

A STRATEGIC MODEL FOR INNOVATION LEADERSHIP:
AMBIDEXTROUS AND TRANSFORMATIONAL LEADERSHIP WITHIN A SUPPORTIVE
CLIMATE TO FOSTER INNOVATION PERFORMANCE

By

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Dedication

I would like to dedicate this project to my supportive and loving wife Nura. Without her, this process would have stopped in year one. She has been my encourager, friend, guide, and biggest supporter in the good and bad, the ups and downs. I would also like to dedicate this project to my mom and dad and to the rest of my family who never doubted my potential. This work is also dedicated to the changers, the dreamers, and the doers. Most especially, it is dedicated to the ones who question the status quo and truly believe in the leader's role in driving change and innovation to create a better life.

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Abstract

Most companies strive to find the perfect portfolio of projects and activities that will drive growth and position in markets. Innovation is crucial to a company's survival and its ability to create a sustainable competitive advantage. This study seeks to identify the leadership behaviors that are effective in boosting innovation capacity in companies. It tries to reveal the most effective leadership style for leading innovation in modern organizations. It identifies the problem in managerial practice and academia that there is a lack of common understanding of how leaders can drive and foster innovation in organizations. The prime objective of this study is to verify and examine the role of transformational and ambidextrous leadership in organizational and team level innovation respectively within organizational climate supporting innovation practices. The findings show transformational leadership behaviors of CEOs can help to champion and enable innovation in their companies at organizational level. Furthermore, the ambidextrous leadership behaviors of team leaders can impact innovation outcomes at the team level. Nevertheless, a supportive organizational climate has an independent role in influencing innovation activates at both the organizational and team levels. These insights of a holistic and multiple levels of perception will create awareness for organizations executives to identify certain strategies and set of skills to develop and sustain organizational innovation.

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CHAPTER I

Introduction

Innovation in organizations has become a main driver of growth strategy and a means of creating a competitive advantage (Hamel, 2006; Teece, 2010). It has led to changes in the ways companies compete in a single industry and has had a direct effect on their ability to survive. The organization that does not innovate will probably not stay in the market for long (Dess & Picken, 2000; O'Reilly & Tushman, 1997).

Innovation is more than newness, inventions, creativity (Shavinina, 2011), or tools that can be used to enhance the brand image of a company. It generates new options for businesses and expands their entrepreneurial possibilities (Schmitt, 2012). Coming up with new ideas and strategies is easy for most modern companies. However, moving from ideation to commercialization in the business innovation process is challenging. Companies often fail when attempting to work through the various stages of the innovation strategies (Berends, Smits, Reymen & Podoyntsyna, 2016).

Scholars and managerial practitioners have identified leadership behaviors as the most influential drivers of innovation climate (Lawton & Weaver, 2010). Executives can create a climate within their organizations that support innovation (Soken & Barnes, 2014). This includes developing the skill sets necessary for the innovation process such as forming structures, allocating resources, putting processes in the place, creating effective learning environments, being open to outside ecosystems, and accepting failure and considering it as a part of learning (Morris, Kuratko & Covin, 2010).

Managerial scholars argue that the notion of an innovative leader is different from that of an innovation leader. However, some in academia and material practices still misunderstand the

difference between these two concepts (Horth & Buchner, 2009). The concept of an innovative leader relates to the leader's skills and traits. This type of leader is a source of creativity who can bring in new thinking and prescribe different actions regarding how to lead, manage, and move forward with work. An innovative leader can think of different ways to overcome organizational challenges or deal with a scarcity of information (Loewe & Chen, 2007). In contrast, an innovation leader focuses on creating an organizational environment where there is a climate of innovation that supports innovation within teams. In this environment, employees can implement innovative practices which lead to the development of new products or services (Elkins & Keller, 2003). In addition, an innovation leader does not just hire creative resources. Rather, an innovation leader helps teams to think of new ways to capture value, work within the constraints of resource to develop and manage processes, and achieve a competitive advantage and ultimately organizational survival (Horth & Buchner, 2009).

Overall, a growing knowledge of leadership practices and innovation is evident among those in the field of management and in academic literature (Drejer, 2006). Scholars suggest that innovation leaders must possess a mix of leadership skills that can interact with each other if they are to produce high quality of innovation outcomes (Sammut & Paroutis, 2013). Thus, innovation leaders need to identify and develop the skills that are appropriate for impacting innovation. After all, they are the ones who are responsible for infusing their organizations with practices that fosters innovation (Soken & Barnes, 2014).

The Role of Transformational Leadership

Transformational leaders are described as “moving the follower beyond immediate self-interests through idealized influence (charisma), inspiration, intellectual stimulation, or individualized consideration” (Bass, 1999, p.11). They have the ability to communicate a picture

of what the future will be like if their organization's goals are achieved. The enthusiasm and commitment of followers grows because their leaders make their organization's goals seem vibrant, alive, engaging, and even tangible.

The transformational leadership style supports exploring new business concepts aimed at achieving breakthroughs in innovation outcomes (Giesen, Riddleberger, Christner & Bell, 2010). It facilitates breakthroughs at the organizational level by focusing on exploration, fostering a learning climate, promoting safety, being open to diverse thinking, allowing for mistakes, and empowering employees through the use of opening behaviors. When all of these elements work together in an organization, innovation performance can increase (Nemanich & Vera, 2009).

The Role of Ambidextrous Leadership

Ambidextrous leadership is a new leadership theory which was put forth by German strategy professors Rosing, Frese, and Bausch (2011). Funded by Volkswagen Automobile Company, Rosing et al. conducted a comprehensive research study which implemented a meta-analysis of existing literature that linked leadership effectiveness with innovation performance. Rosing et al. focused on determining the behaviors that influenced business innovation most effectively and looked specifically at the behaviors of leaders who had direct contact with innovation teams.

At both the individual and team levels, Rosing et al. (2011) found broad variation among leadership styles that drive innovation. These include leader-member exchange, transformational leadership and transactional leadership. This inconsistency in correlation is explained by the nature of innovation concept. Rosing et al. noticed that if they added some moderating behaviors to the leadership styles, a more positive correlation with innovation resulted. The dilemma related exclusively to the two ends natures of the innovation process which are creativity and

implementation. They require opposing and contradicting leading behaviors (i.e., opening and closing behaviors) (Probst, Raisch & Tushman, 2011). Determining the complementary leadership behaviors necessary for innovation and the ways that team leaders can help teams and individuals implement them and become more innovative was a major concern (Rosing et al., 2011).

As a result of their meta-analysis, Rosing et al. (2011) proposed that ambidextrous leadership drives team innovation because it is able to use opposing and contradicting skills at the same time. Opening behaviors support the exploration activities in the ideation phase and include finding different ways to accomplish tasks, encouraging risk taking, making room for new ideas, and allowing for errors and lessons learned (Gebert, Boerner & Kearney, 2010). In contrast, closing behaviors support exploitation activities in the implementation phase and consist of mentoring, controlling goal attainment, establishing routines, performing corrective actions, committing to follow rules, limiting errors, and sticking to a plan (Keller & Weibler, 2015). Observation revealed that creativity and control are the innovation paradox of teams (Morris, Kuratko & Covin, 2010; Freeman & Engel, 2007) and that leaders who were adept at innovation were flexible and capable of moving smoothly between these two sets of behaviors according to the phase or task they were performing (Farr, Sin & Tesluk, 2003; West, 2002).

Innovation occurs in two levels: the organizational level and the team level. Therefore, the complexity of innovation leadership is feed by the overlapping roles and activities that depend on the hierarchy of an organization. Leaders should employ a transformational leadership style to influence organizational innovation whereas team leaders should use ambidextrous leadership to respond to variations in team innovation outcomes (see Figure 1) (Zacher & Wilden, 2014).

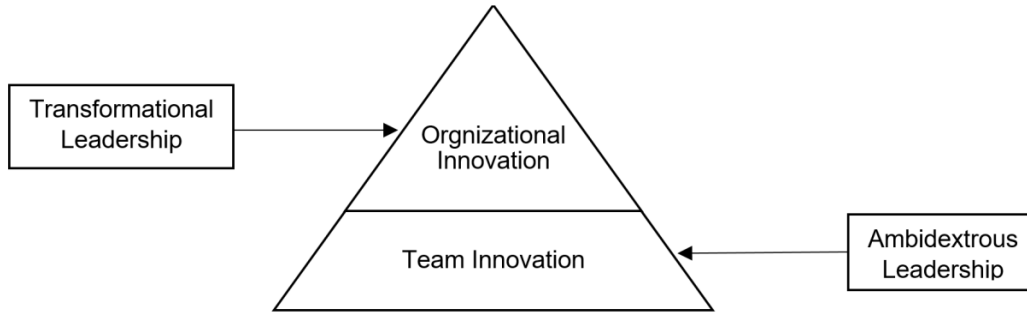


Figure 1. Transformational and ambidextrous leadership styles lead to different levels of innovation adopted from Rosing, Frese & Bausch, 2011; Schweitzer, 2014.

The Role of Innovation Climate

Soken and Barnes (2014) claim that in organizations executives benefit from innovation environments. However, innovation that enables organizational climate is not created by chance. It is the result of an organization's strategy, a supportive culture, and effective leaders who are willing to learn from failure. According to a worldwide survey conducted by Barsh, Capozzi & Davidson (2008), over 94% of executives indicated that people and climate are the two most important drivers of innovation in organizations. They put human capital at the center of their strategies and are aware that the climate of an organization can promote or poison creativity and innovation. However, having an organizational climate that only rewards innovative ideas and behaviors is not enough (Sternberg, 2006). Organizational climate should also support open communication and multi-level collaboration across functional teams; work to empower teams by getting support from company executives; encourage risk taking, flatter organization structures, feedback, and intensive collaboration with stakeholders; and let stakeholders participate in the innovation process and its outcomes (Neely & Hii, 1998).

Statement of the Problem

One of the most important elements driving business innovation is an identification of the leadership skills needed to develop innovation business concepts (Anderson, Potocnik & Zhou, 2014; Elkins & Keller, 2003). At present, no holistic model for innovation leadership exists that explains innovation performance within the different hierarchal levels of an organization. There is a gap in the literature and in the field of management practices that provides a common understanding for executive leaders regarding how innovation capacity can be enabled, developed, and sustained in multiple levels of the organization (Andriopoulos & Lewis, 2009; Bledow, Frese, Anderson, Erez & Farr, 2009; Lewis & Smith, 2014).

How can top management teams enable innovation at an organization? What set of behaviors can team leaders adopt when leading innovation projects in the workplace? What are some organizational deterrents to more effective innovation outcomes? These are only some of the key questions that have yet to be answered and that can show how effective forms of leadership influence innovation performance. Empirical research on innovation leadership is still in its nascent stage and offers a rich and fertile field for investigation by scholars who study leadership and innovation.

Research Questions

The following are the research questions (RQ1-RQ3) for this proposed study on innovation leadership.

RQ1: Which leadership style is required to enable and sustain innovation capacity in modern organizations?

RQ2: Are the sets of leadership behaviors that drive innovation at the organizational level and at the team level different from each other?

RQ3: What is the role of the organizational climate in fostering innovation performance?

Significance of the Study

Leadership theories have been widely implemented, but a holistic model that takes innovation performance in different organizational hierarchal levels into consideration has been missing so far. Much information about interdependencies and further research is still needed (Horn & Brem, 2013). Innovation team leaders should be orchestrating the ideation process and leading the implementation of the ideation outcomes (Coyne, Clifford & Dye, 2007).

There are several issues that are pushing investigation and research on innovation and leadership. There is a call in the literature and managerial disciplines for a more comprehensive leadership model that illustrates how leadership behaviors strategically affect and foster organizational innovation. Organizations can use the resulted model to develop training programs to help employees to adopt certain behaviors to enable and drive innovation capacity in different organizational levels. There is an additional call for more research exploring how innovation climate interacts with behavioral selection. Reports exist showing that scholars have examined how organizational climate supports performance and how it influences organizational innovation. However, there are no reports of empirical studies that show the effect transformational and ambidextrous leadership behaviors have on innovation performance in a climate that supports innovation in a comprehensive model. In addition, there are only a few studies that discuss the interaction between organizational climate and leadership styles and the subsequent influence this interaction has on innovation within different organizational hierarchal contexts (i.e., at the firm and team levels). Furthermore, no studies have been conducted in U.S. companies that examine and empirically confirm that the ambidextrous leadership theory has an influence on team innovation. Thus far, only studies done in Australia and Europe have

confirmed that ambidextrous leader behaviors have an influence on team innovation (Rosing et al., 2011; Zacher & Wilden, 2014; Zacher & Rosing, 2015).

This study seeks to identify the leadership behaviors that are effective in boosting innovation capacity in organizations. However, in academic research and managerial practices, there are variations in the understanding of how leaders can drive innovation as a sustainable activity (Eisenbeiss, van Knippenberg & Boerner, 2008; Rank, Pace & Frese, 2004; Rosing et al., 2011). This study will examine how transformational and ambidextrous leadership work together to create a new entrepreneurial leadership model that can foster innovation performance within a supportive organizational climate.

Chapter II presents a comprehensive literature review on the key variables of the study. These include the importance of having innovation capacity in organizations, stages and levels of the innovation process, the influence of leadership styles on business innovation, the role of transformational leadership in driving organizational innovation, team leader opening and closing behaviors that foster team innovation performance, the moderating effect of innovation climate, strategies that support innovation practices, ambidextrous leadership theory, and ambidextrous organizations. Chapter III focuses on the research methodology for the study, describing the participants, the measures used, data collection, and the specific procedures that were followed. Chapter IV presents the results of the data analyses. Chapter V discusses the findings and their practical implications, the strengths and limitations of the study, and the potential direction of future research.

In summary, while the business world is constantly searching for the next big thing, leaders must remember that they must think not only as global leaders but also as innovation leaders (Makri & Scandura, 2010). Leaders who use innovation as a main driver for growth have

the power to change a company, an industry, a country, and even the world (Hogan & Kaiser, 2005).

CHAPTER II

Literature Review

This chapter reviews business innovation, the role of leadership in innovation performance, and the influence that a supportive climate has on boosting innovation. It explores the key concepts relevant to driving innovation in businesses and highlights the importance of innovation as a main organizational competency. It describes the two hierarchical levels of innovation: organizational innovation and team level innovation. In addition, it discusses and defines the stages of innovation and their paradoxical nature. It also examines the leadership behaviors that impact innovation performance. Specifically, it looks at the role of transformational leadership in driving organizational innovation and team leader ambidextrous behaviors that foster team innovation performance. It explains the moderating effect of an organizational climate and top management strategies that support innovation practices. The literature review chapter concludes with a proposed model for innovation leadership, including the research hypotheses.

Business Innovation

Businesses innovations have been and continue to be a topic of immense interest in academia and with those involved in managerial practices (Cui & Loch, 2011; Keupp, Palmie & Gassmann, 2012; Rank, Pace & Frese, 2004). Developing innovation capacity is a factor that drives a firm's competitiveness and leads to its success (Ahuja & Lampert, 2001; Wagner, 2012). It is considered one of the dynamic capabilities that can help an organization to achieve a sustainable competitive advantage (Breznik & Hisrich, 2014) and develop the competencies needed to sustain organizational growth (Gnyawali & Srivastava, 2013).

Globalization has broken the boundaries of the markets (Nolan, & Zhang, 2003). It has become one large market for modern companies (Bremmer, 2014). Moreover, consumers are increasingly more demanding and require new features, better services, lower prices, and solutions adapted to their specific needs (Lumpkin & Dess, 2001). Within such markets conditions, there are no boundaries to compete against. Consequently, organizations have to be innovative if they expect to make a profit and survive (Rosenbusch, Brinckmann & Bausch, 2011). However, organizations leaders recognize that innovation is a complex concept, and it should be structured in a pipeline of projects that aim at increasing national growth (Hollanders & Celikel-Esser, 2007).

Utterback (2015) addressed the challenge of organizations by shedding the light on the importance of innovation in corporate survival. He emphasized why political, economic, social, legal, and technological trends can shape the way corporations compete and innovate. Utterback suggested a hybrid model that would allow organizations to compete and innovate by building current and new competencies. However, they also need to select one core competency to develop. He claimed that companies should be prepared to develop new ways of regenerating their business model if they needed to cover a growth gap and deal with declining revenues.

Definition of innovation. The term innovation is derived from the Latin word *novus* which means new (Lewis & Short, 1879). However, today it is more than just a buzzword. It has become a set of business disciplines, such as marketing, operations, information technology (IT), finance, and human resources (HR) (Crossan & Apaydin, 2010). It consists of three dimensions: new, improved, and changed. Newness can be something that is new to a company, new to competitors, or even new to an entire industry. It can be an improvement or a change that satisfies new requirements, hidden needs, or even current market demands. It can also be the

introduction and application of a new business concept, process, product or service that is designed to create value for a company and its customers (West & Farr, 1990, p. 9).

On the other hand, Baregheh, Rowley & Sambrook (2009) tried to understand what innovation really means. They reviewed the roots of innovation in the literature of different disciplines such as business management, economics, organizational studies, technology, marketing and knowledge management. Their findings revealed 60 different definitions of innovation. Baregheh et al. grouped these definitions according to common themes and attributes and identified six categories. These categories included: (1) stages of innovation (adopt, create, and implement), (2) social contexts for innovation (organizations, customers, social systems, teams, and individuals), (3) means of innovation (ideas, technology, creativity, markets, and inventions), (4) the nature of innovation (new, changed, and improved), (5) types of the innovation (product, service, and process), and finally (6) the aim of innovation (success, differentiation, and competition). The study concluded that focusing on one group of innovation attributes rather than investigating the generic and ambiguous concept of innovation would produce higher quality research. In addition, studying the various innovation sub-themes would produce more accurate measurements (Keupp et al., 2012).

Innovation is not a eureka moment that comes suddenly without advanced notice. The Global Innovation Management Institute (GIMI) defines innovation as a way to create and capture new value in new ways. It involves executing business ideas and reflecting them on a balance sheet statement (Baregheh, Rowley & Sambrook, 2009).

Innovation and performance. The relationship between innovation and organizational performance is interconnected (Rosenbusch, Brinckmann & Bausch, 2011). Some companies focus primarily on the processes needed to create a new product or service. However, doing this

tends to lower the impact of their performance when compared with companies that promote innovation in their value chain creation (Adner & Kapoor, 2010). The first approach focuses on the creation of new value without identifying a clear way to capture the value economically or strategically. The second approach assigns resources to appropriately structured innovation frameworks so that they have a better impact on the innovation-performance relationship (Jimenez-Jimenez & Sanz-Valle, 2011). Both approaches can be maximized under the right organization climate as long as it supports and encourages team work, allows for mistakes and risk taking, shows transparency, and uses a collective mindset (Hogan & Coote, 2014).

In a business context, innovation capacity and innovation competency are both defined as a company's capability to sustainably (Prajogo & Ahmed, 2006). This capability includes the organizational practices needed for innovation, processes, and leadership support (Barton, 1992). However, innovation and performance are not the same concepts. Performance focuses on using efficiency, quality, and responsiveness to try to build a company's competitive advantage (Lai & Cheng, 2005). Innovation is the capability that companies have to build and develop that can ultimately produce superior outcomes (Damanpour & Aravind, 2006).

Executives have become more aware of the complexity involved in having a sustainable business (Boons & Ludeke-Freund, 2013). The life span of a company has become shorter because of threats from new entrants to the market. Harnessing the power to innovate in building sustainable and longer business operations is important for companies that want to stay in their market (Brown, 2010). As a result, firms have started to include business sustainability in their strategic portfolios, addressing opportunities and then creating and exploiting new methods so that their performance is consistent and appropriate (Goleman & Lueneburger, 2010). Business innovation can lead to sustainable competitive growth if it is well deployed, tackles managerial

behaviors such as goal setting and planning, and controls activities such as allocating resources, building relationships, developing talents, and matching internal supply with external demands (Hamel, 2006).

Managers reinvented the way they do work by innovating in processes to increase organizational performance (Damanpour & Aravind, 2012), such as strategic planning, capital budgeting, hiring policies, and communication. They try to move away from bureaucratic routines that can hinder creativity across organizations (Drucker, 1998) and instead try to focus their efforts on being innovative in a business's ecosystem rather than just hiring geniuses. Having knowledgeable managers who can develop human capital and integrate the required organizational climate by carefully pushing them to their limits so that they maximize their potential and create sustainable innovation pipelines is imperative (McEntire & Greene-Shortridge, 2011).

Innovation and invention. Innovation and invention are two very different concepts (Fagerberg, 2004). Invention creates value through new ideas or models for new or improved products or services. However, it will not necessarily lead to innovation unless it captures value economically through commercialization (Khilji, Mroczkowski & Bernstein, 2006). When commercialization occurs, invention becomes innovation (Johannessen, Olsen & Lumpkin, 2001). It is not limited to new product development (NPD) or new technologies (Chesbrough, 2007). It can be seen in new markets, new business models, new cost structures, new processes, and new partnerships (Amit & Zott, 2012). It is a holistic approach that combines strategic planning, leadership, implemented organizational culture, structure, and all value chain activities (Martins & Terblanche, 2003). Therefore, both managerial practitioners and researchers are anxious to know what, when, where, and how to innovate (Giesen, Riddleberger, Christner &

Bell, 2010). All of these entities need to be integrated and aligned with corporate innovation strategy. Then, the company will have a common language when it comes to innovation performance (Krammer, 2009).

Some studies in the field of innovation just focus on developing products and/or services which are also known as customer value proposition (Lindic & Marques da Silva, 2011). However, this is only one dimension of innovation. Creating new value using new product features does not grant success in the market. Product fit does not guarantee market fit or business model fit (Zott, & Amit, 2008). New products should match and meet the customer's wants and needs to be considered successful innovations (Baker & Sinkula, 2005). Innovation is not about having new products or services to market as much as it is about addressing current or future wants and needs of target customers (Szymanski, Kroff & Troy, 2007). Researchers are trying to create a comprehensive model that can drive innovation successfully and identify factors showing where and how innovation can occur to increase the rate of market adoption (Frambach & Schillewaert, 2002; Hall & Khan, 2003).

In general, innovation can occur in any block or link in the value chain creation (Hansen & Birkinshaw, 2007; Roper & Love, 2008). It can take place in markets when new segments, new needs, new channels, new customer relationships are identified or when new value propositions such as new products, services, new features, or applications are created (Soosay, Claudine, Hyland & Ferrer, 2008). It can be a new process, new resources or partnerships, or even new cost structures or revenue streams. However, these parts are not mutually exclusive and can be in more than one part of a company's business model (Rowley, Baregheh, & Sambrook, 2011).

Innovation and creativity. There is an integrative relationship between creativity and innovation (Roffe, 1999). In the field of psychology, creativity includes the skills needed to solve problems in unconventional ways (West & Altink, 1996). Part of innovation competency is creativity and includes the introduction of new ideas, processes, products, or procedures (Gupta & Singhal, 1993). Innovation is a process whereas creativity defines the traits individuals should have when they engaged in an innovation process to develop and produce new innovative concepts (Anderson, Potocnik & Zhou, 2014). In some contexts, these two concepts may seem to compete with each other, but when mentioned together, they usually complement each other (Rank, Pace & Frese, 2004). Creativity is essential to generating new business concepts that create new value propositions for customers and companies. In such a way, creative employees are engaged and work together in the innovation process to develop new ideas and move them forward to become commercialized products or services (West, 2002).

Leaders value the creativity of their employees and understand their contributions to innovation outcomes (DiPietro & Anoruo, 2006). However, innovation is not only about just gathering creative individuals. It is about being open to collaborating with each other by creating a win-win relationship that can contribute to socio-economic activities (Harper & Porter, 2011). Sharing knowledge and dealing candidly will help open lines of communication in lateral and upward/downward organizational structures, drive collaboration, and instill a team sharing mindset (Lundvall, Johnson, Andersen & Dalum, 2002). Moreover, what makes it more fruitful is if the employees with extensive experience are selected as members of innovation teams where they can couple their experience with the creative thinking (Shalley, Zhou & Oldham, 2004). However, the challenging part is balancing control with creativity (Busco, Frigo, Giovannoni & Maraghini, 2012). Unlike control, creativity improves with flat structures and

open communication channels that shows flexibility. An organization that supports and rewards creativity and also allows mistakes is most likely be successful in generating innovative business concepts (Martins & Terblanche, 2003). These types of practices can foster creativity and will reduce competition between teams and create an open platform for sharing expertise and knowledge (Naranjo-Valencia, Jimenez- Jimenez & Sanz-Valle, 2011).

Innovation and entrepreneurship. Freeman & Engel, (2007) have discussed models of innovation in startups and corporations. The process of innovation occurs in two approaches depending on the size and age of the company. If it is large mature company, the model is called *corporate innovation*. If it is a small or startup company that was recently started by entrepreneurs, the model is called an *entrepreneurship model*. Freeman and Engel have questioned why big companies do not dominate and control all business opportunities and why entrepreneurs do not have more successful innovative breakthroughs. The answer to the question is the speed at which innovations enter the market.

The agility and flexibility of startups in terms of resource allocation enables them to bring new products to market relatively quickly (Hoskisson, Hitt, Johnson & Grossman, 2002). However, entrepreneurship or innovation is not limited to startups companies only. Big companies have developed their entrepreneurship practices as a part of their plans, especially when it comes to successful innovation strategies (Baden-Fuller, 1995). A *corporate entrepreneurship mindset* is needed to deal with new fresh opportunities with the same agility and motivation that a startup entrepreneur might have (Dess & Lumpkin, 2005). Thus, the concept of entrepreneurship has evolved and extended from its classical usage with startup companies to corporate entrepreneurship where it is being used to activate the innovation process (Veeraraghavan, 2009). Successful organizations can drive more revenue, charge extra

premiums, and reduce operational costs by innovating in their products or services (Sharma & Chrisman, 1999). Gaining such advantages requires a supportive organization that is capable of combining change with fast proactive actions. However, there are still gaps in understanding why some companies are better at enabling innovation than others (Troy, Szymanski & Varadarajan, 2001).

In the field of entrepreneurship, as a startup grows, matures, and develops, its innovation process slows and falls into a trap of its own initiation, and it becomes similar to innovation in the corporate model (Weiblen & Chesbrough, 2015). This cycle can create an agency problem which results when managers who lead corporations are different from owners-shareholders and may use company resources for their own benefits (Arye, Bebhuk & Fried, 2003). Conversely, the owners/entrepreneurs are the managers of startups, so this problem does not exist (Jones & Butle, 1992). This issue plays a main role in the speed and flexibility of resource allocation decisions in the execution of innovation strategies.

In the corporate model of innovation, invention and execution do not usually occur in the same department (Ernst, Hoyer & Rubsaamen, 2010). Having products generated in one department and implemented in another may cause a conflict of interest and may even face some resistance (McIntyre, 1982). For this reason, using an open innovation approach which involves acquiring existing innovative businesses in the market has become more popular in the corporate model because it overcomes the slowness and the conflicts of the innovation process (Gassmann, Enkel & Chesbrough, 2010).

According to Freeman and Engel (2007), a hybrid model of innovation has emerged which combines the corporate and entrepreneurship models of innovation. This new model includes the active collaboration of proper resources and adequate funding to accelerate

innovation. When a startup is very young, it is dominated by inventors, and when it is older, it is dominated by general managers. Therefore, corporations can opt for the hybrid model by either going with open innovation and innovative startups, or by doing innovation internally by creating pockets of entrepreneurship that can create separate strategic business units.

Innovation challenges. Man (2001) claims innovation is about finding alternatives and challenging the best. However, it is common to have resistance to the implementation and adoption of innovation whether it is company inertia or the resistance of individuals who are worried about possible economic loss that may result from adopting innovative strategies. The resistance could also be political conflicts between teams or functions (De Dreu & Van Vianen, 2001). Ultimately, leaders should adopt an organizational change mindset to force a climate of innovation and promote innovative practices and objectives (Tidd, 2001).

Another innovation challenge appeared when large corporations started to struggle when attempting to come up with new innovation breakthroughs (Rohrbeck & Gemunden, 2011). They were stuck in an operation familiarity trap where they were used to developing competencies that created a competitive advantage (Ahuja & Lampert, 2001). For example, after reaching the economics of scale and having an increase in sales that resulted from mature management and cost reduction, they got stuck and resisted looking for new alternatives to spin their value proposition. This trap may hinder their corporations from exploring and adopting emerging practices and could stop them from moving out of the status quo (Anthony, Eyring & Gibson, 2006). They could end up in a state of organizational inertia which occurs when organizations continue in doing what they know rather than investing in new growth opportunities (Shimizu & Hitt, 2005). Most companies use conventional growth strategies which have become obsolete and are not as effective as they were in the past (Teece, 2010). In

addition, pursuing innovation strategies with a hit or miss approach can be expensive for companies (Rothwell, 1994). Instead, they should develop a systematic process which can mitigate the risks involved when companies try to pursue innovation in their new projects and execution activities (Brennan & Dooley, 2005).

Another challenge appeared when companies failed abruptly after a period of multiple successes (He, 2012). This phenomena is called the *Icarus Paradox*. This term was first introduced to management literature by Danny Miller in 1992. Icarus is a figure from Greek mythology who was in prison. He tried to escape by making wings from wax and flying away. The wings were successful in helping him escape, but he flew too close to the sun and they melted. The paradox is that the invention that had helped him escape from prison ultimately led to his downfall. In his overconfidence, he became blind to the danger of flying too close to the sun (Miller, 1992). Since 2008, companies such as Sports Authority, Kodak, Nokia, Blockbusters, and Radio Shack have become victims of the *Icarus Paradox* and have subsequently ended up in bankruptcy. They were forced to exit the market because they were dazzled by their previous successes and ignored newly emerging technologies and competencies that had been deployed by their competitors (Amason & Mooney, 2008).

Another obstacle appear to innovation is commercialization (Cai & Gao, 2011). Kapoor, Dwivedi, and Williams (2014) conducted a study which reviewed 223 articles that discussed innovation attributes. The results revealed that most of the studies focused on the highlighting the importance of adopting innovation in organizations rather than on implementing it. Kapoor, Dwivedi, and Williams also noted that there was a lack of research aimed at identifying strategic, post-adoption decisions and that the methodologies required to build innovation capacity in an organization. For example, market adoption is a crucial obstacle facing innovative

companies (Aarikka-Stenroos & Lehtimäki, 2014). Different variables can influence the speed of the adoption. Prices, utility, diffusing rate, and social orientation are considered to be influential factors (MacVaugh & Schiavone, 2010). In addition, breakthrough innovation may face a slower rate of consumer adoption due to social and emotional attachment to previous offerings (Vlachos, Theotokis, Pramataris & Vrechopoulos, 2010). Strategists need to take into account the fact that radical innovations may include higher risks in terms of customer adoption due to the social and cognitive differences with previous products (McDermott & O'Connor, 2002).

Degrees of innovation. Businesses have witnessed a transition from information management to innovation management (Tushman, 1997). However, to develop the strategic innovation intention for sustainable growth, businesses have needed to adapt the type of innovation they use to their particular context regardless of whether it is incremental, radical, or disruptive innovation (Szekely & Strebel, 2013). Incremental innovation deals with adding differentiation value whereas radical or disruptive innovation can revitalize a corporation and generate a new product life cycle or even a new industry conversion (Norman & Verganti, 2014). Radical innovation is not an easy strategy to take on because it involves a great deal of risk. A company may find itself needing to develop new core competencies (McDermott & O'Connor, 2002). Businesses without experience have a better chance of succeeding if they start with incremental innovation. Otherwise, a huge waste of R&D resources and financial losses may result if a company fails to commercialize on radical innovation (Utterback, 1994).

Scholars agree organizational leaders should identify where, when, and why innovation is needed if innovation is going to be made sustainable (Body & Ceri, 2016). One of the main characteristics of an innovation leader is that s/he is able to understand the ecosystem of a company (Mumford & Licuanan, 2004). This type of leader is blessed with certain competencies

that can make innovation happen by aligning an organization's strategies with its ability to tackle opportunities and prepare for external threats (Lindgren & Abdullah, 2013). The final outcome of the innovation process is a complete innovative business model which can encompass the whole ecosystem needed to create value for an organization and its customers (Chesbrough & Rosenbloom, 2002).

Companies should first identify their domain of operation and then observe trends and patterns outside their borders (Kohavi, Rothleder & Simoudis, 2002). External drivers such as physical changes to natural ecosystems, scientific changes, the reduction of natural resources, government regulations, and to a lesser degree the changing of consumer demands and socioeconomic pressures can have a significant impact in innovation development (Gorodnichenko, Svejnar & Terrell, 2010). Their selected field of play for growth must overlap with the company's current core competences. Otherwise, entering a far-flung field of play with totally new competencies will be too risky (O'Connor & McDermott, 2004). By figuring out their potential field of play, companies can use their core competencies to develop others and to tackle innovation within a selected platform for growth (Anthony, Eyring & Gibson, 2006). For example, bi-products and complementary products are considered a rich platform for new ideas by some companies (Cusumano & Gawer, 2002). Many innovations, even disruptive ones, have come from bi-products that have shifted in the markets after certain adoption levels and have opened new white horizons that have not existed before (Denton, 1999). Thus, innovation is about mindful top management that can lead the innovation process by pioneering a shift and building the capacities that are needed to act proactively rather than reactively within their organization (Kickul & Gundry, 2002).

Innovation hierarchy. In general, innovation is stimulated in hierarchal contexts. It occurs at two levels: the organization level and the team level (Zacher & Wilden, 2014). The first level of innovation, which is the benefit an organization can obtain from its innovation strategy (Jung, Chow, Wu, 2003), and the second is the team level of innovation, which is the outcome of the performance of teams (see Figure 2) (Eisenbeiss, van Knippenberg & Boerner, 2008).

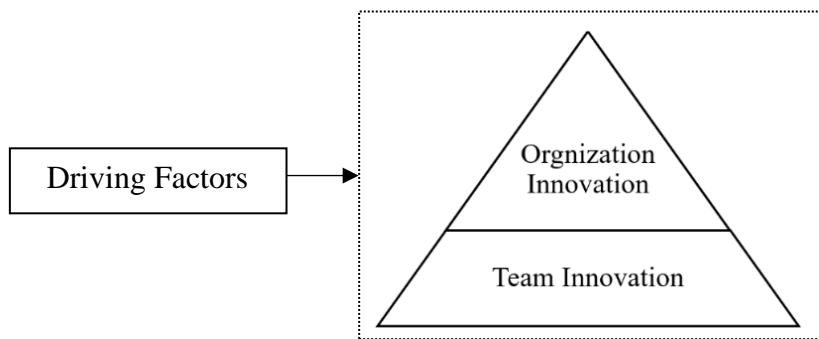


Figure 2. Innovation is stimulated at two organizational levels.

Crossan and Apaydin (2010) did a conceptual and descriptive study that focused on identifying and understanding the dimensions of innovation. An analysis of data that had been collected over a period of 27 years showed that innovation in an organization has two main focuses: processes and outcomes. Most researchers deal with innovation outcomes as a mediating variable of performance rather than a dependent one. Crossan and Apaydin suggested focusing on outcomes to understand innovation drivers and the ways they can be influenced in organizations.

The notion of an innovation activity is not restricted to a single function in a company (Boer & During, 2001). Rather, it is more of a cross functional activity. The accountability of innovation is defused to all aspects of a company in an integrated approach (Buergin, 2006).

Infusing innovation is not the role of R & D alone or of the production or marketing departments

(Bernstein & Singh, 2006). It is a cross-collaboration of all of an organization's disciplines and is aimed at generating a holistic coordination that can innovate throughout a business model without dropping or limiting the roles of other functions (Alves, Marques, Saur & Marques, 2007). A holistic system, managed and lead by top management, makes all employees accountable to the company's innovation strategies (Fagerberg, 2004).

Innovation teams should not depend on employees who just having big ideas (Axtell, Holman & Unsworth, 2000). All employees need to reveal their creativity especially when they have a support system for their initiatives which can empower them (Cohn, Katzenbach & Vlaskovits, 2008). However, people vary in their understanding of innovation (Baregheh, 2010). Individual perceptions of innovation at the most are limited to things that are new, changed, or improved. The way an individual understands the concept of innovation affects the way s/he interacts (Andersson et al., 2011).

A team leader needs to align the team's perceptions so that it can understand an innovation process and can subsequently increase the team's outcomes (Caraballo & McLaughlin, 2012). Consequently, teams need to be formed that have members with diverse talents who have come from different departments in the organization (Aalbers, Dolfsma & Leenders, 2016). In addition, they need to make well-organized efforts to produce effective results. Most innovations and significant growth leaps are born in *heavyweight development teams* (Clark & Wheelwright, 1992). However, managing and leading heavyweight teams is difficult. The leaders of such teams have to have direct access to and be responsibility for the work of all individuals involved in the project.

These leaders are senior managers within organizations who are in a position to influence the people working on the development projects. They are also in a position to give significant

input on employee performance evaluations and guidance to the functional manager (McDonough, 2000). On the other hand, some companies fall into the same mistakes with regard to lead innovation teams. Moss Kanter (2006) claims that for companies to innovate successfully, they should replace common *process mistakes* with effective practices and activities such as holding strictly to budgets, planning, and controlling innovation processes. Companies should also replace common *skills mistakes* such as assuming the best leader is the individual with the best technical skills. They should recognize that the best leaders for innovation teams are the individuals who possess not only technical skills but also strong interpersonal skills and knowledge of the innovation process (McDonough, 2000). Team innovation is about leadership behaviors, individual characteristics, team cohesion, and potency. These factors must all interact together if a team's innovation is to be effective (Stoker, Looise, Fisscher & Jong, 2001).

Team innovation requirements. Organizations need to deploy innovation processes to solve problems (Breznik & Hisrich, 2014). These processes include ideation and implementation phases that can help them to come up with new solutions for the current or future problems (Stamm, 2009). Companies that adopt strategic innovation need to identify growth gaps and show the difference between the projected and the actual revenues and when they will occur (Anderson & Markides, 2007). They also need to establish strategies for their innovation platform that will support new innovations and fill any gaps (Chapman, 2007). In other words, companies should follow a process that recognizes and alerts management to crises before they occur. They should also create goals that use structured problem solving frameworks, encourage emergent innovation practices, and convert them into a successful commercialized business concepts (Gebauer, Worch & Truffer, 2012).

Structured thinking is a reliable way to have for better ideation outcomes (Best, 2008). It can trigger the ideation phase and move it to implementation. To be effective, innovation processes should be mindful of stakeholders, identify trends that are shaping markets, have scenario planning activities, and develop and validate solutions by modifying and enhancing innovative outcomes until they come up with the final business model (Zott, Amit & Massa, 2011).

Innovation is a nonlinear process (Birkinshaw, Hamel & Mol, 2008). Consequently, managers should adopt practices that will successfully facilitate this end-to-end journey (Hollanders & Celikel-Esser, 2007). The front end of innovation includes ideation and conceptualization, emphasizes a variety of generated ideas, and assess whether any of them are projects that the company can handle (Poskela & Martinsuo, 2009) while the back end of innovation is comprised of development and implementation (Gunzel & Holm, 2013). These two steps call for different types of behaviors. The front end of innovation must deal with uncertainty and visioning while the back end requires discipline and commitment (Klein & Knight, 2005).

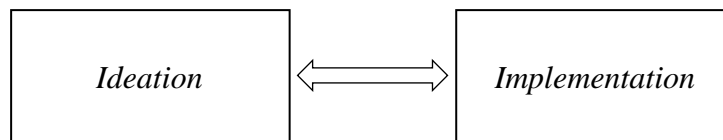


Figure 3. The nonlinear innovation process.

The most challenging phase in the innovation process is knowing how to develop and implement new ideas and commercialize them successfully (Somech & Drach-Zahavy, 2013). New inspiration or insight is less important. The front end of innovation, the ideation phase, is not as challenging as the back end of innovation, the implementation phase. Most companies struggle with the back end of the innovation process because it sometimes becomes a bottle neck (Birkinshaw, Bouquet & Barsoux, 2011). Executives often face this challenge when they

conduct workshops or host creativity sessions which ultimately have an inconsistent impact on their companies in terms of innovation performance (Puccio, Firestien, Coyle & Masucci, 2006). These conclusions confirm why hiring creative talents is not sufficient when needing to implement innovative projects and move the needle forward. The challenge is not so much about having new ideas as it is about how to implementing such ideas (Klein & Knight, 2005).

Therefore, the integration of the innovation system is important as it can affect the quality of the outcomes (Siguaw, Simpson & Enz, 2006). In addition, scholars argue that some of the characteristics of the innovation process include a conflict of demands (De Dreu, & Van Vianen, 2001). It includes complex paradoxical activities which need to be separated and managed back and forth in an intuitive way. The dialectic process that is used to facilitate innovation requires team's leaders to switch between divergent and convergent behaviors. For example, teams may need to think out of the box to solve a problem and meet the project scope and deadline at the same time. Organizations need to be aware of these two required set of behaviors for a successful business innovation (Bledow, Frese, Anderson, Erez & Farr, 2009).

Future research is needed to test and identify a conceptual model that enable team leaders to deploy these types of contradictive skills efficiently (Buijs, 2007). The team leader should be furnished with skills that encourage open behavior and that can lower upfront filters. Making use of these skills can help to optimize results before the team moves forward to the implementation or emerging phases of the innovation process (De Jong & Den Hartog, 2007). With such processes and skills, team leaders can have a better chance of bringing about breakthroughs in business models for their companies (Coyne, Clifford & Dye, 2007). In contrast, the organization innovation level increases when it is derived from exploration behaviors with less focus on exploitation activities (Gupta, Smith, & Shalley, 2006).

Innovation processes and strategies. According to Michel Porter (1996), strategy is defined as creating a valuable position using different sets of planning activities. It requires doing tradeoffs of internal activities or competing factors so that there is a product-solution fit and product-market fit. Michel Porter (2008) also identified five competitive forces that shape strategy. Understanding Porter's five forces is one of main tactics that executive leadership in organizations uses to develop new business models. These forces shape the new growth opportunity platforms and include: (1) the bargaining of suppliers, or supplier power; (2) the bargaining of customers, or customer power; (3) the intenseness of rivalry; (4) the barriers facing new entrants; and (5) the power of substitutes. Added to these five forces is a new emerging sixth force which is complementary products. These forces are considered crucial streams in innovation outcomes.

Collins and Porras (1996) argue that a strategic innovation vision should align the BHAGS (Big Hairy Audacious Goals) with ambitious and serious leadership and planning. Executives need to be intuitive enough to dedicate relevant competencies and resources toward such goals and ambitious enough to find others that need to be developed (Amabile & Kramer, 2012). For example, transformational leaders can communicate pictures of what a company will be if it achieves such goals in the future. They make goals vibrant, alive, engaging, and tangible (Bass, 1999). The transformational leadership style supports innovation that explores new business concepts in an effort to achieve a breakthrough in innovation strategies. It supports and emphasizes a focus on innovation and enables innovation practices with an entrepreneurial spirit (Giesen, Riddleberger, Christner & Bell, 2010).

One widely used strategic innovation process is the *stage-gated process* (Cooper, 2008). The main phases for this process are: (1) finding the problem, (2) defining the problem, (3)

generating different solutions, (4) evaluating potential solutions, (5) gaining acceptance, and finally (6) taking action. The process is complex and requires using convergent and divergent thinking (De Sousa, Pellissier & Monteiro, 2012).

Another method used in innovation strategy that deploys ideation and implantation stages is value innovation. It is the cornerstone of the Blue Ocean Strategy (BOS) (Sheehan & Vaidyanathan, 2009). The BOS uses a framework whereby firms can succeed not by focusing on battling competitors, but by creating blue oceans of uncontested new market space. The BOS uses strategic actions to create a leap in value for a firm and its buyers by unlocking new mass demand and making the competition irrelevant (Yang & Yang, 2011). The BOS framework offers analytical tools that can be used to build a company's ability to systematically create and capture new value by creating, eliminating, raising and reducing some of the competing factors (Kim & Mauborgne, 2005). In the long run, value innovators that target the mainstream can claim they are disruptive innovators (Christensen, Baumann, Ruggles & Sadtler, 2006) while players who have stuck with a Red Ocean Strategy (ROS) race to beat the competition by building defensive positions within the existing market structure (Grilo & Jardim-Goncalves, 2010). The BOS framework can identify new white spaces in the market with no existing competition. Blue Ocean players follow a systematic logic to get away from the Red Ocean market and build a new differentiated model with lower strategic pricing (Kim & Mauborgne, 2015).

The innovation strategy can also be stimulated when existing business models are redefined or reinvented (Doz & Kosonen, 2010). Business models are changed or tweaked using ideation and implantation activities in such a way that they deliver or capture new value through either new customers, new value propositions, new processes, new methods of production, new

partnerships, new cost structures, or new revenue streams (Johnson, Christensen & Kagermann, 2008). Business model reinvention is not restricted to only new products or services. It also includes the ecosystem of a business (Chesbrough, 2007).

Huston and Sakkab (2006) describe *lean startup methodology* as another process for helping new innovation and business models emerge. This framework allows companies to correct and enhance their business model multiple times by testing it in markets in real time and getting immediate feedback from the end users. When a robust innovative business model is finally determined, it can be released in the targeted market (Eisenmann, Ries & Dillard, 2012). This process has common characteristics that are similar to those of *design thinking*, a new school of thought that is driving innovation in modern organizations (Muller & Thoring, 2012). Design thinking is a holistic approach to problem solving adopted from the engineering and architectural worlds. It begins with the end results in mind and is capable of matching customer needs, products, or services in timely way (Leavy, 2010). However, the required leadership skills that could make it an effective approach for business innovation is missing in both methods (Kimbell, 2011).

In conclusion, all known innovation strategies use two main phases in their team innovation processes: ideation and implementation. Ideation involves formalizing insights and then generating new business concepts that can solve problems. It emphasizes generating ideas outside a company's comfort zone whereas implementation involves creating the blueprints of a generated concept and then developing prototypes to validate the model before it finally enters the market (Somech & Drach-Zahavy, 2013). In this phase, the team should do screening, filtering and prioritization activities for the generated ideas. They can take some of the ideas a few steps further and convert them into business concepts (Dabholkar, 2009). The selected ideas

should be aligned with both the company's strategies and current/future trends before they emerge as final business case and go to market (Hansen & Birkinshaw, 2007).

Organizational Leadership

In general, leadership is one of the greatest challenges facing the world (Combs, 2002). Leaders can change the world and drive the whole ecosystem into either great or catastrophic outcomes (Bennis, 2007). Leadership behaviors can drive organizational performance as well (Dewettinck & van Ameijde, 2011). It has a major impact on the planning, execution, and control of an organization's strategies to achieve superior performance (Birasnav, Rangnekar & Dalpati, 2011), and it is linked to entrepreneurial activities (Ensley, Pearson & Pearce, 2003). Leadership is a crucial factor in steering a company to achieve its mission and vision (Alon & Higgins, 2005).

Leadership is a process where an individual leads collective efforts to achieve common objectives successfully (Dess & Lumpkin, 2005; Yukl, 2009). It involves influencing others so that they move toward a shared goal (Gardner, 1990). The most commonly used definition of effective leadership defines it as the ability of an individual to influence, motivate and enable others to contribute to the effectiveness and success of the organization (Yukl, 2010). Leaders of organizations strive to drive and lead change in response to external dynamics and the fluctuation of market dynamics (Dijk & Dick, 2009). However, some leaders fail to have a real influence in an organization (Aydogdu & Asikgil, 2011).

There is a growing interest among researchers in studying the different dimensions of innovation (Lam, 2002). However, scholars have not focused on leadership which is one of the main factors that drives innovation (Hamel, 2006). Scholarly literature and managerial practices have yet to identify a set of behaviors which can promote successful innovation. How innovation

can be implemented and what resources are needed remains a question (Koen, Bertels & Elsum, 2011). Leadership could be the missing piece of the puzzle that could answer these questions and subsequently create successful innovation capacity in modern organizations (Horn & Brem, 2013).

Types of leaders in the organization. Leaders in organizations usually have special qualities that help them to infuse respect, trust, and loyalty in followers (Bass, 1999). Such leaders differ from managers since managers are concerned with current organizational outcomes rather than with strategies and relationships with followers (Zaleznik, 2003).

There are two types of organization leaders: executive leaders and team leaders (O'Reilly, Caldwell, Chatman, Lapiz, & Self, 2010). Executive leaders including the CEO of the company who has limited direct interaction with the rest of the employees. In contrast, team leaders guide problem solving projects and have high face-to-face interaction with the team members (Sarin & McDermott, 2003). They work with teams to achieve common goals (Tiffan, 2014). Both types of leaders facilitate rather than administrate. They engage people and focus on inspiring employees with a shared mission and vision rather than mixing their role with managerial practices and focusing on directing and controlling resources and employees to accomplish the desired objectives (Weathersby, 1999). In addition, they plan the long term goals, more than working on short term objectives. They try to look for answers to what and why questions instead of how and when questions (Bennis, 2007). However, scholars and managerial experts debate whether leadership behavior selection is complex, and they need to collaborate with each other to come up with a more comprehensive understanding of what effective leader behaviors should look like (Yukl, 2009).

Innovation and leadership. Within innovation context, scholars and practitioners have identified behaviors of leaders as the most influential drivers of innovation (Mumford, Scott, Gaddis & Strange, 2002; Lawton & Weaver, 2010). However, many researchers have discussed and studied innovation in terms of personality traits and/or qualities which make a leader a more creative problem solver, but they have not focused on how leaders facilitate and drive innovation in teams and organizations (Steel, Rinne & Fairweather, 2012). Innovation leadership is concerned with the set of leadership behaviors required to facilitate innovation and to have better innovation performance at the organizational level as well as the team level. Scholars claim that there should be a certain leadership style to drive innovation (Williams & Foti, 2011; Zacher & Johnson, 2014).

Innovation leaders need to use a different set of strategies to develop the skill sets necessary for the innovation process. These skill sets may include forming structures, allocating resources, putting processes in place, creating effective learning environments, being open to outside ecosystems, and accepting failure as a part of learning process (Morris, Kuratko & Covin, 2010). For leaders, innovation is an outcome that they are looking to drive. It depends on an individual's ability to generate new business insights and on human interaction to produce the creative ideas needed to solve problems (Mumford & Gustafson, 1988). Some scholars debate about selecting the right set of behaviors for innovation leadership (Lazarova, 2014). Both academia and the managerial fields are struggling to explain which sets of skills are required for leadership to predict innovation effectively (Shavinina, 2011).

Leadership styles. According to Bennis (1989), "leadership is like beauty; it's hard to define, but you know it when you see it" (p. 2). Because innovation requires having different types of activities, scholars have not been able to agree on a specific leadership theory that is

best for handling business innovation (Carmeli, Gelbard & Gefen, 2010). However, scholars have been able to shed light on the importance of certain traits and skills that may influence innovation at the organizational level (Hammond, Neff, Farr, Schwall & Zhao, 2011). For example, charismatic leaders who share an innovation vision can energize innovation teams and help them to achieve vision (Ehrhart & Klein, 2001). Interactive leaders can empower the employees to innovate, and the strategic leaders who put in solid structure and control systems can push innovation using specific frameworks and tools (Bossink, 2004). Another example is the empowering or democratic leadership style which allow followers to have some influence on decisions will increase followers' motivation to implement tasks innovatively (Huang, Iun, Liu & Gong, 2010).

Transformational and transactional leadership styles affect the innovation activities in different ways. Transformational leadership style has a greater effect on organizational innovation development (Schweitzer, 2014). It is a more accurate fit for creative activities and for exploring tasks by encouraging employees to look for new insights, connect between idea fragments, recognize patterns, and solve problems. In contrast, transactional leadership shows better outcomes in the implementation phase of the innovation process. It can also handle exploitation activities and assign the company's resources to execute the new innovative concepts (Oke, Munshi & Walumbwa, 2009).

An in-depth review of transformational and transactional leadership.

Transformational leadership theory requires that a leader have the ability to communicate a shared vision and inspire followers to achieve a vision (Kotlyar & Karakowsky, 2007).

Transformational leaders try to show followers the importance of their work (Oke, Munshi, & Walumbwa, 2009). Their followers need to feel that their leaders are trustworthy and will be

loyal to them. The followers also need to respect their leaders (Avolio, Walumbwa & Weber, 2009). This may result in followers complying with their leader's requirements, but the followers may not necessarily be enthusiastic about the tasks (Lowe, Kroeck & Sivasubramaniam, 1996). Transformational leaders try to drive and motivate change in followers by focusing on individual consideration, inspirational motivation, and idealized influence on personal achievements (Hannah, Avolio, Luthans & Harms, 2008). Transformational leaders who have confidence and natural speaking power are called charismatic leaders (Bass, 1985).

Transformational leaders have the power to influence followers (Walumbwa, Avolio & Zhu, 2008). They have good relationships with followers and can influence them in certain futuristic and inspirational goals. However, sometimes they make risky decisions because of their arrogance (Weberg, 2016). Their effectiveness can be clearly observed in hierarchal organizational structures. In such structures, employees need to feel the is meaning in what they doing, especially when there is low face-to-face interaction (Schweitzer, 2014). They get inspired about certain visions and try to develop trust across the organization in order to infuse a climate that supports innovation (Bass, 1999).

Transformational, visionary, and charismatic leadership theory try to explain the effectiveness of communicating moral values to followers to raise their consciousness about ethical issues. In contrast, transactional leadership theory explains how leaders can motivate followers by appealing to their self-interest, outlining the exchange benefits and identifying the rewards and sanctions (Judge & Piccolo, 2004; Matzler, Schwarz, Deutinger & Harms, 2008). Entrepreneurs agree that transactional leadership style is a better option in startups for motivating employees because it focuses on their extrinsic motivations (Ensley, Pearce & Hmieleski, 2006). The transactional leadership style is also more helpful in high face-to-face

interactions. Achieving organization goals requires a give-and-take philosophy. Therefore, rewards, recognition and controlling are essential factors in effectively leading a team's innovation (Yukl, 2010).

Transformational leaders naturally stimulate individuals to achieve company goals (Bass, 1999). This leadership style has higher impact on innovation at the organizational level than at the team level (Bucic, Robinson & Ramburuth, 2010; Jansen, George, Van den Bosch & Volberda, 2008; Jansen, Vera & Crossan, 2009). It focuses on exploration and fostering a learning climate. It promotes safety, is open to diverse thinking, allows for mistakes, and empowers employees using divergence thinking to increase organizational innovation performance (Nemanich & Vera, 2009). Transformational leaders can enable innovation and create intangible capabilities that make it difficult to copy. The main focus of this style is to promote the collective efforts efficacy as a strategy for achieving innovation goals (Garcia-Morales, Matias-Reche & Hurtado-Torres, 2008).

Because innovation has complex needs, assigning a certified project manager to an innovation team does not guarantee its success. It is challenging when a team leader with a project management mindset leads an innovation process (Oke, Munshi & Walumbwa, 2009). However, it is a proven option for leading conventional projects that need high closing behaviors. Nevertheless, other leadership styles may perform better depending on the stage of the project (Somech, 2006). It is not enough to have a professional project manager handle and deal with innovation projects. The context can vary and the outcome can be more complex than conventional projects (Turner & Muller, 2005a).

Both transformational or transactional leadership behaviors are not enough to enhance team level innovation (Jiang & Chen, 2016). Researchers realized that innovation cannot be

effectively derived by one single leadership style. They understand the value of having a mix of leadership behaviors that can form a new explanation for innovation leadership (Anderson, De Dreu & Nijstad, 2004; Bledow, Frese & Mueller, 2011). Only a few models have been developed by academics to explain the leadership style in team level innovation (Burke et al., 2006). Transformational leadership can have a positive impact on organizational innovation especially if there is interaction with a supportive climate (Jansen, Vera, & Crossan, 2009). Empirical research shows the transformational leadership has a high variation and contradicts attributers in fostering team level innovation (Rosing et al., 2011).

Most researchers claim that transformational leadership is the most influential style for fostering innovation (García-Morales, Llorens-Montes & Verdu-Jover, 2008; Kearney & Gebert, 2009; Keller, 2006; Nemanich & Vera, 2009). However, there are new studies that show some of the negative effects of the transformational style at the team level innovation (Samad, 2012). It has been argued that transformational leadership works with transactional leadership to produce better innovation outcomes (Pieterse, Van Knippenberg, Schippers & Stam, 2010) and confirms the need of these two paradoxical styles when it comes to fostering and influencing innovation. Mixing the behaviors of both these styles will have a higher impact on team performance (Bucic, Robinson & Ramburuth, 2010). Both styles have different behaviors that support operational tasks and the nonlinear aspects of the innovation process. Team leaders need to flip-flop between them according to the task context (Jung, 2001).

In conclusion, it is clear that there are two dimensions that are used for classifying innovation leaders. The first dimension is vertical and depends on the context where the leader is in the organizational hierarchy. S/he can be an executive level leader who does not deal directly with individuals and teams to manage innovation. The second dimension is horizontal and

depends on the two stages of the innovation process where the team leader functions as facilitator. S/he can work at an operational level and deal with innovation processes directly and lead innovation teams (Jansen, George, Van den Bosch & Volberda, 2008). For those dimensions, findings show that adopting the transformational leadership style in higher executive positions has a positive correlation with innovation performance. On the other hand, scholars argue that in lower organizational levels, leaders need to adopt a mix of leadership behaviors which can influence exploration and exploitation in teams and foster team level innovation (Keller & Weibler, 2015; Taylor & Helfat, 2009). Team leaders at a lower level may switch between sets of contradictory behaviors according to the activity requirements (Yusof & Othman, 2016). These findings open the doors to scholars and those in managerial practice to jump in and explain the innovation phenomena at the team level with different perceptions. New understandings have emerged to explain the leadership behavioral role in fostering team level innovation effectively. Strategic innovation is about finding and building innovation competency using the right leadership style in top management and assigning skillful lower level leaders to facilitate the innovation process with the right team members (Deschamps, 2005).

Innovation leaders under the spotlight. There are many influencers on innovation performance in organizational settings (Dess & Pickens, 2000; O'Reilly & Tushman, 1997). Certain personal skills of top management team (TMT) are considered to be the main drivers for infusing innovation across the organizations (Mumford, Scott, Gaddis & Strange, 2002). Studies have observed several major attributes among innovation leaders. Chief among them is a superior combination of creativity and discipline that can lead innovation concepts from the ideation phase to the emergence phase. Innovation leaders also accept uncertainty, risks, and failure; employ a learning mindset; and are passionate, open-minded, and proactive. Moreover,

they have the courage to kill zombie projects and stop the bleeding or draining of resources (Kuczarski, 1998). Innovation leaders' personal traits such as humility, rewarding and supporting others, promoting and motivating teamwork, communicating effectively contribute in predicting innovation successfully (Mumford & Licuanan, 2004).

Opening and closing behaviors sets leading to innovation. In general, innovation is engendered at different organizational levels where the leader has a major role in its success (Hackman, 2002; Mathieu, Maynard, Rapp & Gilson, 2008). It is infused horizontally across the innovation process which includes ideation and implementation and vertically among the hierarchy of the organizational structure which includes the organization and team levels (Andriopoulos & Lewis, 2009; Bledow et al., 2009; Gibson & Birkinshaw, 2004; Rosing et al., 2011). Bel (2010) suggests different skills to be developed according to the hierarchal context of the organization. As many leaders go to higher positions in executive levels, they need to inspire, drive, enable and advise followers. For lower operational levels, innovation leaders need to focus on advocating for and rewarding supporting traits (Klein & Sorra, 1996).

Innovation in the horizontal dimension is related to the team innovation process (Drach-Drach-Zahavy & Somech, 2001). There are two main phases. The first is creativity or ideation, and the second is implementation or execution. Both are in the lower operational levels (Bjork, Boccardelli & Magnusson, 2010). Team leaders practice a diverse set of behaviors to maintain team coherence and performance by leading the innovation process and deploying the collective expertise within the team and monitoring the interaction between them for effective results (Salazar, Lant, Fiore & Salas, 2012). Some leaders use a relational focus, recognizing team member differences and being aware of team member capabilities. Others practice the individual leader concept for each member to direct them towards team collaboration and enhance their

performance (Day, Gronn & Salas, 2006). However, Bell (2010) argued that these two different steps need different types of behaviors. The front end of the innovation process is characterized by uncertainty and visioning which require opening behaviors. Conversely, the back end of the process is characterized by discipline and commitment which require closing behaviors.

Although transformational leadership has positive correlation with innovation on organizational level, transactional leadership performs better when fostering innovation with high face-to-face interaction teams. Transformational leadership is good when there is low interaction with followers and transactional is good when there is high interaction with followers (Keller, 2006). Employees look for meaning in what they are doing. Transformational leaders will help to develop meaningfulness that has a positive influence on organizational innovation readiness (Rosing, Frese & Bausch, 2011). Conversely, at lower operational levels, in many cases leaders who use a transactional leadership style can have a positive correlation with innovation performance since teams are usually motivated by rewards (Vaccaro, Jansen, van den Bosch & Volberda, 2012).

Organizational ambidexterity. The concept of an ambidextrous organization was first introduced by Tushman and O'Reilly in 1996. The term *ambidextrous* ordinarily means having the ability to use both the right and left hand equally well for writing or doing other manual tasks. In managerial literature, ambidextrous describes organizational strategies that allow top management to balance short- and long-term objectives simultaneously. Short-term objectives focus on current business performance whereas long-term objectives center on exploring new opportunities (O'Reilly & Tushman, 2004).

Balancing current business performance with futuristic opportunities is a challenge. However, if it can be done, it can increase a company's ambidexterity (Probst, Raisch &

Tushman, 2011). Usually, the strategic leadership of an organization is at the core of an exploration activity. The organization's managers focus on short-term objectives using controlled activities such as quality checking, budgeting, and efficiency programs for current business (Zaleznik, 2003). The company's sustainability depends on the TMT being aware that ambidexterity is the element that will allow it to explore the future and exploit the present in a balanced manner (Lubatkin, Simsek, Ling & Veiga 2006).

Organizational ambidexterity can have a positive impact on business performance by simultaneously executing current business strategies and developing other future opportunities (Gibson & Birkinshaw, 2004). As organizations begin to focus equally on both exploration and exploitation activities, they will begin to make better decisions and sustain a competitive advantage because of their organizational ambidexterity (Bledow et al., 2009; Good & Michel, 2013). Leaders who are fully aware of the dynamics of their organization's ecosystem may be forced to make trade-offs between projects that address current and future competition (Carmeli & Halevi, 2009). Christensen (2013) also emphasized that leaders need to be intuitive when dealing with any aspect of competition. They must be prepared for market changes and have the courage to use newly acquired knowledge to overcome the challenge of ambidexterity (Birkinshaw & Gupta, 2013).

Organizations generally view exploration and exploitation as two complementary learning behaviors (Bledow et al., 2009; Rosing, Rosenbusch, & Frese, 2010; Turner, Swart & Maylor, 2013). Exploration is usually associated with openness to learning and connecting insights to find new opportunities. Exploitation happens when team leaders become obsessed with implementing the new opportunities (Keller, 2014). Finding a balance between exploration and exploitation that can lead to the successful achievement of ideation and implementation

outcomes has been a focus of many leaders in the field of management (Tushman & Euchner, 2015). Therefore, some studies conclude that the multiplicative combination of exploration and exploitation is correlated with innovation performance. This creates a new way to assess organizational innovative performance such that innovation performance is highest when both exploration and exploitation are high (Rosing & Zacher, 2016; Zacher et.al, 2016).

Studies show that senior executives who possess transformational leadership behaviors can contribute significantly to an organization's ambidexterity (Jansen, George, Van Den Bosch & Volberda, 2008) and influence organizational performance significantly (Samad, 2012). They can handle short- and long-term vision to increase the organization ambidexterity. Senior executives can contribute to the organization ambidexterity using both transformational leadership behaviors, which drives exploration activities (Jansen, Vera, & Crossan, 2009), and transactional leadership behaviors, which drive exploitation activities. Both styles are supported by the organizational climate supporting innovation (Garcia-Morales, Matias-Reche & Hurtado-Torres, 2008).

In general, there are many researchers who have discussed ambidexterity potential in organizations by showing the positive influence on organizational success (Jurni, Sarala, Taras & Tarba, 2013). However, organizations struggle in using exploration and exploitation simultaneously (Andriopoulos & Lewis, 2009; Simsek, Heavey, Veiga & Souder, 2009). Previous studies are ambiguous in the way they explain how to achieve ambidexterity in different contexts (O'Reilly & Tushman, 2013). For example, some studies show that ambidexterity can work not only at the organizational level construct, but also at the team and individual levels (Birkinshaw & Gupta, 2013; Bonesso, Gerli & Scapolan, 2014; Rosing & Zacher, 2016).

Tensions have always existed between exploration and exploitation activities (Lavie, Stettner & Tushman, 2010). Therefore, to drive innovation performance at any organizational level, leaders need to foster exploration and exploitation activities. For example, to impact innovation performance at the organizational level, CEOs should have the skills to manage the tensions between these two capabilities whereas team leaders and supervisors are accountable for this task at lower levels (O'Reilly & Tushman, 2004). The complexity surrounding the issue of organizational ambidexterity is applicable to team innovation as well (Gibson & Birkinshaw, 2004; Raisch & Birkinshaw, 2008; Lewis & Smith, 2014). It is somewhat paradoxical that the innovation process must be orchestrated by an effective leader who understands the complexity and knows how and when to switch between sets of behaviors according to the task's requirements (Kotlyar & Karakowsky, 2007). Even at individual levels, employees need to manage these paradoxical activities and balance their time between exploration and exploitation to increase their innovative performance (Gibson & Birkinshaw, 2004).

Ambidextrous leadership. Ambidextrous leadership is a new leadership theory which emerged in 2011 and is the product of research done by German strategy professors Rosing, Frese, and Bausch. This comprehensive research project was funded by Volkswagen Automobile Company. The authors of this theory used meta-analysis on existing literature, linking leadership effectiveness with innovation performance. The purpose of their research was to understand what behaviors will effectively influence innovation (Rosing, Frese & Bausch, 2011).

Although Tushman and O'Reilly (1996) used the term *ambidextrous* when discussing organizational ambidexterity, it still needs demystification (Bledow, Frese, Anderson, Erez & Farr, 2009). Ambidextrous organization theory discusses a company's capability to focus on

both short and long term objectives at the same time (Andriopoulos & Lewis, 2009). The interaction between exploration and exploitation strategies is positively related to organization ambidexterity to drive innovation (He & Wong, 2004). Organizational scholars claim that ambidextrous organizations have a greater tendency to build innovation capacity successfully (Benner & Tushman, 2003; Raisch, Birkinshaw, Probst & Tushman, 2009; Taylor & Helfat, 2009). In contrast, Rosing et al., (2011) focused on ambidextrous leadership which specifically shed light on leadership behaviors that fostered team level innovation, but not the organizational level. The authors discussed the behaviors of leaders who had direct contacts with innovation teams. Rosing et al., (2011) found broad variation between some leadership styles such as supervisor support, leader-member exchange, transformational, and transactional leadership with innovation at the individual and team levels. This inconsistency of correlation is explained by innovation paradox tasks.

Creativity and implementation, the two end structures of the innovation process, involve exploration and exploitation activities which are opposing and contradicting activities (Probst, Raisch & Tushman, 2011). Exploration refers to having out-of-the-box thinking that goes beyond boundaries and doing explorative activities. Unlike exploitation which refers to efficiency, exploitation is goal oriented and involves routine execution (March, 1991). The innovation process includes both exploration and exploitation activities done in a nonlinear format by switching back and forth between the two of them according to the nature of the task (Amabile, 1988; Farr, Sin & Tesluk, 2003; West, 2002).

Rosing et al. (2011) were mainly concerned with figuring out what complementary leadership behaviors are necessary for innovation and how leaders can help teams to be more innovative and have higher innovation performance. In their research, most of the popular and

current leadership styles have a wide range of correlations and sometimes negative correlations. At the same time, certain leadership style behaviors can foster and hinder innovation. For example, transformational leaders have different opening and closing behaviors as do transactional leaders (Jansen, Vera, & Crossan, 2009), and this is the dilemma. They can foster and hinder the team innovation at the same time. Team leaders need to manage these two contradictory and opposing phases (Gupta, Smith, & Shalley, 2006). For example, transformational leaders typically motivate followers to develop new ideas as an opening behavior. However, they support improvements and efficiency which are closing behaviors. Transactional leaders typically reward experimentation as an opening behavior, but they try to avoid mistakes at the same time (see Table 1).

Table 1

Opening and Closing Behaviors within Transformational and Transactional Leadership

	Opening Leadership Behaviors	Closing Leadership Behaviors
Transformational Leadership	<ul style="list-style-type: none"> • A vision that motivates exploratory behavior • Stimulation of thoughts in very new directions • Communication of the values of openness and tolerance 	<ul style="list-style-type: none"> • A vision that motivates confirmatory behavior • Stimulation of small improvements and enhancement of efficiency • Communication of the values of conscientiousness and rules adherence
Transactional Leadership	<ul style="list-style-type: none"> • Rewarding experimentation • Focus on errors to learn from errors • Setting and monitoring exploration goals 	<ul style="list-style-type: none"> • Rewarding efficiency • Focus on errors to avoid errors • Setting and monitoring exploitation goals

Note. Opening and Closing Behaviors within Transformational and Transactional Leadership Styles, (Rosing, Frese & Bausch, 2011).

Depending on the phase and task, an innovation leader should show flexibility when switching between opening and closing behaviors (Farr, Sin & Tesluk, 2003) since creativity and control in the innovation process is the paradoxical (Morris, Kuratko & Covin, 2010;

Freeman & Engel, 2007). For example, Rosing et al. (2011) identified and grouped the following opening behaviors. They include using different way to accomplish tasks, encouraging risk taking, making room for new ideas and allowing for errors and lessons learned. Rosing et al. also identified and grouped closing behaviors which include mentoring and controlling goal attainment, establishing routines, taking corrective actions, being committed to rules, limiting errors and sticking to plans. These opening and closing behaviors are mutually exclusive when dealing with the innovation process at the team level.

Opening and closing behaviors are not something new. They already exist in both classical and conventional leadership styles (Zacher & Wilden., 2014). The new thing in ambidextrous leadership theory is separating and gathering the two groups of opening and closing sets to respond to exploration and exploitation activities in the innovation different phases (see Table 2).

Table 2

Examples of Opening and Closing Leadership Behaviors

Opening Behaviors (OB)	Closing Behaviors (CB)
<ul style="list-style-type: none"> • Create an open atmosphere • Underline the need and desirability of experimentation and encourage generating own, new ideas • Allowing different ways of accomplishing a task • Encouraging experimentation with different ideas • Motivate employees to take risks, think outside of the box, and break up rules in order to search for solutions outside the safe ground • Giving possibilities for independent thinking and acting • Giving room for own ideas • Allowing errors and encouraging error learning 	<ul style="list-style-type: none"> • Monitoring and controlling goal attainment • Establishing routines • Taking corrective action • Controlling adherence to rules • Pre-structure tasks, define particular work goals, set guidelines, and give concrete instructions about how tasks are to be carried out • Paying attention to uniform task accomplishment • Sanctioning errors and failure • Meet deadlines and stick to plans • Enhance strict hierarchies

Note. Examples of opening and closing leadership behaviors (author's summary adopted from Rosing, Frese and Bausch, 2011; Zacher & Rosing, 2015).

Ambidextrous is defined as the ability to use opposing and contradicting skills at the same time (Keller, 2014). Unlike situational leadership from path goal theory, an ambidextrous leader switches between different set of behaviors according to employee motivation and knowledge capability in order to reach goals (Graeff, 1997). Ambidextrous leaders alternate between two sets of behaviors in an intuitive way according to a team's requirements as exploration or exploitation within a time dimension in the context of the innovation process (Rosing, Frese, & Bausch, 2011).

The first empirical research attempts to prove ambidextrous leadership theory within a team innovation context were conducted by Zacher & Rosing (2015). Their study sample came from Australian architecture and design firms. Zacher & Rosing collected data from 33 team leaders who evaluated the team innovation performance of teams they supervised. In turn, the same team members evaluated the closing and opening behaviors of their team leaders. The findings supported the ambidextrous leadership theory. There was a main effect for the opening behaviors and no main effect for the closing behaviors. However, the most important finding was that there was an *interaction* between the two sets of behaviors, and this interaction increased team innovation outcomes. Nevertheless, this study had limitations. The sample size was small. The teams were not concerned with unconventional ideation activities; they are engaged in architecture projects. The research showed the importance of ambidextrous leadership and the way it could predict innovation at the team level.

Another research study conducted by Zacher, Robinson & Rosing, (2016) studied the innovation outcomes of 388 employees and the behaviors of their team leaders using a self-reporting questionnaire. The findings showed when the team leaders practice opening behaviors, they fostered exploration activities positively. However, when team leaders used closing

behaviors, they fostered exploitation activities positively. Moreover, the most important element was the interaction between employee exploration and exploitation because it predicted employee self-reported innovative performance. When both are highly used, the innovation outcomes increase which confirms the efficacy of the ambidextrous opening and closing behaviors. As critiques of this study, Zacher, Robinson & Rosing used the MTurk- amazon, a paid online academic survey engine, to collect data from anonymous participants. However, this method may lead to flawed or unreliable data (Marder & Woodruff, 2015).

Researchers claim the core concept of ambidextrous leadership manifests in the interaction between the opening and closing behaviors which can predict self-reported employee innovation performance (Rosing & Zacher, 2016; Zacher & Wilden, 2014). As long as opening and closing behaviors increase, the self-reporting innovation increases (Zacher, Robinson, & Rosing, 2016). Studies show team facilitators are not effective leaders for innovation projects unless they can balance the use of these behaviors in an intuitive way (Bonesso, Gerli, & Scapolan, 2014).

In summary, recent studies try to explain the relationship between team innovation performance and leadership. However, there is no silver bullet for innovation leadership. The leadership style may vary in its influence on innovation performance (Hunter, Thoroughgood, Myer & Ligon, 2011). Innovation occurs at two levels: the organizational level and the team level. It is important to understand that there are some behaviors that can predict innovation beyond transformational leadership theory. Ambidextrous leadership emerged in response to the variation in team innovation outcomes. The interaction of opening and closing behaviors can predict team innovation. Consequently, the innovation level goes up as long as the opening and closing behaviors increase (Zacher & Wilden, 2014). These findings open the door to new

horizons of innovation understanding. However, more research is needed to investigate the influence of ambidextrous leadership within a comprehensive model for innovation performance (Keller & Weibler, 2015; Probst et al., 2011). Therefore, clarification is needed to help explain how to drive innovation in organizations and teams. Leaders can be trained in these skills so that they can contribute to the increase of the innovation performance of their teams as well as the innovation outcomes of their organizations.

Top Management's Influence on Innovation

Businesses need to have sustainable growth (Brown, 2010). Hence, innovation leaders should be strategically proactive toward business innovation rather than acting in a reactive manner (Lindgren & Abdullah, 2013). The leadership role is to foster innovation which will contribute in organizations sustainability. Leaders are the first building block toward business sustainability (Waite, 2013). However, company internal factors such as organizational culture, structure and leadership may affect innovation performance (Johannessen, 2009).

Studies show strategic planning has a positive impact on an organization with regard to its potential external business opportunities and its economic performance (Rudd, Greenley, Beatson & Lings, 2008). In such away, certain strategies can enable innovation capability and drive successful innovation outcomes (Carneiro, 2008). Other studies emphasize that an organization should have systems that are appropriate for fostering and driving innovation (Edquist, 2011). These systems include a supportive leadership and an organizational climate which is aligned with its innovation objectives. For example, an executive team should have a strategy and systems that can identify where and when to innovate so it can assign company resources in a way that will enable the implementation of the innovation projects (Lueneburger & Goleman, 2010).

Soken and Barnes (2014) observed specific leadership and management practices in organizations that correlate with successful innovation environments. Enabling innovation requires change agents with entrepreneurial mindsets to align their strategies so that they enhance their company's potential and produce better business performance (Carmeli, Gelbard & Gefen, 2010). Specifically, it involves changing and investigating in a company's DNA rather than fixing or designing organizational systems. However, there is no standardized framework that can lead radical change in organizations (Van de Ven & Poole, 2005). It depends on the context and the ecosystem where the change initiated. Executives should be aware of the type of leaders that are needed to drive change and move organizations to be innovative in their outcomes (Karp, 2006).

Theory *I*, where *I* stands for innovation, is one of the theories that explains how to exploit an expertise that is widely distributed within organizational units. According to Theory *I*, organizational leaders maintain a climate of trust that helps generate high rates of innovation and encourages efforts to find new knowledge sources (Miles, 2007). With regard to Theory *I*, other studies confirm that a climate of trust has a positive impact because it supports and encourages teamwork (Jones, 2006). Transparency and a collective mindset also reduce competition between teams because employees have an open platform for sharing expertise and knowledge. Aligning rewards and returns to individuals and teams in a well-balanced and fair way will create platform for engendering fruitful innovations (Rosenbusch, Brinckmann & Bausch, 2011).

The CEO of a company plays a major role in leading, driving, and executing innovation strategies (Jung, Wu & Chow, 2008). However, all employees in a company need to understand clearly and believe that they can contribute to building innovation capacity (Fagerberg, 2004). A

company is a holistic system that, when managed and lead by proper leadership, makes everyone accountable for the company's innovation outcome (Stevenson, 2012).

Organizational Culture and Climate

Organizational culture is a system of shared assumptions, values, and beliefs that influence employees' behaviors and the way they interact and accomplish their work (Cameron & Quinn, 2005). While organizational climate considers the explicit policies related to how things get done in an organization (Schein, 2010). Therefore, there is a core difference between organizational culture and organizational climate (Wallace, Hunt & Richards, 1999) although many studies that look at organizational culture and organizational climate have tried to define the two constructs in a way that differentiates them from each other (Field & Ableson, 1982). Scholars are still using both terms synonymously to indicate the same construct (Barker, 1994).

Ambiguity exists between organizational culture and climate due to the overlap in meaning of the two concepts (Moran & Volkwein, 1992). The culture can be seen implicitly in the organization's roots (Schein 2010; Zohar & Hofmann 2012). Culture refers to fundamental ideologies, norms, values, and belief systems that give meaning to organizations and that are reflected in the employee's stories and symbols (Hatch, 1993). Organizational climate refers to the psychological environment as it is reflected in employees' attitudes and shared perceptions that are attached to the policies, practices, and procedures (Ostroff, Kinicki & Tamkins, 2003; Schneider, Ehrhart & Macey, 2013).

Both concepts are intangible features of the organization and hard to put into simple terms (Ryder & Southey, 1990). Organizational culture is made up of shared employee assumptions that require qualitative field observation to explain the underlying values while organizational climate requires a quantitative survey to measure and understand the level of

employees manifested perceptions (Denison, 1996). In addition, the temporal orientation between the two constructs is different. Organizational culture is built over time and requires longer time to evolve or to change whereas organizational climate is about the present. It is considered as a screen shot of the resulting organizational culture. Therefore, it is easier and faster to develop and change organizational climate than to change organizational culture (Schneider et al., 2013). Therefore, it is difficult to distinguish between the two concepts without addressing their theoretical background (Ashforth, 1985).

For this research, organizational climate is defined as the quality of the internal environment of an organization that can be quantified in such a way as to determine the level of influence and motivation it has on employee behaviors (O'Driscoll & Evans, 1988; Moran & Volkwein, 1992). The quality of communication, the infusing of trust, the fair rewards, the organizational structure, the employee involvement, the accountability, and the controlling systems are considered the main attributes of the organizational climate (Schneider et al., 2013).

Organizational climate can help companies that want to build their innovation capacity and create growth engines for a sustainable, competitive advantage (Sarros, Cooper & Santora, 2011). Studies shows that experimentation, cultural awareness, being open to vague endeavors, and having the flexibility to change can foster innovation (Brettel & Cleven, 2011). Keeping the climate of an organizational without having clear supportive policies will not help to increase innovation success (Zheng, 2009). Organizations and leaders should promote a climate within their organizations that can strengthen the relationship between innovation leaders and innovation performance at all levels (Bledow, Frese, & Mueller, 2011).

Many companies enable multi-disciplinary innovation processes in place. However, they still struggle to keep them consistent and to sustain internal business innovation (Apekey,

McSorley, Tilling & Siriwardena, 2011). Focusing on innovation policies and processes and ignoring creating a supportive organizational climate can cause unwanted results (Martins & Terblanche, 2003). Consequently, innovation leaders need to try to balance their efforts in building the innovation competency by using a comprehensive mindset and looking at the big picture (Leavy, 2005). The climate of an organization can promote or poison creativity and innovation (Teece, 2000) or shoot its own strategy down. A healthy environment for innovation can be made by mandating change, communicating threats and opportunities, building cross functional teams, empowering people, and adding frameworks and tools that can be used to build creative business concepts (DeCusatis, 2008; Horth & Vehar, 2012).

Poor combinations of organizational polices may lead to ineffective innovation performance (Holtzman, 2014). Scholars argue that there is a positive correlation between insufficient communication which is supposed to collect insights and opportunities among business ecosystems with innovation failures. The quality of such kinds of communication may hinder companies innovation outcomes (Zerfass, 2005). Leaders of an organization need to establish a clear vision, mission, and strategic objectives. They should be well communicated throughout all levels in the organization and align with the master business innovation process in a holistic and integrated approach (Soken & Barnes, 2014).

Executives should be aware that they need to promote and encourage creative practices among their value chain teams as well as provide them with the support required for engaging them in the innovation process and building innovation capacity (DiLiello & Houghton, 2006). Although innovation is a both top-down and bottom-up approach, organizational climate can help to create a platform that sponsors innovation in both directions by opening communication channels and making it easy to advance new ideas and be championed by the top management

team (Birkinshaw, Bouquet & Barsoux, 2011). In addition to rewarding innovative ideas and behaviors, organizational climate should (1) support open communication and multi-level collaboration across functional teams; (2) work to empower teams by getting support from company executives; (3) encourage risk taking, flatter organizational structures, give feedback, and collaborate intensively with stake holders; and finally (4) let stake holders participate in the innovation process and its outcomes to create a climate that supports innovation.

In summary, transformational leaders can be innovation enablers. They help to create tacit and intangible capabilities that help to achieve a competitive advantage (Jiang & Chen, 2016). However, scholars argue that learning climate of an organization strengthens the relationship between transformational leadership and organizational innovation (Garcia-Morales, Matias-Reche & Hurtado-Torres, 2008). Innovation requires a supportive environment in order to generate better innovation performance. This applies at the team innovation level too. Creative teams can develop and generate new innovations as long as there are supportive policies that foster and encourage innovation (Naranjo-Valencia, Jimenez-Jimenez & Sanz-Valle, 2011). When there is an absence of innovation climate, creative teams cannot function well and achieve high levels of innovation performance (Miron, Erez & Naveh, 2004). Innovation climate can be properly infused inside an organization as long as it has a strategic intention to innovate (Prajogo & McDermott, 2011).

Bridging the Innovation Leadership Gap

In general, there are gaps in understanding regarding how organizational leaders can build and enable innovation capacity in companies (Rosing et al., 2010, 2011; Rosing & Zacher, 2016; Zacher & Rosing, 2015) and drive innovation (Bledow et al., 2011; Troy, 2001). This literature review has also revealed gaps in the academic research on theory of leadership as there

is a lack of understanding regarding what leadership behaviors are required for managing and leading innovation at both the organizational and the team levels (Raisch & Birkinshaw, 2008). Innovation leadership is about specific behaviors that are required for facilitating, enabling and fostering innovation performance (Wang & Rode, 2010). Some effective behaviors are connected with several leadership styles and vary in influence with regard to comes to business innovation (Lazarova, 2014). Thus, there is no clear cut explanation of innovation leadership practices, specifically within organizational hierarchal contexts (Hunter et al., 2011).

The complexity of innovation leadership is feed by overlapping roles and activities that depend on the hierarchy of the organization. Innovation occurs at two levels: the organizational level and the team level (Raisch & Birkinshaw, 2008). Transformational leadership can influence organizational innovation while ambidextrous leadership has emerged to respond to the variation in team innovation outcomes (Schweitzer, 2014; Zacher & Wilden, 2014). The interaction of opening and closing behaviors can foster team innovation outcomes. The innovation level goes up as long as the opening and closing behaviors go up. These findings are considered a genuine contribution in the field of leadership and innovation (Zacher, Robinson, & Rosing, 2016). However, more research is needed that investigates innovation leadership and its influence within a comprehensive model and that confirms its efficacy within an organizational climate that supports innovation (Keller & Weibler, 2015; Probst et al., 2011).

This research project responds to a call from academic scholars and managerial practitioners to provide more detailed insights into innovation leadership and find a comprehensive model describing the business innovation process and its link to leadership skills, specifically at different organizational levels (Yukl, 2009). This research also responds to a call

for research by confirming the emerging ambidextrous leadership theory for team innovation and by identify other factors that can boost innovation performance (Zacher et al, 2014).

The Research Model

The proposed multiple levels analysis model below (see Figure 4) illustrates how innovation can be driven and fostered in organizations. It shows that the influence that leadership style has on innovation performance depends on the organization's hierarchal context. In an organization's top level management team, the CEO has an important role in promoting organizational innovation (Makri & Scandura, 2010). Transformational leadership style (independent variable #1) is the best to foster and drive organizational innovation (dependent variable #1). At the lower levels which is the team levels, it is best for the team leader to use the ambidextrous leadership style. The ambidextrous leadership style is defined as the interaction between the opening and closing behaviors (independent variable #2). These two behavior together foster and influence team innovation (dependent variable #2). Finally, both of these relationships will have a higher positive impact on innovation outcomes as long as there is a supportive organizational climate for innovation (the moderator variable).

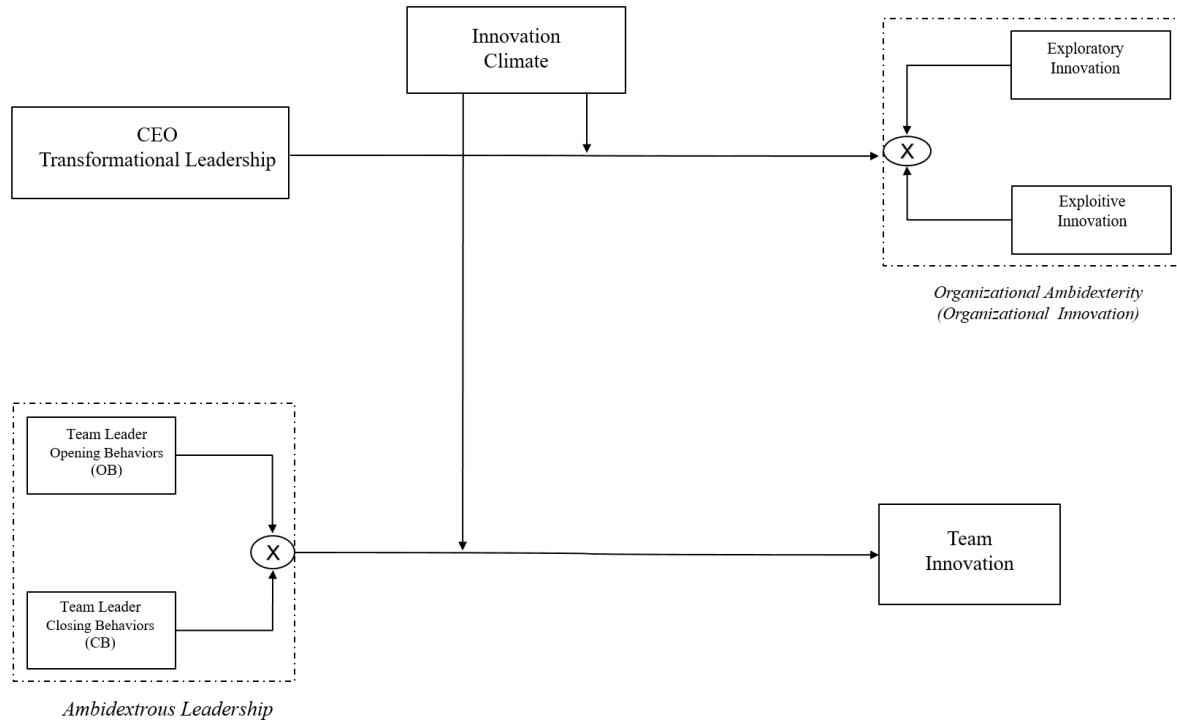


Figure 4. A proposed research model for a strategic holistic innovation leadership that can drive innovation.

Hypotheses Development

Several studies confirm the transformational leadership style has a strong effect on organizational innovation performance (Schweitzer, 2014). Transformational leaders are individuals who are stimulated to achieve company goals (Bass, 1999). Such leaders can enable innovation and communicate a shared vision by promoting collective efforts as a strategy for achieving organizational objectives. Most scholars assume the transformational leadership is the most influential leadership style for predicting innovation in organizations (Garcia-Morales, Matias-Reche & Hurtado-Torres, 2008). The following hypotheses are proposed to address the research questions in chapter 1.

Hypothesis 1 (H1): The transformational leadership style of CEOs will have a positive influence on organizational innovation.

Organizational climate is an important element for companies which would like to adopt innovation as a strategic competency (Zheng, 2009). A climate that supports and rewards creativity and allow mistakes is most likely to be successful in generating innovative results (Martins & Terblanche, 2003). Innovation leaders need to combine strategies and build a structure and climate that can support innovation (Jiang & Chen, 2016).

Some researchers argue that transformational leadership's impact on organizational innovation can be boosted if there is a supportive organizational climate (Jansen, Vera, & Crossan, 2009). A climate that supports a collective mindset reduces the competition between teams, aligns the rewards and returns to individuals and teams in a well-balanced and fair way, and creates a fertile platform for championing innovation projects (Rosenbusch, Brinckmann & Bausch, 2011).

Hypothesis 2 (H2): Organizational climate that supports innovation moderates the relationship between the transformational leadership style of CEOs and organizational innovation such that a higher level of innovation climate strengthens the positive relationship between the CEOs transformational leadership style and organizational innovation.

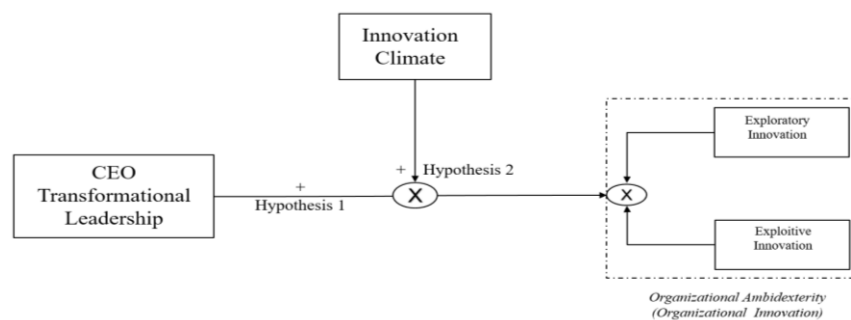


Figure 5. Hypothesis 1 and Hypothesis 2

Studies show when the team leader practices opening behaviors, s/he fosters exploration activities. When the team leader practices closing behaviors, s/he supports exploitation activities (Zacher et al., 2014) which increases team innovation performance (Nemanich & Vera, 2009).

Hypothesis 3 (H3): Team leader opening behaviors (OB) has a positive impact on team innovation performance.

Hypothesis 4 (H4): Team leader closing behaviors (CB) has a positive impact on team innovation performance.

The team leader should switch between opening and closing behaviors according to the task requirement in ideation and implementation (Farr, Sin & Tesluk, 2003; West, 2002). The interaction between opening and closing behaviors, which is also refer to as ambidextrous leadership, can predict team innovation. Thus, the innovation level will go up as long as the interaction between the opening and closing behaviors goes up (Zacher & Wilden, 2014). When both opening and closing behaviors are extensively used by team leader, the team innovation outcomes will increase.

Hypothesis 5 (H5): Team leader ambidextrous leadership, the interaction between the team leader's opening behaviors (OB) and closing behaviors (CB), has a positive impact on team innovation performance such that team innovation is highest when both opening and closing leadership behaviors are high.

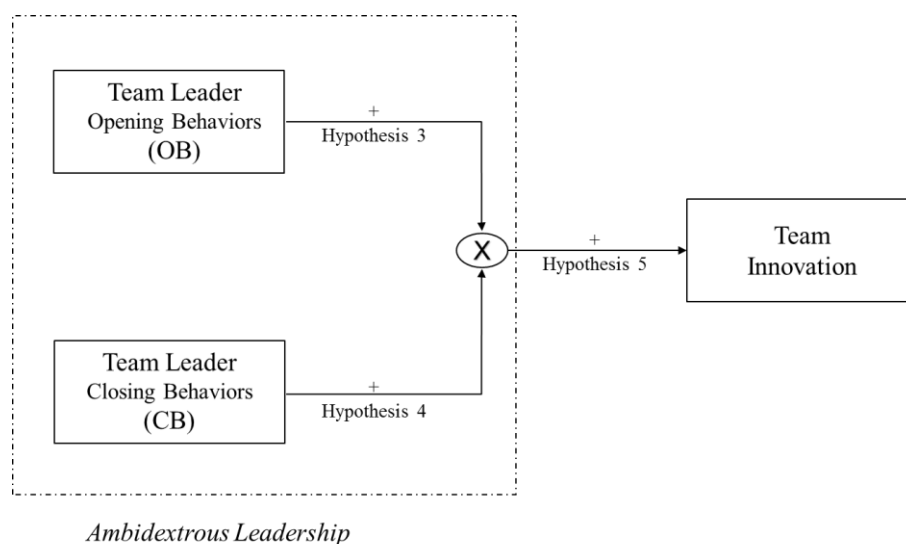


Figure 6. Hypothesis 3, Hypothesis 4 and Hypothesis 5

The climate of an organization can host or poison individuals' creativity and team innovation (Teece, 2000). Organizations need to promote a climate for innovation because it can strengthen the relationship between the team leaders and innovation performance (Bledow, Frese & Mueller, 2011). When a climate that supports innovation is absent, teams cannot function well and achieve high levels of innovation performance (Miron et al., 2004). Research confirms that organizational climates that sponsor innovation practices moderate the relationship between team leader behaviors and team innovation outcomes (Prajogo & McDermott, 2011).

Hypothesis 6 (H6): Organizational climate that supports innovation will interact with the ambidextrous leadership style to boost team innovation performance such that a higher level of innovation climate strengthens the positive relationship between ambidextrous leadership style of the team leader and team innovation.

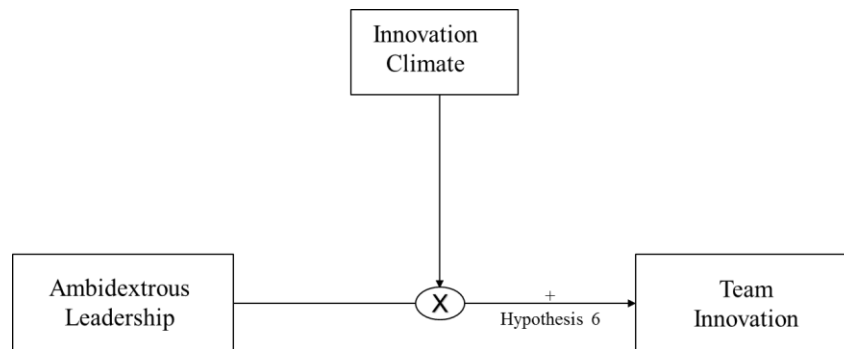


Figure 7. Hypothesis 6

Summary

This literature review has discussed four significant aspects of innovation leadership. First, the case has been made that innovation climate interacts with leadership behaviors to boost a firm's innovation at both the organizational and team levels. Second, key executives are responsible for using transformational leadership to enable, adopt, and foster innovation in

organizational level. Leadership behavior selection by these executives is a primary concept in getting innovation strategy to become a reality in an organization. Most scholars have agreed that transformational leadership is a factor in achieving positive organizational innovation performance. Third, various forms of leadership exists at the team and individual levels of an organization that can make innovation become a reality. Furthermore, opening and closing behaviors oppose and contradict each other. However, the team leader need to use them both in facilitating and leading the innovation process. The process includes ideation, which requires opening behaviors, and implementation, which requires closing behaviors. Both are equally important in creating momentum for innovation and coming up with successful commercialized innovative business concepts. The ambidextrous leadership model has been included to address these kinds of behaviors. Finally, this literature review has established how scholars are looking for more studies which examine the contextual effects of innovation performance using different leadership behavior selection. They call for a holistic and comprehensive model to explain the innovation leadership phenomena (see Figure 8).

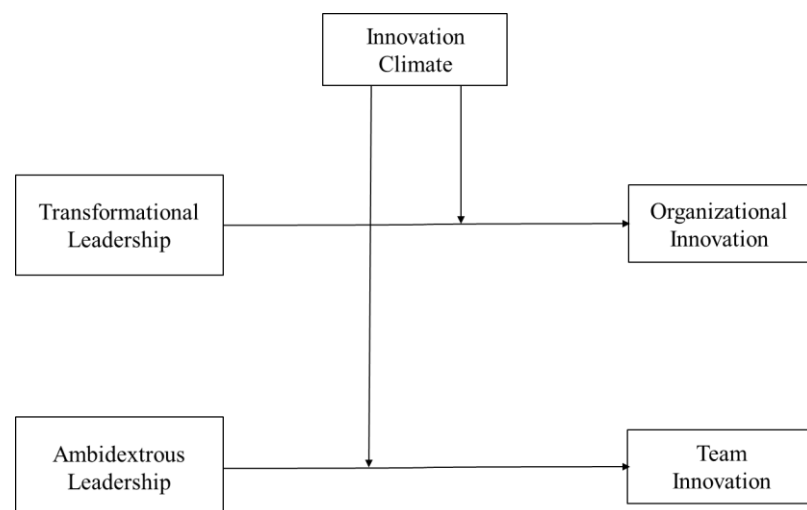


Figure 8. Final conceptual research model for strategic innovation leadership for driving innovation.

CHAPTER III

Method

This chapter presents the research strategy used to test the hypotheses proposed in Chapter 2, the target study participants, an operational definition of the all study variables, the data collection instruments, the potential control variables, and the statistical methods used to examine the research model.

Research Strategy

A quantitative approach will be used for gathering all data needed to answer the research questions presented in Chapter 1. There are three main goals that this study will try to address.

The first goal is to test whether the leadership style of a CEO can have a significant influence on innovation performance based on his/her transformational leadership behavior selection and wither the influence of the CEO is moderated by a supportive organizational climate. Self-reported scores from a transformational leadership behavior selection instrument, self-report scores from an organizational innovation climate instrument, and self-reported scores from an innovation performance instrument will be used to collect data. The data will be subjected to correlation, regression, and confirmatory factor analysis techniques to determine the strength, direction, validity, and significance of the relationships among those variables.

The second goal has two focuses. The first is to examine the relationship that selected team leader opening behaviors (OB) and closing behaviors (CB) have on team innovation performance, and the second is to determine whether the interaction between team leader opening behaviors (OB) and closing behaviors (CB), which are ambidextrous leadership behaviors, has a significant positive impact on team innovation performance. Self-reported scores from an opening and closing behaviors selection instrument, self-reported scores from an

innovation climate instrument, and self-reported scores from a team innovation performance instrument will be used to collect data. The data will be subjected to correlation, regression, and confirmatory factor analysis techniques to determine the strength, direction, validity, and significance of the relationships among these variables.

The third goal is to determine whether support of innovation climate positively moderates the relationship between team leader ambidextrous leadership, which is defined as the interaction between team leader opening behaviors (OB) and closing behaviors (CB), and team innovation performance. Self-reported scores from an opening and closing behaviors selection instrument, self-reported scores from an organizational innovation climate instrument, and self-reported scores from a team innovation performance instrument will be used to collect data. The data will be subjected to correlation, regression, and confirmatory factor analysis techniques to determine the strength, direction, validity, and significance of the relationships among these variables.

Participants and Procedures

This study will use a quantitative method to statically analyze the multiple-level, multivariate research model for innovation leadership. Testing will be done at for-profit organizations headquartered in United States. Companies in diverse industries will be approached and asked to participate in this study so that a wide spectrum of innovation performance can be captured.

Qualtrics LLC, a private reliable research company, based in Provo, Utah, will be hired to improve the quality of the research by obtaining an appropriate survey panel and having a dedicated project manager manage survey access, distribute questionnaires, and collect data from a diverse demographic of the targeted sample. After conducting a power analysis ($1-\beta=.8$), it was determine that the minimum number of participants required for significant testing was 106.

However, this researcher has chosen to double the number of participants to 212 to improve the quality of the results and increase the model's generalizability.

The selection of participants must be based on certain criteria. First, they must be full-time employee who are engaged in any organizational function in commercial industries such as automobiles, information technology, energy, manufacturing, transportation, healthcare, professional services, finance and insurance industry, educational services, computer system designs services, facilities support services, architectural services, and engineering services. Second, participants have to be currently working in an active team and led by a team leader. Third, they should be working in companies which have been in operation for more than three years and which are led by a CEO. The organization should be one that operates steadily and is not a startup which may experience exceptional performance spikes. Forth, participants should be working in companies with more than 100 employees. This size of company is classified as a larger than a small company according to the United States Small Business Association (SBA).

Although this study will focus on leadership for innovation using a large heterogeneous sample of team members. It will be difficult to obtain data from executives and team leaders who can report and rate the innovation outcomes for their teams or organizations. The questionnaire designed as a self-reported survey will obtain data from team members and will be used to assess the team leader's opening and closing behaviors (i.e., his/her ambidextrous behaviors), the CEO's transformational leadership behaviors selection, team innovation performance, and organizational exploratory and exploitative innovation (i.e., ambidextrous innovative performance). In addition, they will answer questions to assess the organization's climate and measure the level of innovation support infused in the company.

Independent Variables

Independent variables measured for this study will be the transformational and ambidextrous leadership behaviors displayed by CEOs and team leaders in organizations.

Operational definition of transformational leadership. Transformational leaders become a source of inspiration for others through their commitment to those who work with them, their perseverance in completing a mission, their willingness to take risks, and their strong desire to achieve. They encourage others to both develop and perform beyond standard expectations (Avolio & Bass, 1988a; Bass, 1985; Hater & Bass, 1988). They can raise followers' level of awareness regarding the importance of achieving valued objectives and can encourage followers to transcend their self-interests for the sake of the team and the organization (Howell & Avolio, 1993; Yammarino & Bass, 1990).

CEO transformational leadership will be measured using employee ratings on the 20 transformational leadership items from the Multifactor Leadership Questionnaire (MLQ), specifically the Rater 5X-Short Form where followers rate their leaders (Avolio and Bass, 2004). The Multifactor Leadership Questionnaire, Form 5X-Short, copyright 1995, 2000, 2004 by Bernard M. Bass and Bruce, J. Avolio, is used with the permission of Mind Garden, 855 Oak Grove Ave., Menlo Park, CA 94025. All rights are reserved. The items will be answered on five-point Likert scales ranging from 1 (not at all) to 5 (frequently, if not always). The MLQ is one of the most frequently used instruments in the leadership literature and considered to be highly reliable and well-validated. The Cronbach's alphas for the MLQ is .96 (Avolio, Bass & Jung, 1999; Hartog, Muijen & Koopman, 1997).

There are distinctive theoretical behavioral components of transformational leadership which the MLQ can operationalize. These components describe leaders as being inspirational,

intellectually stimulators, visionary and development oriented (Avolio, 1999; Batista-Taran, Shuck & Gutierrez, 2009). The MLQ is associated with five specific items: (1) inspirational motivation (IM), (2) idealized influence (behavior) (IB), (3) idealized influence (attributed) (IA), (4) intellectual stimulation (IS), and (5) individualized consideration (IC) (Harms & Crede, 2010; Matzler et al., 2008; Zhu, Sosik, Riggio & Yang, 2012).

A sample item from MLQ instrument is measuring the leader's position as a role model (idealized influence) is, “The CEO goes beyond self-interest for the good of the group” while the transformational leader's inspirational motivation role is gauged with items such as the “CEO expresses confidence that goals will be achieved.” An item relating to the intellectual stimulation role of the CEO is, “The CEO suggests new ways of looking at how to complete assignments.” Finally, items such as the “CEO considers me as having different needs, abilities, and aspirations from others” were used to tap the individualized consideration aspect of transformational leadership.

Team member's assessments will be used to assess CEO behaviors by calculating the arithmetic mean from each respondent for all the transformational leadership questions. The following formula will be used to calculate the overall transformational leadership score: [(arithmetic mean of individualized consideration questions + arithmetic mean of idealized influence (attributed) questions + arithmetic mean of idealized influence (behavior) questions + arithmetic mean of inspirational motivation questions + arithmetic mean of intellectual stimulation questions)/5].

Operational definition of ambidextrous leadership. Ambidextrous leadership will be measured using two scales. The first will be for opening team leader behaviors, and the second will be for closing team leader behaviors. They will be used with the permission of Zacher and

Rosing (2015) and is based on Rosing et al. (2011). Ambidextrous leadership is the interaction between the two sets of behaviors: opening and closing behaviors. Team members will be asked to rate their supervisor's /team leader's leadership behaviors using two sets of items. The items will be answered on a 5-point scale ranging from 1 (not at all) to 5 (frequently, if not always). The items for opening leadership behaviors are: "My Supervisor allows different ways of accomplishing a task," "My Supervisor encourages experimentation with different ideas," "My supervisor encourages risk taking," "My Supervisor gives possibilities for independent thinking and acting," "My Supervisor gives room for my own ideas," "My Supervisor allows for errors," and "My Supervisor encourages learning from errors." The Cronbach's alpha for this scale was .91. The items for closing leadership behavior are: "My Supervisor monitors and controls goal attainment," "My Supervisor establishes routines," "My Supervisor takes corrective actions," "My Supervisor insists that rules be followed," "My Supervisor pays attention to the uniform accomplishment of task," "My Supervisor gives sanctions for errors," and "My Supervisor sticks to plans." The Cronbach's alpha for this scale was .83.

Dependent Variables

The dependent variables measured in this study are organizational innovation, which is also refer to as exploratory and exploitive innovation, and team innovation performance.

The Organization for Economic Cooperation and Development (OECD) has identified different pillars for innovation performance. It states:

Innovation consists of all those scientific, technical, commercial and financial steps necessary for the successful development and marketing of new or improved manufactured products, the commercial use of new or improved processes or equipment or the introduction of a new approach to a social service. R &D is only one of these steps. OECD (1981:15-16)

However, most studies on organizational innovation have shown huge variations when measuring innovation performance. Although academics and managerial practitioners have focused on innovation as a capacity for organizational growth, they have paid less attention to the development of a way to measure innovation within different contexts such as the organizational level, the team level, the individual level, and climate support for innovation. Their efforts became problematic when they tried to identify and operationalize organizational or team level innovation performance. Therefore, they came up with different irrelevant proxy measurements to capture innovation performance (Neely & Hii, 1998). They tried to use R &D spending, the number of new products offered, the new IPs registered, and the company's current financial performance to quantify innovation on different levels. However, these indicators alone can be considered an inaccurate matrices and can generate misleading findings and inconsistent results.

Innovation is clearly not a homogenous construct that is easy to operationalize (Anderson, et al., 2004). The complex nature of innovation requires an ambidextrous mindset to make past performance not enough of a measurement to quantify innovative performance (Van de Ven, Polley, Garud, & Venkataraman, 2008). Innovation is driven by the future. Therefore, for a higher quality and more relevant measure, innovation should be operationalized to cover activities that will impact future innovative outcomes (Junni, Sarala, Taras, & Tarba, 2013; Raisch & Birkinshaw, 2008). It should include a multi-level analysis with dual activities within a supportive organizational climate environment (Cao, Gedajlovic, & Zhang, 2009; Gibson & Birkinshaw, 2004; He & Wong, 2004). Innovation should simultaneously explore new capabilities, exploit existing competences at the organizational level (Benner & Tushman, 2003; Gupta, Smith & Shalley, 2006; O'Reilly & Tushman, 2004). It should also look at ideation and

the implementation of complete business cases at team level (Anderson, et al., 2014; West & Farr, 1990).

Operational definition of organizational innovation performance. Innovation has become a somewhat generic term. Organizations use innovation as a buzz word to create attention and describe their own activities or competencies. For example, they describe employees' creativity, new inventions, or even the technology driven infrastructure as a form of innovation (Dobni, 2008). For the purposes of this research, the organizational innovation construct will be defined more precisely as a multi-dimensional context.

Participants will be asked to provide information about exploratory and exploitative innovation at the organization level. To do this, they will use exploratory and exploitive innovation scales that have been adapted from Jansen, Van Den Bosch, and Volberda, (2006). The Cronbach's alpha of the exploratory innovation scale is 0.91. It includes six items which will capture the extent to which organizations renew their existing knowledge so that they can tackle future opportunities by pursuing potential innovations that can be found in emerging customers and markets. Samples of exploratory innovation items include: "Our organization accepts demands that go beyond existing products and services," "We frequently utilize new opportunities in new markets," and "Our organization regularly uses new distribution channels." For exploitive innovation scale, Cronbach's alpha was 0.88. It also include six items which capture the extent to which organizations build upon existing capabilities and improve their current business performance by pursuing incremental enhancements that meet the needs of existing offerings available to current customers and markets. Samples of exploitive innovation items include: "We regularly implement small adaptations to existing products and services," "We introduce improved, but existing products and services for our local market," and "We

increase economies of scales in existing markets.” All items for these two scales will be measured on a seven-point scale, anchored by 1 (strongly disagree) and 7 (strongly agree).

The organizational ambidexterity measure which will be used as a proxy for organizational innovation performance in this study has been conceptualized as a multidimensional construct comprised of a combination of adaptability (explorative innovation) and alignment (exploitive innovation). Computing the multiplicative interaction between exploratory and exploitative innovation brings up arguments that both are interdependent dimensions and cannot substitute for each other (Gibson & Birkinshaw, 2004). Therefore, the multiplicative interaction of these two capacities can indicate the organizational ambidexterity level. Organizational innovative performance is highest when both explorative and exploitative innovation are high and when compared to low levels of one or both dimensions (He & Wong, 2004; Jansen Volberda, & Van Den Bosch, 2005; Simsek, Heavey, Veiga & Souder, 2009).

Operational definition of team innovation performance. The main stages of the team innovation process involve both ideation and implementation activities (Coyne et al., 2007; Gebauer et al., 2012; Stamm, 2009). Therefore, team members will be asked to rate their team innovative performance by rating this dual outcome using a validated and reliable scale developed by Welbourne, Johnson, and Erez (1998). The four items for innovation performance will be presented after the participants are asked to think about their job tasks, responsibilities and team projects and to consider how they would rate their team performance. With these thoughts in mind, the items that they will be asked to rate themselves on include “Coming up with new ideas,” “Working to implement new ideas,” “Finding improved ways to do things,” and “Creating better processes and routines.” The items will be answered on five-point Likert scales ranging from 1 (needs much improvement) to 5 (excellent). The Cronbach’s α for the

scale is 0.92. Welbourne et al. (1998) showed that employee self-reported innovative performance correlated positively with an objective measure of innovation. In addition, previous team innovation performance and leadership studies have used this practical and short measurement successfully (Bono & Judge, 2003; Chen, 2005).

Moderating Variables

The moderating variable for this study is innovation climate. Climate is a concept that interprets and describes the psychological atmosphere of an organizations (James, James & Ashe, 1990). It can be defined as the shared expectations and perceptions of the employees toward policies, practices, and procedures as well as the observed behaviors related to being supported and rewarded by the organizations they work for (Ostroff, Kinicki & Tamkins, 2003). It represents the explicit and implicit signals employees receive concerning organizational expectations with regard to behaviors and the potential outcomes of doing such behaviors.

Operational definition of supportive innovation climate. The supportive climate for innovation was operationalized and developed by Scott and Bruce (1994). It includes 16 items which measure the degree to which individuals view the organization they work for as being open to change, the degree of support an organization provides its employees when taking initiative and exploring innovative approaches. The climate measure includes two main sets of items. The first set includes items that support for creativity. Some examples are: “Our ability to function creatively is respected by the leadership,” “This organization publicly recognizes those who are innovative.” The second set consists of tolerance of differences. Some examples are: “The reward system here benefits mainly those who don't rock the boat,” “The best way to get along in this organization is to think the way the rest of the group does.” Both of these sets that measure innovation climate can capture the variation in employee's perceptions for the level of

innovation expected in the organization (Martins & Terblanche, 2003). Each item is rated on a scale from 1 (strongly disagree) to 5 (strongly agree). Scott and Bruce (1994) showed a satisfactory factorial validity and reliability for this measure. The Cronbach's alpha coefficient for supportive innovation climate is .92.

Potential Control Variables

Researchers emphasize using control variables to help avoid coming up with misleading findings (Bernerth & Aguinis, 2016). For this reason, relevant variables associated with innovation and leadership have been added to control the study. The analyses should be conducted with and without the controls to make sure there is no change in the resulting explanation. Otherwise, a possible alternative explanation could potentially be revealed when including a control variable in the study. As concluded in the previous chapter, innovation can be influenced by different demographical factors and can be affected rated scores such as the gender of the CEO or team leader. The industry that the organization belongs to can affect the innovation levels they are trying to achieve. The function that participants are performing in the company may have different innovation level requirements compared to other functions which may have fixed operations. If this is the case, participants may just try to focus on implementation and operation rather than on exploring new things. The size of the firm may also affect the climate that supports innovation. The firm's age can also affect innovation. Younger firms usually have a better innovative outcomes than do older ones.

In terms of demographics, participants will report the following: "CEO gender (1 = male and 2 = female)," "Team leader/ Supervisor gender (1 = male and 2 = female)." "Organization industry (1 = transportation, 2 = technology, 3 = healthcare, 4 = finance and insurance, 5 = education, 6 = manufacturing, and 7 = others)." "Participant function (1 = sales and marketing, 2

= manufacturing / operations, 3 = R&D, 4 = finance, 5 = human resource, 6 = management / administration, and 7 = others).” “Size of the organization calculated by number of employees (1 = 100-500, 2 = 501-5000, and 3 = more than 5000).” “Age of the firm in years (1 = 3-5, 2 = 5-10, 3 = older than 10).”

Data Analysis

The study objective for this research is to see whether transformational and ambidextrous leadership behavior selection that is moderated by a support innovation climate has a significant influence on firm innovation performance. All study data will be analyzed using SPSS statistical software. Multiple regression and hierarchical linear regression statistical techniques and simple slope analyses will be used to test all hypotheses listed in Chapter 2 and to examine the interactions produced by the proposed research model.

CHAPTER IV

Results

This chapter presents the statistical results of this research study. The results are based on surveys distributed to team members working in various departments and industries in the United States. This research study's six hypotheses were designed to predict the relationship between leadership behavior selection (transformational and ambidextrous) and two levels of innovation performance (organizational innovation and team innovation) when they are combined with organizational climate support for innovation practices. Data collection, demographical descriptions, validity, reliability and general linear model analyses will be discussed in detail in this chapter.

Data Collection/Survey Issues

Three hundred twenty-seven surveys from more than nine industries and seven departments were collected using a Qualtrics research panel over a thirty-day period during November and December of 2016. All the surveys that were received met the selection criterion. However, some surveys showed suspicious validity (i.e., straight lining, non-logical and random answers). A decision was made to delete these surveys of these participants from the statistical analysis. Therefore, after discarding the invalid surveys, the overall sample size dropped from 327 to 215, which exceeded the suggested sample size requirement of 212 (see Table 3).

Table 3 include the frequency descriptive of the demographical variables of the participants (i.e. age, age of the organization, organization size, gender, supervisor gender, CEO gender, industry, and department).

Table 3

Descriptive Table of the control Variables^a

Age	Age of the participants	
	<i>n</i>	%
18 – 24	10	4.7
25 – 34	87	40.5
35 – 44	61	28.4
45 – 54	33	15.3
55 – 64	24	11.2
Years in business	Age of the companies	
	<i>n</i>	%
3 – 5	7	3.3
5 – 10	15	7.0
> 10	193	89.8
Number of employees	Size of the companies	
	<i>n</i>	%
100 – 500	49	22.8
501 – 5000	75	34.9
> 5000	91	42.3
	Gender of participants	
	<i>n</i>	%
Male	49	22.8
Female	166	77.2
	Gender of supervisors	
	<i>n</i>	%
Male	122	56.7
Female	93	43.3
Group	Gender of CEOs	
	<i>n</i>	%
Male	197	91.6
Female	18	8.4

	Industries of the participants	
	<i>n</i>	%
Education	6	2.8
Fast-moving consumer goods (FMCG)	24	11.2
Finance/insurance	25	11.6
Health care	32	14.9
Technology/communication	25	11.6
Transportation	4	1.9
Professional services	15	7.0
Manufacturing	21	9.8
Utilities	7	3.3
Other	56	26.0

	Departments of the participants	
	<i>n</i>	%
Sales/marketing	24	11.2
Finance/accounting	19	8.8
Human resources	8	3.7
Management/administration	37	17.2
Manufacturing	7	3.3
Operations	55	25.6
Research and development (R&D)	7	3.3
Other	58	27.0

Note. ^a *n*=215

Participant Response Descriptive Statistics

To increase the generalizability of the results, the sample was collected from industries involved in technology, communication, health, education, and transportation and from departments dealing with R&D, marketing, finance, sales, and operations within these organizations. Figure 9 presents the descriptive statistics associated with industries and departments.



Figure 9. Industries and Departments

The age groups of participants ranged from 18 - 64 years old. The majority of the respondents were millennials (45.2 %) who are 18 - 34 years old. The ages of generation X (38.7 %) ranged from 35 - 54 years old. The least represented group was baby boomers (11.2 %) ranged from 55 - 65 years old. These participation percentage findings are justifiable as the target sample is made up of team members who are mostly millennials in junior positions who have recently entered the workforce. Moreover, millennials have a tremendous appetite and courage when giving their opinions about their workplace conditions (Smola & Sutton, 2002; Calhoun, 2005).

The size of the companies represented in this study ranges from medium- to large-sized companies. The largest portion of the respondents were working in large size organizations. Specifically, 42% of the sample were companies which had more than 5000 employees whereas medium-sized companies which had 100 - 500 employees were represented by only 23% of the total sample in this study (see Figure10).

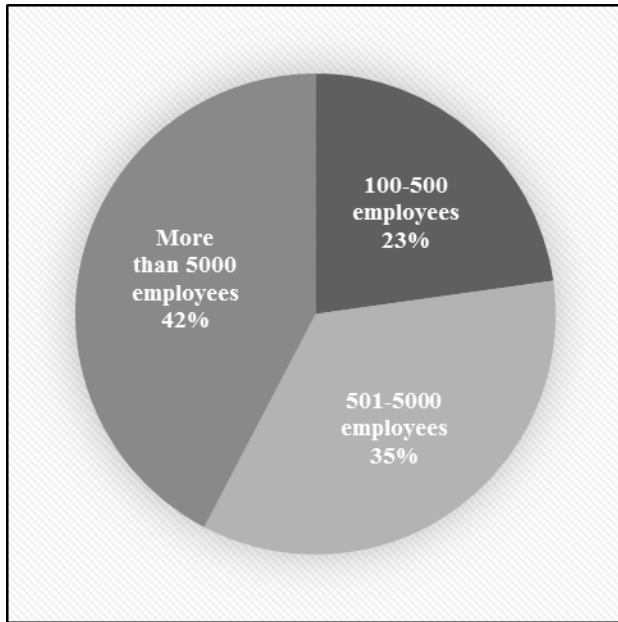


Figure 10. Organizational Pie Chart for the Collected Sample

The 215 participants in this study were drawn from a nationwide sample. The gender representation at the different organizational levels of the sampled varied. Most of the sample's CEOs were male ($M=197, F=18$) while most of the respondents who were team members were female ($M=49, F=166$). A representation similar to the CEOs was observed in middle management ($M=122, F=93$), which confirms the trend of employing males in higher level leadership positions (see Figure 11).

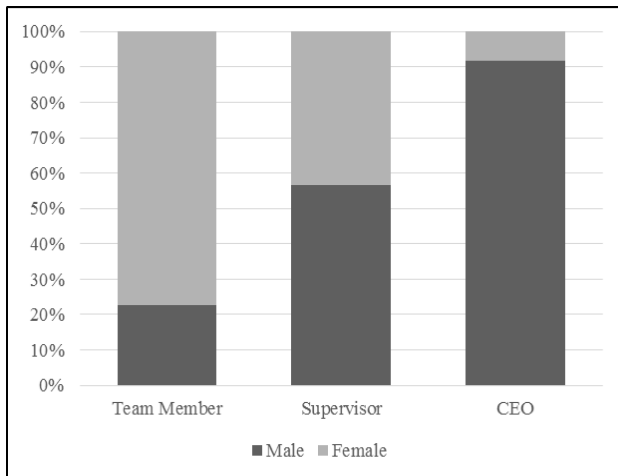


Figure 11. Gender Representation in Different Levels

To control for possible alternative explanations, relevant control variables have been included in the study. Industry, department, and size of the organization were tested using an ANOVA statistical technique which compared groups and checked to see if there were significant mean differences in the outcome variables. Findings confirmed that there were no significant mean differences in innovation performance at both team level and organizational level ($p > .05$). However, the gender of the CEOs and gender of supervisors will be included in the regression models.

Reliability and Validity

Survey instruments were subjected to Cronbach's Alpha reliability testing using SPSS to determine the inter-item reliability of the questionnaire. Cronbach's Alpha values above 0.7 are considered acceptable for research (Nunnally, 1978). Furthermore, Bacon, Sauer, and Young (1995) suggest combining validity and reliability statistics together for reporting purposes because assessing the overall model fit of the instrument is more dependable than when assessing reliability values alone.

The study instruments were subjected to a Confirmatory Factor Analysis (CFA) statistical technique using SPSS/AMOS statistical software to determine their validity and to verify the factor structure of the observed variables. According to Hu and Bentler (1999); Marsh, Hau, Balla, and Grayson (1998), and Marsh, Hau, and Wen (2004), the following CFA values are considered acceptable ranges. (Cmin/Df) is good when lower than 3. This has been confirmed by Kline (1998) and Ullman (2003). Confirmatory Factor Index (CFI) is great when more than .95 and considered permissible when lower than .80. However, Byrne (1994) considered the CFI to be a great fit when it is equal to or more than .93. The Root Mean Square Average (RMSEA) is good when lower than .05 and considered moderate when it is .05-.10. Browne and Cudeck,

(1993) considered RMSEA to be a good fit when it is equal to or less than .08, especially with a large sample size.

Examining the Multifactor Leadership Questionnaire (MLQ). The Multifactor Leadership Questionnaire (MLQ) is the instrument used for measuring transformational leadership instrument. The Cronbach's Alpha value for the MLQ was .95, which is higher than the minimum reliability threshold. In contrast, an integrated CFA on the items of all scales, where each item constrained to load only on the factor for which it is the proposed indicator, yields an acceptable data fit ($\chi^2=365, \chi^2/df=2.4, p < .001$, comparative fit index [CFI] = 0.934, root-mean-square error of approximation [$RMSEA$] = .08). Therefore, CFA Model Fit statistics meet the accepted thresholds and the factor structure is confirmed.

Examining organizational innovation using explorative and exploitative innovation instruments. The Cronbach's Alpha value for the explorative innovation was .85, which is higher than minimum reliability threshold. In contrast, an integrated CFA on the items of all scales, where each item constrained to load only on the factor for which it is the proposed indicator, yields an acceptable data fit ($\chi^2=7.58, \chi^2/df=1.083, p = .371$, comparative fit index [CFI] = 0.99, root-mean-square error of approximation [$RMSEA$] = .02). Therefore, CFA Model Fit statistics meet the accepted thresholds and the factor structure is confirmed. While the Cronbach's Alpha value for exploitative innovation was .84, which is higher than the minimum reliability threshold and the integrated CFA on the items of all scales, where each item constrained to load only on the factor for which it is the proposed indicator. Yields an acceptable fit to the data ($\chi^2=11.89, \chi^2/df=1.69.4, p = .104$, comparative fit index [CFI] = 0.98, root-mean-square error of approximation [$RMSEA$] = .05). Therefore, CFA Model Fit statistics meet the accepted thresholds and the factor structure is confirmed. For the multiplicative product term

exploratory and exploitative innovation, the Cronbach's Alpha value was .91, which is higher than the minimum reliability threshold and the CFA Model Fit statistics also meet the accepted thresholds ($\chi^2=104$, $\chi^2/df = 2.376$, $p < .001$, comparative fit index [CFI] = 0.95, root-mean-square error of approximation [$RMSEA$] = .08). The factor structure is confirmed as a proxy for organizational innovation performance.

Examining the innovation climate instrument. The Cronbach's Alpha value for innovation climate was .94, which is higher than minimum reliability threshold. In contrast, an integrated CFA on the items of all scales, where each item constrained to load only on the factor for which it is the proposed indicator, yields an acceptable fit to the data ($\chi^2=181$, $\chi^2/df = 2.06$, $p < 0.001$, comparative fit index [CFI] = 0.96, root-mean-square error of approximation [$RMSEA$] = .07). Therefore, CFA Model Fit statistics meet the accepted thresholds and the factor structure is confirmed.

Examining the ambidextrous leadership using opening and closing behaviors instruments. The Cronbach's Alpha value for the opening behaviors (OB) was .89, which is higher than minimum reliability threshold. In contrast, an integrated CFA on the items of all scales, where each item constrained to load only on the factor for which it is the proposed indicator, yields an acceptable fit to the data ($\chi^2=9.66$, $\chi^2/df = 1.074$, $p = .378$, comparative fit index [CFI] = 0.99, root-mean-square error of approximation [$RMSEA$] = .019). Therefore, CFA Model Fit statistics meet the accepted thresholds and the factor structure is confirmed. While the Cronbach's Alpha value for the closing behaviors (CB) innovation was .85, which is higher than minimum reliability threshold and the integrated CFA on the items of all scales, where each item constrained to load only on the factor for which it is the proposed indicator, yields an acceptable data fit ($\chi^2=13.44$, $\chi^2/df = 1.034$, $p = .414$, comparative fit index [CFI] = 0.99, root-mean-square

error of approximation [$RMSEA$] = .013). Therefore, CFA Model Fit statistics meet the accepted thresholds and the factor structure is confirmed. For the multiplicative product term opening and closing behaviors, The Cronbach's Alpha value for innovation climate was .85, which is higher than minimum reliability threshold. The CFA Model Fit statistics also meet the accepted thresholds ($\chi^2=133$, $\chi^2/df = 1.96$, $p < .001$, comparative fit index [CFI] = 0.96, root-mean-square error of approximation [$RMSEA$] = .067). The factor structure is confirmed as a proxy for ambidextrous leadership behaviors.

Examining the team innovation performance instrument. The Cronbach's Alpha value for the team innovation was .92, which is higher than minimum reliability threshold. In contrast, an integrated CFA on the items of all scales, where each item constrained to load only on the factor for which it is the proposed indicator, yields an acceptable data fit will ($\chi^2=1.14$, $\chi^2/df = 1.14$, $p = 2.86$, comparative fit index [CFI] = 0.99, root-mean-square error of approximation [$RMSEA$] = .026). Therefore, CFA Model Fit statistics meet the accepted thresholds and the factor structure is confirmed.

Hypotheses Testing

A regression analysis was used to test whether the transformational leadership behaviors of the CEOs and the organizational climate that supports innovation predicted organizational innovation performance. It was also used to test whether the opening and closing behaviors of supervisors in combination with the organizational climate supported innovation that could predict team innovation performance.

Cohen, Cohen, West, and Aiken (2013) confirm that before proceeding with the regression analysis, a check for outliers and regression assumptions must be done using statistical testing (As shown in Appendix E). The maximum value of Cook's Distance of the

collected data was (.11) at both levels of the analysis. The acceptable value of Cook's Distance must be less than (1.0) to exclude the existence of outliers. Therefore, there are no influential outliers in the data set ($n=215$), taking into consideration both the predictors and the criterion. Regression assumptions also need to be checked before proceeding with the analysis. The normality of the residuals assumption was not violated, nor was the homoscedasticity assumption. With regards to the linearity relationship of the independent variables and dependent variables all scatter plots and the LOESS estimate confirm the linear relationship of independent and dependent variables. Therefore, there was no violation of the linearity assumption of the predictors. The last assumption is collinearity between predictors. There was no collinearity problems between predictors. All tolerance values were higher than the threshold value (.1), and the VIF statistical values were less than the cut off (10) which shows that the inter-correlation of the predictors is within the acceptable range.

Table 4 presents the descriptive statistics and correlations for the study variables. Table 5 presents the results of the regression analyses for innovation at organizational level, and Prior to the creation of the interaction terms, the independent variables were mean centered to mitigate the inter-correlation effect of the predictors (Aiken & West, 1991). Baseline Models 1, 2, 3, and 4 contain the control variables. Models 2, 3, and 4 introduce the effects of the transformational leadership behaviors of the CEO. Models 3 and 4 introduce the direct effects of organizational climate, the moderator variable, which supports innovation. Finally, Model 4 examines the potential interaction effects of supportive climate.

Table 4

Correlations, Means and Standard Deviations^a

	<i>M</i>	<i>SD</i>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) CEO gender ^b	1.08	.28	1.00								
(2) Supervisor gender ^b	1.43	.50	.04	1.00							
(3) Transformational CEO	3.50	.89	.03	-.14*	1.00						
(4) Opening behaviors	3.51	.90	.06	-.14*	.51**	1.00					
(5) Closing behaviors	3.56	.82	-.02	-.08	.41**	.22**	1.00				
(6) Ambidextrous supervisor	12.65	4.64	.01	-.16*	.60**	.81**	.72**	1.00			
(7) Climate	3.49	.87	.09	-.17*	.67**	.62**	.22**	.55**	1.00		
(8) Organizational innovation	28.00	10.48	.00	-.22**	.61**	.49**	.30**	.52**	.58**	1.00	
(9) Team innovation	3.57	1.05	-.05	-.23**	.46**	.61**	.30**	.59**	.50**	.46**	1.00

Note .^a *n* = 215, ^b 1 = male, 2 = female, **p*<.05, ***p*<.01

Table 5

Results of Hierarchical Regression Analyses: Effects of Transformational Leadership and a Supportive Climate on Organizational Innovation^a

	Organizational Innovation			
	Model 1	Model 2	Model 3	Model 4
<i>Control variables</i>				
CEO gender ^b	.00	-.02	-.04	-.04
<i>Leadership effect</i>				
Transformational CEO		.61***	.40***	.39***
<i>Moderator effect</i>				
Climate			.31***	.29***
<i>Interaction effect</i>				
Transformational CEO*Climate				-.05
R ²	.00	.37***	.42***	.42***
ΔR^2	.00	.37***	.05***	.00

Note. $n = 215$, ^a standardized regression coefficients are reported. ^b1 = male, 2 = female, * $p < .05$, ** $p < .001$, *** $p < .0001$

According to the standardized regression coefficients in Table 5, the findings in the Model 4 show that the gender of the CEO's has no significant influence on organizational innovation performance ($\beta = -0.04$, $p > .05$). In contrast, the proposed positive relationship between the transformational leadership behaviors of the CEO and organizational innovation (Hypothesis 1) is statistically supported ($\beta = 0.39$, $p < .001$). When the transformational leadership of the CEO was entered in Model 2, the change in effect size (ΔR^2) was (37%). In addition, organizational climate, the moderator variable, also has a significant positive relationship with organizational innovation performance ($\beta = 0.29$, $p < .001$). When this variable entered in Model 3, the change in the effect size (ΔR^2) was (5%). However, the interaction effect of the transformational leadership of the CEO and the organizational climate was not significant ($\beta = -$

.05, $p > .05$). This non-significant finding does not support Hypotheses 2 which proposed that organizational climate moderates the relationship between the transformational leadership of the CEO and organizational innovation such that a higher level of innovation climate strengthens the positive relationship between the CEOs transformational leadership and organizational innovation.

The final effect size of the total model is large and significant ($R^2 = .42$, $p < .0001$). This means that 42% of the variance in organizational innovation performance is explained by the main predictors, the transformational leadership behaviors of the CEO and the organizational climate that supports innovation. In addition, the β weight of the transformational leadership of the CEO ($\beta = .39$) is higher than that of organizational climate ($\beta = .29$). Therefore, the influence of the transformational leadership behaviors of the CEO is stronger than the influence of the organizational climate when predicting organizational innovation performance.

Table 6 presents the results of the regression analyses for innovation at team level. Prior to the creation of the interaction terms, the independent variables have been mean centered to mitigate the inter-correlation effect of the predictors (Aiken & West, 1991). The baseline Models 1, 2, 3, 4, and 5 contain the control variables. Models 2, 3, 4, and 5 introduce effects of opening behaviors of the team leader and Models 3, 4, and 5 introduce the direct effects of the moderator variables, the closing behaviors and organizational climate that supports innovation. Finally, Models 4 and 5 examine the potential interactions effects of closing behaviors and supportive climate.

Table 6

Results of Hierarchical Regression Analyses: Effects of Opening Behaviors, Closing Behaviors and a Supportive Climate on Team Innovation^a

	Team Innovation				
	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Control variables</i>					
Supervisor gender ^b	-.23***	-.15**	-.14**	-.13*	-.13*
<i>Main predictor</i>					
Opening behaviors		.59***	.55***	.46***	.45***
<i>Moderators effect</i>					
Closing behaviors			.16**	.15**	.20**
Climate				.16*	.18*
<i>Interaction effect</i>					
Opening*Closing					.00
Opening*Closing*Climate					-.09
R ²	.05**	.39***	.41***	.43***	.43***
ΔR^2	.05**	.34***	.02**	.02*	.00

Note. $n = 215$, ^a standardized regression coefficients are reported. ^b1 = male, 2 = female, * $p < .05$, ** $p < .001$, *** $p < .0001$

According to the standardized regression coefficients in Table 6, the findings in the Model 5 show that the gender of the supervisor has a significant negative influence on team innovation performance ($\beta = -0.13$, $p < .05$). When this variable was entered in Model 1, the change in effect size (ΔR^2) was (5%), which means female supervisors may impact team innovation performance in negative way. This finding is valid on both male and female team members. A split file regression technique confirmed that both male and female team members have the same reaction to the female team leaders when it comes to the team innovation performance. In contrast, the proposed positive relationship between opening behaviors of the supervisor and team innovation as suggested in Hypothesis 3 is statistically supported ($\beta = 0.45$,

$p < .001$). When this variable was entered in model 2, the change in effect size (ΔR^2) was (34%). In addition, both closing behaviors, the moderator variable put forth in Hypothesis 4, and organizational climate have a significant positive relationship with team innovation performance ($\beta_{closing}=0.20, p < .01$, and $\beta_{climate}=0.18, p < .05$). Therefore, Hypothesis 4 is also supported. When these variables were entered in Model 3 and Model 4, the change in effect size (ΔR^2) was (2%). However, the interaction effect of the opening and closing behaviors of the supervisors in addition to the interaction between them and the organizational climate was not significant ($\beta_{OB*CB}=0.00$ and $\beta_{OB*CB*CL}=-.09, p > .05$). This non-significant finding failed to support Hypothesis 5 and Hypothesis 6, which proposed that the interaction between the team leaders' opening behaviors (OB) and closing behaviors (CB) would have a positive impact on team innovation performance and that organizational climate would moderate this relationship.

The final effect size of the total model is large and significant ($R^2 = .43, p < .0001$), which means 43% of the variance in team innovation performance is explained by the opening and closing behaviors of the supervisor, and the organizational climate that supports innovation. Compared to other predictors, the β weight of the opening behaviors of the supervisor ($\beta = .45$) is the highest. The other predictors have smaller β weights ($\beta_{closing} = .20, \beta_{climate} = .18$). Therefore, the influence of the opening behaviors of the supervisor is at least twice as strong as the influence of the rest of the model variables in predicting the team innovation performance.

Other Results

The post hoc analysis showed the gender of the supervisors became another influential factor, ($\beta_{gender} = -.13, P < .05$). Somehow, female team leaders may hinder team innovation outcomes. This negative influence valid despite of team member gender.

The results of this study also showed that there are no significant interactions between climate and transformational leadership at organizational level or between opening and closing behaviors at team level. However, ambidextrous leadership was recalculated by computing the multiplicative scale between opening and closing behaviors as a new scale without mean centered the variables. This brings up arguments that both (opening and closing behaviors) are independent dimensions and cannot substitute for each other (Zacher et.al, 2016). Therefore, the multiplicative scale of these two behaviors can indicate ambidextrous behaviors such that team innovative performance is highest when both opening and closing behaviors are high when compared to low levels of one or both dimensions (Zacher & Rosing, 2015). Hence, team leader ambidextrous leadership is introduced as a multiplicative product term rather than an interaction term since closing behaviors do not moderate the opening behaviors, and they are a significant main predictor for the collected sample.

Table 7 presents the new results of the multilevel regression analyses for both organizational and team innovation performance. At organizational level, the predictors entered the hierarchical regression analysis are CEO gender, transformational leadership, and organizational climate. Nevertheless, at team level, the predictors entered the hierarchical regression analysis are supervisor gender, ambidextrous leadership, and organizational climate.

Table 7

Multi Levels Results of the Two Hierarchical Regressions: Organizational Innovation and Team Innovation^a

	Organizational Innovation		Team Innovation	
	Model 1	Model 2	Model 1	Model 2
<i>Control variables</i>				
CEO gender ^b	.00	-.04		
Supervisor gender ^b			-.23**	-.12*
<i>Main Predictors</i>				
Transformational CEO		.40***		
Ambidextrous supervisor Climate				.44***
		.31***		.24***
R ²	.00	.42***	.05**	.41***
Δ R ²	.00	.42***	.05**	.36***

Note. $n = 215$, ^a standardized regression coefficients are reported. ^b1 = male, 2 = female, * $p < .05$, ** $p < .001$, *** $p < .0001$

According to the standardized regression coefficients in Table 7, findings at the organizational level show that the CEO gender has no significant effect on organizational innovation performance ($\beta = -.04, p > .05$). In contrast, the transformational leadership of the CEO and the organizational climate have a positive and significant effect on organizational innovation. ($\beta_{transformational} = 0.40, \beta_{climate} = 0.31, p < .0001$). The final effect size of the total model is large and significant ($R^2 = .42, p < .0001$), which means 42% of the variance in organizational innovation performance is explained by the main predictors which are transformational leadership and organizational climate that supports innovation. In addition, the β weight of the transformational leadership of the CEO ($\beta = .40$) is the higher than the β weight of the organizational climate ($\beta = .31$). Therefore, the influence of the transformational behaviors of the

CEO is stronger than the influence organizational climate in predicting organizational innovation performance.

In contrast, findings at the team level show that the gender of the supervisor has a significant effect on team innovation performance ($\beta = -.12, p < .01$). Furthermore, the ambidextrous behaviors of the supervisor and the organizational climate have a positive and significant effect on team innovation. ($\beta_{ambidextrous} = 0.44, \beta_{climate} = 0.24, p < .0001$). The final effect size of the total model is large and significant ($R^2 = .41, p < .0001$), which means 41% of the variance in team innovation performance is explained by the main predictors which are supervisor gender, ambidextrous leadership and organizational climate that supports innovation. In addition, the β weight of ambidextrous leadership of the CEO ($\beta = .40$) is higher than the rest of the predictors' β weights ($\beta_{gender} = -.12, \beta_{climate} = 0.24$). Therefore, the influence of the ambidextrous leadership of the team supervisor is stronger than the influence of both supervisor gender and organizational climate in predicting the team innovation performance. Figure 12 shows the linear positive impact of both levels predictors on innovation performance.

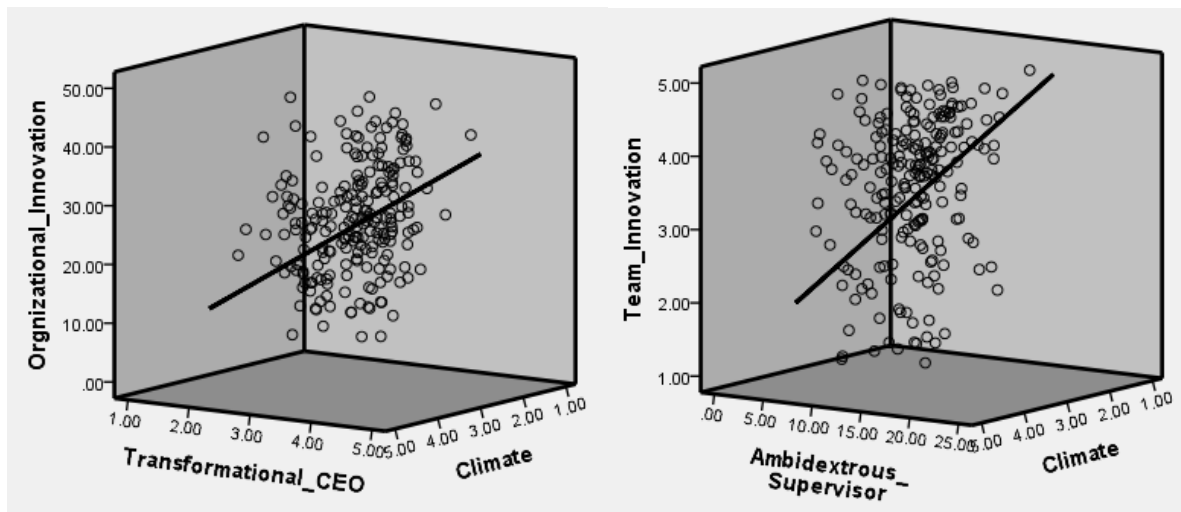


Figure 12. Scatter Plot of the Main Predictors and the Criterion in Both Levels

Finally, Figure 13 shows the new model that results from the interpretation of the impact of the multilevel regression analyses for both organizational and team innovation performance. At organizational level, the main model predictors are the transformational leadership of the CEO and the organizational climate that supports and promotes innovation practices. At the team level, the main model predictors are the ambidextrous leadership (the multiplicative product term of two scales opening and closing behaviors of the team supervisor) and the organizational climate that supports and promotes innovation practices.

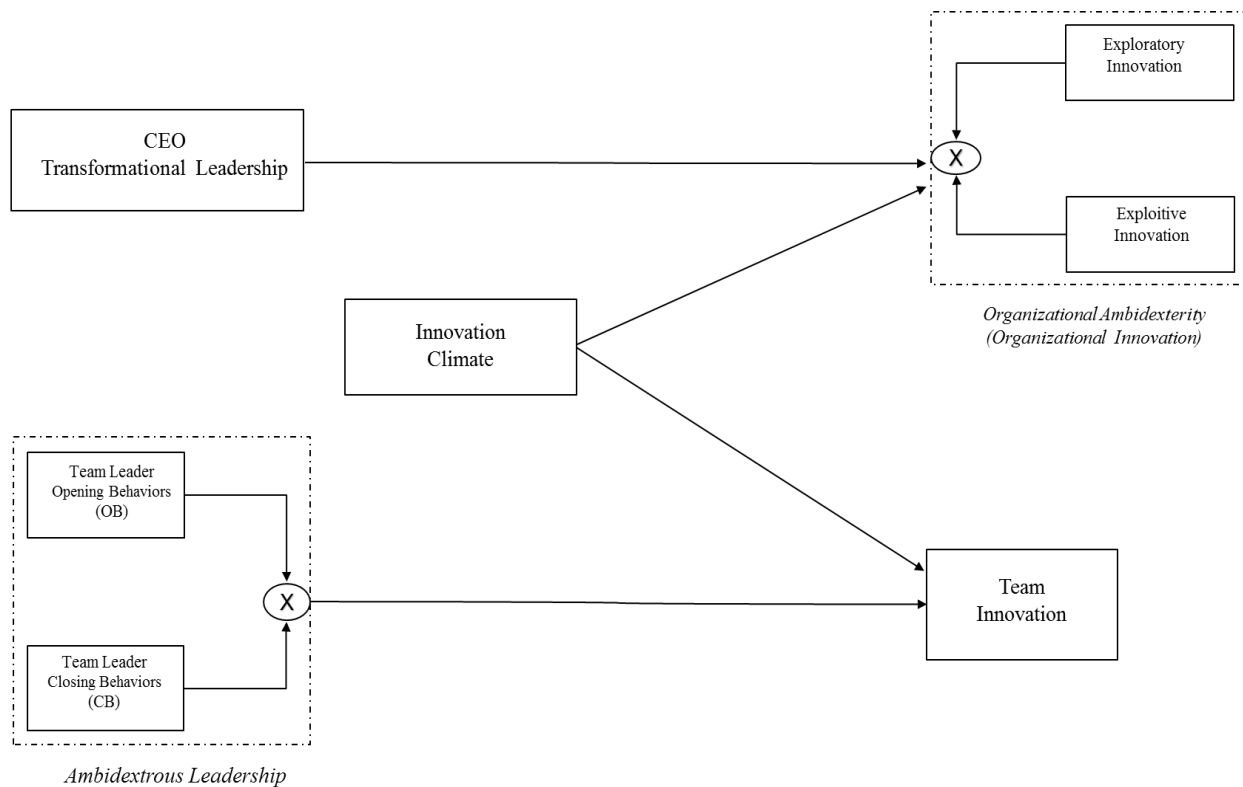


Figure 13. The New Confirmed Multilevel Model for Strategic Innovation Leadership

CHAPTER V

Discussion

This chapter discusses the findings of this research study, which are based on the statistical results presented in chapter four. Key findings related to the influence of opening and closing behaviors on innovation performance, the effect of transformational and ambidextrous leadership on fostering innovation activities, and the impact of organizational climate on innovation outcomes are presented. In addition, the theoretical and practical implications of this research study, future research suggestions, and the final conclusion of the study are detailed in this chapter.

Key Findings

Six research hypothesis were tested. They examined the roles that leadership behaviors and organizational climate play with regard to innovation performance at multiple levels. Specifically, two models were investigated. The first model looked at the organizational level. It examined how the transformational leadership behaviors of the CEO influence organizational innovation when combined with the moderating effect of organizational climate. The second model considered the team level. It examined the role of the ambidextrous leadership of the team leader as s/he influences team innovation performance in combination with the moderating effect of organizational climate.

The tested data was high quality and collected according to the scientific academic research standards. Advanced filtering methods were used to discard invalid answers. The 215 respondents in this study represented a variety of industries, departments, organizational sizes, and age groups. The gender distribution of the middle management supervisors was almost equally represented in the collected sample. However, the gender distribution of the team

members and the CEOs was not equal. Most of the team members were female while most of the CEOs were male. This phenomena reflects the gender gap argument in the executive suite (Oakley, 2000; Ragins, Townsend, & Mattis, 1998). In addition, female employees tend to participate in surveys more and express their feelings about their workplace more than males employees do (Simon & Nath, 2004), which can justify the female dominance in the collected sample.

The instruments used to measure study variables showed high reliability and validity rates. In addition, there were no influential outliers as well as no violations of linearity, homoscedasticity, or the normality of the residual assumptions. As a result, the robustness of the statistical process for estimating the relationships among variables increased.

Innovation performance at the organizational level. One of the objectives of this research was to test whether the leadership style of a CEO could have a significant influence on innovation performance when it was in combination with exploration and exploitation activities. The findings showed statistically that the role of transformational leadership behaviors in influencing and fostering innovation performance at organizational level was significant. Those the CEOs who had a higher rate of transformational leadership behaviors played an important role in fostering organizational exploration and exploitation which contributed to organizational ambidexterity and, subsequently, boosted organizational innovation. In addition, the gender differences of the CEOs didn't have a significant impact on the prediction of organizational innovation. However, the small sample size of female CEOs compared to that of male CEOs may have affected this finding.

In general, transformational leaders can communicate pictures of what a company will be in the future. They make goals vibrant, alive, engaging, and tangible. Moreover, transformational

leadership style supports exploring new business concepts and exploiting the current ones in an effort to achieve breakthrough strategies and achieve a competitive advantage. It supports and emphasizes a focus on innovation as a strategy to enable innovation and entrepreneurial practices. This strongly established relationship aligns with many researchers arguments that transformational leaders can promote business innovation in their organizations.

The findings of the organizational climate predictor showed statistically that organizational climate had a significant positive influence on innovation performance at the organizational level. Organizational climate refers to the psychological environment and is reflected in employees' attitudes and shared perceptions of policies, practices, and procedures. It defines the quality of the internal environment of an organization and the motivation of employee behaviors toward innovation practices. These findings highlight the role of organizational climate as main predictor of innovation capacity for companies that want to create growth engines that use sustainable explorative and exploitive innovation strategies.

In contrast, the data analysis did not show that organizational climate and the transformational leadership of the CEO had a moderating effect on organizational innovation performance. The data analysis did not show that organizational climate and the transformational leadership of the CEO had a moderating effect on organizational innovation performance. This finding contradicts the proposed hypothesis regarding the moderation effect of organizational climate and disagrees with other researchers' arguments that the climate of an organization strengthens the relationship between transformational leadership and organizational innovation. The justification for this result is that organizational climate is more than just a moderating factor. It is a main predictor by itself and can predict organizational innovation as standalone factor.

In the U.S., where the sample was collected, transformational leaders play an important role in predicting innovation performance, specifically when interacting with face-to-face followers. While the existent organizational climate can motivate those workers and managers who have less direct interaction with the CEO, they live their day-to-day lives with the organizational climate and are inspired and motivated by the normalized policies, practices, and procedures which can energize and charge the exploration and exploitation activities in the organization. However, the statistical analysis showed that transformational leaders have greater influence on organizational innovation than organizational climate does. This results confirms the fact that many innovative U.S. corporations such as Apple, Boeing, hp, 3M, and Ford, which have successful innovation outcomes, are led by successful transformational CEOs.

In brief, at the organizational level of the first research model, transformational leaders can be innovation enablers. They can create tacit and intangible capabilities that help to achieve strategic innovation. In contrast, organizational climate showed that it had an explicit standalone impact on fostering exploration and exploitation activities at the organizational level. Specifically, when there is low face-to-face interaction with the CEO, organizational climate is considered a vital and sustainable influencer of innovation activities. Therefore, both the transformational leadership behaviors of the CEO and the climate of the organization are important predictors and can support the proposed prediction model of the organizational innovation performance.

Innovation performance at the team level. This research study also sought to test whether team leader opening behaviors (OB) and closing behaviors (CB) had a positive impact on team innovation performance and whether the interaction between team leader opening behaviors (OB) and closing behaviors (CB) had a significant impact on team innovation

performance. The statistical findings showed that both the opening behaviors and closing behaviors have a significant positive influence on team innovation outcomes. The opening behaviors supported the team ideation phase of the innovation process by finding different ways to accomplish tasks, encouraging risk taking, and making room for new ideas. In contrast, the closing behaviors supported the team implementation phase of the innovation process by controlling goal attainment, establishing routines, following the rules, and sticking to the plans. Thus, team supervisors should use both opening and closing behaviors according to the ideation and implementation requirements of a task.

Rosing et. al. (2011) showed a main effect for the opening behaviors, no main effect for the closing behaviors, and a significant interaction between opening behaviors and closing behaviors. Nevertheless, the results of this research showed that both opening and closing behaviors are main effects or predictors of team innovation. However, the interaction term is not statistically significant. This contradiction may be linked to the way in which ambidextrous leadership researchers collected their sample (Rosing et al, 2011; Zacher & Wilden, 2014; Zacher & Rosing, 2015). For their study, they collected data on ambidextrous leadership from German corporations and from a niche industry, Australian architectural firms. Their findings indicated that closing behaviors cannot influence team innovation alone. However, they can interact as moderators with opening behaviors and thus influence team innovation. Javidan and Dastmalchian (2009) applied the GLOBE STUDY culture clusters profiling and argued that German workers are influenced by the German mindset, which focuses on closing behaviors and getting the job done. As a result, team members are less sensitive to closing behaviors than they are to opening behaviors in fostering their team innovation performance because closing behaviors are already embedded in their mindset. In contrast, this study sample was collected

from American corporations. In the U.S., closing behaviors are not necessarily part of the American national culture like they are in Germany. Closing behaviors can help in influencing team innovation. They support execution and exploitation activities in the team implementation phase of the innovation process. However, they have less strength than the opening behaviors which support the ideation phase. Moreover, in other research, Zacher and Rosing (2015) collected data from Australian architectural firms. Architectural operations demand closing behaviors such as following the rules, meeting the deadlines, and avoiding risks or errors. By their very nature these behaviors are integral parts of architectural projects. Therefore, this argument sheds light on the generalizability problems of Zacher and Rosing's findings regarding ambidextrous leadership.

In contrast, the data analysis did not show that organizational climate had a moderating effect on opening behaviors and closing behaviors, which are the interaction terms in the team innovation model. Nevertheless, it showed the organizational climate had a significant main effect rather than a moderating effect. The climate of an organization can promote or poison the creativity of individuals as well as team innovation. The results of this research confirm that organizational climates that sponsor innovation practices impact team innovation outcomes. Organizations need to promote a climate for innovation. When a climate that supports innovation is absent, teams cannot function well or be motivated to achieve high levels of innovation performance.

Another interesting finding was the way gender differences related to predicting team innovation. The data confirmed that female team supervisors had a negative impact on team innovation performance while male supervisors had a positive impact on this relationship. The justification for this finding may be linked to differences in the leading behaviors of female team

leaders and those of male team leaders. Female supervisors are less comfortable with opening and strategic practices. Rather, they are more concerned with getting the job done. They are also more competitive and like to finish tasks in a timely manner. They prefer to follow the rules and dislike allowing errors or taking risks. These practices may limit the ideation outcomes of a team and affect the innovation performance as a result.

According to the research results, the opening and closing behaviors of a supervisor can play a significant role in predicting team innovation. In addition, the existent organizational climate can motivate team members. They can be inspired and motivated by policies and practices that support creativity and innovation. This in turn can foster their team innovation. However, the statistical analysis showed that the opening behaviors have twice the effect on organizational innovation when compared to the closing behaviors or organizational climate. This result confirms that using opening behaviors can play a significant role when contributing to team innovation in U.S. corporations.

In brief, at the team level in the second research model, both the opening behaviors and closing behaviors are not mutually exclusive factors. Either of them can increase team innovation levels. The gender of the team leader or supervisor can contribute positively to innovation if the supervisor is male. Organizational climate showed an explicit effect when influencing innovation performance at the team level. Therefore, opening behaviors, closing behaviors, supervisor gender, and the climate of the organization are important predictors and can support the proposed predation model of innovation performance at the team level.

Finally, using the ambidextrous leadership independent scale in a comprehensive statistical model, data analysis also confirmed that the transformational leadership behaviors of the CEOs can predict innovation at the organizational level. Ambidextrous leadership behaviors

of the team leaders can predict innovation outcomes at the team level. Nevertheless, organizational climate can foster innovation performance at both organizational levels.

Theoretical Implications of Study Findings

There has been a call from academic scholars for a comprehensive leadership model that illustrates how leadership behaviors strategically affect and foster innovation performance at the different levels of an organization. There have been no reports of empirical studies that show the effect transformational and ambidextrous leadership behaviors have on innovation performance when it is combined with a climate that supports innovation in one comprehensive model. There has also been a call to conduct more empirical research on ambidextrous leadership to increase its validity in more representative samples.

This findings of this study contribute to both the theories of leadership and of innovation. In addition, they identify the leadership behaviors that are effective in boosting innovation capacity in organizations. The findings of this study also examined and confirmed that transformational leadership and ambidextrous leadership work together to create a new strategic model that can foster innovation performance within a supportive organizational climate. It confirms the role that transformational leadership behaviors have with regard to organizational innovation performance, including exploration and exploitation activities. In addition to the impact of ambidextrous leadership in driving team innovation, this study is the first that has been conducted on American companies that examines and empirically confirms the theory that ambidextrous leadership has an influence on team innovation. In addition, it answers questions about the importance of the organizational climate in predicting innovation at both organizational and team levels.

Closing behaviors and organizational climate become main predictors. While Rosing et. al, (2011) showed no main effect for the closing behaviors and a significant interaction for opening behaviors and closing behaviors, the findings of this study offer another contribution to the theory of innovation and leadership by identifying closing behaviors as a significant main predictor of team innovation rather than as a moderator. In addition, the findings also identified organizational climate as a main factor in predicting innovation performance at both the organizational and team levels. These new inputs are justifiable because of the quality of the data selection and the diverse sample representation, together, they have increased the quality of the prediction model.

Capturing ambidextrous leadership behaviors as independent measurements.

Researchers claim the core concept of ambidextrous leadership manifests itself in using the opening and closing behaviors which can predict team innovation performance (Rosing et. al, 2011; Rosing & Zacher, 2016; Zacher & Wilden, 2014). As long as opening and closing behaviors increase, team innovation will increase (Zacher, Robinson, & Rosing, 2016). Studies show that team facilitators are not effective leaders for innovation projects unless they can balance the use of these behaviors in an intuitive way (Bonesso, Gerli, & Scapolan, 2014). However, there is no single independent scale that can measure and capture ambidextrous leadership variability.

Ambidextrous leadership includes multidimensional behaviors; that is, opening and closing behaviors. Therefore, the multiplicative scale of these two capacities can indicate the level of ambidextrous leadership. The ambidextrous level will go up as long as the level of the opening and closing behaviors goes up. Computing the product term of these two valid, reliable, and distinct scales brings up arguments that both are interdependent dimensions and cannot

substitute for each other. This was confirmed previously using the statistical analysis in chapter four.

This developed measurement contributes to the theory of leadership by identifying a simpler method to measure ambidextrous leadership as an independent construct. It embeds the opening and closing scales in one scale. Therefore, using this developed measurement in future research can reduce the interpretation complexity by referring to ambidextrous leadership as one scale rather than two separate sets of scales.

Managerial and Practical Implications of Study Findings

Managerial practitioners are concerned with gaining new insights into innovation leadership. They have been looking to identify a set of leadership behaviors that can promote successful innovation. They are anxious to know what the effective leadership behaviors can promote innovation capacity in companies.

The findings of this study can be used in leadership development programs to show how the transformational leadership behaviors of the CEO in conjunction with a supportive organizational climate can promote and foster innovation performance at the organizational level. The resulting model can also be used to develop training programs that can help team leaders to adopt behaviors that drive innovation capacity at the team level by showing how opening behaviors, closing behaviors, ambidextrous leadership, organizational climate, and the gender of the team leader or supervisor make direct contributions to team innovation performance. Both executives and team leaders can be trained in these skills so that they can boost the innovation performance of their teams as well as the innovation outcomes of their organizations.

Specifically, leadership development programs can help firm managers and team leaders understand the value of opening behaviors and thus master the ideation stage of the innovation process. In addition, these programs can help them to value closing behaviors so that they can improve the implementation stage of the innovation process. They can also shed light on how effective an ambidextrous mindset can be when managing and facilitating innovation projects. Most importantly, team leaders need to know that their interactions with employees have a huge impact on team members and organizational innovation performance as time moves forward. Furthermore, these training programs will help to introduce the importance of having a CEO who is practicing transformational leadership behaviors that drive organizational performance. Moreover, having an organizational climate which introduces and updates policies and systems that support creativity and innovation practices can improve innovation levels.

Therefore, a well-designed leadership training curriculum infused with simulation workshops can help executives and team leaders learn and adopt leadership skills that will help them to promote and drive team and organizational innovation.

Limitations

This study represents a first step toward uncovering leadership behaviors that can facilitate the development of business innovation. As with any other research, the study was subject to potential limitations. First, the sample size for this study was unequal in terms of gender representation. Most of the team members were female whereas most of the CEOs were male. This unequal representation could result in lower credence when generalizing the findings of the study. Second, the statistical analyses were based on self-report surveys. This is a common limitation of assessment and rating studies and may lead to inflated correlations due to a common variance method. However, common method bias has less influence when it comes to

studies examining interaction effects such as those tested in hierarchical regression analyses (Siemsen, Roth, & Oliveira, 2010). Third, this study is based solely on samples from different industries and departments located only in the U.S. Using participants from only one country can reduce the generalizability of the results. If this study were conducted in another country, the results might be different because the participants might interpret and rate innovation performance differently. Finally, the sample size in the study was relatively small. In addition, it had an unequal demographic representation in terms of industries, departments, and organizational ages which could reduce the possibility of controlling and checking the differences between the groups with regard to innovation performance.

Future Research

Future studies should consider the direct and indirect effects of the leadership behaviors in driving innovation in organizations. More specifically, future studies could confirm if the resulting study model makes a direct contribution to innovation performance of company in different contexts. For example, they can investigate whether the resulting study model is valid when applied to organizations in other countries rather than to just those in the U.S. or when applied to only a specific industry or department. It would also be interesting to do cross-sectional and comparative studies to test the validity of the resulting research model on an equal sample size of different industries, departments, and geographic locations. In contrast, some scholars argue that the transformational leaderships of the CEOs can influence the organizational climate. Therefore, future studies should also consider identifying whether the organizational climate that supports innovation performance is mediating the relationship between the transformational leadership of the CEO and innovation outcomes at both organizational and team levels.

Another suggestion for future studies is to examine whether gender differences among CEOs affect the driving of innovation at the organizational level. It would also be interesting to know whether male and female team leaders interact differently when using opening and closing behaviors and whether male and female team supervisors have different levels of ambidextrous behaviors or different levels of impact on team innovation performance. In addition, future research should also consider how individual innovation outcomes can influence the other innovation performance levels investigated in this study. Specifically, knowing whether an individual's innovation outcomes can influence his/her team innovation performance or whether team innovation outcomes relate positively to the overall organizational innovation performance. Moreover, to have a better understanding of business innovation drivers, future studies should try to identify what types of personal traits can drive individual innovation so that it can be integrated into the current findings and create a comprehensive multilevel model for innovation leadership.

Conclusions

Innovation in organizations has become a main driver of growth strategy and a means of achieving a competitive advantage. It has led to changes in the ways companies compete in a single industry and has had a direct effect on their ability to survive. Developing innovation capacity is a factor that drives a firm's competitiveness and leads to its success. However, innovation is a complex subject and clearly not a homogenous concept that is easy to drive. Firms need to promote and develop their innovation engines. Leaders should simultaneously explore new capabilities, exploit existing competencies at the organizational level, and improve ideation and implementation processes so that they can generate complete business cases at the team level.

Transformational CEOs can be the ones who champion and enable innovation in their companies. They can foster the required exploration and exploitation capacities and thus enrich their company's ambidexterity and increase its organizational innovation performance. Nevertheless, organizational climate has an obvious influence on promoting innovation activities at both the organizational and team levels. Furthermore, the ambidextrous leadership behaviors of team leaders can impact innovation outcomes at the team level in a positive way. Both opening and closing behaviors are crucial factors in driving innovation performance. Thus, when both opening and closing behaviors are extensively used by team leaders, team innovation outcomes will increase. They are not mutually exclusive factors. Any of them can increase team innovation levels. However, the gender of the team leader or supervisor matters because male team leaders tend to contribute more positively to team innovation outcomes.

This study used a multi-level analysis taking elements from strategic management, leadership, and organizational behavior to explain and identify the role that leadership and organizational climate have with regard to innovation performance. Moreover, this dissertation has addressed the call for more studies that examine the validity of ambidextrous leadership and the interaction of leadership behaviors with organizational climate that supports innovation.

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Appendix A
Ambidextrous Leadership (Opening and Closing Behaviors) Instruments

Opening Behaviors:

1. My Supervisor allows different ways of accomplishing a task
2. My Supervisor encourages experimentation with different ideas
3. My supervisor encourages risk taking
4. My Supervisor gives possibilities for independent thinking and acting
5. My Supervisor gives room for my own ideas
6. My Supervisor allows for errors
7. My Supervisor encourages learning from errors

Closing Behaviors:

1. My Supervisor monitors and controls goal attainment
2. My Supervisor establishes routines
3. My Supervisor takes corrective actions
4. My Supervisor insists that rules be followed
5. My Supervisor pays attention to the uniform accomplishment of task
6. My Supervisor gives sanctions for errors
7. My Supervisor sticks to plans

Appendix B
The CEO Transformational Leadership Instrument Sample from Mind Garden

Sample of items

The CEO of my company:

1. Re-examines critical assumptions to question whether they are appropriate
2. Talks about his/her most important values and beliefs
3. Seeks differing perspectives when solving problems
4. Talks optimistically about the future
5. Instills pride in me for being associated with him/her

Appendix C
Team Innovation Instrument

How do you rate the overall innovation performance of your team?

1. Coming up with new ideas
2. Working to implement new ideas
3. Finding improved ways to do things
4. Creating better processes and routines

Appendix D
The Organizational Innovation (Innovative Exploration and Exploitation) Instruments

*How do you rate the innovation performance of your organization?***Explorative Activities**

1. Our organization accepts demands that go beyond existing products and services
2. We invent new products and services
3. We experiment with new products and services in our local market
4. We commercialize products and services that are completely new to our organization
5. We frequently utilize new opportunities in new markets
6. Our organization regularly uses new distribution channels

Exploitive Activities

1. We frequently refine the provision of existing products and services
2. We regularly implement small adaptations to existing products and services
3. We introduce improved, but existing products and services for our local market
4. We improve our provision's efficiency of products and services
5. We increase economies of scales in existing markets
6. Our organization expands services for existing clients

Appendix E
The Regression Assumptions Tables and Graphs
(Outliers Testing, Linearity Relationship of the Independent Variables with the Dependent Variables, Normality of Residuals, Homoscedasticity)

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Cook's Distance	.00	.05	.00	.01	215.00

a. Dependent Variable: Orgnizational_Innovation

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Cook's Distance	.00	.11	.01	.01	215.00

a. Dependent Variable: Team_Innovation

Residuals Statistics^a

	Minimum	Maximum	Mean	Std. Deviation	N
Cook's Distance	.00	.07	.01	.01	215.00

a. Dependent Variable: Team_Innovation

Excluded Variables^a

Model	Beta In	t	Sig.	Partial Correlation	Collinearity Statistics			
					Tolerance	VIF	Minimum Tolerance	
1	Centered_Tran sformational_C EO	.608 ^b	11.128	.000	.607	.999	1.001	.999
	Centered_Clim ate	.580 ^b	10.321	.000	.578	.993	1.007	.993
	Interaction_TL xCL	-.341 ^b	-5.272	.000	-.340	.998	1.002	.998
2	Centered_Clim ate	.314 ^c	4.464	.000	.294	.553	1.808	.553
	Interaction_TL xCL	-.129 ^c	-2.197	.029	-.150	.854	1.170	.854
3	Interaction_TL xCL	-.052 ^d	-.872	.384	-.060	.765	1.308	.495

a. Dependent Variable: Orgnizational_Innovation

b. Predictors in the Model: (Constant), What is the gender of your CEO?

c. Predictors in the Model: (Constant), What is the gender of your CEO?, Centered_Transformational_CEO

d. Predictors in the Model: (Constant), What is the gender of your CEO?, Centered_Transformational_CEO, Centered_Climate

Excluded Variables^a

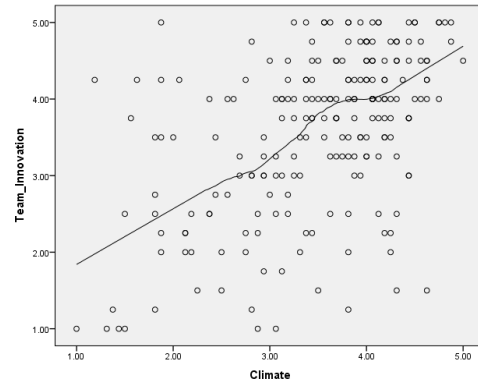
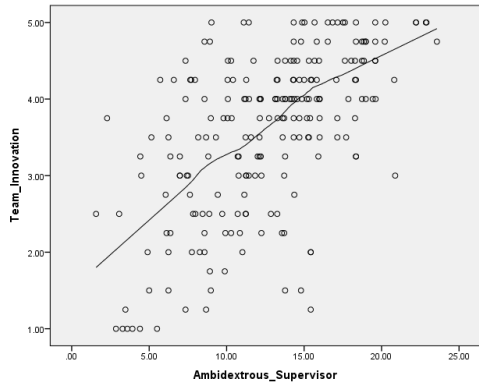
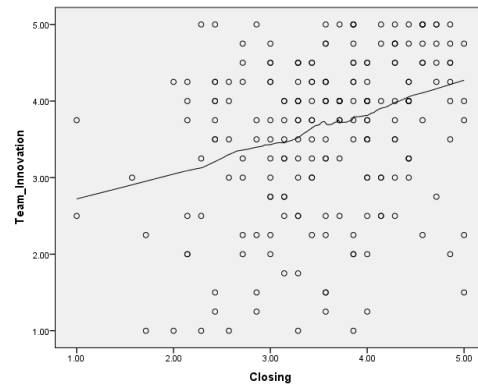
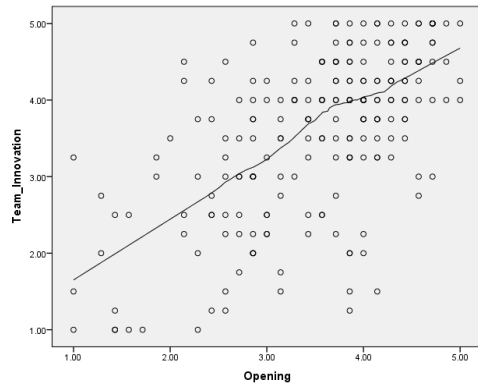
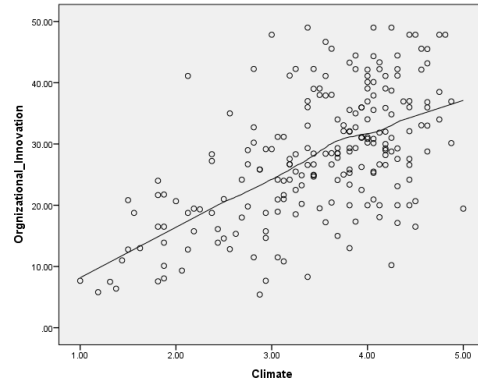
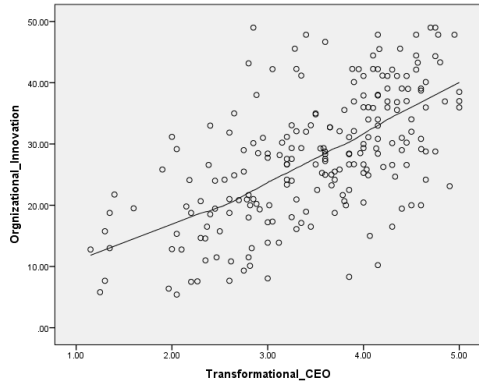
Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Centered_Opening	.585 ^b	10.799	.000	.596	.981	1.019	.981
	Centered_Closing	.278 ^b	4.324	.000	.285	.993	1.007	.993
	Centered_Climate	.474 ^b	7.964	.000	.480	.971	1.030	.971
	Interaction_OB xCB	-.069 ^b	-1.032	.303	-.071	.996	1.004	.996
	Interaction_OB xCBxCL	.174 ^b	2.638	.009	.178	.998	1.002	.998
2	Centered_Closing	.163 ^c	3.024	.003	.204	.950	1.053	.938
	Centered_Climate	.180 ^c	2.640	.009	.179	.603	1.659	.603
	Interaction_OB xCB	-.013 ^c	-.249	.804	-.017	.987	1.013	.972
	Interaction_OB xCBxCL	.052 ^c	.939	.349	.065	.953	1.050	.936
3	Centered_Climate	.160 ^d	2.369	.019	.161	.596	1.678	.596
	Interaction_OB xCB	.029 ^d	.537	.592	.037	.922	1.084	.887
	Interaction_OB xCBxCL	-.059 ^d	-.906	.366	-.062	.650	1.540	.647
4	Interaction_OB xCB	.036 ^e	.656	.513	.045	.920	1.087	.595
	Interaction_OB xCBxCL	-.088 ^e	-1.350	.178	-.093	.630	1.587	.578

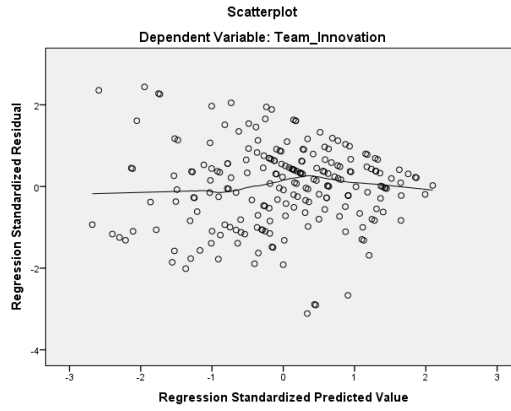
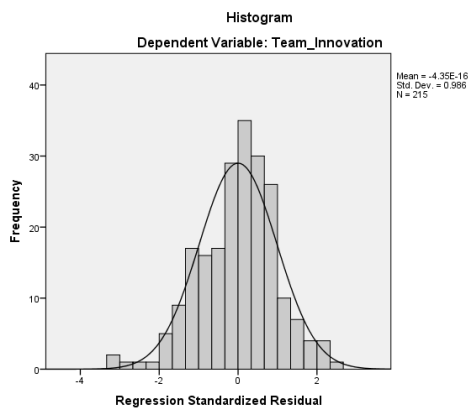
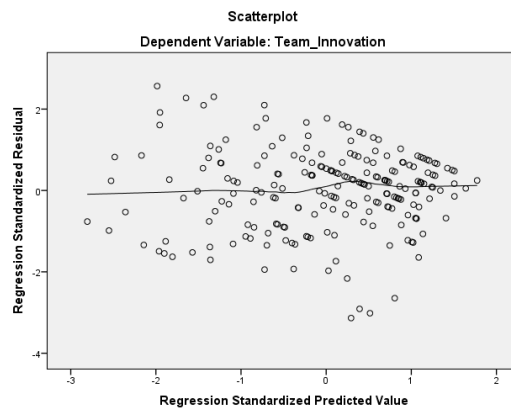
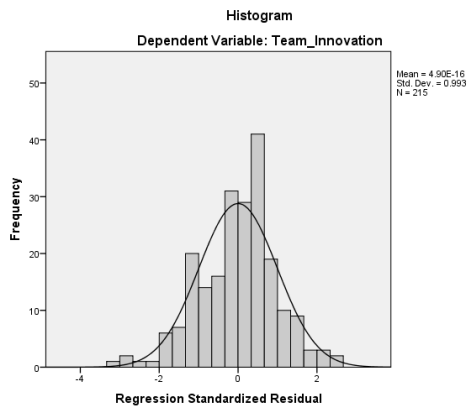
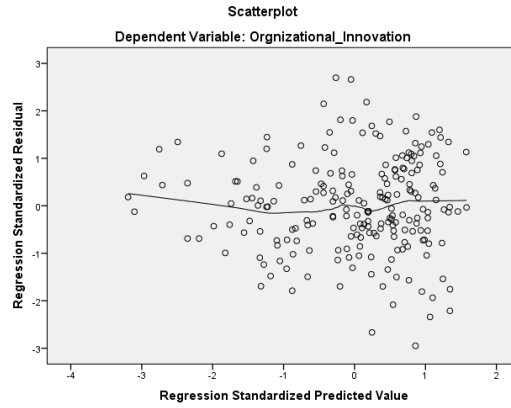
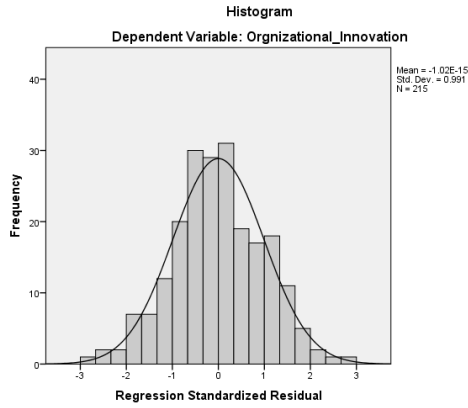
- a. Dependent Variable: Team_Innovation
- b. Predictors in the Model: (Constant), What is the gender of your supervisor/team leader/manager?
- c. Predictors in the Model: (Constant), What is the gender of your supervisor/team leader/manager?, Centered_Opening
- d. Predictors in the Model: (Constant), What is the gender of your supervisor/team leader/manager?, Centered_Opening, Centered_Closing
- e. Predictors in the Model: (Constant), What is the gender of your supervisor/team leader/manager?, Centered_Opening, Centered_Closing, Centered_Climate

Excluded Variables^a

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Ambidextrous_Supervisor	.569 ^b	10.294	.000	.577	.975	1.026	.975
	Climate	.474 ^b	7.964	.000	.480	.971	1.030	.971

- a. Dependent Variable: Team_Innovation
- b. Predictors in the Model: (Constant), What is the gender of your supervisor/team leader/manager?





Appendix F
NIH Certificate



Appendix G
IRB Approval



To: Abdelrahman I.M. Zuraik
From: Richard MendozaTamar Kenworthy, Chair
Exempt/Expedited Review Committee
Date: 11/22/2016
Action: **Expedited Approval**
Protocol #: 1611049128
Study Title: A STRATEGIC MODEL FOR INNOVATION LEADERSHIP
Expiration Date: 11/21/2017
Last Approval Date:

The above-referenced protocol was approved following expedited review by the Institutional Review Board.

It is the Principal Investigator's responsibility to obtain review and continued approval before the expiration date. You may not continue any research activity beyond the expiration date without approval by the Institutional Review Board.

Adverse Reactions: If any untoward incidents or severe reactions should develop as a result of this study, you are required to notify the Exempt/Expedited Review Committee immediately. If necessary a member of the IRB will be assigned to look into the matter. If the problem is serious, approval may be withdrawn pending IRB review.

Amendments: If you wish to change any aspect of this study, such as the procedures, the consent forms, or the investigators, please communicate your requested changes to the Exempt/Expedited Review Committee. The new procedure is not to be initiated until the IRB approval has been given.

Please retain a copy of this letter with your approved protocol.

cc: Louise Kelly, Investigator

Appendix H
Survey Email Announcement

Email Announcement

Dear Participant,

My name is Abdelrahman Zuraik and I am a student in the California School of Management and Leadership program at Alliant International University in San Diego, California. I am conducting a study concerning Innovation Leadership in modern U.S. organizations and would greatly appreciate your input.

To participate in this study, you must be: (1) 18 years or older; (2) a full-time employee in a CEO-led, for-profit company which is more than three years old and has more than 100 employees; and (3) currently a member of an active team which is being led by a team leader/supervisor/manager.

Please review the consent form thoroughly before proceeding to the research study. All the information that you provide as part of this study is confidential and will not be used for any purposes outside of this study.

Below is the link which you need to click to participate in this study. The questionnaires will take approximately 10-15 minutes to complete. This study has been approved by the Alliant International University Institutional Review Board. I would like to thank you in advance for your participation. If you have any questions or concerns about this study, please do not hesitate to contact me at azuraik@alliant.edu or my faculty supervisor, Dr. Louise Kelly, at lkelly@alliant.edu.

Thank you for your participation!

Abdelrahman Zuraik

Alliant International University, San Diego

California School of Management & Leadership

Dr. Louise Kelly

Alliant International University, San Diego

California School of Management and Leadership

Approved by Alliant International University Institutional Review Board

Appendix I
Consent Form and Study Questionnaire



Informed Consent

This research is being conducted by Abdelrahman Zuraik, a student in the Leadership Program at Alliant International University and is being supervised by Dr. Louise Kelly of the California School of Management and Leadership at Alliant International University, San Diego.

This study is designed to assess innovation leadership in U.S. based companies. The survey is anonymous, and you will not be asked to identify yourself at any point in the survey. The information and results will be completely confidential and will only be used for the purpose of this study. The survey materials, the demographic items, and the questionnaire will take approximately 10-15 minutes to complete. Participation in this study is completely voluntary, and you may decide to withdraw from the study at any time. You will not be penalized in any way if you choose to withdraw. You will first be asked to complete a short demographic questionnaire. Then, you will be presented with some statements and will be asked to evaluate them on a Likert scale. There are no right or wrong answers to any of the items/statements. Again, to ensure your anonymity, your name will not be attached or linked to any of the questionnaire.

To participate in this study, you must be: (1) 18 years or older; (2) a full-time employee in a CEO-led, for-profit U.S. company which is more than three years old and has more than 100

employees; and (3) currently a member of an active team which is being led by a team leader/supervisor/manager. If you do not meet these criteria, you cannot participate in this study.

By clicking on the 'YES' link and the arrow at the bottom of the page, you attest that you meet the criteria and grant me permission to collect data from you as a participant in this research project. Also, by clicking on the 'YES' link, you have agreed to download or print a copy of the Consent Form for your records. Because the information collected is confidential and no names are asked for, there will be no way to access specific information about you and you will remain anonymous. The data that I receive from this study will be kept confidential, and I will follow the American Psychological Association Ethical Standards for Research with Human Participants.

All of the anonymous responses to the questionnaires will remain on a password-protected computer and will be deleted five years after completion of the research study. No compensation will be provided to you by the primary researcher, Abdelrahman Zuraik, for participating in this study. However, you may be compensated for your time upon completion of the survey as outlined by Qualtrics in your panel membership.

If you have any questions about the study, you may contact me, Abdelrahman Zuraik (the principal investigator) at azuraik@alliant.edu or my supervisor, Dr. Louise Kelly, at lkelly@alliant.edu. After the study is completed, you are welcome to contact me at azuraik@alliant.edu if you would like to receive a brief summary of the results of the study.

Some of the information in the materials may make you feel uncomfortable as you will be asked to evaluate the behaviors of your supervisor and your CEO. Your participation is anonymous, and you will not be asked to identify yourself in any way in the survey. The information and results will be completely confidential and will only be used for the purpose of the study. Your participation is completely voluntary, and there will be no negative consequences if you choose not to participate or withdraw after beginning the study.

For general questions about rights of research participants, please contact the Alliant International University Institutional Review Board at Alliant-irb@alliant.edu or 858-635-4741.

If you do not wish to participate, please click the 'EXIT' link at the top of the page or close your browser. If you wish to participate, click on the 'YES' link below and print out or download a copy of this consent form. By selecting 'YES' below you are providing informed consent to participate in the survey.

Abderahman Zuraik

California School of Management & Leadership

Alliant International University

San Diego, CA

Signature and Acknowledgement

By clicking on the link below, you acknowledge that you have read the above information and are aware of potential risks and benefits of this study.

Furthermore, by clicking on the link below, you indicate the following:

- I have read and understand this information.
- I understand that I may withdraw my participation at any time, by exiting the survey or by closing my browser window.
- I am at least 18 years old.
- I am a full-time employee in for-profit U.S. company
- I am working in a company which have been in business for three years or more.
- The company I am working in has at least 100 employees.
- The company is led by a CEO.
- I am currently a member of an active team which is being led by a team leader, a supervisor, or a manager

Approved by Alliant International University Institutional Review Board

Demographic Questionnaire

Please click on the appropriate response.

What is your gender?

- Male
- Female

What is the gender of your supervisor/team leader/manager?

- Male
- Female

What is the gender of your CEO?

- Male
- Female

Which best describes the industry your organization typically operate in?

- Education
- Fast-moving consumer goods (FMCG)
- Finance/insurance
- Health care
- Technology/Communication
- Transportation
- Professional Services
- Manufacturing
- Utilities
- Other

Which best describes the department or function you work in?

- Sales/Marketing
- Finance/Accounting
- Human Resources
- Management/Administration
- Manufacturing
- Operations
- Research and Development (R&D)
- Other

What is the size of your company?

- 100-500 employees
- 501-5000 employees
- more than 5000 employees

How many years has your company been in business?

- 3-5 years
- 5-10 years
- more than 10 years

Approved by Alliant International University Institutional Review Board

Appendix D

Questionnaire

Q1) According to your interaction with your supervisor/team leader/manager, how do you rate his/her leadership behaviors?

	<i>Not at all</i>	<i>Once in a while</i>	<i>Sometimes</i>	<i>Fairley often</i>	<i>Frequently if not always</i>
1. My Supervisor allows different ways of accomplishing a task	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. My Supervisor encourages experimentation with different ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. My supervisor encourages risk taking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. My Supervisor gives possibilities for independent thinking and acting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. My Supervisor gives room for my own ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. My Supervisor allows for errors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. My Supervisor encourages learning from errors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. My Supervisor monitors and controls goal attainment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. My Supervisor establishes routines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. My Supervisor takes corrective actions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. My Supervisor insists that rules be followed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. My Supervisor pays attention to the uniform accomplishment of task	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. My Supervisor gives sanctions for errors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. My Supervisor sticks to plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q2) How do you rate the overall innovation performance of your team?

	<i>Needs much improvement</i>	<i>Needs some improvement</i>	<i>Satisfactory</i>	<i>Good</i>	<i>Excellent</i>
1. Coming up with new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Working to implement new ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Finding improved ways to do things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Creating better processes and routines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q3) In terms of leadership, the CEO of my company-sample only (copy righted):

	<i>Not at all</i>	<i>Once in a while</i>	<i>Sometimes</i>	<i>Fairley often</i>	<i>Frequently if not always</i>
1. Re-examines critical assumptions to question whether they are appropriate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Talks about his/her most important values and beliefs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Seeks differing perspectives when solving problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q4) How do you rate the innovation performance of your organization?

	<i>Strongly disagree</i>	<i>Disagree</i>	<i>Somewhat disagree</i>	<i>Neither agree nor disagree</i>	<i>Somewhat agree</i>	<i>Agree</i>	<i>Strongly agree</i>
1. Our organization accepts demands that go beyond existing products and services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. We invent new products and services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. We experiment with new products and services in our local market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. We commercialize products and services that are completely new to our organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. We frequently utilize new opportunities in new markets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Our organization regularly uses new distribution channels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. We frequently refine the provision of existing products and services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. We regularly implement small adaptations to existing products and services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. We introduce improved, but existing products and services for our local market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. We improve our provision's efficiency of products and services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. We increase economies of scales in existing markets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Our organization expands services for existing clients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q5) How do you rate your organization's support of innovation?							
		<i>Strongly disagree</i>	<i>Somewhat disagree</i>	<i>Neither agree nor disagree</i>	<i>Somewhat agree</i>	<i>Strongly agree</i>	
1. Creativity is encouraged here.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
2. Our ability to function creatively is respected by the leadership.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

3. Around here, people are allowed to try to solve the same problems in different ways.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The main function of members in this organization is to follow orders which come down through channels.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Around here, a person can get in a lot of trouble by being different.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. This organization can be described as flexible and continually adapting to change.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. A person can't do things that are too different around here without provoking anger.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. The best way to get along in this organization is to think the way the rest of the group does.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. People around here are expected to deal with problems in the same way.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. This organization is open and responsive to change.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. The people in charge around here usually get credit for others' ideas.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. In this organization, we tend to stick to tried and true ways.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. This place seems to be more concerned with the status quo than with change.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. The reward system here encourages innovation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. This organization publicly recognizes those who are innovative.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. The reward system here benefits mainly those who don't rock the boat.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Approved by Alliant International University Institutional Review Board

Appendix J
MLQ-5X Academic Permission from Mind Garden

Approval for Remote Online Use of a Mind Garden Instrument

Effective date is November 17, 2016 for:
Abdelrahman Zuraik

You submitted your statement for remote online use at 2:27 pm EST on November 16, 2016.

 **mind garden**

www.mindgarden.com

Abdelrahman Zuraik

Remote online use of the Mind Garden instrument stated below is approved for the person on the title page of this document.

Question	Answer
Your name:	Abdelrahman Zuraik
Email address:	AZURAIK@ALLIANT.EDU
Repeat email address:	AZURAIK@ALLIANT.EDU
Phone number:	8585197338
Company/institution:	Alliant intrnational university
Your project title:	Innovation Leadership
Mind Garden Sales Order or Invoice number for your purchase of reproduction licenses:	YKMKWOMSA
The name of the Mind Garden instrument you will be using:	Multifactor Leadership Questionnaire - Remote Online Survey License - Translation : English (default)