013).

Several organizations have successfully implemented Lean and reaped significant benefits. Plenert (2012) provided a list of examples of process improvement results including more than a 40% decrease in process cycle times, a 75% lead-time reduction, a 90% reduction in non-value added time, a 93% reduction in research time, a 93% reduction in order processing time, a 99% increase in record processing efficiency, greater than 90% accuracy in data input quality (increase from less than 20%), and a 100% decrease in laboratory labeling errors. These impressive results are attainable in a shorter span of time and with fewer resources when compared to other improvement approaches (Gershon & Rajashekharaiyah, 2011). The results of these implementations have been mixed with some companies achieving staggering improvements in quality and productivity, while others have failed to implement or have fallen well short of their desired targets (Rymaszewska, year?). Researchers have estimated that the Lean implementation failure rate is in the range of 50% to 70%, with some suggesting it may

even be as high as 90% (Bhasin & Burcher, 2006; Found et al., 2008). Arthur (2014) cited a similar failure rate by indicating that an estimated 50% to 75% of Lean implementations fail and Naslund (2013) estimated the failure rate at 65% to 80%. Pope (2016) found that nearly 60% of companies had abandoned their Lean implementation efforts within three years and over 92% failed within ten years. According to Jadhav et al. (2014), about 70% of companies adopting Lean fail in that they experience decay and return to their original way of doing business. Coleman, Brooks, and Ewart (2013) also highlighted the difficulty of implementing Lean by describing an organization that required three attempts over a fifteen-year period to do so. This high failure rate for Lean implementation represents a significant gap in existing business practices.

Specific leader behaviors that support lean implementation.

Sustained Lean implementation is largely dependent upon the behaviors of the associated leaders (Byrne, 2013; Mann, 2005). Dibia et al. (2014) proposed that leadership is not only important, but is actually the most critical factor in the implementation of Lean. This proposition was based on several supporting factors: Lean implementation must be driven by the organization's leadership team as they provide a sense of purpose; set and communicate the vision, strategy, and continuous improvement goals; encourage and facilitate the integration of all infrastructure and people within the organization; assign resources; and inspire an organization to bring out the best in its people (Dibia et al.). Leadership that fails to lead and embrace the Lean implementation would inevitably interrupt or derail the effort (Liker, 2004).

Specific leader behaviors that were identified as supportive of Lean implementation were found upon review of the Lean literature. These academic journals and professional books shared a focus on the relationship between leadership and Lean implementation. For example,

according to Laureani and Antony (2015) and Naslund (2013), the most important behaviors for leaders implementing Lean are those that support management commitment, cultural change, linking Lean to business strategy, and empowerment. Additionally, Worley and Doolen (2006) posited that management support and communication are the two most important behavior categories affecting the success of a Lean implementation. Overall, the five most consistently referenced categories of leadership behavior were management commitment, cultural change, empowerment, communication, and linkage to business strategy. The following sections will explore each of these leader behavior categories as they relate to Lean implementation.

Leader behavior and management commitment.

The demonstration of management commitment by leaders of organizations implementing Lean was found to be critically important to the sustained success of the implementation (Arthur, 2014; Dibia et al., 2014; Laureani & Antony, 2015; Sisson & Elshennawy, 2015; Worley & Doolen, 2006). In two studies where participants were asked to indicate if they agreed (using the Likert scale) that the management commitment was important to sustained Lean implementation, the average of the ratings provided were 4.5 and 4.63 (Brun, 2010; Laureani & Antony, 2015). While the term *management commitment* was not always defined in the literature, the common conception utilized seemed to be the direct participation by the highest level executives in a specific and critically important aspect or program of an organization (Achanga, Shehob, Roy, & Nelder, 2006).

According to several researchers, direct participation by the highest level executives in Lean implementation was demonstrated in several ways that involved hands-on involvement (Byrne, 2013; Liker & Convis, 2012; Mann, 2005). Coronado and Antony (2002) posited that senior leaders needed to participate in Lean projects and regular progress updates to demonstrate

their commitment. Worley and Doolen (2006) echoed the need for senior leader involvement in Lean projects while Antony and Banuelas (2002) emphasized the importance of senior leader participation in Lean training classes.

Another key method for senior leaders to demonstrate management commitment was the visible driving of the Lean implementation transformation (Coronado & Antony, 2002; Dibia et al., 2014; Worley & Doolen, 2014). By serving as champions of the Lean implementation, senior leaders drive the implementation of Lean by consistently attaching their presence and name to the associated activities (Byrne, 2013; Worley & Doolen). Sisson and Eishennawy (2015) proposed that leaders should drive Lean implementation from the top down to enable effective deployment. This is because it is important for employees to see that top leadership supports the change that is being made (Sisson & Eishennawy). Coronado and Antony identified Bossidy of Allied Signal and Welch of General Electric as two CEOs who drove their company's continuous improvement implementations by visibly supporting and participating in company-wide activities. Dibia et al., (2014) postulated that "leadership must be the key drivers of a competent and empowered people that efficiently optimized the performance in the business processes to achieve highly competitive products and services as outcomes" (p. 698). This driving by the leadership consists of identification of the issues to be addressed, the prioritization of improvement actions, and the assigning of resources (Dibia et al.).

The assigning of resources by leaders is critically important for Lean implementation according to Antony and Banuelas (2002). This is because it not only provides for proper staffing but it also demonstrates leadership's commitment to the Lean implementation (Antony & Banuelas). Dibia et al. (2014) echoed the general need for resources and also posited that the specific appointment of a Lean champion and several Lean experts was necessary for

sustainment. In addition to a Lean champion and Lean experts, Laureani and Antony (2015) emphasized that existing resources would need to be made available to participate in training, 5s, and improvement project activity. Achanga et al. (2006) also emphasized the need for resource integration in addition to simply ensuring that an adequate number of resources were provided. This helped to ensure that the Lean experts were seen as part of the existing organization and not a separate, disconnected unit (Achanga et al.). Finally, Jadhav et al. (2014) identified the unwillingness of business leaders to provide adequate resources as one of the leading barriers to sustained Lean implementation because it stunts the organization's capabilities and demonstrates a lack of commitment.

Training of resources was also consistently identified in the literature as a sign of management commitment to the Lean implementation. Sisson and Eishennawy (2015) proposed that leaders of successful Lean implementation invest in training, which involves the classroom dissemination of relevant Lean information and the hands-on application of Lean principles and tools. According to Antony and Banuelas (2002), early training in a Lean implementation helped to communicate the "why" and "how" of Lean so that employees became familiar with the subject and could all speak the same language. Laureani and Antony (2015) emphasized the need for company-wide basic Lean training as a method for engaging employees and achieving buy-in to changes driven by improvement activities. Also, any classroom training must be followed by practical application and "students" should become "teachers" whenever possible (Sisson & Eishennawy). Interestingly, Arthur (2014) cautions against an entirely training-focused Lean implementation as it can tend to de-emphasize results while costing a great deal of money and time. The utilization of a balanced approach, with training immediately preceding application, being the recommended practice according to Arthur.

In conjunction with training, the need for leaders to create excitement for the Lean implementation was frequently identified in the literature as evidence of management commitment. According to Dibia et al. (2014), leaders must create interest in the Lean implementation at each stage of deployment and at every level of the organization in order to sustain the implementation. An excellent method for accomplishing this end is the establishment of regular events and conferences that celebrate the Lean improvement activities (Laureani & Antony, 2015). These opportunities allow leaders to visibly reiterate their support and passion for Lean and provide an opportunity for employees to become re-invigorated as they are recognized for their improvement efforts (Laureani & Antony).

Another aspect of management commitment as it relates to Lean implementation is the need to set expectations and establish appropriate performance measurement systems. According to Arthur (2014), leaders need to reinforce the message that improvement is not only good, but is expected. Additionally, Sisson and Elshennawy (2015) posited that defining expectations and how employees will be measured was a critical aspect of leadership's role in sustained Lean implementations. The findings of Jadhav et al. (2014) support this contention as they revealed the incompatibility of Lean with the organization's compensation and promotion systems was a leading barrier to the sustained implementation of Lean. To help counter such incompatibility, Laureani and Antony (2015) strongly recommended financially rewarding and promoting employees that perform well in the Lean environment.

An illustration of the importance of management commitment to Lean implementation was provided by a participant in the study of Laureani and Antony (2015):

There is one critical issue which I have felt in my experience of some organizations, where the top management is directly getting involved in the processes of Lean activities

the things were more successful, things were much faster, and people were more serious; whereas in the organizations where top management involvement is not as much of an issue, there the people were not that much serious, things were taking more time and eventually the progress was not good. I'd say that wherever there is the leadership involvement and participation of the top management and wherever the top management is really committed to work with the initiative, there is success (p. 13).

With regard to the hierarchical taxonomy of leadership behaviors provided by Yukl (2012), the leader behaviors that demonstrated management commitment were largely task-oriented. However, some relations-oriented behaviors were also found to exist. The task-oriented leader behaviors of clarifying, planning, and monitoring operations were clearly identified in the literature along with the relations-oriented leader behaviors of supporting and developing.

Leader behavior and cultural change.

The impact of leader behavior on cultural change of organizations implementing Lean was found to be extremely important to the sustained success of the implementation (Ali & Ivanov, 2015; Doval, 2015; Eckes, 2000; Naslund, 2013; van der Merwe, Pieterse, & Lourens, 2014). According to Achanga et al. (2006), the creation of a supportive Lean culture is an essential platform for the implementation of Lean. Additionally, Bhasin and Burcher (2006) posited that "whilst Lean is concerned with reducing waste at all levels; it is also about changing corporate culture" (p. 58). Interestingly, this finding is consistent with the second of Deming's fourteen points for leaders pursuing Total Quality Management (a precursor to Lean) which states that a new culture of focusing on quality and the needs of the customer is required (Ali & Ivanov).

According to Mann (2005), culture in a work organization is the sum of employees' beliefs and behaviors related to how work gets done. Sisson and Eishennawy (2015) proposed that leaders develop their own version of the Toyota Production System (TPS) to enable the development of their own Lean culture. The method for accomplishing this involves recognizing the purpose and principles behind the TPS, and then determining how they can be incorporated in their business model (Sisson & Eishennawy).

To aid in building the Lean culture, Doval (2015) and Mann (2005) found that it was necessary for leaders to change traditional thinking to Lean thinking. Sisson and Elshennawy posited that this process of culture change was lengthy and never-ending. Significant aspects of Lean thinking and Lean culture include the willingness to transparently expose problems publically and to strive for continuous improvement (Coronado & Antony, 2002). Antony and Banuelas (2002) found that in addition to changing culture, it was often necessary to make organizational changes to fit the Lean environment.

Therefore, a common challenge faced by leaders pursuing Lean implementation was the need for organizational change. The necessity for skillful navigation of the organizational change management process by the leader was emphasized by the relatively low success rate often achieved. According to Burnes (2000), it is estimated that between 40% and 70% of organizational change efforts fail. Because of the relatively high failure rate associated with organizational change, leaders must become knowledgeable about organizational change management (Dibia et al., 2014).

According to Spector (2013), "organizational change management consists of the actions taken by organizational leaders in order to support strategic renewal and achieve outstanding performance" (p. 3). More specifically, Spector posited that "transformational organizational

change seeks to create long-term, sustainable alterations in employee behaviors” (p. 8).

Interestingly, Peus et al. (2009) found that while organizational change was indispensable for long-term economic growth, such changes were often met with resistance. To help leaders to recognize that such employee resistance was multi-faceted, Eckes (2000) postulated that the resistance stemmed from issues that were technical, political, individual, or organizational and each required attention from leaders. Similarly, Spector postulated that employee resistance to change had multiple sources: satisfaction with the status quo; perception of a personal threat; the cost of change outweighs the benefits; management is mishandling the process; and the change is not likely to succeed. Additionally, Antony and Banuelas (2002) posited that resistance to change grew out of employee fear of change and fear of not meeting new standards; which needed to be key concerns for leaders implementing Lean.

According to McCreery et al. (2011), there is increasing evidence that success in achieving sustainable Lean transformation is at least partially attributable to the effectiveness of the change management process. Similarly, Dibia et al. (2014) posited that change must be communicated effectively at each stage of Lean implementation and at every level of the organization to bring about success. Dumitrascu (2014) posited that the need for leadership to clearly and consistently communicate the organization’s vision throughout the entire organization is particularly important during Lean implementations. Liker (2004) emphasized that for Lean implementation to be successful, there must be a long-term commitment from the leaders.

In order to better equip themselves for the organizational change process, leaders are able to utilize information and tools developed by researchers in this important field. For example, Found et al. (2008) expanded on the Change Management Iceberg model developed by Kruger

(2004) to create the Lean Iceberg Model of Sustainability. In this model, Found et al. posited that the visible changes represent about 30% of the total change and is supported by several activities that occur “behind the scenes.” Also, Lewin developed a change model consisting of the stages of unfreezing, moving, and refreezing to help in the understanding of how change progresses in an organization (Spector, 2013). In addition, van der Merwe et al. (2014) developed Lean culture change casual categories and activities that can be utilized by leaders to navigate a Lean implementation. Just a few of the recommended activities included identify the need for change, create the vision, identify skill gaps, develop objectives that align with the vision, identify the value streams, challenge employees, and follow up on commitments (van der Merwe et al.).

Company culture is especially relevant in the case of organizational change in a multi-national company. An organization change in a multi-national company will likely face varying cultures in each location (Boscari et al., 2016; Found et al., 2008). Indeed, Netland and Ferdows (2014) found that the effectiveness of the communication of the organization’s key initiatives, such as Lean, is often less than ideal because every location within an organization is different with variation in culture, language, size, history, technology, labor situation and other circumstances. These variations can become barriers to the effective implementation of Lean and may greatly limit its effectiveness (Jadhav et al., 2014). As mentioned, researchers have estimated that the Lean implementation failure rate is in the range of 50% to 70%, with some suggesting it may even be as high as 90% (Bhasin & Burcher, 2006; Found et al., 2008). This daunting failure rate is especially pertinent for the leader of a multi-national Lean implementation because of the need to transform multiple locations with disparate languages and cultures (Found et al.). According to Cudney and Elrod (2010), cultural and language barriers

introduce particular challenges for inclusively implementing Lean techniques globally. Specific leadership challenges inherent in the management of multi-national companies are examined in the following section.

The practice of leadership within a multi-national company is fraught with challenges (Found et al., 2008; Gieskes et al., 2002). Multi-national company sites are found in different geographic locations, resulting in variation in native language, time zone, and culture, all of which can present challenges for the leader (Found et al.). Gieskes et al. cite the challenges of local patriotism, differences in tolerance of time pressure, and variation in competence levels as issues specific to multi-national companies.

Cultural dimension studies.

To aid in the understanding of the theory of cultural differences, the associated literature was examined. Prominent in this examination were two studies that utilized cultural analysis to learn about the cultures of various countries. These were the studies of Hofstede (2001) and Trompenaar and Hamden-Turner (1997), both of which resulted in the identification of five cultural dimensions for the analysis of country culture.

The study conducted by Hofstede (2001) was comprised of 116,000 questionnaires taken by 60,000 people from 50 nations. Based on the study findings, Hofstede posited five cultural dimensions: Power Distance Index (PDI), Individualism, Masculinity, Uncertainty Avoidance Index (UAI), and Long/Short Term Orientation (LTO). Each dimension will be discussed in the following paragraphs.

The PDI dimension represents the way in which people utilize hierarchy and follow the “chain of command.” In countries with a low PDI rating, the people value equality and prefer to work together in teams (Hofstede, 2001). Understanding of the PDI is important for the Lean

leader because of the frequent incorporation of team-based projects involved in Lean (Starbird & Cavanagh, 2011).

The Individualism dimension relates to a person's willingness to identify with their work group or team (Hofstede, 2001). In countries with a high Individualism rating, people may not readily adopt performance targets set for their work group. Instead, they will be focused on their own performance and appraisal (Hofstede). This is important knowledge for the Lean leader because performance is often tracked at the work group level in Lean organizations (Plenert, 2012).

The Masculinity dimension measures a person's task and result-orientation. In countries with a high masculinity rate, people enjoy competition and seek big achievements along with quick results (Hofstede, 2001). The Lean leader may utilize knowledge of this dimension to understand the tendency for a specific site to be motivated by competition with other sites. Also, the Lean leader would do well to remind sites with a high Masculinity rating that improvements are typically small and continuous, as opposed to big and quick (Liker, 2004).

The UAI dimension assesses a person's comfort level with change, rules, and standard practices (Hofstede, 2001). In countries with high UAI ratings, people may resist change, struggle with innovation, and desire clear standards and rules. This is critical information for the Lean leader as the implementation of Lean involves organizational change as well as the introduction of standardized work practices (Plenert, 2012).

The LTO dimension measures a person's predilection toward achievement of long-term or short-term goals. In countries with high LTO ratings, people are willing to work hard for long periods of time in order to realize a goal or accomplishment (Hofstede, 2001). Understanding of

the LTO rating for a site is important for the Lean leader because Lean is intended to be a long-term approach and this must be emphasized regularly to keep employees engaged (Liker, 2004).

The study conducted by Trompenaar and Hamden-Turner (1997) focused on people of different cultures and how they behave and interact with one another. This study resulted in the identification of five cultural dimensions. The cultural dimensions identified by Trompenaar and Hamden-Turner include Universalism vs. Particularism, Individualism vs. Collectivism, Neutral vs. Affective Relationships, Specific vs. Diffuse Relationships, and Achievement vs. Ascription. Each dimension will be discussed in the following paragraphs.

The Universalism vs. Particularism dimension evaluates a person's preferences toward rules and relationships. In countries with a Universalism rating, people prefer to follow rules and contracts (Trompenaar & Hamden-Turner, 1997). Knowledge of the rating of this dimension for the Lean leader would shed light on the likelihood that the structure and conformance associated with the Lean tool of standard work would be embraced (Plenert, 2012).

The Individualism vs. Collectivism dimension measures a person's tendency to focus on themselves or their team (Trompenaar & Hamden-Turner, 1997). In countries with a low Individualism rating, people are likely to readily embrace team work and team-based projects. The Lean leader can utilize an understanding of this rating to gauge the likely success of the implementation of work teams, which are a key part of Lean (Starbird & Cavanaugh, 2011).

The Neutral vs. Affective Relationships dimension assesses how likely a person is to show their emotions (Trompenaar & Hamden-Turner, 1997). In countries with a Neutral rating, people tend to be reserved and cool with little outward display of their emotions. Effective two-way communication is a key element of the organization change process associated with Lean

implementation (Dibia et al., 2014), therefore the Lean leader would do well to grasp the rating for this dimension which would likely impact effective communication.

The Specific vs. Diffuse Relationships dimension relates to a person's tolerance for direct communication. In countries with a Specific rating, people prefer clear and direct communication (Trompenaar & Hamden-Turner, 1997). As in the previous dimension, the Lean Leader could utilize knowledge of this rating to optimize communication, which is a key element of Lean implementation (Dibia et al., 2014).

The Achievement vs. Ascription dimension evaluates if a person assigns esteem to another person based on their position or their accomplishments (Trompenaar & Hamden-Turner, 1997). In countries with an Ascription rating, people tend to honor and follow their superiors. For the Lean leader, understanding this rating could assist in the development of an effective strategy for selecting leaders in the Lean implementation. For the Ascription culture, the formal leaders of the organization should be equipped to disseminate the Lean principles and tools, while in the Achievement culture, the Lean leader should place those who achieve early improvements into leadership roles.

With regard to the specific case of Lean implementation within a multi-national company, Found et al. (2008) postulated that the existence of cultural differences was a significant factor. According to Cudney and Elrod (2010), cultural and language barriers introduce particular challenges for inclusively implementing Lean techniques globally. A specific challenge for leaders of multi-national companies is the need to transform multiple locations with disparate languages and cultures (Found et al.). In many situations, leaders of multi-national companies have failed to adjust their Lean implementation strategies and tactics to account for these cultural differences (Found et al.). A criticism of some leaders of the Lean movement is that their

guidance is prescriptive and lacking in contingency based on cultural differences (Found et al.). The inference that there is only one way to implement Lean is counter to the fact that sites within a multi-national company have differing cultures. In their study of Lean implementation, Hu, Mason, Williams, and Found (2015) proposed that because research into this topic area has been largely focused on western countries, there is a need to conduct more research in developing regions of the world.

With regard to the hierarchical taxonomy of leadership behaviors provided by Yukl (2012), the leader behaviors that demonstrated cultural change were largely change-oriented. However, some relations-oriented and task-oriented behaviors were also found to exist. The change-oriented leader behaviors of advocating change, envisioning change, and facilitating collective learning were clearly identified in the literature along with the relations-oriented leader behavior of supporting and the task-oriented leader behavior of clarifying.

Leader behavior and employee empowerment.

Empowerment of employees by leaders of companies implementing Lean was found to be a key behavior for the sustainment of the implementation (Arthur, 2014; Found et al., 2008; Rymaszewska, 2014; TickFei et al., 2015). According to Arthur, leaders can help employees to develop a high level of buy-in to the Lean implementation by giving them ownership of projects and empowering them to make changes. TickFei et al. posited that engaging and empowering shop floor employees in the Lean implementation was found to be extremely conducive to generating desired results and sustaining Lean. This finding is consistent with the fourteenth of Deming's fourteen points for leaders pursuing Total Quality Management (a precursor to Lean) which emphasized the importance of placing every member of the company

in charge of the transformation that would result from the adoption of the preceding thirteen points (Ali & Ivanov, 2015).

Jadhav et al. (2014) identified a lack of empowered employees as a leading barrier to a sustained Lean implementation. According to Landry (2008), such lack of empowerment may stem from leaders resistance to giving up control in terms of allowing decision-making to flow downward to the workers and then providing support for what gets decided. Similarly, Barrett and Fraile (2005) indicated that red tape and bureaucracy removes the decision-making authority from the employees and limits the scope of Lean changes that can be pursued without involvement of leadership. In addition to the potential administrative constraints, Jones and Womack (2011) posited that leaders may limit employee empowerment by being overly risk-averse and not encouraging experimentation by the employees. A failed experiment may cause temporary difficulties, but it also enables employees to learn and it demonstrates a level of trust and empowerment by leaders (Jones & Womack).

In a study of small and medium enterprises (SMEs), Rymaszewska (2014) found that providing more authority and power to employees was a strong supporting factor for Lean implementation. To facilitate this, Rymaszewska observed that SME leaders streamlined the decision-making processes and focused on the development of multi-skilled employees capable of handling various tasks (including improvement and problem-solving activities). In larger companies, where several dedicated Lean resources may be utilized, Found et al. (2008) cautioned that employees may not be empowered if the improvement and problem-solving activities are only performed by the Lean experts. To counter this potentiality, the heavy utilization of empowered teams was emphasized (Found et al.).

Teams are a specific type of Lean tool and a major pillar of the Lean methodology (Byrne, 2013; Shah & Ward, 2003). That is the case because much of the improvement activity associated with Lean is performed by the employees who are responsible for the work, as opposed to specialists from outside (Starbird & Cavanagh, 2011). The natural work team provides an ideal structure and sense of ownership that greatly enhances the inherent power of any continuous improvement activity, including Lean (Liker, 2004; Starbird & Cavanagh, 2011).

With regard to the hierarchical taxonomy of leadership behaviors provided by Yukl (2012), the leader behaviors that demonstrated empowerment were largely relations-oriented. However, some change-oriented behaviors were also found to exist. The relations-oriented leader behaviors of empowering, supporting, developing, and recognizing were clearly identified in the literature along with the change-oriented leader behaviors of encouraging innovation and facilitating collective learning.

Leader behavior and communication.

Communication by leaders of organizations implementing Lean was identified as an extremely important leader behavior (Brun, 2010; Dibia et al., 2014; Henderson & Evans, 2000). According to Laureani and Antony, (2015), establishing and utilizing effective communication was crucial for engaging employees and achieving buy-in to improvement measures. Leaders of companies that have succeeded in implementing Lean have indicated that the best way to prevent resistance to change is through increased and sustained communication (Coronado & Antony, 2002). The importance of communication was emphasized by Dibia et al. (2014) who listed it as a central element of each of the four components (Leadership, People, Process, and Outcome) of their Lean implementation model.

Cudney and Elrod (2010) posited that employees need to be properly informed of changes that were being implemented for the sustainment of Lean. Additionally, Henderson and Evans (2000) found that early and sustained communication served to reduce employees' fear of changes brought about by the Lean implementation. This greatly improved the likelihood of the sustainment of Lean. This is especially true of the communication of successes, which can help to stimulate organizational support and excitement (Jadhav et al., 2014). Similarly, Coronado and Antony (2002) found that the communication of successes helped to encourage employees; however, they also emphasized the need to communicate failed efforts as a method for learning from mistakes and acknowledging that some Lean efforts may not succeed.

Several researchers commented on the systems and structure for communication associated with Lean implementation. Sisson and Eishennawy (2015) proposed that leaders should provide regular communications on Lean throughout the company. The communication should explain the reason for changes being made and should incorporate multiple modes: town hall meetings, face-to-face communication, newsletters, and videos (Sisson & Eishennawy). An overall communication strategy and infrastructure are necessary to organize and facilitate the who, what, and how aspects of Lean communications (Coronado & Antony, 2002). Items such as slogans, banners, newsletters, and video displays were often utilized to communicate Lean philosophies, tools, and results (Coronado & Antony). Interestingly, Rymaszewska (2014) also found that effective communication was critically important within a smaller company pursuing Lean implementation; however, it was actually made easier due to the fewer number of people and informality.

Laureani and Antony (2015) interviewed twenty-one leaders and identified communication systems and structures to be a critical factor in the implementation of Lean.

According to Laureani and Antony, “participants’ comments suggested a need for both verbal and visual communication systems as mutually reinforcing mechanisms for communicating the message” (p. 7). In addition, regular Lean events, conferences, and lunch and learns were identified as communication methods for giving recognition and showcasing success (Laureani & Antony). While definitely supportive of communication, one participant of Laureani and Antony’s study did offer a slight caution against communicating too much, too soon, and to too many. The concern with such widespread communication was that employee expectations may be unduly raised and not immediately met, thus resulting in employee frustration and apathy in the longer term (Laureani & Antony).

With regard to the hierarchical taxonomy of leadership behaviors provided by Yukl (2012), the leader behaviors that demonstrated communication were largely change-oriented. However, some task-oriented and relations-oriented behaviors were also found to exist. The change-oriented leader behaviors of advocating change, envisioning change, and facilitating collective learning were clearly identified in the literature along with the task-oriented leader behavior of clarifying and the relations-oriented leader behavior of recognizing.

Leader behavior and strategy.

According to Rumelt (2011), “the core of strategy work is always the same: discovering the critical factors in a situation and designing a way of coordinating and focusing actions to deal with those factors” (p. 2). The leader behavior of linking existing business strategy to the implementation of Lean was found to be extremely important to the sustained success of the implementation (Spear & Bowen, 1999; Brun, 2010; Laureani & Antony, 2012; Naslund, 2013). In two studies where participants were asked to indicate if they agreed (using the Likert scale) that linking Lean to the business strategy was important to sustained Lean implementation, the

average of the ratings provided were 4.1 and 4.26 (Brun; Laureani, & Antony, 2015). Based on an extensive review of the literature, Coronado and Antony identified linking the Lean implementation to the business strategy as a key ingredient for sustained success. Without this linkage to existing strategy, the probability of a sustained Lean implementation may diminish significantly (Naslund).

According to Coronado and Antony (2002), Lean cannot be treated as a stand-alone activity; rather it must support and connect with the existing company strategy. This should be true at a high level and for every single improvement project; the link to the business strategy should be made clear (Coronado & Antony). Naslund (2013) described this linkage as strategic alignment and indicated that the Lean implementation “should be linked to as well as support the organization’s strategy, that the reason for starting the initiative should be based on substantive factors and that the organization has a long-term view of the effort” (p. 90). Pay (2008) posited that there are multiple improvement methodologies to consider and before a company chooses Lean, they should be certain that it will directly support their strategy. Coronado and Antony emphasized that the Lean implementation should be viewed as an enterprise-wide effort and not only focused on one area (e.g. manufacturing).

In terms of time frame, a Lean implementation should be viewed as a long-term initiative as opposed to a quick fix (Womack & Jones, 1996). According to Liker (2004), a key element to Toyota’s success has been the willingness to base management decisions on a long-term philosophy, even at the expense of short-term financial goals. Womack and Jones posited that at least three years are required before significant organizational results occur while Velmurugan (2008) stated that it often takes five years before a specific project provides returns sufficient to cover the start-up and maintenance cost. Regardless of the precise number of years required for

results to occur, Lean implementation is clearly a long-term proposition. Finally, because of the long-term nature of Lean implementation, Naslund cautions that companies avoid the temptation to not stay the course when changes in leadership occur.

With regard to the hierarchical taxonomy of leadership behaviors provided by Yukl (2012), the leader behaviors that demonstrated linkage to strategy were largely task-oriented. However, some change-oriented behaviors were also found to exist. The task-oriented leader behaviors of clarifying, planning, and problem solving operations were clearly identified in the literature along with the change-oriented leader behaviors of envisioning change and advocating change.

Transition and Summary

In summary, in an effort to further understand how leaders of multi-national companies utilized specific behaviors to sustain the implementation of Lean methodologies within their organizations, the Lean literature was explored. An overview of Lean was provided to establish the background and context for this study. Within the Lean literature, it was found that leader behaviors supporting management commitment, cultural change, empowerment, communication, and linkage to strategy were critical for sustained Lean implementation. With respect to BT, the leader behaviors identified as supportive of sustained Lean implementation represented the task-oriented, relations-oriented, and change-oriented meta-categories. For example, to demonstrate management commitment, researchers found that leaders should participate in Lean training and improvement projects (task-based) and spend time with employees to develop excitement for the Lean implementation (relationship-based).

This study was an exploration of the behaviors to be utilized by leaders striving to sustain the implementation of Lean in multi-national companies. As a foundation to the overall study,

this section provided important information about the problem to be examined and the overall purpose to be achieved. Also, the approach utilized for research was described, several key terms and assumptions were presented, and the significance of the study was discussed. Finally, a thorough review of the associated professional and scholarly literature was presented along with potential themes and perceptions to be examined by this study. The next section will discuss the research project in detail with emphasis on the research design and method.

Section 2: The Project

This study investigated how leaders of multi-national companies utilized specific behaviors to sustain the implementation of Lean methodologies within their organizations. To explore this research question, leaders of multi-national companies sustaining a Lean implementation for at least three years were interviewed, Lean processes were observed, and organizational documents were reviewed. A qualitative study, utilizing case study methodology, was employed to address the research question. This section describes the research project details by providing information about the overall purpose to be achieved and the role of the researcher and participants. Also, the research method and design, population and sampling, and data collection will be described. Finally, a thorough review of the data analysis techniques will be presented along with the overall study reliability and validity considerations.

Purpose Statement

The purpose of this qualitative case study was to increase the empirical knowledge of multi-national company leader behaviors required to sustain the implementation of Lean methodologies for at least three years. More specifically, the intent of this investigation was to make the relationship between leader behavior and sustained Lean implementations better understood. According to Stake (2010), such an increase in the understanding of a key relationship is a leading purpose of scholarly and applied research.

In addition, this study was intended to identify and communicate specific leader behaviors that supported sustained Lean implementations. The intention of communicating these leader behaviors was to better equip business leaders to address the problem of the relatively poor Lean implementation sustainment rate described in the Problem Statement. Therefore, the ultimate purpose of this study was to improve the practice of Lean implementation so that higher

rates of sustainment would be achieved. Such improvement in business practice is a key purpose of scholarly research (Creswell, 2012; Merriam, 2009).

Several steps were taken to accomplish the purpose of this study. A review of the associated professional and scholarly literature was conducted to establish the current understanding of this topic. In addition to the information gleaned from the literature review, new research data was gathered by examining three multi-national companies that had sustained their Lean implementations for more than three years. The examination included personal interviews, direct observation and review of relevant documents.

Role of the Researcher

The role of the researcher in a qualitative study is that of the data collection instrument (Creswell, 2012; Stake, 2010; Yin, 2009). For this study, the researcher collected the data through in-depth participant interviews designed to elicit detailed information and insight. In addition, the researcher supplemented the interview process with follow up discussions, on-site observations, document reviews, and relevant company web site reviews in an effort to discover key findings through triangulation.

Participants

Merriam (2009) posits that qualitative research participants should be knowledgeable about the research question and willing to share information and support the exploration process. Participants in this study met these criteria as they were senior leaders of three multi-national companies able to sustain their implementation of Lean for at least three years and willing to participate in this research. Initially, participants received an email (see Appendix A) describing the requirements of the study and including an attached consent form. Participants then submitted the completed consent form and scheduled a phone interview with the researcher (see

Appendix B). The telephone interviews consisted of eight open-ended questions designed to explore the Lean implementation experiences of each participant (see Appendix C). Before moving to the open-ended questions, the researcher discussed the study background and requirements. By doing so, the researcher established a rapport and also confirmed that each participant met the study requirements. In addition, the researcher clearly indicated that the participant was able to withdraw from the study at any time if they so desired. The phone interviews were recorded and then transcribed soon thereafter. Each participant was asked for approval of the recording of the telephone interviews and each received a copy of the interview transcript for the review.

Confidentiality of the information provided by the participants was paramount and was protected through multiple methods. All electronic files resided only on the researcher's computer which was password protected. The principal researcher was the sole individual with access to the computer and password. All associated hard copy documents were kept in a locked file drawer which only the researcher could open. The telephone interviews occurred in the researcher's office behind a closed door beyond which the words of the interview could not be heard. Also, the recordings of the telephone interviews were kept in a locked drawer and codes were used in place of participant and company names to preserve anonymity and confidentiality (see Table 2). Finally, all records will be destroyed three years after the completion of the research.

Table 2

Codes for Participants and Companies

	Company A	Company B	Company C
Participant 1	A1	B1	C1
Participant 2	A2	B2	C2

Research Method and Design

According to Stake (2010), scholarly research should be intended to make some relationship or situation better understood. With regard to specific research methodology, Creswell (2012) defined scholarly research as a six-step process: identify a research problem, review the literature, specify a research purpose, collect data, analyze and interpret the data, and report the findings. Similarly, Yin (2009) proposed that the process of research consisted of planning, designing, preparing, collecting, analyzing, and sharing. While their lists of research steps were different, both Creswell and Yin emphasized the importance of the appropriate research method and design to effectively answer research questions. Therefore, utilization of the appropriate research method and design are regarded as crucially important matters for the researcher (Creswell, 2012; Merriam, 2009; Yin, 2009).

The qualitative method and multiple-case study design were utilized to address the research question of this study. These were selected for multiple reasons based on the nature of the study and current recommended practices for effective research. The rationale for utilizing the qualitative method and multiple-case study design will be explained in the following sections.

Method.

According to Creswell (2014, pp. 3-4), the three research methods are:

Quantitative - a means for testing objective theories by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures.

Qualitative - a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging questions and procedures, data typically collected in the participant's setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data.

Mixed methods - an approach to inquiry that combines or associates both qualitative and quantitative forms. It involves philosophical assumptions, the use of qualitative and quantitative approaches, and the mixing of both approaches in a study.

The above description of the qualitative method best matched the nature of this study. Also, the qualitative approach suited this study because it was interpretive (gained insights through the discovery of meanings) and naturalistic (the research took place in real world settings as they unfolded naturally), which are two key elements of the qualitative method according to Stake (2010). In addition, this method was chosen because the study largely involved words and open-ended questions rather than numbers and statistics, which is often the distinction between qualitative and quantitative methods according to Creswell (2014) and Corbin and Strauss (1990).

Because this study did not meet Creswell's (2014) condition of testing an objective theory by analyzing data with statistical procedures, the quantitative method was not appropriate. Further, this study did not involve precise numerical findings, large random, samples, or inanimate data collection instruments, which Merriam (2009) purports are characteristics of the quantitative method. Also, this study was not a mixture of quantitative and qualitative approaches, which is a required condition for mixed methods according to Creswell and Yin (2009); therefore this method was not utilized.

Research design.

The design of research has been defined and described by multiple researchers. For example, Nachimias and Nachimias (1992, p. 77) defined research design as “a plan that guides the investigator in the process of collecting, analyzing, and interpreting observations.” To help describe the purpose of research design, Philliber, Schwab, and Sloss (1980) proposed that research design must address four problems: what questions to study, what data are relevant, what data to collect, and how to analyze the results. According to Merriam (2009), the designs of the qualitative method are narrative analysis, ethnography, phenomenology, grounded theory, and case study.

The case study design was selected as the most appropriate design of qualitative method for this study. Eisenhardt (1989) purported that the case study design can be utilized for providing description and theory testing. This study aimed at leadership theory testing and addressing the broader context of Lean implementation in multi-national companies in particular, thus matching one of Eisenhardt’s uses for the case study design. Additionally, Yin (2009) posited that the selection of the qualitative method design is dependent upon three conditions: the type of research question posed (how, why? or who, what, where, how many, how much?), the need for investigator control over actual behavioral events of the participants (yes or no), and the focus on contemporary as opposed to historical events (yes or no). For this study, the research question was a how question (How were leaders of multi-national companies able to utilize specific behaviors to sustain the implementation of Lean methodologies within their organizations?), which fit Yin’s first condition for the case study design. Also, Yin’s second case study condition was met as control over the behavioral events of the study participants was not required. Finally, this study focused solely on how leaders are currently implementing Lean

methodologies, thus Yin's third case study condition was met. The other qualitative designs (narrative analysis, grounded theory, ethnography, and phenomenology) were not selected for this study for the reasons cited in the following paragraphs.

According to Creswell (2012), narrative analysis involves "qualitative procedures in which researchers describe the lives of individuals, collect and tell stories about these individuals' lives, and write narratives about their experiences" (p. 22). As the name implies, the narrative analysis is best used to tell a story to help make sense of a person's experience (Merriam, 2009). An example of a narrative analysis would be the utilization of first-person stories of students in an attempt to better understand the classroom experience (Creswell). For the study of leader behaviors in Lean implementations, the researcher believed that gathering information through personal interviews (a form of storytelling) was important, however, other methods of data collection were also deemed useful. In order to base conclusions on more than personal accounts, it was desired to use direct observations and document reviews as well. Thus, the narrative analysis approach was not the most appropriate choice for this study.

Ethnographic designs seek to "describe, analyze, and interpret a cultural group's shared patterns of behaviors, beliefs, and language that develop over time" (Creswell, 2012, p. 21). According to Merriam (2009), the heart of ethnography is the thick description of a group's culture. For the study of leader behaviors in Lean implementations, the researcher believed that it was important to learn about the impact of culture and the behaviors of leaders (which are aspects of ethnography), however, the data was to be collected over a very short period of time. Therefore, the ethnographic approach was not the most appropriate choice for this study.

Phenomenology seeks to describe experiences as they are lived (Merriam, 2009). The experiences are associated with a specific phenomenon or event and they are best conveyed

through interview and direct observation (Merriam). For the study of leader behaviors in Lean implementations, the researcher believed that it was important to learn from leaders who experienced the phenomenon of Lean implementations, however, the intent was more related to fact finding as opposed to an understanding of feelings or perceptions. Therefore, the phenomenology approach was not the most appropriate choice for this study.

Grounded theory designs are used to generate a general explanation for a process or action that is grounded in the views of the participants (Creswell, 2012). According to Merriam (2009), the focus on building theory is what differentiates grounded theory from the other qualitative designs. For the study of leader behaviors in Lean implementations, the researcher believed that it was important to test certain leadership theories and their applicability for Lean implementations within multi-national organizations, however, the intent was not to build new theories. Therefore, the grounded theory approach was not the most appropriate choice for this study.

Also, for the specific design of case study research, Yin (2009) posited that careful and thoughtful design serves as the blueprint for a robust, reliable, and valid study. This blueprint consists of five parts: a study's questions, its propositions, its unit(s) of analysis, the logic linking that data to the propositions, and the criteria for interpreting the findings (Yin). Need at least a third sentence to form a paragraph. Because this study utilized the case study design, Yin's design blueprint was followed. The first two elements, the research question and research propositions, will be examined in the following paragraphs while the final three elements of the design: unit(s) of Analysis (Population and Sampling), logic linking the data to the propositions (Data Collection), and criteria for interpreting the findings (Data Analysis) will be discussed in later segments of Section 2.

The first element of the design was the research question, which was discussed in Section 1: How were leaders of multi-national companies able to utilize specific behaviors to sustain the implementation of Lean methodologies within their organizations? This question helped to guide the research design and provided focus for the literature review. The development of the research question was based on two key findings in the literature. First, it was found from examining the Leadership literature that there existed a correlation between leader behaviors and organizational outcomes (Blake & Mouton, 1985; Stogdill, 1974; Yukl, 2013). Second, it was found from exploring the Lean literature that effective leadership was critical to the successful implementation of Lean methodologies (Dibia et al., 2014). Therefore, it was important that the research question for this study focused on the connection between leader behaviors and organizational outcomes (e.g. Lean implementation).

The second element of the design was propositions (or secondary aspects of the research question), which helped to move research study in the right direction. For this study, two propositions influenced the case study design. First, it was found in the literature that an inherent challenge in implementing Lean domestically and internationally was variation in culture, language, size, history, technology, labor situation and other circumstances (Netland & Ferdows, 2014). This was found to be especially true in multi-national companies where efforts to effectively communicate and standardize were exacerbated by the variation in culture, language, and social norms (Found et al., 2008). Therefore, the theory supporting this proposition was explored in the literature review and examined in the participant interviews. Second, it was found in the literature that the inability to sustain the implementation of Lean methodologies represented an important gap in business practices (Jadhav et al., 2014). According to Pope (2016), nearly 60% of Lean implementations fail within the first three years and over 92% fail

within ten years. Therefore, only companies that had sustained Lean implementation for at least three years were selected for this study.

Population and Sampling

According to Merriam (2009), two levels of sampling are necessary in qualitative case studies. First, the case must be selected and then the individuals within the case to be studied must be selected. For this study, the cases included three multi-national companies that had implemented Lean methodologies for at least three years and the individuals studied within these cases were the associated senior leaders. The term “senior leader” refers to individuals with the title of CEO, president, vice president, general manager, director, plant manager, and operations manager. Senior leaders were selected because of their heavy involvement in significant strategic initiatives, such as the implementation of Lean methodologies (Coleman et al., 2013). Multi-national companies were selected because these companies face particularly difficult challenges in implementing organizational change. According to Jadhav et al. (2014), the variations in culture, language, size, history, technology, labor situation and other circumstances of sites associated with multi-national companies can become barriers to the implementation of Lean and may greatly limit its effectiveness.

To qualify as a participant for this study, senior leaders (C-level officers, vice presidents, directors, and plant managers) must have been directly involved in their company’s Lean implementation for a minimum of three years. The three year time frame was selected because Pope (2016) found that nearly 60% of Lean implementations fail before they reach the end of their third year. These inclusion requirements helped to ensure that participants had in-depth knowledge regarding the specific research topic, as recommended by Yin (2009). In addition, participants had to be willing and available to participate in the research study and willing to

share their experiences and knowledge regarding their Lean implementation. These requirements supported the recommendation by Knapik (2006) that case study participants possessed a willingness to provide their valuable information to others.

Three companies (cases) provided senior leader participants for this study, thus exceeding the minimum requirement of one or more cases for a valid qualitative case study (Creswell, 2012; Yin, 2009). Two senior leaders from each company participated, which resulted in a total of six participants. This provided a significant amount of relevant information with some replication. In sampling from a designated population for a multiple-case study with two or more cases, a great deal of similarity or replication among participants is desired (Yin). In addition, Creswell posited that participants for qualitative research are intentionally selected from the designated population. Therefore, the participants for this study were purposefully selected by the researcher based upon knowledge of each potential participant's experiences and background.

Data Collection

According to Creswell (2012), case study research is a qualitative approach in which the investigator explores a case or multiple cases over time, through detailed, in-depth data collection involving multiple sources of information. Yin (2009) proposed that the three principles of data collection are using multiple sources of evidence, creating a case study database, and maintaining a chain of evidence. Additionally, Yin advocated that the six sources of research evidence include documentation, archival records, interviews, direct observation, participant-observation, and physical artifacts. The most important advantage presented by using multiple sources of evidence is the development of converging lines of inquiry, which is a triangulation process that results in findings that are likely to be more convincing and accurate.

The specific details for the data collection utilized in this study will be examined in the Instruments, Data Collection Techniques, and Data Organization segments below.

Instruments.

Unlike quantitative research, where the instrument for collecting data is typically a well-designed survey or questionnaire, the instrument for data collection in qualitative research is often the actual researcher (Creswell, 2012). For this study, the principal investigator was the primary instrument employed for collecting data. The sources of data or evidence explored by the principal investigator included participant interviews, direct observation, and document review. Additionally, the principal investigator examined these data sources from three different cases in order to increase the amount of data collected as well as the number of viewpoints considered.

Data collection technique.

The first data collection technique utilized for this study was the participant interview. According to Yin (2009), interviews are an essential source of case study evidence because most case studies are about human affairs or behavioral events. This study concerned behavioral events of leaders as they implemented Lean methodologies, thus interviews were used to collect data. More specifically, focused interviews (as defined by Yin) were utilized as the principal investigator interviewed participants for a short period of time in a conversational tone and following a certain set of questions derived from the case study protocol.

The interviews consisted of open-ended questions which were designed to aid the examination of the overall research question of the study. The development of the interview questions was informed by the work of many researchers (Found et al., 2008; Jadhav et al., 2014; Laureani & Antony, 2015; Liker, 2004; Liker & Convis, 2011; Naslund, 2013; Rymaszewska,

2014; Yukl, 2013) which was examined in the literature review for this study. The interview process consisted of two steps. First, potential participants received an email inviting them to take part in the study. The email provided a description of the study, an indication of the process that they were being asked to follow, and included an attached consent form. Second, willing participants that met the requirements of the study took part in a phone interview with the principal investigator. The interviews were made up of eight open-ended questions designed to capture actual experiences associated with the implementation of Lean in a multi-national company (Appendix C). The interviews were recorded and the recordings were transcribed verbatim for further review by the principal investigator and participants. Each participant was provided a copy of the phone interview transcript for their review.

The second data collection technique utilized for this study was the direct observation of participants in the setting of the Lean implementations. Yin (2009) posited that direct observational evidence is often useful in providing additional information about the research topic. A strong point of the direct observation of evidence is the contextual background that is gained as behaviors are observed in the actual setting of the case and in real time (Yin). The principal investigator travelled to one site for each of the three participating companies (cases) for approximately one day to meet participants in-person and to observe relevant processes and behavior.

The third data collection technique utilized for this study was the review of associated documentation. According to Yin (2009), documents can be used to corroborate and augment evidence from other sources, thus they play an explicit role in case study data collection. For this study, the principal investigator reviewed supporting documents (related emails, meeting

minutes, etc.) supplied by the participants as well as relevant company web site material for each case. This technique helped to triangulate and confirm certain emerging findings.

Data Organization Techniques

According to Merriam (2009), a system for organizing and managing research data should be devised early in the life of a study. Further, Merriam posited that the scheme for organizing the data should enable the researcher to access any piece of data at any time. Yin (2009) described the data organization for case study research as a database with four components: case study notes, case study documents, tabular materials, and narratives. The extensive amount of data collected for this study was generated through six focused interviews, three day-long direct observations, and the review of several dozen documents. Therefore, a comprehensive and systematic data organization plan utilizing the techniques proposed by Yin was utilized to assist in effective data compilation and retrieval.

For this study, the first component of the database contained the case study notes. According to Yin (2009), for case studies, the researcher's notes are likely to be the most common database component. For this study, the transcripts of the participants' recorded interviews included the notes taken by the principal investigator during the interview as they comprised the largest portion of this database component. Additionally, as the principal investigator reviewed the interview transcripts, notes written on colored post-it notes were attached directly to the transcript in the location of the associated interview question/answer. The post-it note colors corresponded to certain study themes. In a similar fashion, notes were made by the principal investigator on colored post-it notes and attached to documents received from participating companies, as appropriate. Finally, general notes were kept by the principal investigator in a journal.

The second component of the database contained the case study documents. According to Yin (2009), documents can often be multi-paged with key information somewhat hidden inside, therefore, efforts to mark and highlight the key information must be made. For this study, an annotated bibliography was utilized to summarize the key information of each document along with the notation of the associated page and paragraph numbers. In addition, important cross-reference or corroboration notes were included in the bibliography (e.g. data on page 4 supports the comments made by participant A1 regarding Question 3).

The third component of the database for this study was the tabular materials. Yin (2009) described tabular materials as any data based on surveys, observational counts, or archival data. For this study, this portion of the database consisted of only one item: a table showing the number of notes (along with their associated source) found that related to each research proposition. This was not a technique for analyzing or interpreting the data, but a technique for categorization and location of case study notes.

The fourth component of the database contained the narratives. According to Yin (2009), narratives reflect a special practice of answering case study propositions based on collected data. For this study, the principal investigator developed narratives for each study proposition for further review in the data analysis phase.

Another key element of data organization is the maintenance of security and confidentiality. For this study, data was secured through multiple precautions. First, all electronic files were maintained on the principal investigator's computer which required a password to access. The principal researcher was the sole individual who had access to the password that was changed every 90 days to further preserve confidentiality. Second, all hard copy documents were kept in a locked drawer in the desk of the principal investigator. Only the

principal investigator had a key to this drawer. Finally, the phone interview recordings were also kept in a locked drawer in the principal investigator's desk.

Data Analysis Technique

According to Yin (2009), four general strategies exist for the analysis of case study data. These strategies include relying on theoretical propositions, developing a case study descriptive framework, using both qualitative and quantitative data, and examining rival explanations. For this study, the theoretical propositions were utilized to guide the overall study, the literature review, the interview question selection, and the data analysis. For example, the research indicated that leader behaviors had a direct bearing on leadership effectiveness (the sustainment of Lean in this case); therefore, this was a key focus area in the data analysis.

Yin (2009) also proposed that along with the aforementioned general strategies, there exist five case study data analysis techniques to facilitate this important process. These techniques include pattern matching, explanation building, time series analysis, logic models, and cross-case synthesis (Yin). According to Yin, the brief definition of each of these techniques follows:

1. Pattern matching involves the comparison of patterns predicted before data collection and those derived from the collected data.
2. Explanation building is a special type of pattern matching consisting of the determination of causal links that explain how or why something happened.
3. Time-series analysis is utilized to compare a theoretically significant trend specified before the onset of the case study to the study's observed (empirical) trend.

4. Logic models are another special type of pattern matching involving the staging of events in a repeated cause-effect-cause-effect sequence and then comparing empirically observed events to theoretically predicted events.
5. Cross-case synthesis applies specifically to the analysis of multiple cases and involves the aggregation of findings across the cases by utilizing one of the other four techniques.

For this study, the techniques of explanation building (explaining how leaders implemented Lean methodologies) and cross-case synthesis (aggregating the findings of three separate cases) were utilized for the data analysis.

The data analysis through explanation building for this study consisted of four steps and the process was consistent with the research question and the underlying conceptual framework. The research question involved the exploration of how leaders in multi-national companies effectively implemented Lean methodologies and the underlying conceptual framework was built upon the theory that leader behaviors are correlated with organizational outcomes. The data analysis was designed to answer the research question and test the underlying theory. This is an example of the grounded theory approach (Yin, 2009).

The first step of the data analysis was the preparation of the data. The data was gathered through interviews of participants who were each assigned a unique alphanumeric code. These interviews were recorded and each recording was transcribed into typed text. Participants were provided a copy of the transcription for their review.

The second and third steps of the data analysis aided in the understanding of the study data by identifying and coding significant themes. The second step involved a thorough reading of each transcript with the intent of identifying major themes. This process is referred to as open

coding and it served to identify data that might be relevant to the study (Merriam, 2009). Special attention was paid to behaviors that participants mentioned as either a help or hindrance to their Lean implementation (e.g. behaviors that supported management commitment, cultural change, empowerment, etc.). Any such text was highlighted with notes made directly on the transcript. Multiple readings of each transcript were required in this step. The third step of the data analysis consisted of an extensive process called axial coding. This process was utilized to relate categories and properties to each other resulting in the eventual narrowing of the number of categories. According to Merriam, axial coding is a useful tool for this type of process. As themes emerged, they were given a code number and any text that was associated with that theme was marked with the appropriate code number. A summary table was also created and the relevant text was copied such that it was filed under the associated heading. The alphanumeric code of the participant who provided the data was also noted. As an example, the behaviors supporting management commitment were coded as “1” and any text from the interview transcripts that discussed management commitment was physically marked with “1”. Additionally, each of these sections of text were copied and pasted into the data summary table under the heading, “1 – Management Commitment”. Steps two and three resulted in the identification of the major themes and the grouping of the associated data.

The fourth step of the data analysis involved an interpretation of the data with respect to the research question and underlying conceptual framework. Therefore, the data summary table was carefully reviewed to determine which leader behaviors were most often and most significantly mentioned by participants. To determine the magnitude of a behavior, a simple count of the number of times it was mentioned was made along with a review of the strength of the associated language. The relative consistency across participants and cases was also

examined to determine the universality of opinion regarding factors. This review of the major themes led to the development of a comprehensive narrative that captured the answer to the study research question and an evaluation of the theory to be tested as part of the underlying conceptual framework. More specifically, the behaviors associated with how leaders in multi-national companies effectively implement Lean methodologies were identified and the theory that suggested a correlation between the behaviors and the sustainment of the Lean implementation was explored.

The data analysis process described in the previous paragraphs was completed for each of the three cases separately. After the individual case data analyses were completed, a cross-case analysis was undertaken. In essence, this involved the creation of a master data summary table that was comprised of the aggregation of the findings from each of the three cases. This resulted in the overall summation of the findings from all three cases and it allowed for the identification of consistent and contradictory findings.

Reliability and Validity

Research quality and credibility are essential if findings are to be utilized in practice (Noble & Smith, 2015). According to Patton (2001), validity and reliability are crucial factors to be considered by any qualitative researcher seeking to maintain quality, credibility, and trustworthiness. Long and Johnson (2000) posited that reliability refers to the consistency of the analytical procedures utilized, while validity described the integrity of the research methodology and the accuracy with which the research findings match the gathered data. Although there are no universally accepted criteria for evaluating the reliability and validity of qualitative research, recommended strategies include accounting for personal biases, meticulous record keeping, demonstrating clarity of thought processes, participant validation, member checking, and data

triangulation (Creswell, 2012; Noble & Smith, 2015). Also, Yin (2009, p.40) posited that the following four tests are fairly common to all social sciences for establishing the quality of empirical research:

1. Construct validity – identifying correct operational measures for the concepts being studied
2. Internal validity – seeking to establish a causal relationship, whereby certain conditions are believed to lead to other conditions, as distinguished from spurious relationships
3. External validity – defining the domain to which a study's findings can be generalized
4. Reliability – demonstrating that the operations of a study can be repeated with the same results

Reliability.

Reliability of qualitative research is largely governed by the consistency of analytical procedures and the accounting for personal and research method biases (Noble & Smith, 2015). For this study, the research reliability was controlled through the consistent application of the data collection, data organization, and data analysis techniques described in the previous section segments. The process for selecting participants was applied consistently to all potential participants and it required that they each met the same criteria to be eligible. The participants that were selected had no significant relationship to the principal investigator, thus no bias could be introduced due to such a relationship. Upon selection, participants followed the same process for the collection of data consisting of identical email invitations, consent forms, and personal interviews. Once data was collected, the same systematic approach for data organization was

utilized and the maintenance of data security and confidentiality was accomplished in the same way for each participant. Finally, all of the participant data were analyzed and interpreted through the utilization of the same four-step process.

As the chief instrument of data collection was the personnel interview, the reliability of the interview questions played a significant role in the maintenance of the overall study reliability. Each interview consisted of the same eight open-ended questions that were read verbatim to the participant (Appendix C). Upon completion of the interviews, the participants' recorded answers were transcribed verbatim for further review by the principal investigator. Participants then received a copy of the interview transcripts for review.

Validity.

Qualitative research validity involves the precision with which the findings accurately reflect the collected data and consists of an internal and external component (Yin, 2009). Internal validity for the qualitative case study refers to the extent to which the research findings are a true reflection of reality (Creswell, 2012; Yin, 2009). For this study, internal validity was maintained through several of the techniques including limiting personal biases, meticulously keeping records, and allowing participants to validate responses. In addition, data triangulation was achieved by utilizing multiple sources of data, which further enhanced the internal validity of the study. External validity in case study research relates to the generalizability of the findings from the selected cases to the overall population (Gerring, 2007). The population for this study is multi-national companies that have sustained lean for at least three years. Because this study involved only three such companies, a claim of high external validity would be difficult to support. However, the duplication of this study involving additional qualified cases would result in increased external validity with each replication.

Transition and Summary

This study investigated how leaders of multi-national companies utilized specific behaviors to sustain the implementation of Lean methodologies within their organizations. To explore this research question, leaders of multi-national companies sustaining a Lean implementation for at least three years were interviewed, Lean processes were directly observed, and organizational documents were reviewed. A qualitative multiple-case study was employed to address the research question in three companies where leaders had implemented Lean methodologies. This section described the research project details by providing information about the overall purpose to be achieved and the role of the researcher and participants. Also, the research method and design, population and sampling, and data collection techniques were described. Finally, a thorough review of the data analysis techniques was presented along with the overall study reliability and validity considerations. The findings from the data analysis were organized and presented in narrative form and are discussed in the following section.

Section 3: Application to Professional Practice and Implications for Change

As a culmination to the overall study, this section was written to present the findings, applications, and recommendations associated with the qualitative analysis of the data gathered from a multiple-case study. The section begins with a brief overview of the study that addresses leader behaviors and Lean implementation. The overview includes a discussion of the study's purpose and process, a review of the questions being addressed, and a brief summary of the findings. This is followed by the in-depth presentation and interpretation of the findings including conclusions that address the research question and a discussion of the relationship to the behavioral theory of leadership literature. A detailed discussion of the applicability of the findings with respect to the professional practice of business, leadership, and a biblical worldview is presented and followed by recommendations. The recommendations concern useful action steps for those impacted by the findings and further study of topics that need closer examination. This is followed by a reflection on the researcher's experience with the research process including possible personal biases, effects on the participants, changes in thinking, and examination of the associated biblical principles. This section concludes with a summary of the most salient points and a brief discussion of how the research closed a gap in the literature.

Overview of Study

This qualitative case study explored how business leaders utilized specific behaviors to sustain the implementation of Lean methodologies within their multi-national organizations. This was an important topic because, despite the fact that companies throughout the world have attempted to implement Lean for over thirty years, the great majority has failed to sustain Lean implementation or has fallen short of the desired targets (Rymaszewska, 2014). Pope (2016) found that nearly 60% of companies had abandoned Lean implementation efforts within three

years and over 92% failed within ten years. One key reason identified for Lean implementation failure was the lack of the leaders' knowledge of the behaviors associated with a successful Lean implementation (Jadhav et al., 2014). Therefore, the focus of this study was the identification of the critical behaviors exhibited by the leaders of multi-national businesses that had sustained Lean implementation for at least three years.

The purpose of identifying the critical behaviors exhibited by the leaders of multi-national businesses that had sustained their Lean implementations was so that the relationship between leader behavior and sustained Lean implementations could be better understood and communicated. The intention of communicating these leader behaviors is to better equip business leaders to address the problem of the relatively poor rate of Lean implementation sustainment. Therefore, the ultimate purpose of this study was to improve the practice of Lean implementation so that higher rates of sustainability would be achieved.

The initial step in accomplishing the purpose of this study was a review of the associated professional and scholarly literature to establish the current understanding of these topics. This understanding enabled the researcher to develop the conceptual framework for this study. This conceptual framework was built upon the idea that leadership is a process whereby the leader influences a group of individuals to achieve a common goal (Bass, Bass, & Bass, 2008; Burns, 1978; Northouse, 2013) and that, according to Yukl (2013), leaders influence a group of individuals most directly through their behavior. Because the purpose of this study was to better understand the relationship between leader behavior and Lean implementation, the behavioral theory of leadership was selected to ground the associated research. Further review of the literature identified several categories of leader behaviors that supported the sustainment of Lean implementations.

In addition to the information gleaned from the literature review, new research data was gathered by examining three multi-national companies that had sustained their Lean implementations for more than three years. The qualitative method and multiple-case study design were utilized and included the interpretation of personal interviews of leaders, direct observation, and a review of relevant documents. The triangulation resulting from the utilization of multiple cases and multiple sources of data enhanced the reliability and validity of the study.

The findings of this study addressed the associated research question: How were leaders of multi-national companies able to utilize specific behaviors to sustain the implementation of Lean methodologies within their organizations? The findings were based on data collected from open-ended interviews, document reviews, and observations. Observations were obtained when the researcher spent a full day at one site for each of the case study companies. During these visits, the researcher observed leaders interacting with team members as part of their normal work day. For example, leaders participating in daily team performance presentations, departmental strategic initiative updates, staff meetings, and improvement event report outs were observed. Documents reviewed by the researcher included presentations, meeting notes, and working documents that were associated with each company's Lean implementation. For example, documents related to Leader Standard Work, Lean implementation plans, Lean assessment, visual management system procedures, and work team structure were reviewed.

Key concepts associated with the collected data were utilized to categorize and code them accordingly. The process of axial coding was utilized to compare new data and categories to previously coded data resulting in the eventual narrowing of the number of categories and the identification of their relationship to the research question. According to Merriam (2009), axial coding is an effective tool for relating categories and properties to each other, thus refining the

category scheme. In summary, the categories of leader behavior utilized to sustain Lean implementations were found to include: (1) leaders demonstrate their commitment, (2) leaders facilitate the transformation of the company culture, (3) leaders communicate the “why” and “how” consistently, (4) leaders facilitate employee empowerment, (5) leaders link the Lean implementation to existing company strategy, (6) leaders “go see” what is happening in person, (7) leaders ask why when abnormal conditions exist, (8) leaders show respect to employees, and (9) leaders learn from experts.

In addition, the findings of this study addressed the proposition that variations in country culture may require different leader behaviors to sustain Lean implementations. The axial coding approach was utilized to distill and interpret the collected data. According to Merriam (2009), axial coding is an effective tool for relating categories and properties to each other, thus refining the category scheme. In summary, the categories of leader behaviors utilized to address variations in country culture were found to include: (1) generally, leaders do not need to tailor their behaviors based on cultural differences, (2) in very specific cases, leaders tailor their interactions based on the local emphasis on hierarchy, and (3) in very specific cases, leaders tailor their behaviors based on individualism vs. collectivism preference.

For the most part, the findings from the examination of three case study companies were consistent with the review of the associated body of literature. For example, the utilization of leader behavior as the key method for influencing those being led was consistently supported in both the literature and study findings. In addition, the leader behavior categories of management commitment, communication, and linkage of Lean to existing strategy were highlighted in both the literature and study findings as important for the sustainment of Lean. A few minor differences between the literature and the study findings did emerge. These minor differences

included the identification of cultural change and employee empowerment as important precursors to Lean implementation in the literature versus outcomes of the Lean implementation in the case study findings. In addition, the leader behavior categories of go see, ask why, show respect and learn from experts were strongly emphasized as keys to Lean sustainment in the case study findings while they were only given somewhat minor mention in the literature. Finally, a rather significant contradiction was discovered as the need for leaders to tailor their behaviors based upon cultural differences was emphasized in the literature, while it was not in the case study findings.

Presentation of the Findings

The presentation of the findings of this qualitative analysis included interpretations that address the research question and relate to the associated literature. Major themes, patterns, and relationships were discussed. In addition, the findings were explored through the lens of the conceptual framework of this study. This framework was built upon the idea that leadership is a process whereby the leader influences a group of individuals to achieve a common goal (Bass, Bass, & Bass, 2008; Burns, 1978; Northouse, 2013). More specifically, leaders influence a group of individuals most directly through their behavior (Yukl, 2013) and because the purpose of this study was to better understand the relationship between leader behavior and Lean implementation, the behavioral theory of leadership was selected to ground the associated research. The data gathered for this study came from three cases. Data were gathered from the case companies by interviewing senior leaders directly responsible for their Lean implementations, visiting sites, and reviewing multiple relevant documents. In addition, case study participants were asked to review the researcher's interpretation of the data to assess its accuracy and appropriateness.

Case study companies.

Company A was a manufacturer of consumer electronics with annual sales of approximately \$3.5 billion and nearly 12,000 employees. It was headquartered in the United States with manufacturing, distribution, and sales locations throughout the world. Its Lean implementation began in 2001 with Lean being implemented in all locations and all departments. The methodology for implementation consisted of extensive training (especially of the senior leaders), accountability of the leaders for their respective areas of responsibility, and project-based improvement efforts. Initially, two significant improvement projects were undertaken (one in manufacturing and one in sales) and led by the responsible leaders of those areas. These projects produced impressive results thereby demonstrating to the entire company that the Lean principles and tools could be successfully implemented in both manufacturing and administrative areas. After that, pilot improvement projects were implemented at each location and in each department with support from internal Lean experts. The progress made by the locations and departments has been fairly consistent throughout the company (A1, personal communication, March 8, 2017).

Company B was a manufacturer of automotive components with annual sales of approximately \$20 billion and nearly 55,000 employees. It was headquartered in the United States with manufacturing, distribution, and sales locations throughout the world. Its Lean implementation began in 2009 with Lean being implemented in all locations and all departments. The implementation of Lean was an edict from the top and all locations and departments were directed to participate. A Lean Department consisting of several Lean experts was established at the corporate level. The Lean experts were given the responsibility to assist all the locations and departments through training and the facilitation of improvement events. The progress made by

the locations and departments has been highly inconsistent throughout the company with some areas being very successful while others have made almost no progress (B1, personal communication, March 13, 2017).

Company C was a manufacturer of consumer food products with annual sales of nearly \$2 billion and 5,500 employees. It was headquartered in the United States with manufacturing, distribution, and sales locations throughout the world. Its Lean implementation began in 2012 with Lean being implemented in all locations and all departments. The implementation of Lean began as an objective of the CEO who brought in an experienced senior leader to champion the implementation. The methodology for implementation consisted of extensive, company-wide training followed by the application of Lean tools through specific improvement events. The progress made by the locations and departments has been fairly consistent throughout the company, although they are still quite immature in their Lean knowledge and experience (C1, personal communication, March 21, 2017).

The diversity of industries represented by these companies provided the researcher with a broad spectrum from which to gather data. Interestingly, despite the diversity in the industries represented, there were many significant similarities associated with the findings. For example, the participants from all three companies concurred that leaders most effectively influence those that they lead through their behaviors. In addition, the participants were unanimous in their strong support of the leader behavior categories of management commitment, communication, go see, ask why, show respect, and learn from the experts as instrumental in the sustainment of Lean. The most significant difference among the case study company leaders dealt with the need for leaders to tailor their behavior based on cultural differences associated with local sites. While leaders from all three companies generally indicated that there was no need for such

tailoring of behavior, Company B (manufacturer of automotive components) leaders did indicate that they tailored their behavior in two specific countries based on local cultural preferences. Upon review of the countries involved, the researcher discovered that Company A had sites in both of these countries while Company C did not.

The researcher interacted with these case study companies to gather data through personal communication, personal observation and relevant document review. The purpose of the data collection was to determine which specific leader behaviors were utilized to sustain the company's Lean implementation. Several dozen leader behaviors were identified by the case study companies as supportive of their Lean implementation.

How leaders utilize specific behaviors to sustain Lean implementations.

Researchers in the Lean leadership literature posited that leader behaviors supportive of the sustainment of Lean implementation fell into five main categories: management commitment, cultural change, communication, employee empowerment, linkage to strategy (Laureani & Antony, 2015; Naslund, 2013; Worley & Doolen, 2006). When leaders were asked how they utilize specific behaviors to sustain their Lean implementation, answers typically fell into these five categories as well as four emerging categories: go see, ask why, show respect, and learn from experts. Findings associated with each of these nine categories of leader behaviors supportive of Lean implementation are presented in the following sub-sections.

Leaders demonstrate their commitment.

The demonstration of management commitment by leaders of organizations implementing Lean was found to be critically important to the sustained success of the implementation (Arthur, 2014; Dibia et al., 2014; Laureani & Antony, 2015; Sisson & Elshennawy, 2015; Worley & Doolen, 2006). While the term management commitment was not

defined in the literature, the common conceptualization utilized seemed to be the direct participation by the highest level executives in a specific and critically important aspect or program of an organization (Achanga, Shehob, Roy, & Nelder, 2006). Coronado and Antony (2002) posited that senior leaders needed to participate in Lean projects and regular progress updates to demonstrate their commitment.

Leaders from the case study companies also indicated that to support their Lean implementation, they needed to demonstrate their commitment to the effort through specific behaviors. This point was emphasized by A2 by stating, “Commitment has to be demonstrated by walking the talk. You can’t just say we’re going to be Lean, you have to visibly get involved” (personal communication, March 10, 2017). As one key element of this demonstrated commitment, A2 noted that follow up is paramount:

You get what you measure and you get what you follow up on. You have to be at a high frequency of follow up. If you direct someone to implement 5S or conduct an improvement event, you need to mark a date on your calendar for following up on that and then do it. After doing that several times, your people get the message that you are committed. (personal communication, March 10, 2017)

A1 provided even more detail about the extensive follow up behaviors utilized by leaders of Company A:

We have a structured and layered process for follow up. Once boss and subordinate agree to a specific action and due date, they both show their commitment by consistently participating in updates as needed. These updates occur on a daily, weekly, or monthly basis; whatever is appropriate. We have a culture of not missing these updates and being prepared for them. This demonstrates everyone’s commitment. When people witness

this, they know that management isn't just giving lip service to Lean. (personal communication, March 8, 2017)

A1 concluded by stating, "Executive follow up and follow through are key to our Lean sustainment" (personal communication, March 8, 2017). This practice is also described in detail in A1's Leader Standard Work (document A3).

B1 added the idea of creating a sense of urgency through leader behavior. This sense of urgency was critically important according to B1 who stated, "One of our leaders knew that he had to create a burning platform to get his people on board with Lean. He did this by firing the Materials Manager, who had not actively gone along with the Lean concepts" (B1, personal communication, March 13, 2017). While other leaders indicated that it was important to demonstrate their commitment by identifying those who were not embracing Lean, most felt that firing those individuals was a last resort to be utilized if they repeatedly demonstrated that they would not "buy in".

C1 proposed that the best way to demonstrate management commitment through leader behavior was to get involved in improvement activities. C1 stated:

I believe management commitment goes beyond just support, it goes to doing. I have led hundreds of kaizen events in my career. Early on in our Lean implementation at Company C, I was leading an event every few weeks. My thinking was that this demonstrated to others that I was 110% committed to Lean and that it wasn't going away anytime soon. I also encouraged my direct reports to do the same. That way, we weren't asking people to do something that we ourselves weren't willing to do. (C1, personal communication, March 21, 2017)

Similarly, B2 emphasized the importance of spending time on the shop floor and departmental areas to demonstrate interest and commitment to the Lean activities being undertaken. During the researcher's visit to Company B, B2 was seen assisting a continuous improvement team during a project and conducting a 5S audit (personal observation, March 29, 2017). This leader clearly demonstrated a high level of management commitment through his actions and behaviors. This approach is consistent with the guidelines provided in the Daily Management System and Leader Standard Work documents utilized at Company B (documents B1 & B2).

C2 asserted that the best way for leaders to formalize the process of demonstrating their commitment to Lean through behavior was to utilize Leader Standard Work (personal communication, March 24, 2017). Support for this approach was echoed by participants from all three case study companies. A1 stated:

Leader Standard Work was the Holy Grail for us when it came to demonstrating management commitment. When we first started, we were inconsistent in how we engaged in the Lean activities. So, we created a template for all of our leaders and insisted that they utilize it. Things like Gemba walks, kaizen event participation, visual board reviews, 5S audits, and follow up sessions were all included. The frequencies were standardized based on the level in the organization. This has worked very well for us. (personal communication, March 8, 2017)

B1 indicated that Company B utilized Leader Standard Work from the outset of their Lean implementation and that it was extremely useful in getting their leaders engaged. This engagement, "was crucial in demonstrating to all of our employees that the leadership team was fully committed to Lean" (personal communication, March 13, 2017). Similarly, C1 stated, "It doesn't make sense to ask hourly folks to follow Standard Work if the leaders won't do it. We

definitely required all of our managers to follow Leader Standard Work and our employees have noticed.”

The final leader behavior found to demonstrate management commitment to Lean implementation concerns resources and time management. B2 posited that leaders must provide the required resources to support Lean. As an example, B2 stated:

If you are going to ask employees to contribute ideas for improving their work areas, then you have to be sure there are enough Maintenance people to handle the work. Otherwise employees will get frustrated, stop making suggestions, and suspect that management is not committed to Lean. (personal communication, March 17, 2017)

Similarly, C2 indicated that, “If you add Gemba walks and visual management board reviews, then you have to cancel something else. Otherwise, employees will associate Lean with additional work” (Personal communication, March 24, 2017).

Leaders facilitate the transformation of the company culture.

The impact of leader behavior on cultural change of organizations implementing Lean was found to be extremely important to the sustained success of the implementation (Ali & Ivanov, 2015; Doval, 2015; Eckes, 2000; Naslund, 2013; van der Merwe, Pieterse, & Lourens, 2014). Additionally, Bhasin and Burcher (2006) posited that “whilst Lean is concerned with reducing waste at all levels; it is also about changing corporate culture” (p. 58). Significant aspects of Lean culture include the willingness to transparently expose problems publically and to strive for continuous improvement (Coronado & Antony, 2002). Antony and Banuelas (2002) found that in addition to changing culture, it was often necessary to make organizational changes to fit the Lean environment.

Leaders involved in Lean implementations concurred that it was necessary to facilitate the transformation of the company culture through specific behaviors. In many cases, the implementation of Lean required people to do things in ways that were different from what had been done in the past. Therefore, employees needed to observe that the behaviors of their leaders were consistent with the Lean approach and not the old way of doing things. For example, in a Lean culture, it is important to make problems transparent so they can be fixed. In many traditional company cultures, problems are hidden to avoid embarrassment and possible reprimand. If that is the case, the leader of a Lean implementation must welcome the exposure of problems and emphasize the importance of problem solving versus assignment of blame. B2 highlighted this point by stating, “You have to support failure and encourage employees to surface problems. This was hard for us at first and still is to an extent. We had to shift our culture from ‘blamestorming’ to brainstorming” (personal communication, March 17, 2017).

C1 also had insight to offer regarding the importance of the culture change with respect to problem solving:

Culture change with respect to problems has to start with leadership. Treating problems as gold is easy to say, but it’s extremely difficult to do. We want to create a process where problems are exposed. The people who expose those problems need to be treated like they should be treated; otherwise problems go underground and don’t get fixed.

(personal communication, March 21, 2017)

Participants from all three case study companies suggested that initial training and orientation regarding Lean and the associated culture changes were crucial. C2 stated:

Our strategy was to do intensive and widespread Lean culture training before we got too deep into the tools and technical aspects. We thought it was very important to let people

know that the way we view and do things was changing. (personal communication, March 24, 2017).

A1 echoed this sentiment by stating, “Our first effort was to teach leadership what it meant to operate in a Lean culture and then we cascaded that same training throughout the organization” (personal communication, March 8, 2017 and document A1). Similarly, B1 utilized the following quote from Jim Womack in their early Lean leadership training to emphasize to Company B leaders that they needed to give time and attention to the culture transformation: “We all have the culture that we take the time to create as leaders” (personal communication, March 13, 2017).

Interestingly, some participants from the case study companies indicated that culture transformation may be more of an outcome than a category for specific leader behaviors. For example, A1 stated:

I think cultural change comes as we deploy. You can't change the culture without doing something. You've got to act your way into a new way of thinking rather than think your way into a new way of acting. Culture change is an outcome, in my opinion, of a good Lean journey. If you don't have a good Lean journey, your culture won't change. I think it is very important but I don't think it is the driver of the Lean journey, I think it is an outcome. (personal communication, March 8, 2017)

B2 agreed by stating, “My original response would be that you don't set out to change the culture. The change of the culture is a by-product of your setting out to drive Lean and change people's mindsets” (personal communication, March 17, 2017). C1 added, “Once the Lean mindsets are working, starting with leadership down to the organization, then the cultural change starts to occur” (personal communication, March 21, 2017).

Leaders facilitate employee empowerment.

Empowerment of employees by leaders of companies implementing Lean was found to be a key behavior for the sustainment of the implementation (Arthur, 2014; Found et al., 2008; Rymaszewska, 2014; TickFei et al., 2015). According to Arthur, leaders can help employees to develop a high level of buy-in to the Lean implementation by giving them ownership of projects and empowering them to make changes. C1 proposed that the best way for leaders to empower and engage their employees is to involve them in the improvement of their work areas. In addition, C1 stated:

There are at least three positive outcomes when employees are empowered to fix or improve things in their own work area. First, the employees know the work area better than anyone else, so the improvement ideas are the best ones available. Second, the employees become more motivated about their work because they are being given a voice in how their work area is designed. Third, this frees the supervisor from working on these tasks and allows them to do other improvement activity. Win, win & win!
(personal communication, March 21, 2017)

The utilization of an employee suggestion system was also cited as a key method for empowering employees to engage in the overall improvement efforts. A1 suggested that it was important for every employee to be thinking about how to get better every day. When discussing an example at one of Company A's larger sites, A1 emphasized this point by stating, "Doesn't it make more sense to involve all 1500 employees in problem solving and improvement versus about 150 engineers and managers?" (personal communication, March 8, 2017).

To assess progress in employee empowerment, two of the case study companies kept track of the number of suggestions made. According to A1:

In the first year, we had 4,400 kaizen suggestions. The next year, we expanded the number of lines involved and we had 10,000 suggestions. The next year we had 30,000, then 60,000, and then 90,000. In 2015 we stopped counting, but someone told me that they thought we might have had as many as 185,000 in 2016. That a lot of engagement and improvement! (personal communication, March 8, 2017)

Similarly, B1 indicated that Company B completed 50 kaizens in their first year and increased that to about 4,500 in the third year. Both A1 and B1 indicated that this type of growth in employee empowerment only comes when leaders are willing to accept employee input and provide the support needed to act upon the suggestions.

Another common approach to employee empowerment is the utilization of teams for problem solving, improvement and operations. According to Byrne (2013), teams are a specific type of Lean tool and a major pillar of the Lean methodology. That is the case because much of the improvement activity associated with Lean is performed by the employees who are responsible for the work, as opposed to “specialists” from outside (Starbird & Cavanagh, 2011). The leaders at Company B fully implemented the team approach to further empower their employees to make decisions and solve problems. B2 stated, “Not only has the team approach empowered our employees, but it has also resulted in significant improvements in safety, quality, delivery, and cost. Not bad for a union shop” (personal communication, March 29, 2017 at document B3).

In conjunction with the team approach, Company C leaders implemented team boards and daily team huddles. The team boards displayed the key performance measures and the important activities for the day and week. The team huddles consisted of a daily review of the team board led by one of the team members (not a manager or supervisor). According to C2,

“The team boards and team huddles have led the employees to view their work area as their own small business” (personal communication, March 24, 2017). As an overall summary comment on this subject, A2 cited a well-known Chinese proverb:

Give a man a fish, he eats for a day. Teach a man to fish and he eats for a lifetime. This was our approach to how we were to start building excitement and momentum for Lean. We wanted to equip people so they could get involved instead of just standing up and giving a bunch of rah-rah speeches touting empowerment and engagement. (personal communication, March 10, 2017)

Leaders communicate the “why” and “how” consistently.

According to Laureani and Antony, (2015), establishing and utilizing effective communication was crucial for engaging employees and achieving buy-in to improvement measures associated with Lean implementation. Sisson and Eishennawy (2015) proposed that leaders should provide regular communications on Lean throughout the company. The communication should explain the reason for changes being made and should incorporate multiple modes: town hall meetings, face-to-face communication, newsletters, and videos (Sisson & Eishennawy). In addition, regular Lean events, conferences, and lunch and learns were identified as communication methods for giving recognition and showcasing success (Laureani & Antony).

Leaders from the case study participants agreed that a key element in the implementation of Lean is communication. According to B1, “I don’t think you can ever over-communicate in a Lean atmosphere. There always has to be dialogue” (personal communication, March 13, 2017). Similarly, B2 stated:

If you don't communicate, then you're in big trouble because you are making a lot of changes but you are not telling people why you're doing it. So, communicate. You need to do it. Do it often. Do it effectively. This is absolutely critical. You simply must consistently communicate the "why" and "how" of the Lean implementation. (personal communication, March 17, 2017)

Leaders from the case study companies identified several forms of communication that were thought to be key elements of their Lean implementations. Company A utilized personal individual meetings called "1-1s" as a critical tool for communicating expectations, status, and best practice sharing (document A3). These meetings involved a boss and subordinate or a site leader and a key support area leader. The preferred format was face-to-face, but occasionally the 1-1s occurred by phone. A1 stated:

We did town hall meetings and newsletters, but I think the 1-1s were the most important and effective tool that we used for communication. This direct connection allowed everyone to know what was expected and why things were being done. I have at least fifty regularly scheduled 1-1s on my calendar right now. Through them, I hear everything that is going on and they hear everything that I want them to hear. There are multiple layers of communication connecting people on this Lean journey across the globe, very tightly. (personal communication, March 8, 2017)

Another key tool for communication associated with the Lean implementation is the visual management system. According to B2, "The visual management system is a collection of display boards that show plans, goals, performance, problems, root problem causes, and associated corrective action. This system covers the entire operation, is interconnected, and provides a wealth of information" (personal communication, March 29, 2017).

The display boards are combined with a regular review, often called a Gemba walk. B1 is an advocate of the display board and review process and described it this way:

We run the business through what we call the mini-business review. Every morning at 9:30 am, the team cross-functionally comes together and they communicate by sharing information back and forth. Everybody is engaged in the process. I think it is one of the big deals of our Lean environment (personal communication, March 13, 2017).

Company B created a document with pictures and text entitled “What is Mini-Business Daily Management System?” to communicate why and how it works. This document communicates all aspects of this management system including the key principles to be utilized. These principles include the intention that Performance be Understood and that Critical Information is shared (document B1). Another key behavior of a Company B leader is that they be a conduit for information instead of keeping it to themselves (document B1).

Company C leaders emphasized the need to communicate openly in a Lean environment and they described their system for doing so. C2 explained that:

We want our leaders and team members to have very open communication channels so that problems are identified as soon as possible and so that everyone understands expectations and performance status. We facilitate this through 1-1 meetings, plant wides, skip-levels, and brown bags. 1-1s are monthly discussions between boss and subordinate and plant wides are town hall meetings where key information is communicated and questions are taken. Skip-levels are meetings between boss and their direct reports' subordinates and brown bags are open discussions between the site leader and a randomly selected group of employees from a cross-section of the organization. (personal communication, March 24, 2017)

Leaders link the Lean Implementation to existing company strategy.

The leader behavior of linking existing business strategy to the implementation of Lean was found to be extremely important to the sustained success of the implementation (Brun, 2010; Laureani & Antony, 2012; Naslund, 2013; Spear & Bowen, 1999). For each of the three case study companies, the tool that leaders utilized for this linkage of existing business strategy and Lean was strategy deployment. C2 described strategy deployment as “a way to communicate and cascade the company vision and associated strategic initiatives required to reach that vision” (personal communication, March 24, 2017). C2 indicated that strategy deployment is a critically important way for the leadership to communicate what needs to be done and why.

The strategy deployment process involves several steps and aspects. According to B2, catchball and the goal tree are two of the more important elements. B2 described these tools and commented on their effectiveness:

The goal tree is just like the name implies. We start with the corporate goals as the branches at the top of the tree and then just keep adding branches as we move down the organization. The tree gets wider and more detailed with each level. This allows everyone to see the company goals and their interconnection. It is a great visual. To help set the goals, we use the catchball process. Image tossing a ball back and forth. That is what we do with goals. I will start by tossing the goal of 90% productivity to my production manager. He will toss it back and say that he can make 85%, but could make 90% if we upgraded two specific pieces of equipment. I toss back 87.5% with the upgrade of one piece of equipment. At that point we agree. This process gives him more ownership of the goal and allows both of us to understand what it takes to meet the goals.

It has been a great tool for us. (personal communication, March 17, 2017 at document B2)

A1 identified strategy deployment as one of the five key drivers for Company A's Lean implementation (document A2). However, A1 didn't agree with the idea of linking the Lean implementation to existing business strategies because he thought this implied that the Lean implementation was just another strategy. Instead he emphasized that Lean was the vehicle for accomplishing most of Company A's strategies and goals. To illustrate this, A1 stated:

Our Lean journey, our Lean training and education, our infrastructure of Lean thinking provide the just-in-time knowledge, tools, and capabilities to execute our strategies. They're very linked together and they become more linked as we continue to mature. The same is true for operational goals. In our pilot lines, we set aggressive goals of improving quality by 50%, productivity by 50%, use of space by 50%, and inventory by 50%. We achieve those through the use of Lean principles and tools. So, the improvement goals were what we wanted to achieve and Lean was just the means by which we did it (personal communication, March 8, 2017).

One of the key principles of Lean is the focus on the customer. According to A2, this is the best link between Lean and the existing business strategies. A2 stated, "Going back to the Toyota days, Lean is all about putting the customer first. Most of our strategies are also built around taking care of the customer. It is important for leaders to point out this key connection" (personal communication, March 10, 2017). C2 echoed this sentiment by stating, "Leaders involved in Lean implementations must emphasize that Lean is not the next 'flavor of the month'. If employees see it that way, as something on top of everything else, then it will never work" (personal communication, March 24, 2017).

Leaders “go see” what is happening in person.

When discussing leader behaviors associated with management commitment, communication, and culture change, several leaders mentioned the importance of going to see what was happening in person. This was mentioned so frequently that it emerged as a separate category of leader behavior for the sustainment of Lean implementation. According to Liker (2004), this leader behavior is called, “go see” and the benefits are three-fold: leaders gain a better picture of situations, employees see their leaders as interested in what happens in their work areas, and the reliance on untimely and occasionally incorrect reports and spreadsheets is replaced by accurate reviews conducted in real-time.

A tool often utilized to encourage leaders to go see for themselves is Leader Standard Work. This document typically lays out a schedule for leaders to visit specific areas on certain days and times (document B2 at document A3). C1 proposed that “Leader Standard Work and go see enable what I call ‘connective checking’. This type of checking connects different areas and levels and can only be done by going and seeing in person” (personal communication, March 21, 2017). B1 had several go see items included in his own Leader Standard Work and indicated that the only way he could assess the Lean progress of a site was to go and see it in person. He contrasted this to “reports and status updates, which rarely give a true picture of a situation” (personal communication, March 13, 2017).

The leader behavior of go see can also be utilized by leaders of a Lean implementation as a way to discover best practices. This concept is used extensively by Company B (documents B1- B2). B2 described the practice:

Once we broke down the old culture of competition between locations, we began to actually share good ideas and practices. Every six months or so, we would get all the site

leaders to meet at one of our sites. The leaders at that site would then show off all the great things they were doing. The other site leaders would steal shamelessly. Plus, we would also look at the problems at the site and brainstorm ideas based on what was being done at the other sites. The only way we could have done this effectively was to get everyone on the plane and go see. If we had tried to do it by teleconference or WebEx, it would have flopped. As it was, it was one of the most effective things that we did.

The go see approach can be quite a culture shift for many leaders. The practice of sitting in an office or conference room and reviewing documents is fairly well ingrained for many. A1 described some interesting situations in which Company A strove to transform themselves:

One time we were in a meeting with basically all the leadership of Company A. Our CEO stated that we all were moving to Missouri. After several puzzled looks and nervous chuckles around the room, the CEO said that we had to do this because Missouri is the “show me” state and he wanted all of us to have a “show me” attitude. He said that when people are telling us about something and killing us with PowerPoints, we should stop everything and say, “show me”. This was one approach to getting everybody out and about. Another time, a site leader had all the chairs removed from the conference rooms because he wanted people to be out where the action was and not in meetings all day. There were many other examples that have had the desired effect. Our leaders are much better at go see now (personal communication, March 8, 2017).

Leaders ask why when abnormal conditions exist.

In conjunction with the “go see” leader behavior, the practice of “asking why” certain conditions exist was emphasized by several leaders of the three case study companies. This leader behavior seems to be best utilized when reviewing visual displays in general, and

abnormal or “red” conditions in particular (Liker, 2004). This simple question is intended to initiate a rich discussion of potential root causes and corrective actions without presenting the threat of rebuke or condemnation (documents B1 & B2). A popular tool for this approach is called, the “5 whys”. This approach requires that the questioner ask why enough times (possibly five) in order to move past problem symptoms in order to reach the true root cause (Plenert, 2012).

C2 provided an interesting contrast to this concept of leaders asking why something failed to meet the goal. C2 shared this story:

Early in my career, I worked for a guy who definitely didn’t ask why something happened, he only wanted to know if the goal was met. He used to say, ‘C2, don’t tell me about the labor pains, just deliver the baby!’ He didn’t care how something was done as long as the goal was met. Nowadays, we try to understand more about the “labor pains” so we can get better. If the process is bad, but you got good results, you may have just been lucky. So, we want the goals to be met and we also want to develop robust and effective processes. (personal communication, March 24, 2017)

To that end, C2 noted that the leaders in his company have implemented a somewhat extreme behavior for learning why things happen as they do. Following an example provided by a Lean consultant, leaders stand in a specific spot for up to 30 minutes to observe the processes going on around them. The leaders look for abnormal conditions and waste and make note of them. Afterward, the leaders ask the team members involved for their ideas about why these things happen. According to C2, “It is not easy for me to stand still for that long, but the things that we have learned have made it worthwhile” (personal communication, March 24, 2017).

Leaders who fully embraced this behavior welcomed the opportunity to learn from mistakes or failures and improve. A1 indicated that his fellow leaders at Company A now seek out these situations and share the learnings across the company (document A1). According to A1, this was illustrated in a large new product launch update meeting when a product line leader stated that they were experiencing about a 25% return rate for the initial products delivered to customers. The leader then stated that this was great because it provided rich input about what was not working for the customers. Once the issues were understood and corrected, the product was revised and the return rate dropped significantly. A1 stated, asking why and “learning so much from the customers” was the secret (personal communication, March 8, 2017).

The similarity of the “ask why” approach and the scientific method is not accidental according to several of the leaders of the case study companies. B1 indicated that the Lean implementation at Company B was one huge experiment. In many cases, the leaders at Company B encouraged their teams to ask a question, formulate a hypothesis, test the hypothesis, analyze the results, and draw conclusions. Similarly, C1 stated that, “The leader is a teacher who helps facilitate learning by asking why something happened and strengthens other’s capability to think” (personal communication, March 21, 2017).

One of the most frequent reasons given for not asking why things happened was that it takes too much time. A2 suggested that:

Sometimes you have to go slow to go fast. Most people find time to firefight, but they don’t take the time to figure out what went wrong and how they can learn from the mistake/failure. Like several other Lean concepts, this is counterintuitive, but true and effective. If you do this enough times, you will improve the chronic problem situations and make your processes more streamlined (personal communication, March 10, 2017).

Leaders show respect to employees.

Several researchers credited leaders at Toyota for breaking new ground when they emphasized the importance of showing respect for team members (Byrne, 2013; Liker, 2004; Liker & Convis, 2012; Mann, 2005). Demonstration of this respect went beyond common courtesy and kindness as this leader behavior consisted of many other aspects. Included is respect for the first-hand process knowledge possessed by the experts (i.e. team members). Also included is the practice of treating people with respect by holding them accountable for results and improvement and removing offensive/condescending practices (separate lunch rooms, separate policies, lack of team member involvement in decision making, etc.).

The leaders of Company A adopted “respect for people” as a key driver of their Lean implementation. This was manifested by training team members, engaging them in improvement activities, and holding them accountable (document A1). A2 explained, “By teaching our team members to fish (i.e. to make improvements on their own), we not only equipped them to solve problems and drive improvement, but we also communicated that we respected them enough to essentially allow them to run their own work area” (personal communication, March 10, 2017). In addition, A1 indicated that the leaders at Company A strove to assess the effectiveness of their efforts to show respect through their team member engagement survey. This survey included several questions that specifically addressed this issue. The results were quite positive. A1 stated, “The results were in the high 70s which was up in the world class category” (personal communication, March 8, 2017). A2 echoed the assertion that Company A leadership’s effort to demonstrate respect for their team members translated into high engagement survey scores when he stated, “Let’s just say there was an extremely strong correlation to employee engagement scores to who was most mature in the Lean journey” (personal communication, March 10, 2017).

Company B leaders also placed great emphasis on the importance of showing respect for their employees in order to sustain their Lean implementation. When asked how Company B leaders demonstrated their commitment to Lean implementation, B1 stated:

Those leaders had a real passion for the people that worked day in and day out in the plant. They cared more about their needs than their own needs. They showed them that kind of respect and in return, the employees would run through a wall for them. (personal communication, March 13, 2017).

B2 added, “We as leaders talked a lot about showing respect for our employees, but I found that the most important thing was to show that respect by making sure that they had the resources they needed” (personal communication, March 29, 2017).

The Company C leaders also acknowledged that showing respect for their employees was a key contributor to the sustainment of their Lean implementation. C1 mentioned three key leader behaviors for showing respect to their employees: recognize their achievement, ask them for their ideas, and let them present the information of their visual management boards. C1 indicated that they originally did not let the employees present the information on their boards, but instead had the supervisors and managers do so. As a result, C1 indicated that, “The employees were disengaged and offended. We said we respected their expertise, but then we didn’t even think they could present their own boards. We quickly recognized our mistake and made the adjustment to having them present” (personal communication, March 21, 2017). C2 described a very interesting approach to showing respect for employees:

Whenever I start a new leadership job, I work in the area for about a week. I work the whole shift and really do work. I don’t just “shadow” someone. And it has to be a job that won’t jeopardize safety, quality, delivery, or cost. So many times it is fairly menial.

It lets me learn about the 3 Ps: process, people and product. It also shows the team members that I am not above them and I respect what they do every day. (personal communication, March 24, 2017).

Leaders learn from experts.

According to Mann (2005), one of the best ways for leaders to develop Lean thinking skills was to learn from others who are more knowledgeable and experienced in Lean. Although each company's Lean experience is unique, knowledge about certain key principles and tools can be transferred from a company more experienced with Lean to one that is new to it (Mann). The case study company leaders adhered to this approach by seeking out Lean knowledge from multiple sources.

The three key methods utilized by the case study companies for gaining Lean expertise from others included hiring a Lean consultant, spending time with Lean subject matter experts, and benchmarking other Lean companies. Each of the three case study companies utilized a Lean consultant during some period of their Lean implementation. For example, B1 indicated that Company B contracted with a Lean consultant to develop Lean training material (personal communication, March 29, 2017). Also, C2 noted that a Lean consultant helped with the early application of continuous improvement projects (personal communication, March 24, 2017). In addition, the participation in Lean seminars, workshops, and conferences was identified as helpful by multiple case study company leaders. Finally, case study company leaders indicated that they observed the operations of other companies in order to gain a better understanding of the application of Lean principles and tools. This "benchmarking" process was especially helpful to Company A as they learned a great deal from the observations and associated conversations (A1, personal communication, March 8, 2017).

How leaders utilize specific behaviors to address cultural differences.

Researchers found that an organizational change, such as the implementation of Lean in a multi-national company, probably faced different cultures in each location (Boscari et al., 2016; Found et al., 2008). Netland and Ferdows (2014) found that the effectiveness of the communication of the organization's key initiatives, such as Lean, was often less than ideal because every location within an organization was different with variation in culture, language, size, history, technology, labor situation, and other circumstances. These variations can become barriers to the effective implementation of Lean and may greatly limit its effectiveness (Jadhav et al., 2014). According to Cudney and Elrod (2010), cultural and language barriers introduce particular challenges for leaders attempting to inclusively implement Lean techniques globally. The studies of Hofstede (2001) and Trompenaar and Hamden-Turner (1997) examined the dimensions of cultural differences. Hofstede identified the dimensions of Power Distance Index (PDI), Individualism, Masculinity, Uncertainty Avoidance Index (UAI), and Long/Short Term Orientation (LTO) while cultural dimension identified by Trompenaar and Hamden-Turner included Universalism vs. Particularism, Individualism vs. Collectivism, Neutral vs. Affective Relationships, Specific vs. Diffuse Relationships, and Achievement vs. Ascription.

When leaders were asked how cultural differences impacted the sustainment of their Lean implementation, the majority indicated that the impact was minimal or non-existent. However, a few examples provided by leaders did acknowledge an impact associated with cultural differences among locations. For those examples, the leader behaviors utilized to address the cultural differences fell into two categories: leaders tailor their behaviors based on the local emphasis on hierarchy and leaders tailor their behaviors based on individualism vs. collectivism

preference. Findings associated with the leader behaviors supportive of Lean implementation in differing cultures are presented in the following sub-sections.

Leaders do not tailor their behaviors to address cultural differences.

For the most part, case study company leaders indicated that the universality of the Lean principles applied equally well in any culture, therefore the tailoring of leader behaviors to account for cultural differences was not necessary. When asked about the impact of cultural differences on their global implementation of Lean, A2 stated, “I can be pretty certain saying this. Relative to my experience, absolutely none. I did not see any challenge from that perspective. My belief is that we would have succeeded anywhere in the world” (personal communication, March 10, 2017). Similarly, B2 stated, “We have Lean deployments that were very successful in Singapore, China, India, Mexico, and Belgium to name a few and Kentucky. There was no major difference between those areas” (personal communication, March 17, 2017).

A1 echoed this sentiment and offered a potential explanation for the universal acceptance of a generic approach to Lean implementation by leaders:

Could be in Japan, could be in China, could be in Mexico, Ireland, Malaysia, India, it doesn't matter. Everyone, if you engage them, you ask for their suggestions, you train them on how to execute on problem solving, and you build an infrastructure of support around them, you'll get a good result (personal communication, March 8, 2017).

C1 concurred with regard to the underlying explanation for the universality of Lean:

I would say broadly speaking I've seen very positive good experiences everywhere.

Generally speaking if you do things that make it better for the people who do the work to make it smoother, easier, better. It's safe. You're making a quality product that's

servicing the customer at a lower cost. It's very rare people don't think that's a good idea (personal communication, March 21, 2017).

A2 added to the support for this idea by stating, "At the end of the day, people want to feel engaged. They want to know what they can do to make a difference, and when you acknowledge that, they engage more" (personal communication, March 10, 2017).

While generally indicating that cultural differences didn't require leaders to tailor their behaviors, some leaders vacillated on the point. A1 stated, "You have to understand some of these cultures, but notwithstanding some cultural things that you need to understand; no it didn't matter where you were" (personal communication, March 8, 2017). B1 equivocated a bit by stating, "Yeah I did see a gap when you got to culture, but it really didn't matter much for us" (personal communication, March 13, 2017). Also, B2 stated, "The bottom line is, you've got some cultural differences there and if you're aware of those you're okay. But you don't have to change the leader's approach" (personal communication, March 17, 2017). Finally, C1 stated:

It's a really good question. I think the answer is yes you do have to account for cultural differences, but I don't think it is pervasive. I don't think there's so much of a difference that you go, 'you know I have to really think, customize totally about how I might deal with a transformation or working with a different country culture.' As much as it is being nimble for recognizing that and how you adjust the playbook. I think if you come in with a mindset I have a playbook and I'm going to play it purely, you're likely to get jettisoned (personal communication, March 21, 2017).

Leaders tailor their behaviors based on the local emphasis on hierarchy.

Company A leaders did make a reference to the need to tailor their Lean implementation behaviors based on the emphasis on hierarchy exhibited by the employees of the local site. This

cultural dimension was described by Hofstede (2001) as the Power Distance Index (PDI) and it represents the way in which people utilize hierarchy and follow the “chain of command.”

Trompenaar and Hamden-Turner (1997) referred to this as the Achievement vs. Ascription dimension and it evaluates if a person assigns esteem to another person based on their position or their accomplishments.

A1 indicated that for their employees in China, hierarchy was very important. This led to the tailoring of three key leader behaviors associated with the implementation of Lean in China. First, leaders needed to “respect and utilize the ‘chain of command’ for communication and giving direction to avoid confusion and uncertainty. Shop floor employees were not always comfortable interacting with senior leaders if their immediate boss wasn’t around” (A2, personal communication, March 10, 2017). Second, leaders had to de-emphasize the use of ad-hoc teams to solve problems and had to work through the existing hierarchy instead (A2, personal communication, March 10, 2017). Third, leaders had to be certain that the local leaders were the champions of the Lean implementation because the rest of the employees were looking to them for guidance. This differs from other countries (such as the United States) where Lean champions might come from any level of the organization (A2, personal communication, March 10, 2017).

Leaders tailor their behaviors based on individualism vs. collectivism preference.

C2 suggested that leaders needed to tailor their Lean implementation behaviors based on the local culture’s stance on individualism. This cultural aspect is described by Hofstede (2001) as the Individualism dimension and it relates to a person’s willingness to identify with their work group or team (Hofstede, 2001). Trompenaar and Hamden-Turner (1997) referred to this as the Individualism vs. Collectivism dimension and it measures a person’s tendency to focus on

themselves or their team. According to Hofstede, in countries with a high Individualism rating, people may not readily adopt performance targets set for their work group. Instead, they will be focused on their own performance and appraisal (Hofstede). This is precisely what C2 experienced in the Lean implementation at one of their sites:

We implemented Lean in exactly the same way as our other sites. However, we quickly noticed that the employees were not embracing their team boards and team goals. They had always been recognized based on their individual performance and that was how they liked it to be. Therefore, the senior leaders and local leaders had to make some adjustments and figure out how to bring back some of the individual metrics and combine them with the new team metrics. Lesson learned (personal communication, March 24, 2017).

How findings relate to conceptual framework.

The findings of this study were interpreted through the lens of the study's conceptual framework in order to draw relevant conclusions. The conceptual framework was based on the leadership literature dealing with the Behavioral Theory (BT) of leadership, which according to Yukl (2013), suggests that leaders influence a group of individuals most directly through their behavior. Study findings supported the validity of BT as several leaders indicated that leader behaviors were critically important for sustaining a Lean implementation. In addition, several specific behaviors were recommended by leaders who participated in this study.

Conceptual framework.

The conceptual framework for this study was built upon the theory that leadership is a process whereby the leader influences a group of individuals to achieve a common goal (Bass, Bass, & Bass, 2008; Burns, 1978; Northouse, 2013). Proponents of BT posited that leader

behavior is the best predictor of leadership influence and as a result, is the best determinant of leadership success (Derue, Nahrgang, Wellman, & Humphrey, 2011; Yukl, 2013). Hall (2013) posited that BT dealt with what leaders actually do as opposed to their inborn traits or capabilities.

A compelling strength of this theory of leadership was the possibility of defining leadership success in terms of describable actions that can be learned. Theoretically, it is easier to teach and learn behaviors than to adopt or develop the more ephemeral “traits” or “capabilities” (Yukl, 2012). The identification of the desired behaviors can be facilitated by assessing leadership outcomes and correlating specific behaviors with successful outcomes. In addition, behaviors which contribute to failure can be identified, thus adding a second layer of understanding (Fishbein & Ajzen, 2010). Researchers have categorized the two general kinds of leadership behavior as task-based and relationship-based (Yukl, 2013). The task-based behaviors aided in the achievement of objectives, while relationship-based behaviors assisted employees to feel more comfortable with themselves, their co-workers, and their situations (Northouse, 2013). A chief aim of BT was to assist in the explanation of how leaders’ task-based and relationship-based behaviors combine to influence employees in their achievement of objectives.

Because the purpose of this study was to better understand the relationship between leader behavior and Lean implementation, BT was selected to ground the associated research. The underlying premise that leader behaviors correlate to leadership success is extremely useful for this study (Yukl, 2012). The research question of this study was: How were leaders of multi-national companies able to utilize specific behaviors to sustain the implementation of Lean methodologies within their organizations? This question was based on the presumption that there was a correlation between leader behaviors and organizational outcomes (e.g. successful

Lean implementations), which was grounded in BT (Blake & Mouton, 1985; Stogdill, 1974; Yukl, 2012). Additionally, the purpose of this study was to better equip business leaders for Lean implementation by communicating desired leader behaviors. The idea that desired leader behaviors can be identified and taught to others was grounded in BT (Stogdill, 1974; van Dun, Hicks & Wilderom, 2016; Yukl, 2012). Finally, the researcher assumed that there may be “soft” (working relationship-centered) and “hard” (task-centered) leader behaviors necessary for successful Lean implementation. This combination of behavior types was consistent with the inclusion of task-based and relationship-based behaviors within BT norms (Blake & Mouton, 1958; Stogdill, 1974; Yukl, 2012).

Findings related to conceptual framework.

Lean researchers have emphasized the importance of leadership and leader behavior in the implementation of Lean methodologies. Dibia et al. (2014) proposed that leadership was not only important, but was actually the most critical factor in the implementation of Lean. According to Liker (2004), leadership that fails to take action and embrace the Lean implementation would inevitably interrupt or derail the effort.

Several leaders of the case study companies concurred with the critical importance of leadership and specific leader behaviors in the sustainment of Lean implementations. C1 stated:

Leadership and certain leader behaviors/actions are probably the aspect that I believe is missed many times. It is easier for people to discuss the tools. Every day that I've been on the journey longer I more and more believe that it comes entirely down to leadership and leader actions. Succeed or fail in that regard. I'm kind of on this quest to find out how robust you can build it. I don't believe you can build it robust enough to withstand what I'll call really bad leadership (personal communication, March 21, 2017).

B1 expressed a similar focus on leadership and their associated behaviors with regard to succession planning:

It takes that leader's commitment and involvement to really make the whole thing work.

We knew that, but we shot ourselves in the foot in one case. We had great leaders in place who were doing all the right things to sustain our Lean implementation. In fact, they were so good that they all got promoted at about the same time. The next three leaders that came in behind them were not well-trained and they were not doing what needed to be done. In short order, the Lean implementation took a big step backward due to poor leadership. This led us to do a better job in succession planning and preparing the next batch of leaders (personal communication, March 29, 2017).

Both leaders at Company A indicated that leadership and their behaviors were the key ingredients for their sustained Lean implementation. A2 stated, "It takes leadership to commit to the journey and holding people accountable. Without one-on-one follow up, this won't work" (personal communication, March 10, 2017). A2 continued:

This has to be lived from the top. Leaders have to show up in the areas that they lead, follow through, and celebrate victories with their teams. Also, it is important to understand that the leader's role never ends. It's just never over. If the leader thinks their work is done, then they don't really understand Lean. Plus, this isn't something that can be delegated in any way (personal communication, March 10, 2017).

A1 provided a nuance to this theme by suggesting that, while leadership is the key element for sustaining Lean, it has to be genuine. According to A1:

People can tell when a leader is faking it. The leader needs to be out in front leading, but if it isn't sincere, it won't work. As I said before, 'you've got to act your way into a new

way of thinking rather than think your way into a new way of acting.’ (personal communication, March 8, 2017).

Interestingly, the leader behaviors described by the case study participants as required for the sustainment of Lean consisted of both task-oriented and relations-oriented elements. This is consistent with Yukl’s (2012) taxonomy of leadership behaviors which is comprised of task-oriented behaviors (clarifying, planning, monitoring operations, and problem solving) and relations-oriented behaviors (supporting, developing, recognizing, and empowering). This combination of “hard” (task-centered) and “soft” (working relationship-centered) leader behaviors was indicated to be very important to the sustainment of a Lean implementation. C2 stated, “While it is possible to teach a potential leader the behaviors needed to sustain Lean, it does require that that person be able to eventually master both hard and soft skills” (personal communication, March 24, 2017).

Several examples of task-oriented leader behaviors were provided by the case study participants. The need to monitor operations and follow up was mentioned consistently with the leaders of Company A identifying this as critically important to their Lean sustainment. Clarifying behaviors were also identified as necessary for the sustainment of Lean. This was seen as especially relevant when leaders were communicating information and setting expectations. B1 stated, “I don’t think you can ever over-communicate” when describing the need to be clear about why and how Lean was being implemented. (personal communication, March 13, 2017). B2 emphasized the leader behavior of allocating resources as a key to properly supporting the Lean activities.

Along with the task-oriented leader behaviors, examples of relations-oriented behaviors were also provided. Supporting behaviors were referenced often with A 2 describing the following case in point:

I was reviewing the action items for several Lean projects with a group of middle managers. I noticed that the middle managers were quite anxious about being responsible for the action items. I asked the group why they were so anxious and one of them replied that they were afraid that they may fail to deliver. I assured them that they had my full support and that I wouldn't let them fail. This support and reassurance seemed to calm them down (personal communication, March 10, 2017).

Development was also a key relations-oriented leader behavior that was emphasized as multiple references to training were made. The training was provided so that team members were properly equipped to take on the new roles and activities associated with the implementation of Lean in their companies. In addition, several accounts of team members receiving more autonomy and influence over work decisions were provided as examples of relations-oriented leader behaviors.

Applications to Professional Practice

The findings of this study addressed the associated research question: How were leaders of multi-national companies able to utilize specific behaviors to sustain the implementation of Lean methodologies within their organizations? This sub-section provided a detailed discussion on the applicability of the findings with respect to the professional practice of business leadership. Specifically, how and why the findings were relevant to improving the business practice of Lean implementation was discussed. Also, the implication of the findings in relation to the biblical framework of the study and the academic field of business leadership was

discussed.

How leaders utilize specific behaviors to sustain Lean implementations.

Researchers in the Lean leadership literature posited that leader behaviors supportive of the sustainment of Lean implementation fell into five main categories: management commitment, cultural change, communication, employee empowerment, linkage to strategy (Laureani & Antony, 2015; Naslund, 2013; Worley & Doolen, 2006). The analysis of the findings from three case study companies largely supported this proposition while also offering additional perspective. Most importantly, the analysis of the findings strongly supported the theory that leadership is best demonstrated through leader behaviors. Also, leaders from the case study companies provided strong indication that the leader behaviors must demonstrate management commitment and facilitate open consistent communication. Interestingly, while cultural change and employee empowerment were identified as important elements of Lean implementation, case study leaders identified them more as by-products than focus areas for leader behaviors. Similarly, while linkage to strategy was seen as an important, leaders much more frequently emphasized the need to utilize a process called, “strategy deployment” to support the development and dissemination of strategic plans and actions. Finally, in analyzing the findings of this multiple-case study, four other categories of essential leader behaviors for the sustainment of Lean implementation were identified: go see, ask why, show respect, and learn from experts.

Leaders must lead through behaviors.

Perhaps the strongest theme found in the analysis of three case study companies was that leaders must lead the Lean implementation through their behaviors. Whether answering questions about how to demonstrate management commitment or describing the importance of

going and seeing something in the workplace, these leaders consistently emphasized the critical need for personal and visible involvement in the Lean implementation. B1 summarized this concept by stating, “It takes that leader’s commitment and involvement to really make the whole thing work” (personal communication, March 8, 2017).

This emphasis on leadership through behavior certainly supported the BT conceptualization of leadership which suggested that specific behaviors of a leader are the best predictor of leadership influences and the best determinant of leadership success. However, it also had significant applicability and relevance to the contemporary leader involved with Lean implementation. Several implications were presumed based on the need for the leader to exhibit specific behaviors in a Lean implementation.

One implication of this need for active and demonstrative leadership was the leader cannot delegate this responsibility. Although delegation is often an effective tool for improved time management and subordinate development, it doesn’t seem to be a wise choice in the case of Lean implementation. The leader must remain fully engaged and relentless in the commitment to personally follow up and participate in improvement activities.

A second practical implication of this emphasis on leading through leader behaviors was that the leader must somehow find the time for such activities. This seems to imply that other duties and activities must be jettisoned or lessened such that less time is required for them. If this isn’t accomplished, then the leader will likely find it necessary to increase the amount of time spent at work. Regardless, this is a real practical consideration for the leader involved in a Lean implementation.

A third practical matter for the leader of a Lean implementation was the need for sincerity. According to A1, “People can tell when a leader is faking it. The leader needs to be out in front leading, but if it isn’t sincere, it won’t work” (personal communication, March 8, 2017). Therefore, leaders may need to do some “soul searching” to determine if they find themselves truly passionate about the Lean implementation. Apparently, a high level of sincerity aids the leader in their ability to meet the time and personal involvement requirements and, when evident, demonstrates to employees the importance of Lean to the company.

Leaders must demonstrate their commitment.

A special case of leaders demonstrating their leadership through specific behaviors was the need to demonstrate management’s commitment through actions and behaviors. A2 described this by stating, “Commitment has to be demonstrated by walking the talk. You can’t just say we’re going to be Lean, you have to visibly get involved” (personal communication, March 10, 2017). The relevance for the contemporary Lean leader is that this requires that they adopt several behaviors. These behaviors include personal follow up, the appropriate allocation of resources, the generation of a sense of urgency, utilizing “Leader Standard Work”, and the recognition of good performance and addressing of poor performance.

The leaders from Company A attributed a great deal of their success in sustaining their Lean implementation with a robust follow up process. The use of this process clearly communicated to employees that Company A management was fully committed to Lean and it was not just another “flavor of the month”. Therefore, leaders involved with a Lean implementation should expect that they would need to be involved in such a process for placing emphasis on Lean activities and for holding people accountable.

Leaders engaged in a Lean implementation must also be sure to recognize both good and poor performance in a timely fashion. Once employees understand what constitutes good and poor performance in a Lean environment, they will quickly become aware of who is performing in each category. The expectation will be that good performers are recognized and rewarded, while poor performers are appropriately coached and disciplined. This discipline could even include termination if the employee is not “buying in” to the Lean approach. When done appropriately, this can be one of the most clear demonstrations of management commitment according to the leaders at Company A.

This need for demonstrating management commitment through leader behavior was also relevant for potential implementers of Lean because it requires the allocation of needed resources. If employees are asked to perform their work in a new way, but they are not properly equipped to do so, they will assume that management is not truly committed. B2 highlighted this point when indicating that their sites had to put additional maintenance resources in place to address the significant number of employee suggestions for improvement that were being submitted. This could also apply to the provision of training resources as well as allowing time for employees to conduct improvement activities. According to C2, “Lean leaders need to be prepared to “put their money where their mouth is” when it comes to resourcing the Lean implementation (personal communication, March 24, 2017).

Lean implementation leaders should also expect to be engaged personally in improvement activities to demonstrate management commitment to Lean. Often referred to as “kaizen events”, these activities are great opportunities for leaders to personally involve themselves. Actually leading an event is likely the best way to understand the kaizen event

process as well as the specific problem being addressed. In addition, participating on a team and regularly attending event report outs are staples in the Lean leader work life.

Fortunately, there is something in the Lean “tool box” to assist the Lean leader in keeping track of all the necessary behaviors and actions required to demonstrate their commitment to Lean. The tool is called, “Leader Standard Work” and it provides the leader with a calendarized listing of their Lean activities. Leaders at Company A indicated that this was a key element in their demonstration of their commitment to Lean because it kept them on track.

Leaders should monitor the transformation of the company culture.

The impact of leader behavior on cultural change of organizations implementing Lean was identified as a key issue in the literature (Ali & Ivanov, 2015; Doval, 2015; Eckes, 2000; Naslund, 2013; van der Merwe, Pieterse, & Lourens, 2014), but was seen more as a by-product by the case company leaders. For example, C1 stated, “Once the Lean mindsets are working, starting with leadership down to the organization, then the cultural change starts to occur” (personal communication, March 21, 2017).

This reduction in emphasis on the need to change the culture is counter to much of the academic and professional literature, thus it was an important inference from the study findings. To support this mindset, A1 asserted, “I think cultural change comes as we deploy. You can’t change the culture without doing something. Culture change is an outcome, in my opinion, of a good Lean journey” (personal communication, March 8, 2017). B2 agreed by stating, “My original response would be that you don’t set out to change the culture. The change of the culture is a by-product of your setting out to drive Lean and change people’s mindsets” (personal communication, March 17, 2017).

The relevance for the contemporary leader implementing Lean is that this may be an area that merits monitoring more so than one that requires significant involvement. However, that is not to suggest that the case study company leaders did not offer any recommendations for leader behaviors that may support culture change. Employees needed to observe that the behaviors of their leaders were consistent with the Lean approach and not the old way of doing things. For example, in a Lean culture, it is important to make problems transparent so they can be fixed. Therefore, the leader of a Lean implementation must welcome the exposure of problems and emphasize the importance of problem solving versus assignment of blame. B2 highlighted this point by stating, “You have to support failure and encourage employees to surface problems. We had to shift our culture from “blamestorming” to brainstorming” (personal communication, March 17, 2017).

Lean leaders pursuing a change to a Lean culture should also anticipate the need to support a fairly high level of training in support of this effort. Participants from all three case study companies suggested that initial training and orientation regarding Lean and the associated culture changes were crucial. C2 stated, “We opted to do widespread Lean culture training before we got too deep into the tools and technical aspects. We thought it was important to let people know that the way we view and do things was changing” (personal communication, March 24, 2017). A1 echoed this sentiment by stating, “Our first effort was to teach leadership what it meant to operate in a Lean culture and then we cascaded that same training throughout the organization” (personal communication, March 8, 2017 at document A1).

Leaders must facilitate employee empowerment.

Leaders involved in the implementation of Lean should anticipate the need to support processes and exhibit behaviors that facilitate the empowerment and engagement of employees.

The employee empowerment and engagement are necessary to leverage the experience and knowledge possessed by the employees so widespread and robust problem solving and improvement activities can be conducted. In addition, leaders can help employees to develop a high level of buy-in to the Lean implementation by giving them ownership of projects and empowering them to make changes (Arthur, 2014).

One of the most common ways for leaders to empower and engage employees has been through the implementation of teams and team work. As a team structure is established, team-based performance metrics, team visual management boards, and team kaizen events are often utilized to support the team development. As a consequence, Lean leaders must become knowledgeable about team dynamics so they can “coach” and nourish the emerging teams.

The utilization of an employee suggestion system was also cited as a key method for empowering employees to engage in the overall improvement efforts. A1 suggested that it was important for every employee to be thinking about how to get better every day. Also, both A1 and B1 indicated that this type of growth in employee empowerment only comes when leaders are willing to accept employee input and provide the support needed to act upon the suggestions. Therefore, Lean leaders not only need to drive the implementation and utilization of a robust suggestion system, they must also demonstrate their acceptance of the associated employee input. This is best done by ensuring that the appropriate resources are available and that employee suggestions are being reviewed and implemented on a timely basis.

Leaders must communicate openly and consistently.

Not surprisingly, leaders of case study companies indicated that effective communication was paramount to sustaining their Lean implementation. According to B1, “I don’t think you can ever over-communicate in a Lean atmosphere. There always has to be dialogue” (personal

communication, March 13, 2017). Similarly, B2 stated, “If you don’t communicate, you’re in big trouble because you are making a lot of changes but you are not telling people why. So, communicate. You need to do it. Do it often. Do it effectively” (personal communication, March 17, 2017).

This topic is relevant to the Lean leader for two reasons. First, a specific mindset regarding communication is required and second, several specific communication tools have been identified as helpful in a Lean environment. The Lean leader must adopt both the mindset and the tools for effective communication in a sustained Lean implementation.

The Lean leader must embrace open communication with an emphasis on welcoming “bad news” and openly sharing information. C2 emphasized the welcoming of “bad news” aspect by stating, “We want our leaders and team members to have very open communication channels so that problems are identified as soon as possible and so that everyone understands expectations and performance status” (personal communication, March 24, 2107). This may represent a change for leaders who have become accustom to hiding problems in the hope that they will go unnoticed or perhaps can eventually be blamed on someone else. The open sharing of information is also a key aspect of the development and dissemination of strategic information. Lean leaders must learn to trust employees with strategic information so they can all “pull in the same direction”.

In addition to emphasizing the need for the correct mindset, leaders from the case study companies identified several forms of communication that were thought to be key elements of their Lean implementations. These included town halls, newsletters, video displays, various types of face-to-face meetings, visual management systems, and Gemba walks. According to B2, “Our visual management system is a collection of interconnected display boards that show

plans, goals, performance, problems, root problem causes, and associated corrective action that we review during our daily Gemba walk” (personal communication, March 29, 2017). Visual management systems and Gemba walks have received a great deal of attention in the Lean literature and they are powerful tools for real-time communication. However, the Lean leader must become knowledgeable and proficient in each of the types of communication mentioned above for the best results.

Leaders must utilize strategy deployment.

The literature indicated that the leader behavior of linking existing business strategy to the implementation of Lean was found to be extremely important to the sustained success of the implementation (Spear & Bowen, 1999; Brun, 2010; Laureani & Antony, 2012; Naslund, 2013). However, while the leaders of the case study companies didn’t disagree, they clearly indicated that the most important issue related to strategy was the importance of utilizing a Lean tool called “strategy deployment”. C2 described strategy deployment as “a way to communicate and cascade the company vision and associated strategic initiatives required to reach that vision” (personal communication, March 24, 2017). Also, Company A lists strategy deployment as one of the five key drivers for their Lean implementation (document A2).

The relevance for the practicing Lean leader is what seems to be a clear indication that companies with sustained Lean implementations utilize some form of strategy deployment (a.k.a. policy deployment & goal deployment). Therefore, the need for the thorough understanding of and appreciation for this tool should be a requirement for the contemporary Lean leader. In addition, it is important for the Lean leader to communicate that the implementation of Lean is not a strategy by itself. Instead, Lean is the vehicle for accomplishing most of the company’s strategies and goals. To illustrate this, A1 stated, “Our Lean training and infrastructure provide

the just-in-time knowledge, tools, and capabilities to execute our strategies. We achieve those through the use of Lean principles and tools” (personal communication, March 8, 2017).

Leaders must go see.

Although not mentioned prominently in the literature, the importance of going to see what was happening in person was repeatedly mentioned by the case study company leaders as a key element of a sustained Lean implementation. The benefits of this leader behavior seem to be three-fold: leaders gain a better picture of situations, employees see their leaders as interested in what happens in their work areas, and the reliance on untimely and occasionally incorrect reports and spreadsheets is replaced by accurate reviews conducted in real-time.

The implications of this leader behavior seem to be quite similar to those associated with the previous assertion that leaders must lead through behaviors. As was true in that case, leaders involved in a Lean implementation must make time to go see what is happening, cannot delegate the activity, and must be sincere during the process. The lack of sincerity can easily be perceived by the involved employees as the leader gives clues that they are merely going through the motions instead of being genuinely interested. Also, this behavior cannot be delegated as that defeats the whole purpose of personally exploring a particular situation. Finally, this behavior absolutely requires the leader to make time for this important activity. If the leader is a frequent “no show” for the go see opportunities, then they are communicating that they do not place much value on them. A barrier to go see that is related to making time is the conception that leaving the office or travelling somewhere will take too much of a leader’s time. While such movement and travel do take time, the benefits accrued from the go see behavior more than offset any associated cost.

The aforementioned Leader Standard Work can be an invaluable tool for the organization of various go see behaviors. This document typically lays out a schedule for leaders to visit specific areas on certain days and times and aids in keeping the leader on track. However, it is important to avoid using this document as a means to “check the box” when a go see activity is completed.

Leaders must ask why.

The behavior of “asking why” was identified as an effective compliment to the practice of “go see” for Lean leaders. This was because when the leader goes to see what was happening, they can then learn the root cause of abnormal or underperforming situations by asking why. This simple question was intended to initiate a rich discussion of potential root causes and corrective actions without presenting the threat of rebuke or condemnation. This behavior was identified by the case study leaders as an important tool for sustaining a Lean implementation, especially when reviewing visual display boards and participating in Gemba walks.

The main implications for the Lean leader are a few potential changes in mindset that might be required. It is absolutely imperative that the Lean leader asks why to determine the root problem cause and not to assign blame. B2 described this as the difference between “blamestorming” and brainstorming. Lean leaders must learn to fully embrace this behavior and welcome opportunities to learn from mistakes or failures so that improvements can be made. If a leader is accustomed to becoming visibly upset when mistakes occur or assigning blame, then the transformation to Lean leadership may be a difficult and long process.

In support of the utilization of the “ask why” behavior, leaders might do well to become familiar with the scientific and Socratic methods. These methods incorporate the practice of learning through the asking of questions and the testing of hypotheses. Many Lean leaders

describe their Lean implementation as an experiment in which they are trying to learn how to solve problems and make improvements every day. The need to patiently ask questions to eventually reach the root cause of an issue is often identified as a mainstay of Lean. While this leader behavior may seem to be slow and painful at times, it is thought to be worth the wait and effort. A2 described it as “going slow to go fast” when discussing how leaders view the “ask why” behavior at Company A.

Leaders must show respect.

Case study company leaders consistently identified the need to show respect to their employees as a key leader behavior associated with the sustainment of their Lean implementation. Showing respect to employees seems to be a common sense approach to leadership, however this behavior incorporates a few unexpected facets in the Lean context. Common courtesy, kindness, and fairness are certainly included in the Lean concept of showing respect, but so are empowerment, engagement, and accountability.

The accountability aspect is what typically surprises many potential Lean leaders. However, the underlying theory is quite logical. If a leader does not respect an employee as a competent and productive team member, then it is likely that the leader expects the employee to be mistake-prone and unproductive. Conversely, if a leader respects an employee, then it seems reasonable that the leader would expect the employee to make few mistakes and be productive. So in this way of thinking, if a leader does not hold employees accountable for their performance, the leader is indicating that they do not respect the employee or expect much from them. The implication of this aspect of the “show respect” leader behavior is that some Lean leaders may need to take time and make special effort to learn it as it may be counter to personal past practices.

In addition, the empowerment and engagement elements of the “show respect” leader behavior may represent new approaches for some Lean leaders. To a large extent, this Lean approach is manifested through the use of team-based problem solving and employee suggestions. Some leaders reached their current positions by knowing all the answers and keeping that information to themselves. Therefore, the empowerment and engagement of others may pose a threat to those leaders. Supporters of the “show respect” concept often invoke the “servant leadership” model as the most appropriate for this aspect of Lean leadership. B1 described that approach thusly, “Those leaders had a real passion for the people. They cared more about their needs than their own needs. They showed them that kind of respect and in return, the employees would run through a wall for them” (personal communication, March 13, 2017).

Leaders learn from experts.

Each Lean implementation is unique, however, much can be learned by a leader implementing Lean from one who has more experience and knowledge. Therefore, Lean leaders should expect to dedicate some time and resources to the acquisition of knowledge from Lean experts. Three potential methods for learning from Lean experts include hiring a Lean consultant, spending time with Lean subject matter experts (conferences, seminars, workshops, etc.), and benchmarking other Lean companies.

How leaders utilize specific behaviors to address cultural differences.

Researchers found that an organization change such as the implementation of Lean in a multi-national company will likely face different cultures in each location (Boscari et al., 2016; Found et al., 2008). These variations can become barriers to the effective implementation of Lean and may greatly limit its effectiveness (Jadhav et al., 2014). The studies of Hofstede

(2001) and Trompenaar and Hamden-Turner (1997) examined the dimensions of cultural differences with each study identifying five distinct dimensions. Interestingly, the analysis of the findings from three case study companies indicated that most leaders did not believe that there was a need to tailor their behavior based on country culture. Those leaders who did believe that leader behavior should be tailored indicated that this only applied to two cultural dimensions: local adherence to hierarchy and local preference for individualism vs. collectivism.

No action required for leaders.

Case study company leaders generally indicated that the universality of the Lean principles applied equally well in any culture, therefore the tailoring of leader behaviors to account for cultural differences was not necessary. When asked about the impact of cultural differences on their global implementation of Lean, A2 stated, “I can be pretty certain saying this. Relative to my experience, absolutely none. I did not see any challenge from that perspective. My belief is that we would have succeeded anywhere in the world” (personal communication, March 10, 2017). Leaders indicated that they believed this was the case because employees, regardless of their home country, so appreciated the opportunity for engagement and empowerment, that they were more than willing to adopt Lean. If this is indeed the case, then there is no implication for Lean leaders involved in the multi-national implementation of Lean. The approach and their behaviors should be universal or generic.

Leaders should tailor behavior based on local level of adherence to hierarchy.

Leaders from Company A did indicate that there was a need to tailor their Lean implementation behaviors based on the emphasis on hierarchy exhibited by the employees of the local site. A1 indicated that for their employees in China, hierarchy was very important which led them to make a few changes in the behaviors of their leaders. These changes addressed the

emphasis placed on the “chain of command” by the Chinese employees. The relevance of this point for other Lean leaders is fairly obvious. Based on the experiences of Company A of this study, leaders of companies implementing Lean in a Chinese location should take into account the cultural penchant for respecting the “chain of command”. This could impact how information is communicated as well as the approach to certain engagement and empowerment activities.

Leaders should tailor behavior based on local preference for individualism vs. collectivism.

C2 indicated that their Lean implementation in a specific country did experience an unusual reaction to the use of team-based metrics. Apparently, the employees at that site were much more comfortable with having their individual performance measured as opposed to being held responsible for the team performance. Therefore, the leaders at Company C made a few adjustments in their approach and moved forward. The implication of this finding is that Lean leaders should assess the individualism vs. collectivism cultural dimension before implementing team-based metrics.

Biblical framework implications.

The biblical framework for this study mainly consisted of the biblical view of the leader and leader behavior. Other elements of the biblical framework included the biblical perspective on the pursuit of excellence and stewardship, diversity, and God’s purpose for business. The findings of this study dealt closely with the topics of leader behavior, Lean, cultural differences, and business in general. The implications of the findings in relation to the biblical framework for this study are important to consider and are discussed in the following sub-sections.

Biblical leadership principles.

The Bible contains considerable information about leaders and leadership. The integration of this information with the study of leader behaviors and Lean implementation revealed several interesting points. Most notable was the applicability of the servant leadership behavior demonstrated by Jesus, the honest and open communication of John the Baptist, Peter's ability to learn from his mistakes, and the conviction and determination of Joshua, and Joseph. There was found to be a great deal of consistency between the biblical and Lean leadership models and the implication of this is that the biblical leader would do well as a Lean leader. That was because a leader following the biblical framework for leadership would exhibit the behaviors of servant leadership, open and honest communication, learning from mistakes, conviction, and determination; which are hallmarks of the consummate Lean leader. An analysis of these leader behaviors follows.

To model servant leadership, Jesus washed the feet of the disciples. When Jesus finished, He said to the disciples, “You call me Teacher and Lord, and you are right, for so I am. If I then, your Lord and Teacher, have washed your feet, you ought to wash one another’s feet. For I have given you an example, that you also should do just as I have done to you” (John 13:13-15, ESV). Jesus was teaching the disciples that leaders focus on serving those who they lead. Interestingly, the concept of servant leadership was referenced in the Lean literature and by some of the case study company leaders when describing the preferred behavior for a Lean leader. This Lean concept applies to the practices of showing respect, engaging and empowering employees, and working to solve their problems and improve their processes.

John the Baptist was once approached by religious leaders who asked to be baptized because they believed it was the popular thing to do and not because they actually wanted to

change their ways. John the Baptist spoke in honesty when he rebuked the insincere religious leaders by stating, “Even now the axe is laid to the root of the trees. Every tree therefore that does not bear good fruit is cut down and thrown into the fire” (Matthew 3: 10, ESV). These leadership behaviors of speaking honestly and acting with sincerity are both identified as key elements of Lean. A key element of Lean’s visual management system and Gemba walk is the requirement for the transparency of problems and open and honest feedback. Also, Lean leaders need to demonstrate their sincere commitment to Lean through their behaviors in order for the employees to realize that their company management is committed to the implementation and practice of Lean.

Peter was a disciple of Jesus who demonstrated that leaders don’t give up in the face of failure, but instead they learn from their mistakes and move forward. Peter demonstrated this by making the mistake of denying that he even knew Jesus (Matthew 26: 69-75, ESV), but then later reversing himself when he publicly praised Jesus in what is described as the first sermon of the gospel message (Acts 2:14-41, ESV). The Lean literature is replete with this concept of learning from mistakes which was also often mentioned by the case study company leaders. This is a foundational element of Lean, therefore Lean leaders should exhibit this behavior regularly.

From the Old Testament of the Bible, Joseph, and Joshua provide examples of commitment and dedication to their God and religion, even in the face of adversity. For example, after being sold into slavery by his brothers and eventually imprisoned for a crime he did not commit, Joseph continued to demonstrate his faith in God by praying to Him and praising Him publicly. Also, when Joshua was faced with the option of serving the God who led the Israelites out of Egypt or the gods of the surrounding lands, he stated, “But as for me and my house, we will serve the Lord (Joshua 24:15, ESV). This concept of commitment and dedication

was often found in the study of leader behaviors and Lean implementation. It was found that a high level of patience and dedication is required to sustain a Lean implementation.

Excellence and stewardship.

The biblical framework for this study incorporated the biblical concepts of excellence and stewardship, as defined in scripture. Excellence was described by Paul in his letter to the Colossians when he wrote, “So as to walk in a manner worthy of the Lord, fully pleasing to him, bearing fruit in every good work and increasing in the knowledge of God.” (Colossians 1:10, ESV). The call to walk in a manner worthy of the Lord beckons the reader to do so in an excellent way. In relation to stewardship, the writer of Proverbs offered this sage advice: “A good man leaves an inheritance to his children's children, but the sinner's wealth is laid up for the righteous” (Proverbs 13:22, ESV) and “Precious treasure and oil are in a wise man's dwelling, but a foolish man devours it.” (Proverbs 21:20, ESV). In both cases, the reader is encouraged to avoid wasting the resources that they have and are warned against the peril associated with not heeding this advice.

According to Shah and Ward (2003), the intent of Lean is to enable organizations to provide their customers with the product or service they need exactly when they need it while simultaneously identifying and eliminating sources of waste in order to achieve and maintain high quality and low manufacturing costs. These concepts of high quality and waste elimination are consistent with the biblical principles of excellence and stewardship. The implication is that the Lean leader is well-positioned to practice these biblical principles in the pursuit of Lean in their organization.

Diversity.

The biblical perspective on human diversity was also an element of the biblical framework for this study. According to Van Duzer (2010), God delights in the diversity of the created order and several scripture passages emphasize the importance of recognizing that the whole is made up of several parts, all of which are necessary. For example, Paul wrote, “If the whole body were an ear, where would be the sense of smell? But as it is, God arranged the members in the body, each one of them, as he chose. If all were a single member, where would the body be?” (1 Corinthians 12:18-19 ESV).

The subject of diversity applies to Lean leaders because there can be issues related to cultural differences found in multi-national companies implementing Lean. This issue is certainly found in the literature. For example, Netland and Ferdows (2014) posited that an inherent challenge in implementing Lean in multi-national companies is that every location is different with variation in culture, language, history, technology, labor situation and other circumstances. Also, Found et al. (2008) asserted that this challenge is made more difficult when leaders failed to adjust their implementation strategies and tactics to account for cultural differences. However, when case study leaders were asked about this issue, they dismissed it for the most part because they believed that Lean principles were universal and cultural differences did not matter. Therefore, the impact of diversity and cultural differences in relation of Lean implementation in a multi-national company is unclear based on the findings of this study.

God’s purposes for business.

The final element of the biblical framework for this study is an understanding of God’s purpose for business. According to Van Duzer (2010), “If Christians can understand that the work they are doing is God’s work they can bring a sense of joy, meaning, purpose, and hope to

their tasks that might otherwise elude them” (p. 19). Van Duzer defined God’s purpose for business as providing the community with goods and services that will enable it to flourish and providing opportunities for meaningful work that will allow employees to express their God-given creativity.

Based on the findings of this study, leaders are pursuing the implementation of Lean in order to improve their processes and prolong their existence in their market. In addition, Lean incorporates several principles (engagement, empowerment, process improvement, etc.) designed to make work more meaningful for employees. Therefore, the implication of the findings associated with Lean leader implementing Lean is that by doing so they are equipping their companies to better achieve God’s purpose for business.

Field of study implications.

The researcher’s field of study was leadership as it related to business. Therefore, this study was directly related to the field of leadership in the business setting as it explored how leaders of multi-national companies were able to sustain the implementation of Lean methodologies within their organizations. This study focused upon the implementation of Lean methodologies in multi-national companies, which is heavily guided and influenced by leaders and their behaviors (Dibia et al., 2014; Dumitrascu, 2014; Liker & Convis, 2012). Because of this focus on leader behaviors, the specific theory of leadership that was integrated in this study was the Behavioral Theory (BT). Also, because the companies studied were multi-nationals, the need to tailor leader behaviors based on cultural differences was explored.

Importance of leader behaviors.

BT provided a systematic framework for the study of leadership. The proponents of BT sought to identify aspects of behavior that explain leader influence on the performance of a team,

work unit, or organization (Yukl, 2012). Early BT researchers posited that leadership consisted of two general kinds of behavior: task-based and relationship-based (Yukl). The task-based behaviors aid in the achievement of objectives, while relationship-based behaviors assist employees to feel more comfortable with themselves, their co-workers, and their situations (Northouse, 2013). The chief aim of the BT approach is to assist in the explanation of how leaders' task-based and relationship-based behaviors combine to influence employees in their achievement of objectives (Derue et al., 2011).

The purpose of this study was to better understand the relationship between specific leader behaviors and the sustainability of Lean implementations. The implications of the findings in relation to the study of leadership are three-fold. First, the findings of the study provide further confirmation of the Behavioral Theory of leadership. Second, the findings of the study provide clarification regarding the specific leader behaviors that support the sustainment of Lean. Third, the findings of the study provide support for the emphasis on both task-based and relations-based leader behaviors.

A2 emphasized that it was the leader behaviors that mattered most in Lean sustainment by stating, "Commitment has to be demonstrated by walking the talk. You can't just say we're going to be Lean, you have to visibly get involved" (personal communication, March 10, 2017). The case study company leaders consistently confirmed that the behaviors of their leaders have the greatest impact on their ability to sustain their Lean implementation. This provides further support to the BT perspective on leadership.

In addition, clarification was provided in relation to the specific leader behaviors that best support the sustainment of Lean. Leader behaviors that demonstrate management commitment and support communication were identified in the literature and in the company case study as

critically important. Leader behaviors that support culture change and employee empowerment were identified in the literature as key elements for Lean sustainment, but in the company case study, they were identified more as by-products of their Lean implementation. Finally, the leader behavior categories of go see, ask why, show respect, and learn from experts emerged from the company case study as important areas for the Lean leader. This clarification of Leader behaviors for the sustainment of Lean adds to the academic and professional understanding of the topic.

Both task-based and relations-based leader behaviors were identified by the case study company leaders as necessary for the sustainment of Lean. For example, Lean leaders need to clarify expectations, which is a task-based behavior. In addition, Lean leaders must empower employees, which is a relations-based behavior. This identification of the need for a combination of task-based and relations-based behaviors adds to the academic and professional understanding of the topic.

Managing cultural differences.

Leaders in multi-national companies faced varying cultures in each location when implementing Lean. These variations can become barriers to the effective implementation of Lean and may greatly limit its effectiveness (Jadhav et al., 2014). However, the case study company leaders essentially dismissed this issue when discussing their Lean implementation experiences. These leaders indicated that the universality of the Lean principles overshadowed cultural differences which meant that it was not necessary to tailor leader behaviors. This seemingly contradictory information highlights the need for further study.

Recommendations for Action

The findings of this study may impact multi-national business leaders implementing Lean methodologies in their organizations. There were two significant conclusions of this study of leader behaviors and Lean implementation that were relevant for all leaders striving to sustain Lean implementations. The first relevant conclusion was the notion that leaders need to express leadership of the Lean implementation through behaviors. Leaders cannot lead their Lean implementations as absentee figureheads or through words alone. Instead they must exhibit specific behaviors and take specific actions. The second relevant conclusion was the proposition that the specific categories of leader behaviors and actions include the need to demonstrate management's commitment; effectively communicate the "whys" and "hows" of the Lean implementation; monitor the development of a Lean culture and employee empowerment; go see, ask why, show respect, and learn from experts; and utilize the specific tools of Strategy Deployment, Leader Standard Work, Visual Management, and Kaizen.

The implication of the conclusions resulting from this study was that Lean leaders needed to be better equipped to utilize specific behaviors so that the overall success rate of Lean implementations was improved. Therefore, specific recommendations flowed from the study findings and applications for multi-national leaders implementing Lean. These recommendations fall into three categories: apply general principles, apply specific tools, and learn from the experts. Also, the recommendations include specific actions to be taken by leaders implementing Lean along with the reading of specific books and articles. The books and articles are not scholarly sources of empirical data, but they have been found to be useful and applicable by the researcher.

The researcher intended to disseminate the study findings, applications, and recommendations through multiple methods. The publication of this paper was to be the chief avenue for disseminating the results. In addition, the publication of journal articles based on this study, presentations at related conferences, and speaking to professional groups were considered to be viable options for further dissemination.

Apply general principles.

The general principles of demonstrating leadership through behavior; Lean thinking; servant and biblical leadership; demonstrating management commitment through behaviors; communicating the “why” and “how”; go see, ask why, and show respect; and fostering a Lean culture of employee empowerment must be ingrained in the Lean leader. These general principles must first be understood and then applied. Therefore, the following recommendations are made.

Recommendation 1: Study key books and articles.

Before applying these principles it is recommended that the Lean leader invest some time in study. Several books and articles are available to assist this activity. *Effective Leadership Behaviors: What We Know and What Questions Need More Attention* by Gary Yukl is an article that offers an introduction to the Behavioral Theory of leadership. This provides the Lean leader with a deeper understanding of the connection between their behaviors and the effectiveness of their leadership. Also, *Everything I Know About Lean I Learned in First Grade* by Robert Martichenko is a good primer on Lean thinking with *The Toyota Way* by Jeffrey Liker serving as a much more in-depth discussion. This broad understanding of Lean thinking is critical as it permeates all the principles and tools. Also, much of Lean thinking is counterintuitive, thus requiring careful study. Another key element of Lean leadership is the concept of servant

leadership along with the biblical leadership principles of honest communication, learning from mistakes, and dedication even in the face of adversity. Therefore, *Practicing Servant Leadership* by Larry Spears and Michele Lawrence and *The Bible on Leadership* by Lorin Woolfe are recommended. Finally, *The Lean Turnaround* by Art Byrne and *Creating a Lean Culture* by David Mann are books written by Lean leaders for Lean leaders that provide excellent discussion of relevant and practical aspects of Lean.

Recommendation 2: Lead with behaviors to demonstrate management commitment.

Specific leader behaviors identified as strong indicators of management commitment to the implementation of Lean include the recognition of good performance, addressing of poor performance or a lack of “buy in” for Lean, intensive follow up, and the appropriate allocation of resources to support Lean activities. Therefore, it is recommended that Lean leaders utilize each of these behaviors to demonstrate their commitment to Lean. *The Lean Turnaround* by Art Byrne provides practical advice regarding each of these areas, thus it is recommended that Lean leaders read this book to learn more about demonstrating management commitment. Also, it is worth noting that recruiting firms that specialize in hiring individuals with Lean experience can be utilized, if it becomes necessary to fill a position vacated by a “non-believer”.

Recommendation 3: Lead with behaviors to communicate.

Findings from this study also indicated that it was important for Lean leaders to utilize behaviors that resulted in the communication of why and how the company’s Lean implementation was taking place. Therefore, it is recommended that Lean leaders actively engage in multiple forms of communication to this end. Town hall meetings, newsletters, 1-1 meetings, and video displays have been identified as effective tools for such communication and should be utilized.

Recommendation 4: Lead with behaviors to go see, ask why, and show respect.

The categories of Lean leader behaviors described as “go see, ask why, show respect” were identified by the case study participants as key elements to the sustainment of their Lean implementations. Therefore, it is recommended that Lean leaders utilize behaviors that support this behavioral model. Further understanding of this concept can be gained by reading the article *How to go the Gemba: Go See, Ask Why & Show Respect* by John Shook of the Lean Enterprise Institute.

Recommendation 5: Monitor culture change and employee empowerment.

This study identified the monitoring of the Lean culture development and the empowerment and engagement of employees as key Lean leader behaviors as well. These areas were seen as outcomes of a sustained Lean implementation more so than distinct items to be implemented. Therefore, it is recommended that Lean leaders employ techniques and behaviors to monitor and assess growth in these important areas. *Creating a Lean Culture* by David Mann provides a good blueprint for Lean culture and employee engagement, thus it is a good resource for this Lean leader behavior.

Apply specific tools.

In conjunction with the general principles described above, there are several specific tools that Lean leaders can utilize to sustain their Lean implementations. These tools support the general principles and provide a structure for applying them. Therefore, the following recommendations are made.

Recommendation 6: Participate in and lead kaizen events.

An excellent tool for driving continuous improvement is the kaizen event. This tool also provides the Lean leader with an opportunity to actively participate, thus demonstrating their

commitment and increasing their learning about this improvement process. Therefore, it is recommended that Lean leaders participate in and lead kaizen events whenever possible. Also, Lean leaders should participate in kaizen event report outs by offering encouragement and asking probing questions. *Kaizen and Kaizen Event Implementation* by Chris Ortiz is an excellent resource for learning more about this key Lean activity.

Recommendation 7: Utilize visual management systems.

The visual management system is critically important as it supports the interaction of the Lean leader and the employees in the discussion of performance and problem solving. This important tool also provides a structure for the “go see, ask why, and show respect” activity. Therefore, it is recommended that Lean leaders utilize the visual management systems in their company to assess their Lean progress and interact with their employees. *Visual Workplace Visual Thinking* by Gwendolyn Galsworth and *Creating a Lean Culture* by David Mann are useful sources of information for this Lean activity.

Recommendation 8: Utilize Leader Standard Work.

Leader Standard Work is a tool used by Lean leaders to document their Lean leader activities in one place. It serves as a reminder and organizer of the leaders regularly scheduled Lean undertakings. By utilizing this tool, Lean leaders are much more likely to accomplish the multiple Lean activities to which they have committed. Therefore it is recommended that Lean leaders utilize Leader Standard Work. *Creating a Lean Culture* by David Mann has a chapter dedicated to Leader Standard Work, thus it is a useful resource for this item.

Recommendation 9: Utilize Strategy Deployment.

Strategy Deployment is utilized by Lean leaders to interactively develop strategy, disseminate it throughout the organization, and track its progress over time. This results in

higher quality information because of the involvement of the people that do the work and a higher level of ownership for the same reason. Therefore, it is recommended that Lean leaders utilize Strategy Deployment to help sustain their Lean implementations. *Strategy Deployment in Business Units* by Maik Schlickel is a good source of information about this tool.

Learn from experts.

Lean is not a new concept as companies have been implementing its principles and tools for over thirty years. Because of this, a wealth of information exists based upon the experiences and learnings from those who have been involved in the implementation of Lean methodologies. Several books and articles have already been recommended as helpful sources of important Lean information. In addition, other sources of Lean knowledge exist which Lean leaders can leverage in order to advance their own Lean implementations. Therefore, the following recommendations are made.

Recommendation 10: Explore hiring a Lean consultant.

It is not uncommon for Lean leaders to work with consulting companies who specialize in Lean. These consultants may have experience in working as a leader in a Lean company and they are able to provide expertise in the Lean principles and tools. Services provided by consultants include training, kaizen event leadership, Lean program design, and more. Utilizing a Lean consulting company has helped many companies to sustain their Lean implementations. Therefore, it is recommended as an option to be considered by Lean leaders. A few of the well-known and larger Lean consulting companies are Next Level Partners (especially for Strategy Deployment), Simpler, TBM and Shingijustu.

Recommendation 11: Engage with established Lean subject matter experts.

In addition to Lean consulting companies, there are several subject matter experts who make Lean information available through conferences, workshops, webinars, podcasts, forums, and training videos. Significant learning opportunities exist with these training and education sources. Therefore, it is recommended that Lean leaders pursue these options as a way to bolster their Lean knowledge. A few of the established and best known subject matter experts are The Lean Enterprise Institute, The Shingo Institute, and The Gemba Academy.

Recommendation 12: Benchmark other Lean businesses.

Many companies that have already started Lean implementation are willing to share experiences with fledgling Lean practitioners. There are also consortia that consist of several companies that have agreed to share their Lean practices so they can learn from one another. This practice is known as “benchmarking” and it is one of the best ways for new Lean leaders to learn from their peers and to observe actual Lean environments. Therefore, it is recommended that Lean leaders actively participate in benchmarking opportunities so that they can learn from fellow professionals.

The researcher intends to disseminate the study findings, applications, and recommendations through the publication of this paper, publication of journal articles based on this study, presentations at related conferences, and speaking to professional groups.

Recommendations for Further Study

The purpose of this multiple-case study investigation was to better understand which behaviors were utilized by leaders to sustain the implementation of Lean methodologies in multi-national companies. Several Leader behaviors and actions were suggested by the data gathered from this study; however, this research process also highlighted a few areas that would benefit

from further examination. One significant area requiring further study is the impact of site-related cultural differences on the consistency of behaviors utilized by leaders implementing Lean. In addition, data gleaned from case study participants raised the question of whether culture change and employee empowerment are outcomes of the implementation of Lean or items that need to be accomplished before Lean could flourish. Therefore, the following are recommendations for further study that could add to the literature and contribute to the equipping of leaders such that they may be better able to sustain the implementation of Lean in their multi-national organizations.

Recommendation 1: Investigate the impact of cultural differences.

By definition, multi-national companies have locations throughout the world. A review of the literature indicated several studies highlighting the cultural differences associated with groups from different countries. A few examples of these cultural difference dimensions included how people tend to accept open and direct communication, people's preference for individualism or collectivism, and people's respect for organizational hierarchy. The implication of such cultural differences was presumed to be that leaders may have to adjust their behavior accordingly if they want to be effective in the various cultures. However, the case study leaders associated with this study largely dismissed this notion by indicating that their Lean leaders adopted the same behaviors in each culture and were effective. Thus, further study focusing squarely on this issue of Lean implementation in multi-national companies is recommended as it might uncover important information regarding the need for leaders to tailor their behavior based on the cultural characteristics of the country involved.

Recommendation 2: Investigate if culture change is an outcome or a precursor.

When implementing Lean in an organization, it is often assumed that there will be a need for the company culture to change from what it has always been to that of a Lean culture. This premise is often found in the academic literature and multiple professional books on the topic have been written. Typically, this culture change has been described as something that has to be done in order for a Lean implementation to be sustained. However, the case study participants provided a slight nuance by indicating that the transformation to a Lean culture is more of an outcome than something that has to be done separately. Therefore, it is recommended that further study on the relation between culture change and Lean implementation be conducted to help determine if culture change must occur for Lean to be sustained or if culture is changed because Lean is being sustained.

Recommendation 3: Investigate if empowerment is an outcome or a precursor.

A key principle of Lean is the empowerment and engagement of employees so that their expertise can be leveraged in problem solving and so that a feeling of ownership is engendered. This proposition is widely supported in both the academic and professional literature. However, based on the data collected from this study's participants, there seems to be some question about whether this shift to employee empowerment is a precursor to Lean or a by-product. Therefore, it is recommended that further study be conducted to determine whether employee empowerment is an outcome of Lean implementation or whether it is an item that must be addressed as an initial step supporting the Lean implementation.

Reflections

In reflecting on this multiple-case study of behaviors utilized by leaders implementing Lean in multi-national companies, the researcher noted several interesting points. These points

relate to the effects on the study caused by personal biases and preconceived ideas of the researcher as well as changes in the researcher's thinking resulting from the research process. In addition, reflections on the biblical principles associated with the study were also identified.

Researcher biases.

Because the researcher is an experienced Lean leader, some personal biases toward leader behaviors and how they contribute to the sustainment of a Lean implementation exist. As a leader of multiple Lean implementations, the researcher naturally has knowledge about the relative effectiveness of various leader behaviors based on personal experiences. In addition, as a practitioner of leadership and Lean, the researcher has a slight predilection toward professional practice versus academic literature as a source of learning. This results in the belief that knowledge gained from hands-on experience may be superior to that stemming from purely academic study. The potential effects of the researcher's biases on the participants of the study and the study itself are two-fold. First, it is possible the researcher, especially when compared to a researcher with no experience in leadership or Lean, may have steered the participant discussion based on personal experiences and some biases toward certain theories. Second, the overall conclusions and recommendations of the study may reflect a bias toward data gleaned from case study participants as opposed to that derived from academic literature review.

Changes in thinking.

The researcher experienced changes in thinking as a result of conducting this study on Leader behaviors and Lean implementation. For example, the phrase of "brainstorming vs. blamestorming" mentioned by a case study participant represented a new and refreshing way to address the important subject of problem solving. For the researcher, this seemingly simple use of words provides a powerful way to emphasize the need to focus on solving the problem and not

blaming people. Another example of a change in thinking for the researcher concerned the view that culture change and employee empowerment are more outcomes of the Lean implementation than they are precursors. Typically, culture change and employee empowerment have been described as items that must occur before or along with the Lean implementation, so this concept of viewing them as by-products is an interesting and new perspective for the researcher.

Biblical principles.

When reflecting on the biblical principles of leadership, it is interesting to note that several of the same principles are mentioned when describing effective Lean leaders. The concept of servant leadership is often said to reflect the leadership style of Jesus Christ and it is also regularly mentioned as the preferred approach for Lean leaders. In addition, the biblical leadership principles of open and honest communication, learning from mistakes, and dedication in the face of adversity are also hallmarks of the consummate Lean leader.

Summary and Study Conclusions

In summary, this section presented the findings, applications, and recommendations associated with the qualitative analysis of the data gathered from a multiple-case study of leader behaviors utilized to sustain Lean implementations. The study findings addressed the research question: How were leaders of multi-national companies able to utilize specific behaviors to sustain the implementation of Lean methodologies within their organizations? Research data was gathered by examining three multi-national companies that had sustained their Lean implementations for more than three years. The examination included personal interviews of leaders, direct observation, and review of relevant documents.

The triangulation resulting from the examination of multiple cases and multiple sources of data enhanced the reliability and validity of the study and resulted in several important

conclusions and recommendations. A significant conclusion of this study was that leaders can best sustain a Lean implementation through their behaviors and actions. This supports the Behavioral Theory of leadership, which grounded the study. Another major conclusion was that the categories of specific leader behaviors utilized to sustain Lean implementations were found to include: (1) leaders demonstrate their commitment, (2) leaders monitor the transformation of the company culture, (3) leaders communicate the “why” and “how” consistently, (4) leaders monitor the use of employee empowerment, (5) leaders use Strategy Deployment to disseminate strategy, (6) leaders “go see” what is happening in person, (7) leaders “ask why” when abnormal conditions exist, (8) leaders show respect to employees, and (9) leaders learn from experts. Based on these conclusions, the following recommendations to contemporary Lean leaders were made: (1) study key books and articles, (2) lead with behaviors to demonstrate management commitment, (3) lead with behaviors to communicate, (4) lead with behaviors to go see, ask why, and show respect, (5) monitor culture change and employee empowerment, (6) participate in and lead kaizen events, (7) utilize visual management systems, (8) utilize Leader Standard Work, (9) utilize Strategy Deployment, (10) consider hiring a Lean consultant, (11) engage with established Lean subject matter experts, (12) benchmark other Lean businesses.

In conclusion, by identifying the critical behaviors exhibited by leaders of multi-national businesses that had sustained their Lean implementations for at least three years, this research provides a means to close a gap in the professional practice associated with the sustainment of Lean implementation. Despite the fact that companies throughout the world have been attempting to implement Lean for over thirty years, the great majority has failed to sustain their Lean implementation or has fallen well short of their desired targets (Rymaszewska, 2014). One key reason identified for Lean implementation failure was the lack of the leaders’ knowledge of

the behaviors associated with a successful Lean implementation (Jadhav et al., 2014). Therefore, the communication of these critical behaviors to Lean leaders will serve to better equip them to address the problem of the relatively poor Lean implementation sustainment rate.

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Appendix A: Participant Recruitment Email

[Insert Date]

[Recipient]

[Title]

[Company]

[Address 1]

[Address 2]

[Address 3]

Dear [Recipient]:

My name is Gary Vance, and as a graduate student in the School of Business at Liberty University, I am conducting research as part of the requirements for a doctorate degree. The purpose of my research is to increase the understanding of the leader behaviors utilized to sustain the implementation of Lean in a multi-national company. I am writing to invite you to participate in my study.

If you are a leader of a multi-national company that has implemented Lean and are willing to participate, you will be asked to take part in a phone interview. It should take approximately one hour for you to complete the interview. Your name will be requested as part of your participation, but the information will remain confidential.

I will follow up with you by phone in a few days to answer any questions that you might have. In the meantime, if you decide that you would like to participate, please contact me at 407-850-4215 or gary.vance@jbtc.com to schedule an interview.

A consent document is attached to this letter. Please sign the consent document and return it to me before our interview. You may do this by scanning the signed document and sending it to me as an email attachment or by mailing it to me at the address shown below.

Sincerely,

Gary Vance
Liberty University Doctoral Student
7300 Presidents Drive
Orlando, FL 32809

Appendix B: Participant Consent Form

Gary Vance, a doctoral candidate in the School of Business at Liberty University, is conducting this study.

Background Information: The purpose of this study is to explore the critical success factors for the implementation of Lean within a multi-national company.

Procedures: If you agree to be in this study, I would ask you to do the following:

- 1.) Take part in a 60-minute phone interview with open-ended questions designed to solicit information about your Lean implementation experience. The interview will be recorded so that I can be sure to accurately document your answers. The information that you provide will be kept confidential (i.e., I'll know what data belongs to whom, but I will not disclose identities.).
- 2.) Provide relevant documents (meeting minutes, emails, etc.) that you believe would assist in the description of your Lean implementation experience.

Risks and Benefits of being in the Study: The risks involved in this study are no more than the participant would encounter in everyday life.

The benefits to participation are that the body of knowledge associated with Lean implementation will be increased and others may experience greater success with their Lean implementation than they may have otherwise.

Compensation: Participants in this study will not receive compensation.

Confidentiality: The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a participant. Research records will be stored securely and only the researcher will have access to the records. I will be the only one with access to the written documents, electronic files, and audio recordings associated with this study and I will dispose of and/or delete them after three years.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or me. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you will be destroyed immediately and will not be included in this study.

Contacts and Questions: The researcher conducting this study is Gary Vance. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact Gary at 407-850-4215 or gary.vance@jbtc.com. You may also contact the researcher's faculty advisor, Dr. David DUBY at dduby@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd, Carter 134, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information to keep for your records

Statement of Consent:

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

The researcher has my permission to audio-record me as part of my participation in this study.

Signature

Date

Signature of Investigator

Date

Appendix C: Personnel Interview Questions

1. Please help me understand more about your company by answering the following:
 - a. What is the size of your company?
 - b. What is the age of your company?
 - c. In how many different countries does your company have locations?
 - d. How long has your company sustained its Lean implementation?
2. Please briefly describe the implementation of Lean at your company and where the process is today.
3. What were the key strategies and resources you used in implementing Lean? What worked? What didn't work?
4. Rate from 1 to 10 (with 1 being the lowest) the level of importance of each of these factors with respect to Lean as it was implemented in your company. Explain the rationale for the rating.
 - a. Management commitment
 - b. Cultural change
 - c. Communication
 - d. Employee empowerment
 - e. Linkage to strategy
 - f. Any other critical success factors
5. What specific behaviors did you utilize to foster the success factors listed in the previous question? How were these behaviors developed and/or encouraged?
6. Discuss how the different cultures within your multi-national company impacted Lean implementation.
7. What has been the impact caused by Lean:
 - a. on financial/business results?
 - b. on operational results (measures of effectiveness and efficiency)?
 - c. on market performance?
 - d. on employee morale?
8. Is there anything else you would like to add?