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HOW INNOVATIVE WORK BEHAVIOR STAGES INFLUENCE TEAM INNOVATION PERFORMANCE: IMPACT OF LEADERSHIP AND TEAM CHARACTERISTICS

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ABSTRACT

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PHD Thesis, Business Administration

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In line with the growing competition, encouraging innovative work behavior (IWB) at work teams has been viewed as a critical task for leaders to ensure long-run organizational performance and survival. However, both practitioners and researchers are increasingly interested in which stage of IWB – Idea Exploration, Idea Generation, Idea Championing and Idea Implementation – is particularly relevant for stimulating innovation. The purpose of current study is to investigate whether and to what extent each stage affects the team innovation performance (TIP) at the innovative projects. Moreover, the study analyzes the mediating impacts of ambidextrous (opening, closing and connecting behavior) and transformational leadership as well as the moderating impact of trust and team cohesiveness on the link between IWB stages and team innovation performance. The proposed hypotheses were tested on a survey data obtained from a sample of 322 workers who actively involved in a team during an innovation project belonging diverse 254 Organizations. The findings of study reveal that all the stages of IWB has a positive relation with TIP; among all, idea championing has the strongest impact on TIP. Moreover, the study confirms that while the link between idea exploration and TIP is mediated more strongly by ambidextrous leadership (opening leadership behavior), transformational leadership has the highest mediating effect on the link between idea generation and TIP, idea championing and TIP, and idea implementation and TIP. Additionally, the results shows that both trust and team cohesiveness have positive moderating effects on TIP during idea championing and implementation. These findings show that adopting an appropriate leadership style is critical to trigger TIP and the stages of IWB must be thought in line with the impact of leadership on this process.

Keywords: innovative work behavior, team innovation performance, ambidextrous leadership, transformational leadership, trust, team cohesiveness

ÖZ

YENİLİKÇİ DAVRANIŞ AŞAMALARI TAKIM İNOVASYON PERFORMANSINI NASIL ETKİLİYOR: LİDERLİK VE EKİP ÖZELLİKLERİNİN ETKİSİ

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Artan rekabete paralel olarak, çalışma ekiplerinde yenilikçi davranışı (YD) teşvik etmek, liderlerin uzun vadeli kurumsal performans ve hayatta kalmalarını sağlamak için kritik bir görev olarak görülüyor. Bununla birlikte hem uygulayıcılar hem de araştırmacılar, YD'nin hangi aşamasının – Fikir Keşfi, Fikir Üretme, Fikir Geliştirme ve Fikir Uygulaması – özellikle yeniliği teşvik etmek için uygun olduğuyla giderek daha fazla ilgileniyorlar. Mevcut çalışmanın amacı, yenilikçi projelerde her bir aşamanın takım inovasyon performansını (TİP) etkileyip etkilemediğini ve ne ölçüde etkilediğini araştırmaktır. Ayrıca, çalışma çift yetenekli (serbest bırakan liderlik davranışı, sınırlandıran liderlik davranışı, bağlayıcı liderlik davranışı) ve dönüşümcü liderliğin aracılık etkilerinin yanı sıra güvenin ve takım bağlılığının YD aşamaları ve TİP arasındaki bağlantı üzerindeki düzenleyici etkisini analiz etmektedir. Önerilen hipotezler, çeşitli 254 Kuruluşa ait bir inovasyon projesi sırasında bir takımda aktif olarak yer alan toplam 322 çalışandan oluşan bir örneklemden elde edilen bir anket verisi üzerinde test edilmiştir. Çalışmanın bulguları, yenilikçi davranışın tüm aşamalarının TİP ile pozitif bir ilişkisi olduğunu ortaya koymaktadır; tüm bunların arasında, Fikir Geliştirme, TİP üzerinde en güçlü etkiye sahiptir. Ayrıca, çalışma, fikir keşfi ve TİP arasındaki bağlantıya çift yetenekli liderlik (serbest bırakan liderlik davranışı) tarafından daha güçlü bir şekilde aracılık edilirken, dönüşümcü liderliğin fikir üretme ile TİP, fikir geliştirme ve TİP ve fikir uygulama ve TİP arasındaki bağlantı üzerinde en yüksek aracılık etkisine sahip olduğunu doğrulamaktadır. Ek olarak, sonuçlar hem güvenin hem de takım bağlılığının fikir geliştirme ve fikir uygulama aşamalarında TİP üzerinde pozitif yönde arttırıcı etkilere sahip olduğunu göstermektedir. Bu bulgular, TİP'yi tetiklemek için uygun bir liderlik tarzının benimsenmesinin kritik olduğunu ve YD'nin aşamalarının, liderliğin bu sürece etkisi doğrultusunda düşünülmesi gerektiğini göstermektedir.

Anahtar Kelimeler: yenilikçi davranış, takım inovasyon performansı, çift yetenekli liderlik, dönüştürücü liderlik, güven, takım bağlılığı

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Last but not least, I would like to express my gratitude to my family for their encouragement, support, motivation and patience all through my study. Without their spiritual support throughout my life, it would be impossible for me to complete this study.

TEXT OF OATH

I declare and honestly confirm that my study, titled “HOW INNOVATIVE WORK BEHAVIOR STAGES INFLUENCE TEAM INNOVATION PERFORMANCE: IMPACT OF LEADERSHIP AND TEAM CHARACTERISTICS” and presented as a PhD Thesis, has been written without applying to any assistance inconsistent with scientific ethics and traditions. I declare, to the best of my knowledge and belief, that all content and ideas drawn directly or indirectly from external sources are indicated in the text and listed in the list of references.

Irem ANIL KOCAMAZ

Signature

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September 16, 2022

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LIST OF ABBREVIATIONS

IWB	Innovation Work Behavior
#	Number
Abb.	Abbreviation
al.	And others (Lat. “et alii” or “et aliae”)
e.g.	For example (lat. “exempli gratia”)
i.e.	That is (Lat. “id est”)
p.	Page
PL#	Item related to project leader variables
pp.	Pages

CHAPTER 1
INTRODUCTION

One of the most important components for organizations is innovation because of its significant influence on outcomes and advantages including survival, development, and effectiveness. Innovation is directly tied to organizational competitive advantage in the complex, dynamic conditions that characterize modern marketplaces (Gumusluoglu & Ilsev, 2009; Sarros, Cooper, & Santora,2008; Teece, 2010). In recent years there is an increased attention for innovation as a research topic. The Latin verb innovare, which means to create something new, is where the word "innovation" comes from. There are numerous definitions of innovation that are utilized in various contexts, including academia, business, and government. In the existing literature, it was defined as creation of new combinations of existing resources (Schumpeter, 1934); implementation of a new or significantly improved product (good/service) or process (method /practice /relationship) (OECD, Organisation for Economic Co-operation and Development, 2015); the development and use of innovative procedures, goods, services, and delivery techniques that lead to noticeable gains in performance, effectiveness, or quality (Mulgary & Albury, 2003); the successful application of novel ideas or those that are adopted from other industries or groups (National Audit Office (NAO), 2009); creation and application of good ideas (Australian National Audit Office (ANAO), 2009); a continuous and dynamic process in which ideas are transformed into value (Confederation of British Industry (CBI)/QUINETIQ, 2008); the successful introduction of new services, products, processes, business models and ways of working (Economic and Social Research Council (ESRC), 2008); the creation (generation) and/or application (adaptation) of new concepts or practices (Damanpour & Schneider, 2009); the addition of new components to a service, such as new information, a new structure, or new management/skills (De Vires, et al, 2014); significantly different and disruptive to the conventional habits and structures (Evers, et all, 2014); is the method via which novel concepts become useful in the world (NESTA, 2012); a capacity for putting new concepts into practice that leads to the creation of new managerial strategy, procedures, work techniques, and technology

(Chahal & Bakshi, 2015; María Ruiz-Jiménez & del Mar Fuentes-Fuentes, 2013). According to West and Farr (1990), innovation is defined as the deliberate introduction and application of novel to the relevant unit of adoption ideas, processes, products, or procedures within a role, group, or organization with the aim of significantly advancing the interests of the individual, the group, organization, or larger society. It also refers to the process of developing new ideas, which must then be put into practice in order to advance certain changes and improvements (West, 2002 a, b). In other words, innovation includes both creativity as the expression of new ideas and creativity as the conversion of these new ideas into useful applications (Zacher, et al, 2016).

Innovation has commonly been defined in organizations as innovative work behavior (IWB) in the organizational environment. IWB is the development of new products, methods, or services, followed by their use to solve issues (Al-Omari, Choo & Ali 2019). Although innovative work behavior (IWB) is conceptualized and addressed as multidimensional in theory, most of the existing measures are unidimensional (e.g. Reuvers et al., 2008). Innovative work behavior was first classified as a single construct in the early studies by certain scholars (Scott and Bruce, 1994; Bunce and West, 1995; Spreitzer, 1995), but later others start to view IWB as a multi-dimensional construct (Krause, 2004; Dorenbosch, van Engen, & Verhagen, 2005).

Additionally, most studies describe the stages of invention as a series of practical actions taken one at a time from a basic form (Tidd et al, 2005). But according to Rothwell (1992), historical conceptions of innovation credit change from a simple interaction model to a complex one. In organizations, innovation frequently results through an iterative, cyclical - rather than linear - process, in which it is challenging to develop an orderly sequence of clearly defined phases, according to Anderson et al. (2004). According to Anderson, De Dreu, and Nijstad (2004), idea creation is acknowledged as a prerequisite for the implementation of innovations (Amabile, 1988), and the two processes do not follow one another in a linear fashion but rather are interchangeable. Additionally, Jong and Hartog (2003) asserted that because the implementation stage starts with designing and ends with selling or providing it to clients, it is a continual testing process. If the customer provides feedback, adjustments

are done, and following any necessary revisions, the process of providing or selling to the customer resumes (Johne & Storey, 1998). Thus, they believe that the two dimensions of IWB (championing and implementation) are not necessarily sequential. In previous literature, in some studies, there is a clear distinction between the stages of exploring-generating ideas and championing-implementation of ideas. Others include the generation and implementation of ideas in single measures of teams' IWB (Van de Ven, 1986; Scott & Bruce, 1994). Exploration is related to idea generation, which involves for taking calculated risks and trying new things. However, putting an idea into practice involves exploitation and needs for organization and effective execution (Bledow et al., 2011). This complexity results from the various types of innovation tasks at various stages of the innovation process (Bledow, Frese, Anderson, Erez, & Farr, 2009; Gebert, Boerner, & Kearney, 2010). Throughout the innovation process, these disparities need to be harmonized with all the competing demands and dynamics (Bledow et al., 2009). As a result, managing the innovation process in a stable manner is challenging for executives in today's firms because it is a complicated and broad topic (Bledow, Frese, & Mueller, 2011). Some academics have stated that innovation is the consequence of the interaction between personal elements like motivation and environmental factors like leadership, which lends credence to this argument (Hammond et al., 2011). The results of studies that have concentrated on contextual predictors of innovation show that leaders or supervisors have an impact on success, which suggests that leadership is one of the most crucial components during the innovation process. However, it is not entirely obvious from previous research what specific leader behaviors or styles are required at which IWB stages to enhance the innovation (Bledow et al., 2011; Rosing et al., 2011). The management of innovation at the levels of companies, work groups, networks, and individuals is covered by innovation studies (King & Anderson, 2002). Only a few research have concentrated on the work group's level of analysis. (West & Anderson, 1998) This is a significant flaw because teams within corporations frequently produce innovation (West & Farr, 1990; Anderson & King, 1993; King & Anderson, 1995). It is, therefore, important to study about the topic of work group innovation as an outcome.

This present study aims to contribute to the research on team-level innovative performance in organizations. It was focused on the link between the leadership and team innovation performance firstly by investigating ambidextrous and transformational leadership styles and three different leadership behaviors in the content of ambidextrous leadership at teams through innovative work behavior where innovation is the major business output. In addition, the aim is to search if the team characteristics (team cohesiveness and trust) have a moderator effect on the link between IWB and team innovation performance. There are some important points that have been noticed in previous studies trying to address here. Based on the multiple gaps in the existing literature, IWB is theoretically defined as multi-dimensional, measurements are mostly performed as one-dimensional operationally (Scott & Bruce, 1994; Reuvers et al., 2008) so current study provides the verification of the reality of innovative working behavior, which consists of different activities / steps in teams, in business life through interviews with participants from different sectors. It also allows to measure whether each stages of innovative work behaviour can be distinguished and whether can be treated them as a multidimensional construct or not. Secondly, the empirical evidence for the validity of IWB measures is limited (Jong & Hartog, 2010). Previous studies provided little data on validity and most of them only used single source data. This study provides a quantitative methodology approach with a valid and reliable measurement. Thirdly, in the existing literature, the findings of the existing studies suggest that leadership is one of the most important antecedents of innovation. However, the effect of mostly only one type of leadership was on innovation studied in each available study so it remains unclear to date which specific leadership styles have an impact on which stages of IWB (Rosing et al., 2010, 2011). Therefore, this study makes a clear evaluation and points out which leadership type can be effective in which innovative work behavior stage. In this way, both the unclear areas in the literature is contributed and makes an important contribution to determine which of the stages of IWB need the transformational and ambidextrous leadership to increase TIP . Lastly, as a very remarkable topic in the existing literature, there are several studies that focus on ambidextrous leadership and (within the scope of this leadership) opening and closing leadership behaviors. However, closing and opening leadership behaviors do not logically fit for idea championing stage of IWB. There is no suitable

leadership type defined in any studies for this stage in the existing literature. This study enables to find answers to these questions.

This study contains a pre-measurement stage as the interview (face-to-face and on the phone) with three respondents from three different global companies operating in the paint, cosmetics and energy sectors with the aim of the learning the definition of innovation on the basis of different organizations, determining the dynamics of the innovation process, whether the process consists of different steps, whether the steps are sequential or overlapped, the factors affecting the team innovation performance and motivation positively and negatively in this process, and to understand what team innovation performance means and a survey by reaching hundreds of people in different departments operating in dozens of different sectors with the aim of conducting an in-depth research. As a result of the common response that IWB consists of different steps during the interview, the findings showed that the interview results were consistent with the survey results as a preliminary study. Also, findngs provided that the study model is satisfactory in explaining the effect on independent variables (IWB) and fits for dependent variable (team innovationperformance). In addition, study has shown that there is a leadership requirement during IWB process. When the hypothesis results are evaluated within the scope of the current study, these noteworthy findings come to the fore. Firstly, the results demonstrate a positive and significant effect of IWB (idea exploration, idea generation, idea championing and idea implementation) on the team innovationperformance . Secondly, there is a significant mediator effect of ambidextrous and transformational leadership on the link between IWB and teaminnovation performance . Thirdly, despite positive results for idea championing and idea implementation, contrary to expectations, there is no evidence that team characteristics have any positive effect on the link between IWB and team innovation performance as the moderator. The thesis is developed as introduction, two main chapters and a conclusion section. After determining the general framework of the study in the introduction section, in the first chapter it starts with the literature review on IWB and definitions of its drivers. It also draws attention to the discussion of whether the IWB in the studies up to date explain it as a continuous or overlapping structure, and whether the steps are continuous or not. The relationship between team

characteristics and team innovation performance are discussed along with examples in the literature and interview outputs. Also first chapter focuses on the necessity of leadership, the most important driver of IWB, and its impact on teaminnovation performance . The second chapter introduces the research methodology with a quantitative method approach in the current study. The findings which are derived from the interviews and the hypothesis testing via partial least squares structural equation model technique are analyzed and main findings were discussed. In the last section, the study is concluded with a general overview of main findings and presents implications and suggestions for future researches.

CHAPTER 2
LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. TEAM INNOVATION PERFORMANCE

Success in team innovation performance (TIP) refers to the accomplishment of steps including the creation and use of innovative ideas that are beneficial to the team (West, 1990). In other words, it refers to any innovative project or process that a team is actively engaged in and that is successfully carried out or completed. The value of a team project's output can be used to evaluate success based on the project's measurable objectives. The team might be regarded as successful if the project is innovative in terms of achieving the expectations of recipients. Success is defined by the Project Management Institute (PMI) as striking a balance between project quality, scope, time, and cost with the requirements (PMI, 2008, p. 9). In addition to customer satisfaction and contributing to the firm's strategic goals, there are numerous more success criteria that are described as the advantages of outputs to the organization, stakeholders, and team members (Ika, 2015). Due to the complexity of the various success concepts and definitions used by academics, government, and business life, such as commercialization, profit, value-creation, market introduction, etc., it is possible to find many answers about what success means in innovation in the literature that is currently available. All scholars, academics, and practitioners agree that it is a complicated process that does not just happen; it also demands the commitment of important and strategic resources, as well as the independent initiative of idea development and creative problem solving (Martins & Terblanche, 2003). (Zhou, 1998). Simple innovations can be accomplished by individual, but more complicated innovations typically require a team effort based on extensive expertise and a variety of labor positions (Janssen 2000). It should be highlighted that a suitable leadership strategy that can direct the members along the road is necessary to build success for team success and innovative performance.

2.2. INNOVATIVE WORK BEHAVIOR STAGES AND IMPACTS ON TEAM INNOVATION PERFORMANCE

Teams' ability to generate and implement new ideas is known as innovative work behavior (Scott & Bruce, 1994), and it is essential for firms to maintain a competitive advantage (Montani, et al., 2017; Ramamoorthy, et al., 2005). Some researchers asserted that employees were significant sources of innovation in firms, accounting for about 80% of new idea invention and execution (Getz & Robinson, 2003). Researchers are of the opinion in the body of literature that innovative work behavior is important and has a positive impact on organizational success. IWB measurement, however, is still in progress. More than just making a single decision to put a novel idea into action is involved in the innovation process. It calls for a variety of actions to be taken in each step in turn. In order to describe the sequences of events in the invention process, researchers suggested a wide range of various activity-stage models (Saren, 1984). Zaltman et al. (1973) divided one of the well-known activity-stage models into two key phases: initiation and implementation. Then, numerous further investigations used this methodology (Staw, 1990; Duncan, 1976; Unsworth & West, 1998; Wolfe, 1994; Axtell et al., 2000). Additionally, the end point of the initiation is described as the moment when the organization decides whether or not to execute innovation (Jong & Hartog, 2003). Based on the activities they entail, all stages on the model can be divided into a variety of sub-stages. Some people ought to go into much greater detail when describing the pre-adoption process, emphasizing steps like concept generating, screening, and evaluation (Wilson, 1966; Mumford, 2000). Others must to pay far more attention to what transpires following the decision to adopt (Rogers, 1983). More comprehensive model with six steps was developed by Booz et al. (1982) and includes concept generating, idea screening, commercial evaluation, development, testing, and market launch. The development of activity-stages models was criticized at that time by certain academics for being based on highly theoretical research rather than observations of actual invention processes, which casts severe doubt on whether innovation processes comprise discrete stages or not (King & Anderson, 2002; Schroeder et al., 1989). According to Pelz (1983), there are a few indications that a particular stage is present. However, several activities can overlap and only a small

percentage of situations have a clearly defined process. In conclusion, it is unclear if the current models are appropriate to characterize the innovation process. Despite the disadvantages already noted, Kanter (1988) thought that breaking down the innovation process into its main activities would help people better understand the dynamics and causes of innovation. Concept generation, coalition building, idea realization (prototype production), and diffusion (commercialization of the product) were categorised into four groups in Kanter's initial study from 1988a, and he stressed that these tasks occur sequentially but also overlap (Schroeder, Van de Ven, Scudder, & Polley, 1986; Van de Ven, 1986). IWB can also be taken into consideration and explored in this regard because a construct's conceptualization and measurement are closely related. Accordingly (Kanter, 1988), Scott & Bruce (1994) used a one-dimensional, six-item scale to assess the generation of ideas, the formation of coalitions, and the execution of ideas. They viewed innovation as a multistage process, with each stage requiring a different set of human behaviors and actions. However, these and other research' unione dimensional measurements featured a small number of items (Bunce & West, 1995; Spreitzer, 1995; Basu & Green, 1997; Scott & Bruce, 1998). First to create a multi-dimensional IWB metric was Janssen (2000). He employed measures for developing, promoting, and implementing ideas and offered strong correlations, which were later confirmed by Kleysen and Street (2001). Additionally, IWB measurements were measured using two dimensions, namely idea generation and idea execution, by Krause (2004) and Dorenbosch, van Engen, and Verhagen (2005). Also in 2001, Zhou and George created a 13-item measure to assess creativity. However, used a few standard elements were created for IWB by Scott and Bruce (1994). Axtell et al. (2000) used a 12-item scale to assess each employee's behavior regarding ideas and implementations. In their most recent conceptualization of IWB, Reuvers and colleagues (2008) additionally mentioned idea generation, promotion, and realization. They failed to note any differences between these measurements, though. In 2010, Jong and Hartog created a multi-dimensional IWB metric. They outlined IWB in terms of four dimensions: idea development, promotion, implementation, and exploration. In this study, the four-stage model of Jong and Hartog (2010) which provides a suitable framework as shown in Figure 1 was applied.

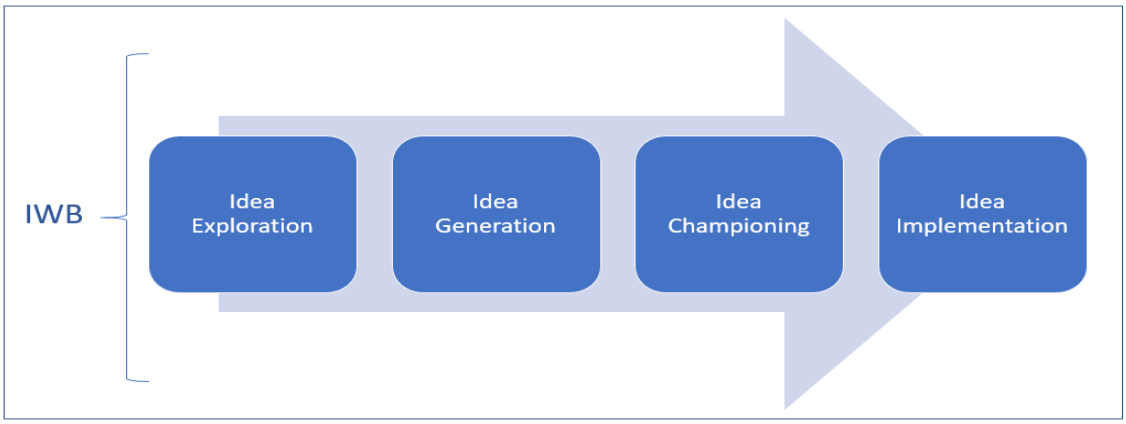

Figure 1 Dimensions of Innovative Work Behavior

A four-stage model makes it possible to take into account the possibility that different IWB process phases may require different effective leadership styles (and leadership behaviors). Most researchers who examined the influence of leadership on innovation in the literature utilized a single measure for each stage (from concept generation to implementation) (Scott & Bruce, 1994). This leads to ignoring the likelihood that the variables affecting each stage differently may exist. Similar to this, if IWB is considered to be a one-dimensional construct, it prevents the possibility of different team members participating in the process and contributing at various stages, as well as the identification of the drivers and the differentiation and measurement of their influence at each stage (Kleysen & Street, 2001; Axtell et al., 2000). According to certain academics (Kanter, 1988; Delbecq & Mills, 1985; Van de Ven, 1986; Axtell et al., 2000), different employee behaviors are required at different stages of the innovation process. It is advised to take these variances into account while assessing the innovation process (Rogers, 1983; King & Anderson, 2002; Waldman & Bass, 1991). This is evident that different stages put variable pressure on team members involved. Based on these findings, four dimensions of IWB was distinguished. In the next part, the dimensions of IWB will be explained in detail.

2.2.1. Idea Exploration

The discovery of an opportunity or the discovery of a problem is the first stage in the multi-stage innovation process. Opportunities are things that don't fit difficulties with current approaches, indicators that aren't trending, or unmet client wants. (Mumford et al., 1996; Mumford, 1985) Unexpected successes, failures, or events, gaps between "what is" and "what should be," process requirements in response to problems or failures identified, changes in industrial or market structures, demographic changes like changes in the composition of the labor force, perception changes, and new knowledge were all considered sources of opportunities (Drucker, 1985). Exploring opportunities is essential to starting a process for developing original concepts and solutions as well as breaking with established practices. The idea discovery stage involves trying to come up with new ways to approach existing products, services, or processes (e.g. Kanter, 1988; Farr & Ford, 1990; Basadur, 2004). It was suggested by Jong and Hartog (2003) that it is crucial for front-line team members to participate in these activities in order to fully grasp the prospects and customer demands at this time. These team members are a valuable source of innovative ideas due to their open lines of communication and established relationships with clients (Atuahene-Gima, 1996; Johne & Storey, 1998). Based on this discussion, the following hypothesis is proposed:

Hypothesis 1: Idea Exploration is positively related to TIP

2.2.2. Idea Generation

The following stage of innovation is idea generation. It involves innovation and the creation of fresh, practical ideas that pertain to brand-new goods, services, or procedures (Amabile, 1996; Amabile, Conti, Coon, Lazenby, & Herron, 1996; Paulus & Yang, 2000). It is essential for businesses to enter new markets, enhance existing work processes, and find solutions to problems that have been recognized (e.g. Van de Ven, 1986; Amabile, 1988; Kanter, 1988). It concerns how team members behave when coming up with ideas to make improvements (Kleysen & Street, 2001). The process of generating new and improved goods, services, processes, and technologies is known as idea generation. The integration and reorganization of information,

combining previously existing parts into a new whole, and employing current techniques to address issues or identify performance gaps and make improvements are critical components of this stage (Kanter, 1988). According to Rothenberg (1996), these novel combinations offer a solid foundation for the later stages of science. Similar findings were made by Mumford et al. (1997), who discovered that the ability to generate concepts through combination and restructuring is a valuable trait of creative outputs. Based on this discussion, the following hypothesis is proposed:

Hypothesis 2: Idea Generation is positively related to TIP

2.2.3. Idea Championing

One of the key components of IWB is idea championing. According to Kanter, 1983; Zaltman et al., 1973; Howell & Higgins, 1990; Kanter, 1988; Anderson & King, 1993, as well as pushing and negotiating, are examples of championing (Maute & Locander, 1994; Ford, 1996; Van de Ven & Rogers, 1988). Some team members can effectively market innovation to others because they feel a strong sense of ownership for its introduction. A champion makes an attempt to develop novel concepts that he may not have thought of himself and can apply them to his life (Kleysen & Street, 2001). He also plays a non-official role in pushing innovative ideas past organizational obstacles (Shane, 1994). For a successful innovation process, firms should retain and utilize its champions. This phase also entails locating the appropriate individuals, enlisting their assistance, and forming alliances in order to foster trust in the success of the idea (Howell, Shea & Higgins, 2005). It mostly refers to efforts to promote the most creative ideas by giving the idea the necessary financial, technical, legal, and logistical backing to make it into practice. After an idea has been produced, championing is necessary to push and expedite creative ideas in order to help them become innovative ideas (e.g. Shane, 1994). The ability to persuade others and gain access to personal networks is necessary for the idea to be successful (Dougherty & Hardy, 1996). Based on this discussion, the following hypothesis is proposed:

Hypothesis 3: Idea Championing is positively related to TIP

2.2.4. Idea Implementation

The final step in the innovation process is choosing, testing, commercializing, and putting the chosen alternatives into practice (Amabile, 1988; Hammond, Neff, Farr, Schwall, & Zhao, 2011; Scott & Bruce, 1994). It entails integrating creative output into daily operations on a regular basis (Kleysen & Street, 2001). At this point, an idea that has been decided to be implemented is changed into a tangible outcome (Jong and Hartog, 2003). Implementation is the process of turning ideas into reality with a lot of hard work and a goal-oriented mindset. This element also include creating new methods, products, or work processes, testing them, and modifying them (Kleysen & Street, 2001), as well as integrating creative ideas into standard work processes (e.g., Kanter, 1988). The innovation process is complete when the new idea is incorporated into the organization's daily operations (Kanter, 1988). Mumford (2000) asserts that in order to generate and carry out ideas, team members need act in a more result-oriented manner. Front-line team members play a significant role at this point in the market launch due to their understanding of customer acquisition techniques, relationships with customers, and ability to persuade them of the benefits and competitive offerings. Based on this discussion, the following hypothesis is proposed:

Hypothesis 4: Idea Implementation is positively related to TIP

2.3. LEADERSHIP AND MEDIATING IMPACT ON TEAM INNOVATION PERFORMANCE

Considering the growing significance of human factors in the process and results of innovation, leadership has become a major research topic. It is regarded as one of the most significant IWB drivers (Nemanich & Vera, 2009; Oke, Munshi, & Walumbwa, 2009; Yukl, 2009); a potent predictor of innovation (Mumford, Scott, Gaddis, & Strange, 2002); and an organization's greatest innovation asset (Rosenfeld & Kolstoe, 2010) due to its high impact on innovation (2006). For instance, even unsuccessful breakthroughs in technology-driven firms are frequently linked to the human chemistry of creativity, which includes leadership (Rosenfeld et al., 2011). According to this point of view, the increased attention given to recent studies demonstrates the

necessity of a leadership position during the innovation process, particularly for organizations at teams handling complex environmental dynamics. Leaders have a responsibility to guide, support, control, and provide team members with the resources they need (Carmeli et al., 2010; Hollander, 2009), which can greatly improve TIP during the innovation process. Additionally, a leader can assemble a team, play a crucial role in selecting team members, and foster close bonds on an interpersonal and emotional level between teammates (Hollander, 2009). This connection and highly qualified relationships could be a team's accelerator power for innovation (Mumford, Scott, Gaddis, & Strange, 2002; Zhou & George, 2003). As a result, recent research has focused particularly on the issue of how managers may control teams' innovative behavior (Anderson, Potonik, & Zhou, 2014). However, it is unclear at what stage of inventive behavior each form of leadership is most effective (Bledow et al., 2011; Rosing et al., 2011) and how much it contributes to the growth of innovation. Despite its significance, a different leadership style might provide a different set of inventive results (Crossan & Apaydin, 2010; Rosing, Frese, & Bausch, 2011). Although some studies (Hulsheger, Anderson, & Salgado, 2009, referenced by Bledow et al., 2011) show a positive association between leadership and innovation, other studies show that specific leadership styles are not positively associated to the success of innovations. Even the effect of some leadership philosophies is disputed. For instance, some studies suggest that transformational leadership increases innovation (e.g. Gong, Huang, & Farh, 2009; Shin & Zhou, 2003), while others suggest that it may have the opposite effect. Although the researchers acknowledge the connection between transformational leadership and creative performance, it is obvious that further information regarding the nature and scope of this impact is required. The researchers begin to imply that traditional leadership styles are overly broad because the effects of some specific types of leadership in relation to innovation remain unclear or lack empirical support (Anderson et al., 2014; Rosing et al., 2011; Bledow et al.(2011); Rosing et al.(2011). There is a greater need for excellent leadership in today's firms because they are functioning in complicated and fast-paced situations where adopting innovative steps might change drastically (especially transformational and ambidextrous). In order to specifically define the conflicting demands of innovation within one single leadership concept, Rosing et al. (2011) developed the ambidextrous

leadership theory. This theory acknowledges the paradoxical nature of the innovation process and builds upon the dialectic perspective of innovation (Bledow et al., 2009). The current study places a lot of emphasis on ambidextrous and transformational leadership.

2.3.1. Ambidextrous Leadership

The ability to use both hands equally is referred to as ambidexterity. Researchers in management have coined the term "ambidexterity" to describe an organization's capacity to explain a balance between exploration activities (such as experimentation and search) and exploitation activities (Benner and Tushman, 2003; Gupta et al., 2006; He & Wong, 2004; Tushman & O'Reilly, 1996) (such as implementation and execution). According to studies (Kauppila & Tempelaar 2016; Taródy 2016; Cao et al. 2009), successful companies in dynamic contexts are ambidextrous, aligned, and effective in the here and now while being flexible to changes in the future. Long-term growth and success are therefore essential for both coping with external dangers and responding with opportunities and innovation. Researchers have asserted in the literature that ambidexterity is essential to innovation at all levels of an organization, including teams and people because inventive behavior requires team members to manage the conflict between exploration and exploitation behaviors (Alghamdi, 2018). At the individual, team, and organizational levels, leadership has been regarded as one of the most significant accelerators of innovation (Zacher et al. 2016; Hunter et al. 2011; Bledow et al. 2009). To encourage both diverse activities among team members and to balance, achieve, and combine exploration and exploitation activities, leaders should aim for high inventive performance (Rosing et al. 2011). Mumford and Licuanan revealed in 2004 that a more complicated leadership approach was actually necessary because leadership styles alone cannot forecast the entire innovation process. Rosing, Frese, and Bausch created a new theory of ambidextrous leadership as a result (2011). The ambidexterity theory of leadership for innovation is connected to a dialectical perspective on innovation and the handling of paradoxes and conflicts in the innovation process (Bledow et al., 2009). (Miron-Spektor et al., 2011; Miron et

al., 2004). Additionally, it explains how ambidextrous leaders are complementary to innovation needs because they encourage their staff to engage in exploratory and exploitative behaviors, which leads to high levels of creativity (Zacher & Rosing 2015). Because handling tensions and contradictions between various activities is necessary at all hierarchical levels within the business, these leadership characteristics are crucial not just for top management but also for leaders and supervisors of innovative teams and individuals (Rosing et al., 2011). (Probst, Raisch & Tushman, 2011). The terms "coexistence," "switch," and "synergy" have been defined in the literature as ambidextrous traits that are related to managers' performance in controlling and striking a balance between exploratory and exploitative actions. Balance can be attained through coexistence by halting the propensity to become more exploitation focused. Second, managers must be behaviorally adaptable to switch between seemingly contradictory tasks in response to external demands. Finally, focusing on potential synergies between exploration and exploitation efforts is another critical component called synergy (Yue, 2018). As shown in Figure 2, ambidextrous leadership consists of three basic behaviors: connecting behavior to offer effective communication, closing behavior to discourage exploitative behavior, and opening behavior to support explorative activity. This leadership style suggests that various leadership characteristics interact and require flexibility to switch between them depending on the demands of the situation.

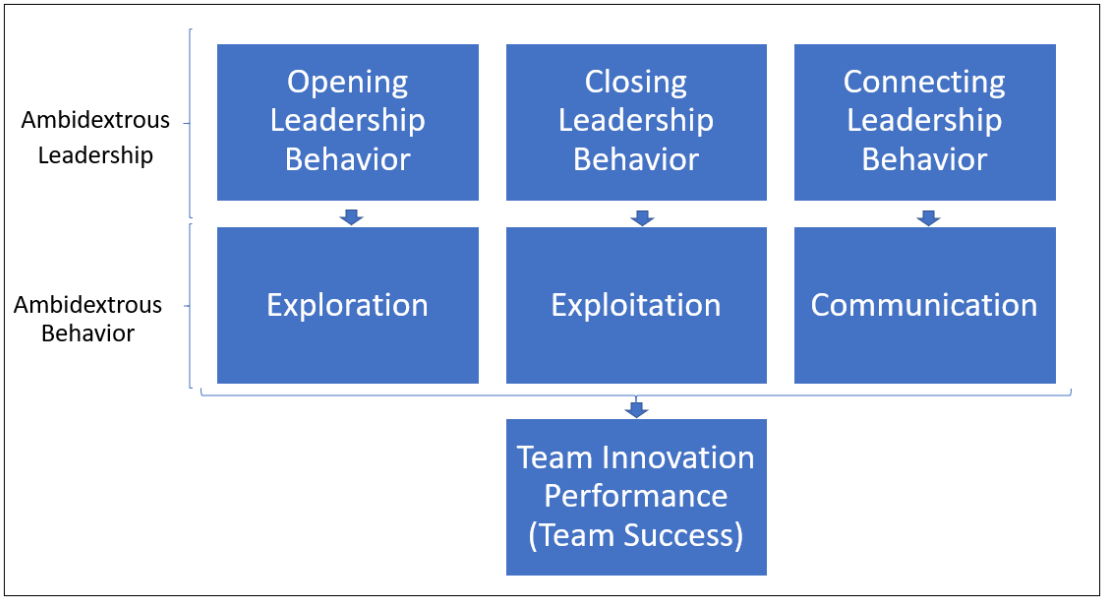

Figure 2 Ambidextrous Leadership in TIP

Giving employees a more free and independent work environment is referred to as opening leadership behavior and includes actions like allowing for mistakes, encouraging them to use alternative methods of task completion, providing opportunities for independent thought, experimenting with different ideas, and encouraging employees to take risks. When employees need to be creative, leaders with open behaviors provide them the freedom to think independently and collect their own ideas. Closing leadership behavior comprises behaviors like establishing routines, ensuring standards are followed, and taking corrective action when necessary. It also entails minimizing variations and establishing routines. TIP is highest, according to researchers, when both opening and closing leadership behaviors are high (Rosing et al., 2011). Leading through influence rather than control, sharing power, delegating decision-making throughout the team, effective communication and connection across the team, and building successful linkages across network developments are all examples of connecting leadership behavior. In order to create and guarantee more innovative outcomes, it permits information interchange between various sources and the growth of networks.

2.3.2. Transformational Leadership

A leadership approach known as "transformational leadership" encourages, inspires, and motivates staff to innovate and bring about change that will have a good impact on expanding and increasing innovation (Gumusluoglu & Ilsev, 2009; Jung et al., 2003). Leaders who want to recognize change and create the next course of action with their team members favor this technique. According to Geijsel, Sleegers, Stoel, and Krüger (2009), these leaders initiate and identify a vision and offer support and intellectual stimulation. Additionally, they increase the self-efficacy, self-esteem, and self-confidence of team members, which boosts their motivation (Jung & Sosik, 2002). The most important thing to remember is that transformational leaders are frequently referred to as mentors and role models because they help each of their followers develop into leaders by fostering an environment free from punishment that makes participants feel empowered and encourages them to act in novel ways (Jung & Sosik, 2002). The concept of transformational leadership was first presented by James MacGregor Burns in his 1978 book Leadership, and it was further refined by Bernard M. Bass, a colleague academic. His beliefs, which included this leadership style, were formed after he examined various political leaders. Researchers' attention has switched over the last few decades to transformational leadership behaviors, or those of leaders that inspire, encourage, and mobilize their followers to take action. The work of House, Bass, and others was influenced by this new emphasis on leadership (e.g. Avolio & Bebb, 1987; Bass, 1985; Bass, Avolio, & Goodheim, 1987; Bennis & Nanus, 1985; Tichy & DeVanna, 1986). They all shared the idea that good leaders can alter and enhance the traditional values, attitudes, work ethic, and beliefs of their workforce because they are willing to push the envelope. They provided evidence indicating transformational leadership has a favorable effect on better performance, more contentment, and work performance of employees with these encouraging results (Bass, 1985; Howell & Frost, 1989). Bernard A. Bass identified four aspects of leadership in 1985 that were essential for leaders to foster an open environment, empower their followers, and permit free exchange of ideas to foster an environment conducive to innovation. These four aspects are depicted in Figure 3: Idealized

Influence, Intellectual Stimulation, Individualized Consideration, and Inspirational Motivation.

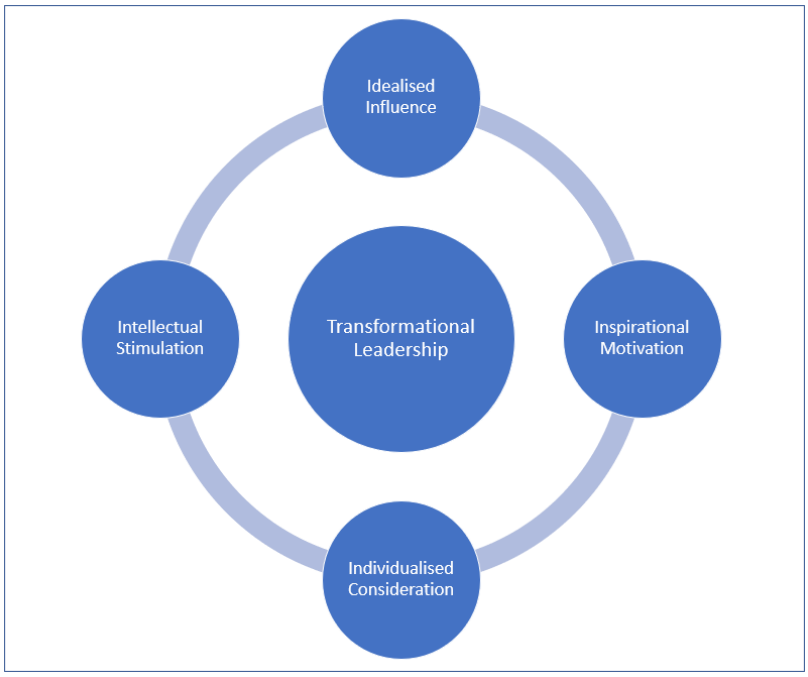

Figure 3 The Four Elements of Transformational Leadership (Four I's of Leadership) (Bass, 1985)

According to House (1977), idealized influence entails having a clear vision, setting clear goals, keeping tasks in focus, respecting team members, building solid relationships with employees, and motivating them to pursue their own objectives. This significant aspect of leadership is connected to charisma (Bass, 1985). These team leaders serve as role models, and every team member grows by imitating the leader to become a leader. Making team members feel important, making them feel powerful, displaying a sense of confidence and power, talking about the most important values and beliefs, finding radical solutions to problems, feeling pride in team members for their loyalty, validating the leader's extraordinary abilities through repeated success, and inspiring and motivating team members to put others' interests ahead of their own for the sake of the team's success are all actions that fall under this dimension (Weber, 1968). This claim is also supported by empirical data, which shows that idealized influence is the aspect of the leader that is most closely linked to success (Lowe, Kroeck, & Sivasubramaniam, 1996). In order to promote innovation and creativity as

well as the ability to recognize and come up with solutions to challenges imaginatively, a leader needs to create a diverse and open workplace. It is the element of transformative leadership that needs the most improvement (Lowe et al., 1996). This component entails activities like fostering team members' capacity for alternative and speedier problem-solving and analysis techniques, as well as raising followers' awareness and interest (Bass & Avolio, 1990). (Bass, 1985). Despite the fact that this leadership aspect has not been well researched, it offers a more conceived and consistent set of behaviors than the other transformational leadership dimensions (Rafferty & Griffin, 2004). Inspirational leadership is characterized by the capacity of the leader to arouse the trust of the followers. According to Bass (1985), charismatic leaders favor the use of emotional speeches, inspirational appeal, and emotive declarations to boost team morale and confidence (Rafferty & Griffin, 2004). This component of transformational leadership also needs the capacity for positive reinforcement, persistence in optimism, and excitement. This sub-dimension was described by Yukl (1981, p. 121) as encouraging team members to successfully complete assignments and achieve shared goals. Last but not least, individualized consideration refers to the leader's creation of a diverse and encouraging environment where people appreciate and celebrate their uniqueness. Leadership studies that concentrated on transformational leadership have been examined in the literature from two different angles. First of all, according to Bass (1985), individualized consideration happens when a leader pays attention to each team member separately. However, more recently, other researchers in the literature on transformational leadership have concentrated on supportive leadership, which refers to providing all team members with general assistance as opposed to customized help (Avolio & Bass, 1995, p. 202). According to this viewpoint, helpful leader behavior was defined as considering people's needs and fostering a welcoming workplace (House, 1996, p. 327).

Impact of IWB: Mediation of Ambidextrous Leadership

Recently, ambidextrous leadership has received a lot of attention as a suitable response to the demands placed on organizations by individuals and groups displaying high

levels of inventive performance. Ambidexterity was initially designed as an organizational learning talent, but it is now recognized as a leadership challenge accomplishment. As it relates to the idea of ambidexterity discussed in Chapter 2.3.1, ambidextrous leadership can be seen as an effective method for handling the difficult and dual invention process. In response to the strain organizations are under to employ both exploration and exploitation to deal with the various situations resulting from the current dynamic and competitive environment (Tushman & O'Reilly, 1997), Vera and Crossan (2004) offered the basic model for a mixed leadership style. According to this theory, ambidextrous leadership refers to the ability to manage a multi-level learning environment that supports exploration and exploitation. As a result, managers should avoid short-term success and long-term failure (Tushman & O'Reilly, 1997); they should simulate and boost followers' creativity (Bledow et al., 2011); encourage them; and show an ideal managerial leadership style with the capacity to choose and engage followers (Bass, 1999). This strategy is in line with the conclusions of other studies; Chang and Hughes (2012) defined the ambidextrous leadership style as adaptability and risk-taking tolerance. Anderson et al. (2004) validated the necessity to create an alternative strategy to effectively lead innovations because current leadership styles are unable to incorporate the necessary behaviors via exploitation and exploration. The dialectical view of innovation was taken into consideration when Rosing, Freese, and Bausch (2011) proposed a new concept that defined ambidextrous leadership as the predictor of innovation. According to this theory, the interaction of leaders' open and closed behaviors will produce higher levels of innovation performance by balancing exploration and exploitation, and that leaders are adaptable enough to switch between opening and closing behaviors based on the needs of the innovation. According to Rosing and colleagues, ambidextrous leaders should assist followers in their efforts to act ambidextrously in the context of innovation. This is based on the theoretical idea put forth by Bledow et al. and Rosing et al. (2011) argued that this concept is also effective at the individual and team levels in addition to the previous research on the organizational level that has proven the beneficial impact of exploration and exploitation on innovation (Benner & Tushman, 2003; Gibson & Birkinshaw, 2004; He & Wong, 2004; Raisch & Birkinshaw, 2008). The exploration and exploitation activities at the team level are intimately tied to the creativity and implementation

phases of the innovation process (Rosing et al., 2011). Therefore, it is recommended that leaders encourage exploration by encouraging opening behaviors (by increasing the variance of the followers' behaviors) and exploitation by encouraging closing behaviors (by reducing the variance of the followers' behaviors) (Gupta, Smith & Shalley, 2006; March, 1991), respectively, and flexibly switching between these behaviors based on the situational task demands (Rosing et al., 2010). As a result, team innovation performance can be triggered when leaders engage in high degrees of both opening and closing leadership behaviors.

Firstly, four sub-hypotheses based on the ambidexterity theory of leadership for TIP team creativity and in accordance with our conceptual model (see in Figure 4) were established. It is anticipated that a leader's openness will have a beneficial impact on the relationship between idea generation and TIP team innovation success as well as concept exploration. This presumption is founded on the idea that leaders should influence their followers' actions in ways that are consistent with the performance of the TIP team in terms of innovation. Second, we anticipate that the relationship between idea championing and the success of TIP team innovation is strongly correlated with leader closure behavior. The foundation of exploitation activities is leaders who engage in closing behaviors like concentrating on tried-and-true methods rather than investigating novel ways of working, establishing routines, regulations, and standards, adhering to the rules, taking corrective actions, and monitoring goal achievement (March, 1991). The necessity for a variety of distinct leadership behaviors, in conclusion, suggests incorporating both opening and closing leadership behaviors. Based on the various requirements of the innovation endeavor, these opposing behaviors are both necessary and adaptable. This fact is highlighted by the assertion that inventive ideas can profit from knowledge utilization (Bain et al., 2001), whereas exploration is necessary not only for idea generation but also for concept implementation (Van de Ven, 1986). Similar to this, other scholars have claimed in the literature that experimentation, receptivity to new information, and various approaches are first implied for creativity and idea development via exploration (Mednick, 1962; Mumford, 2000). Exploitation implies following norms and standards for the application of ideas in the subsequent stages of the innovation process

(Miron-Spektor et al., 2011; Miron et al., 2004). The team is forced to explore options and come up with new procedures or products as a result of opening leadership behavior, which inspires and motivates team members to act differently and creatively (Messmann & Mulder 2012). During the championing stage of IWB, these activities assist producing and adopting new ideas to the life, whereas closing leadership behavior sets goals and monitors them while negotiating team members (De Jong & Den Hartog, 2007). The impact of leadership during IWB on TIP team innovation performance will be low if mediation is low because TIP team innovation performance is a multistage process with different activities. As a result, the quality and frequency of the activities performed during all four aspects of IWB are mediated by the impact of leadership on TIP team innovation performance. Based on the assumptions and findings in the studies mentioned above, the following sub-hypotheses are presented, expecting a partially mediating role through opening leadership behavior on the link between idea exploration, idea generation and TIP; also mediating role through closing leadership behavior on the link between idea implementation and TIP:

Hypothesis 1a: opening leadership behavior has a mediating effect on the link between idea exploration and TIP.

Hypothesis 2a: opening leadership behavior has a mediating effect on the link between idea generation and TIP.

Hypothesis 3a: closing leadership behavior has a mediating effect on the link between idea championing and TIP.

The traditional leaders are finding it more and more difficult to understand the complicated and dynamic nature of the innovation process in today's late modern era. As a result, during the past few decades, the context for innovation management has undergone tremendous transformation. Now, in addition to the opening and closing leadership behaviors, a third significant leadership behavior—connecting leadership behavior—can be discussed in the context of ambidextrous leadership. According to this perspective, a manager can maximize his or her potential and boost TIP team

success by communicating more effectively with his or her staff (Luthra, 2015). This behavior entails motivating and uplifting someone or a group through effective communication (Luthra, 2015); developing long-lasting ties and effective linkages with other organizations in the network for information sharing (Van Meerkerk et al, 2015). Van Meerkerk et al. (2015) asserted that network managers can play a significant "connective" role at teams during projects, emphasizing the connection between the two terms "connective management" and "network management." Additionally, according to their claims (Kickert et al., 1997; Meier & O'Toole, 2001; Agranoff & McGuire, 2001; Koppenjan & Klijn, 2004), if the network is effectively managed by connecting leadership behavior, this will improve TIP team performance in terms of problem-solving ability, innovative character, and the impact of stakeholders' involvement on the project results. They also recommended exploring content and connecting opportunities (Klijn et al.). Managers must establish a range of beneficial relationships with network stakeholders (Meier & O'Toole, 2001). Connective managers focus on building relationships between internal and external actors, which has a significant impact on achieving higher outcomes (Klijn et al. 2010); they also increase the flow of information in the network, which leads to variety and more potential solutions (Koppenjan & Klijn 2004); and they create opportunities for learning (Wagenaar 2007; Van Meerkerk & Edelenbos 2015). Similar research was conducted on the relationship between relationships and the associated construct of creativity by Perry-Smith and Shalley (2003). (Jong & Hartog, 2010). Perry-Smith and Shalley (2003) proposed that social communication with connections outside of the workplace has an impact and is beneficial for innovative work behavior, including choices for idea implementation. They based their argument on the social network theory. Which point of the innovation process connecting leadership has the greatest influence on the relationship between IWB and TIP team innovation success is still unknown. According to Scott & Bruce (1994); De Jong and Den Hartog (2007), connecting leadership behavior would promote opportunity exploration and idea implementation as there is evidence that supervisor support and monitoring are effective ways to promote IWB. Although it may be expected based on the theory of ambidextrous leadership that opening, closing, and connecting leadership behaviors have a positive impact on IWB and all four aspects of IWB can be strengthened by

leaders who show these leadership behaviors, only an extensive network will allow for this. Based on the discussion, the following main hypothesis is proposed:

Hypothesis 4a: connecting leadership behavior has a mediating effect on the link between idea implementation and TIP.

2.3.3. Impact of IWB: Mediation of Transformational Leadership

According to theorists, one of the most important factors for fostering employee innovation and creativity at all levels of the workplace is leadership (Halbesleben, Novicevic, Harvey, & Buckley, 2003; Mumford & Licuanan, 2004; Mumford, Scott, Gaddis, & Strange, 2002; Reiter-Palmon & Illies, 2004; Williams & Foti, 2011; Zacher & Johnson, in press; Zhou & Hoever, 2014). Recent research (O'Reilly & Tushman, 2013; Jansen et al., 2009) examined the effects of various leadership behaviors on organizational creativity and innovative performance at the team level. Leaders can promote and foster innovative performance in a variety of ways because of their guiding position. The most commonly researched leadership style in the current literature is transformational leadership (O'Reilly & Tushman, 2013; Rosing et al., 2011). It is viewed as a catalyst for innovation and transformation (Eisenbeiss, van Knippenberg, & Boerner, 2008; Bass & Avolio, 1994; Bass & Riggio, 2006). This leads to higher organizational innovation (Samad, 2012; Gumusluoglu & Ilsev, 2009; Jung et al., 2003). Team members of charismatic transformational leaders are inspired and encouraged to try out novel approaches, management techniques, and solutions (Vaccaro et al., 2012). Therefore, continual innovation has been emphasized as a crucial function in theories of transformative leadership (Bass, 1985; Basu & Green, 1997; Tichy & Ulrich, 1984). According to Reuvers et al. (2008), transformational leaders are able to recognize the strengths and flaws of their followers and foster a sense of confidence and self-belief in them. This could inspire followers to complete tasks in novel and unconventional ways (Li et al., 2016). This is due to the fact that IWB demands people to maintain a strong hunger for achievement, and transformational leaders make this aspect possible (Afsar et al., 2014). Additionally,

inventive leaders foster a wider sharing of knowledge to encourage others to be creative (Isaken & Laver, 2002). Despite these debates, there aren't many research that look at how transformational leadership practices affect IWB (Afsar et al., 2014; Janssen, 2000). Numerous research (Masood & Afsar 2017; Choi et al. 2016; Reuvers et al. 2008; Molodchik et al. 2016) have demonstrated that transformational leadership behavior greatly promotes IWB. This is based on the theoretical underpinnings of the transformational leadership idea. The literature's general framework demonstrated that transformational leadership was favorably associated to employees' ingenuity and creativity (Shin & Zhou, 2003). This beneficial effect was replicated in the findings of several following research. They sometimes looked at moderators like employees' organizational-based self-esteem (Rank, Nelson, Allen, & Xu, 2009), identification with leader and innovative climate (Wang & Rode, 2010), as well as personal initiative and task novelty. Mediators included employee psychological empowerment (Gumusluoglu & Ilsev, 2009), creative self-efficacy (Gong, et al., 2009), and creative identity (Wang & Zhu, 2011). (Herrmann & Felfe, 2013). Eisenbeiß and Boerner (2013) demonstrated, in a unique way compared to other authors, the direct and favorable relationship between this leadership style and innovation as well as the dependence of employees on the leader. Additionally, they examined how dependency reduced the good direct effect of transformative leadership on creativity while measuring the negative indirect effect. Despite these optimistic findings, Rosing et al. (2011) claimed that a combination of several leadership behaviors rather than a single one may be advantageous to boost the innovation output because of the significant degree of heterogeneity of these bivariate associations (Hunter, et al., 2011; Mumford, 2006). Due of this complexity, it is vital to forecast the stage of innovation at which transformational leadership will have the most impact on the TIP. Based on all of these research findings, the following hypotheses were developed:

Hypothesis 4a: Transformational leadership has a mediating effect on the link between idea exploration and TIP.

Hypothesis 4b: Transformational leadership has a mediating effect on the link between idea generation and TIP.

Hypothesis 4c: Transformational leadership has a mediating effect on the link between idea championing and TIP.

Hypothesis 4d: Transformational leadership has a mediating effect on the link between idea implementation and TIP.

2.4. TEAM CHARACTERISTICS AND MODERATING IMPACT ON TEAM INNOVATION PERFORMANCE

Creativity and innovation performance are closely related, and both are crucial for organizational survival and productivity. For the comprehension and acceleration of creative achievements, effective teams and individual leaders are essential (Anderson, Potonik, & Zhou, 2014). Individuals generate ideas. However, teams will be more creative than the sum of their individual parts and must share knowledge among themselves in order to be creative (Dong, Bartol, Zhang & Li, 2017). Because of this, successful teams are essential to an organization's performance in a changing environment (Kozlowski et al. 2003; Kozlowski & Ilgen 2006). Teams have some advantages over individuals in that they can offer a variety of knowledge and abilities, think from multiple viewpoints, and foster innovation and the production of novel ideas (Hoegl & Parboteeah, 2007). Not forgetting, however, that only in strong teams will all these advantages be realized. The shared link that keeps team members together and their readiness to cooperate is referred to as team cohesion (cohesiveness) (Casey-Campbell & Martens, 2009). Although it is not an exhaustive list, some other definitions of team cohesiveness in the literature are listed in Table 1.

Table 1 Descriptions of ‘’Team Cohesion/Cohesiveness’’ in the Existing literature

Definition	Sources
An attraction or bonding between group members that is based on a shared commitment to achieving the group's goals and objectives	Carron, Widmeyer, & Brawley (1985); Festinger (1950)
The 'stick-togetherness' of the group	Guzzo & Dickson, 1996; Salisbury, Parent, & Chin, 2008
The bond with the group as a whole	May et al. 2008
The degree to which the group members share the group goals and unite to meet these goals	Shiue, Chiu, & Chang 2010
The desire of group members to stay together as a group"	Banki, 2010
A closeness and attraction within the group that is based on social relationships within the group	Carron et al. 1985; Seashore 1954
How individual members of a team relate and work together as a unit	Aoyagi, Cox, & McGuire, 2008
The degree to which members of a group are attracted to each other	Shaw, 1981
The extent to which group members exhibit liking for the status or the ideologies that the group supports or represents, or the shared importance of being a member of the group	Beal, Cohen, Burke, & McLendon, 2003
Individuals' high degree of loyalty to fellow group members and their willingness to endure frustration for the group	Cartwright & Zander, 1960
The shared bond/ attraction that drives team members to stay together and to want to work together	Casey-Campbell & Martens, 2009

People who do not experience a sense of cohesion with their teammates for whatever reason (distrust, dislike, disinterest, etc.) will be less driven and less inclined to engage in team activities (Salas et al. 2015). Some scholars claimed that team cohesion may be viewed as both an undimensional (team members' attraction to the group or unwillingness to leave the organization; Seashore, 1954) and a multidimensional entity (sum of forces acting on members to remain in a group; Festinger, 1950). The interaction between team members is also greatly influenced by trust. Through cooperation, contact, and solidarity among team members, trust maintains the growth and protection of team behavior. The presence of trust within the team has a beneficial direct and indirect impact on the results (Erdem et al. 2003). The skill, integrity, and goodness of other team members are considered, as well as the members' personal tendency to trust, when defining trust (Jarvanpaa et al. 1998). Trust is crucial for team innovation success from the start of the partnership and grows stronger over time (McAllister, 1995). A well-functioning team is founded mostly on mutual trust, according to research in the body of existing literature, and there is a significant link

between trust and TIP team performance. The behavioral components of collaboration that increase trust include assisting team members to each other, sharing all resources, supporting one other when introducing new ideas, respecting feelings and ideas, and following through on their commitments. For this reason, team members' tendencies towards trust is an important factor in creating an effective TIP and increasing team outputs at the organizational level.

2.4.1. Team Cohesiveness

Cartwright and Zander (1968) described team cohesion or team cohesiveness as a sense of togetherness or mutual attraction for the accomplishment of the group's goals. The three components of cohesion, according to Festinger (1950), are attraction to the group, dedication to the work, and collective pride. Festinger's original conceptualization has received support from some scholars, who consider his three aspects as parts of cohesiveness or as a whole paradigm (e.g. Beal et al., 2003; Carless & De Paola, 2000; Mullen & Copper, 1994). Cohesiveness was later characterized as a bond that causes team members to stick together and want to work together, and it is essential for teams (Casey-Campbell & Martens, 2009). (e.g., Beal, Cohen, Burke, & McLendon, 2003; Chiocchio & Essiembre, 2009). According to Seashore & Stanley (1954), groups with high cohesion are better able to achieve their objectives in industrial settings. It guarantees group behavior management, stability, and conformity (Wolfe & Box, 1986). If any team members lack a sense of cohesion, they will be less motivated and unwilling to engage in "teaming," which will prevent many of the beneficial impacts of teams from occurring (Grossmann et al., 2015). Numerous studies have shown that cohesion has a favorable impact on TIP. However, there are no measurable indicators of its moderating effect on the innovation process. Based on this discussion, the following hypotheses are proposed:

Hypothesis 5a: Team cohesiveness moderates the link between idea exploration and TIP; the higher team cohesiveness will strengthen the impact of idea exploration on TIP.

Hypothesis 5b: Team cohesiveness moderates the link between idea generation and TIP; the higher team cohesiveness will strengthen the impact of idea generation on TIP.

Hypothesis 5c: Team cohesiveness moderates the link between idea championing and TIP; the higher team cohesiveness will strengthen the impact of idea championing on TIP.

Hypothesis 5d: Team cohesiveness moderates the link between idea implementation and TIP; the higher team cohesiveness will strengthen the impact of idea implementation on TIP.

2.4.2. Trust

The skill of the team members and their personal trustworthiness are two factors that define trust (Jarvanpaa et al, 1998). According to this concept, there are two types of trust: cognitive trust, which is significant at the start of a relationship, and effective trust, which grows more significant as time goes on (McAllister,1995). Only in environments where there is high-level, ongoing, and intense trust among team members can high-performance teams be developed (Erdem et al., 2003). Trust fosters a psychologically comfortable environment where team members can express themselves freely and so build synergy (Edmondson, 1999). According to researchers interested in the factors that enable businesses to improve their innovation performance (Aragón-Correa et al., 2007), innovation is more likely to be the product of the team's collective intellectual and transdisciplinary output than an individual result (Krot & Lewicka, 2011). According to this perspective, trust is a dynamic feature of relationships (Bulent, 2000; Flores and Solomon, 1998), and effective actor-actor interactions have a direct impact on employee job outputs as well as TIP team performance (Tzafrir & Eitam-Meilik, 2005). But one thing that shouldn't be overlooked is the importance of trust in teams. TIP may suffer if the team members place too much trust in one another (if "solidarity" develops). Groupthink may then

develop as a result (Erdem et al., 2003). Based on this discussion, the following hypotheses are proposed:

Hypothesis 6a: Trust moderates the link between idea exploration and TIP; the higher trust will strengthen the impact of idea exploration on TIP.

Hypothesis 6b: Trust moderates the link between idea generation and TIP; the higher trust will strengthen the impact of idea generation on TIP.

Hypothesis 6c: Trust moderates the link between idea championing and TIP; the higher trust will strengthen the impact of idea championing on TIP.

Hypothesis 6d: Trust moderates the link between idea implementation and TIP; the higher trust will strengthen the impact of idea implementation on TIP.

2.5. STUDY MODEL

Figure 4 presents the study model which involves proposed links among variables.

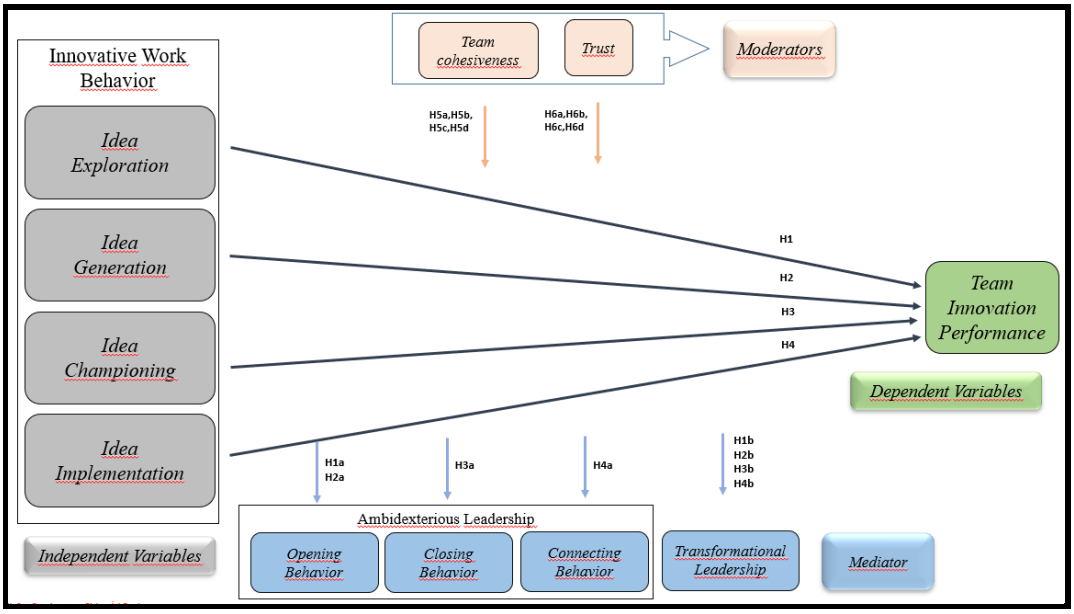

Figure 4 Conceptual Model of the Study

In the model depicted in Figure 1, the various hypotheses are combined in the conceptual framework to be tested. In a nutshell, it is expected that IWB (Idea Exploration, Idea Generation, Idea Championing and Idea Implementation) has a positively impact on TIP through leadership, respectively. The interaction of different leadership styles at different stages of IWB, in turn, is expected to predict teams' innovative performance, such that TIP is highest when all the leadership styles are strong at all the stages of IWB. The following section (Chapter 3) addresses data collection and the measurement of our core variables.

CHAPTER 3

METHODOLOGY

3.1. Research Design

The quantitative method approach has gained a great deal of attention since it is a quick and inexpensive way for gathering data, permits the removal of biases from the research, and produces more accurate analysis. Additionally, it enables the comprehension of complex phenomena as well as their straightforward statistical and numerical explanation (Creswell, 1999). This point of view guarantees that the research's emphasis is clearly defined and directs the researcher. This "positivist orientation," which emphasizes the "dominant role" of the quantitative component and occasionally the qualitative component's "supportive role" (Bahl and Milne, 2007), includes the idea of viewing the world from different angles and seeks to use methodologies that are more effective at addressing the problems than a single method or approach (Rossman, and Wilson, 1985). In this thesis, for the analysis, quantitative methods of data collection and evaluation were used. In addition, a short interview as the pre-measurement (qualitative method) were used to determine the real-life equivalent of the focus point of the study and to make a very short preliminary search. These techniques don't conflict with one another; rather, they function in harmony to stimulate and visualize the whole structure (Hollstein, 2008). While an interview reveals IWB structures and offers a better understanding of potential drivers for the flow of knowledge and innovations, and while it is crucial to pinpoint the reasons behind quantitative findings, quantitative methods can pinpoint the extent to which drivers have an impact on teams during the innovation process.

3.2. Survey

3.2.1. Pre-measurement Study

Many studies in the literature suggest that innovation work behavior makes distinctions between different theoretical dimensions and is connected to various stages of the innovation process. Drawing from Kanter's (1988) work on the stages of innovation, four stages are identified as idea generation (as the activation of the drivers of innovation), coalition building (as the acquisition of the power required to move the idea into reality), idea realization (as the turning of the idea into a model, or alternatively, innovation production), and idea implementation (as the commercialization of the product or the adoption of the idea). IWB is described by Scott and Bruce (1994) as a multi-step process with various activities and behaviors required at each stage. People can be anticipated to engage in any combination of these behaviors at any one time since innovation is actually defined by discontinuous actions rather than discrete, sequential stages (Schroeder, Van de Ven, Scudder, & Polley, 1989). The majority of IWB metrics were regarded as one-dimensional even though IWB is technically accepted as multi-dimensional (e.g., Scott & Bruce, 1994; Reuvers et al., 2008). Additionally, rather than being separate steps, these activities were thought of as discontinuous and overlapping phases (Schroeder et al., 1986; Van de Ven, 1986). In order to understand whether these questions are relevant in Turkish business context, some interviews were conducted as a source of inductive data. At this initial stage, the main aim is to understand the relevance of such questions as whether these stages are occurred in sequence or whether the tasks in each stage are overlapped with each other in this context as well as what kind of factors affects each stage and how people define innovative performance in teams. Interview was performed with three respondents, who are working in energy, cosmetics and dye sectors who are working in dye, energy and cosmetics sectors and they still work in Marketing and R&D departments that are accepted in the literature as the leading departments on the innovation process within firms and they have to work in the cooperation to achieve the market success of the innovative product (Pereira & Sequeira, 2007). Respondents also see themselves as a member of an innovation team in their organizations, for the explanations of both forthcoming work in the innovation process and expected group dynamic reactions along the projects. The innovation process described by Tidd and Bessant (2009), which consists of four phases—looking for ideas, choosing an idea to develop, putting a developed product (such as services

or processes) on the market, and capturing the value produced through the process—was chosen to help visualize the innovation project's progress (Johnson, 2018). The data were collected from the respondents at the point after the completion of their innovation projects that were successfully completed in the last three years. In doing so, an in-depth interview was conducted that focused on four aspects (1) the composition of innovative work behavior, (2) important drivers of this innovation process, (3) the identification of TIP during innovation projects, and (4) the effect of group dynamics on the success of the project, whether the team members need a leader to conduct a new innovation project. The interviews were audio-recorded and lasted for approximately 35 minutes each. Interviews were chosen as the first step because they allow for close contact with the respondent and are a reliable means of understanding someone's viewpoint (Maxwell, 2013); they are advised for gathering information that cannot be seen in surveys (Blessing & Chakrabarti, 2009), as they allow for the exploration of discrepancies in the respondents' opinions and descriptions of experiences (Yin, 2013). The pertinent interview passages were then transcribed, subjected to reflective analysis (Schön, 1991; Yin, 2013), and coded to extract the features.

Respondents were chosen from different sectors (dye, cosmetics and energy) with total work experience of between 6-10 years. The participation from 3 employees was requested, and all of them provided complete data between 12th November 2018 and 22nd December 2018, representing a response rate of 100 percent. Regarding the selection of the respondents, the most basic criterion was that they were actively involved in any innovation projects that is being executed or completed successfully. Regarding the profiles of the respondents, the questionnaire items measured age, gender, educational level, department and position in the company, total work experience and sector of the company. Interview was made with 3 respondents as 1 male and 2 female respondents. The age distribution ranged from 27 to 35. In terms of highest level of education, all of them were completed a postgraduate university degree (Master’s degree). Participants have different backgrounds such as 1 marketing (33,33%) and 2 research and development (66,67%). A number of 1 (33,33 %) participants had total work experience less than 6 years, other 2 (66,67 %) employees

had experience between 6 and 10 years. Employees reported their position in the company as 1 mid-level manager (department manager, coordinator, team leader,..etc.) (33,33%) and 2 non-manager (specialist, senior specialist, engineer, researcher,..etc.) (66,67%).

Additionally, during the interview, the participants were asked a total of 12 open-ended questions. Two of the interviews were performed as face-to-face and the other was by phone. Their answers to the questions during the interview were both noted and recorded after the participants' permission was obtained. Interviews were considered appropriate with open-ended questions for this research, partly due to the explore some definitions that are the subject of discussion or have not yet been clear in the literature. According to Yin (2003) open-ended questions provides the interview to detail and offer insights into specific incidences and that proposing them for further analysis is critical to the success. At that point, "how" questions were asked to understand underlying assumptions behind those propositions. At the end of the interviews, the collected data were analyzed by first documenting and coding the data, followed by a thematic analysis in accordance with (Boyatzis, 1998) to identify themes and patterns of the characteristics. Then the responses were coded. Table 2 summarizes the data collected at the interview.

Table 2 Interview Results

Questions	**Respondent #1**	**Respondent #2**	**Respondent #3**
Gender	Female	Female	Male
Age	20-30	20-30	31-40
Department of Graduation	Chemical Engineering (MSc)	Chemical Engineering (MSc)	Business Administration (MA)
Total Work Experience	7 years	6,5 years	9 years
Title of the Job	Senior R&D Specialist	R&D Engineer	Brand Specialist
Sector	Lubricants	Dye	Cosmetics

example of the innovation	new product development	new product development	creating a niche product category
measure of success	cost reduction	commercialization	profit, market share and preferability
team formation	team is formed automatically depending on the job description	team is formed automatically depending on the job description	team is formed automatically depending on the job description
when the team was formed	members provided support as information was needed	at the beginning of the project	at the beginning of the project
prominent roles in the team	the role of process initiator and guiding (Product Manager)	the role of leader (department manager) and other team members based on job description	the role of leader, follower of the process, guiding the members, process accelerator
stage of the process and structure of activities	multi-stage process, discrete and sequential activities	multi-stage process, discrete and sequential activities	multi-stage process, includes both discrete-sequential and discontinuous-overlapping activities
skills and resources needed during process	information sharing with suppliers, exploitative approach, support from external laboratories	different resources were needed for different projects	market research, product management, brand management, technical knowledge, different skills and resources are needed in every process. Research at the beginning, development later
change in the roles within the team during the process	No, job description of the members are very clear	No, job description of the members are very clear	No, job description of the members are very clear. However, the leader can change in every process. Each department can take the lead in the process that is related to it.
leadership style	changeable (sometimes strict, sometimes open to innovation and change)	always the same style	handing over the leadership to the dominant department do leadership style is changeable
most prominent and characteristic feature of the team	working for the same goal, customer-oriented work, increasing company profit	NA	NA
methods to increase innovation efficiency and creativity	empathy and guiding role if needed	reward system to increase productivity	adoption of the process, focusing on the capabilities of the company
factors affecting the TIP	acting together, a common goal, ensuring the flow of the process,	efficient work of the team	planning correctly in the first place and adhering to the given deadlines

	each member behave selflessly		
factors that negatively affect the TIP	trying the wrong ways causes the processes to be unnecessarily prolonged	NA	launching similar products to the market at the same time with competitors (the time factor), departments' negative attitude towards each other, prolongation of processes due to non-compliance with deadlines

Respondent #1 : The first respondent explained the innovation process as the new product development and defined the measure of success as cost reduction. As the team formation, she highlighted that the formation occurs automatically depending on the job descriptions of the team members. The team is not completely formed in the first sight. There is only one department that manages the process. However, as the need arises, additional team members are determined and provide support to the team. However, they are never fully involved. They just provide support. The type of the requirements at the stages determines the correct people as the member for the team. Also, she stated that there is not a direct leader in the process. However, a person responsible for the process initiation and guides the team members at all stages. When there is any point that stops or disrupts during process, that person has to take some decision, motivates people, organize people and provides to continue the process. Innovation process was structured as multi-stage process, included discrete and sequential activities. At some stages (related to R&D), both internal and external sources (support from external laboratories, information sharing with suppliers) and some skills (exploitative approach) are needed. There is no change in the roles within the team during the process because job description of the members are very clear and the matching of people with what to do is completely dependent on this description. During the project, leadership style should be changeable based on the stages, sometimes strict, sometimes open to innovation and change. Most prominent and characteristic feature of the team was defined as working for the same goal, customer-oriented work, increasing company profit. Common goals keep the team together. There are also some methods to increase innovation efficiency and creativity such as

empathy and guiding role to see the alternatives of to choose the better and fast ways in cases where the process is prolonged. The factors affecting the TIP was summarized as acting together, a common goal, ensuring the flow of the process, each member behave selflessly. Lastly, trying the wrong ways causes the processes to be unnecessarily prolonged so this can negatively affect theTIP .

Respondent #2 : The second respondent also explained the innovation process as the new product development samely with first respondent, and defined the measure of success as new product development and commercialization. As the team formation, she answered samely with first one, that the formation occurs automatically depending on the job descriptions of the team members and formation is completed at the beginning of the process. Differently from the first respondent, she stated the necessity for the presence of a leader in the process. However, this task was undertaken mostly by the Research and Development Manager. Innovation process was structured as multi-stage process, included discrete and sequential activities. At some stages (related to R&D), different sources are needed in different projects. There is no change in the roles within the team during the process because job description of the members are very clear and the matching of people with what to do is completely dependent on this description. She did not give any information about the most prominent and characteristic feature of the team. There are also some methods to increase innovation efficiency such as reward system. The factors affecting the TIP was summarized as efficient work of the team during the project. Additionally, she said there is no valid factor that negatively affect theTIP .

Respondent #3 : The third respondent explained the innovation process as the creating a niche product category and defined the measure of success as providing profit, market share and preferability . As the team formation, he also highlighted that the formation occurs automatically depending on the job descriptions of the team members and formation is completed at the beginning of the process. Most prominent roles in the team were defined as the role of a leader, follower of the process, guiding the members and the process accelerator. Marketing department follows the process, guides the members, accelerates the process. It is also the leader. When there is any

point that stops or disrupts during process, they have to take some decision, motivates people, organize people and provides to continue the process. Innovation process was structured as multi-stage process, included both discrete- sequential and discontinuous-overlapping activities based on the stages. Different skills and resources are needed in every process such as market research, product management, brand management, technical knowledge and deeply technical research. There is no change in the roles within the team during the process because job description of the members are very clear and the matching of people with what to do is completely dependent on this description. However, each department can take the leadership role in the process that is related to them mostly. During the project, leadership style should be changeable based on the stages, handing over the leadership to the dominant department is possible. He did not give information about the most prominent and characteristic feature of the team. There are also some methods to increase innovation efficiency and creativity such as adoption of the process and focusing on the capabilities of the company instead of focusing only to profit or market share. The factors affecting the TIP was summarized as planning correctly in the first place and adhering to the given deadlines. Lastly, launching similar products to the market at the same time with competitors (the time factor), departments' negative attitude towards each other, prolongation of processes due to non-compliance with deadlines can negatively affect the TIP.

Available measures in the literature usually regard IWB as being one-dimensional, whereas theory suggests that it may be multi-dimensional (Jong & Hartog 2010). They proposed that IWB consists of four related dimensions, namely, the exploration, generation, championing and implementation of ideas. However, they concluded that the evidence of the distinctiveness of the four dimensions was weak. During this study, at this early stage, the primary goal was to comprehend the relevance of issues like the order in which these stages occur, whether or not each stage's activities overlap with one another in this context, as well as what kind of factors affects each stage and how people define innovative performance in teams. In this direction, qualitative findings confirmed that innovative work behavior composed of different activities/steps at teams. Also, it provided the understanding for the necessity of the presence of a leader

during the process and showed of the gap in the literature regarding the definitions of success criteria, team formation process and the dominant roles in the innovation processes in real business life.

3.2.2. Measurement

A quantitative approach was proposed to gather the data for the study. It was intended to use survey instruments and gather responses from all levels (from top management to the newly graduated employees), in all departments. Due to reaching to more respondents in Turkey and abroad, the questionnaire was constructed in two languages. An online survey which was initially designed in English was translated into Turkish and then back translated into English in order to ensure equivalency. Then both versions were controlled because of translation errors and compared for conceptual equivalence (Hartmann and Grahl, 2011: 72). As the method, this study applied a descriptive cross-sectional methodology. The structure of the study included five parts based on the variety of variables. The first part contained items regarding demographic characteristics of participants, namely age, gender, educational level, department and position at the current company, functional background, team role during the project, work experience (in years) in current company, total work experience (in years), industry of the company. Employees reported their age in years (1 = 20-30, 2 = 31-40, 3= 41-50, 4 = more than 50), their gender (1 = female and 2 = male), educational level (1 = bachelor degree, 2 = master degree, 3 = doctorate degree, 4 = other), department in current company (1 = research and development, 2 = innovation, 3 = project management, 4 = sales, 5 = management, 6 = marketing, 7 = business development, 8 = intellectual property, 9 = human reources, 10 = quality, 11 = other), current position (1 = high-level manager, 2 = mid-level manager, 3 = non-manager), functional background (1 = marketing, 2 = research and development, 3 = supply chain, 4 = finance, 5 = other), team role (1 = resource investigator, 2 = team worker, 3 = co-ordinator, 4 = plant, 5 = monitor evaluator, 6 = specialist, 7 = shaper, 8 = implementer, 9 = completer finisher), work experience in current company in years (1 = 1-5, 2 = 6-10, 3 = 11-20, 4 = more than 20), total work experience in years (1 = 1-5, 2 = 6-10, 3 = 11-20, 4 = more than 20), sector of the company (1 = automotive, 2 = energy, 3 = chemicals, 4 = information communication Technologies, 5 = consultancy, 6 =

technology, 7 = durable consumption, 8 = food, 9 = health, 10 = university, 11 = textile, 12 = construction, 13 = fast moving consumer goods, 14 = defence, 15 = finance, 16 = cosmetics, 17 = steel, 18 = lubricants, 19 = manufacturing, 20 = service, 21 = other).

Independent Variables. The second part is innovation work behavior that comprises four dimensions, namely idea exploration, idea generation, idea championing and idea implementation. The dimensions were measured using 7-item scale, from (1) never to (7) always and 17 items were used developed by Jong and Hartog (2010). Cronbach's alpha for the scale of idea exploration was 0.80. Cronbach's alpha for the scale of idea generation was 0.84. Cronbach's alpha for the scale was of idea championing 0.89. Cronbach's alpha for the scale of idea implementation was 0.88.

Mediator Variables. Third part is leadership behaviors that included ambidextrous leadership and transformational leadership. Ambidextrous leadership contained three dimensions: opening, closing and connecting leadership behaviors. The dimensions were measured using 7-item scale, from (1) never to (7) always and 31 items were used developed by Rosing et al. (2011), Meerkerk et al. (2018) and Podsakoff et al. (1990). Cronbach's alpha for opening leadership behavior was 0.93. Cronbach's alpha for closing leadership behavior was 0.85. Cronbach's alpha for connecting leadership behavior was 0.94. Cronbach's alpha for transformational leadership was 0.97.

Moderator Variables. The fourth part is team characteristics. Team characteristics included two dimensions as trust and team cohesiveness. The dimensions were measured using 7-item scale, from (1) never to (7) always. A total of 3 items for team cohesiveness developed by Grossman et al. (2015) and 7 items were used for trust developed by Erdem et al. (2003). Cronbach's alpha for the scale of team cohesiveness was 0.94. Cronbach's alpha for the scale of trust was 0.95.

Dependent Variable. The fifth part is TIP that was measured with 10 items developed by Aga et al (2016). Participants were asked to rate their TIP on project on a 7-point scale ranging from 1 (never) to 7 (always). Cronbach's alpha for the scale of TIP was 0.96.

Control Variable. In order to eliminate the effects of external factors that might bias the results (Terpend and Krause, 2015: 37), 10 control variables were introduced to control for (1) age, (2) gender, (3) educational level, (4) department at the company, (5) position at the company, (6) functional background, (7) team role, (8) tenure with the company, (9) total work experience, and (10) operating sector.

3.2.3. Data Collection and Analysis

The main data was collected as an empirical research at a global platform. Research in the firms was carried out electronically. In order to reach the right participants, target people were determined primarily based on their work areas and background. Then, connection was established electronically via LinkedIn with first 275 people of different status from different industries in the private sector and academic environment, whose main field of study is innovation. Regarding the selection of the respondents, the most basic criterion was that they were actively involved in any innovation projects that is being executed or completed successfully. Additionally, 976 people whose main field of study was not innovation but who previously worked in the field of innovation in their background were contacted and invited to participate into the research. The survey was sent to those who are willing to support the research via LinkedIn or email. As a result, a total of 1251 potential respondents received the link to an online survey on LinkedIn message or via email with a short introductory letter. At the end, 322 data was provided during four months (between 10th Nowember 2021 and 11th February 2021) representing a response rate of 25,7 percent. The use of Google to collect high quality survey data in a fast and inexpensive way has been recommended by researchers. In the preparation of the survey form used in the collection of data in this research, some related previous research in the literature examined. In this way, survey form suitable for the purpose of the research was edited in two different languages (Turkish and Engish). In Turkey, 283 (87,58 %) respondents were requested to complete the questionnaire designed in Turkish language. On the other hand, 40 (12,42 %) respondents who work in foreign subsidiaries of Turkish companies completed the survey in English. The letter which described the aim of the

study ensured confidentiality. 7’ likert type scale was used. Detailed information on the respondent profiles are provided in Table 3.

Table 3 The profiles of the respondents

Table 3	
The profiles of the respondents	
Characteristics	**Percent**
Age	
20-30	37,58
31-40	47,52
41-50	10,87
>50	4,04
Missing	0
Gender	
Female	48,76
Male	51,24
Missing	0
Educational level	
PhD	12,73
Master Degree	49,07
Bachelor's Degree	37,89
High School	0,31
Missing	0
Department at the company	
Research and Development	34,47
Innovation	16,77
Project Management	10,56
Sales	9,32
Management	7,14
Marketing	2,8
Business Development	2,8
Intellectual Property	2,17
Human Resources	1,86
Quality	1,86
Supply Chain	0,93
Production	0,93
Product Development	0,62
Product Management	0,62
Strategy	0,62
Technical Services	0,62
Regulatory Affairs	0,62
Maintenance	0,62
Accounting	0,62
Logistics	0,31
EHS (Environment, health and safety)	0,31

Missing	3,42
Position at the company	
High-level Manager	12,42
Mid-level Manager	25,16
Non-manager	52,80
Missing	9,63
Functional background	
Marketing	3,42
R&D	36,34
Supply Chain	0,93
Finance	1,24
Other	
Innovation	2,80
Project Management	2,80
Intellectual property	1,55
Production	1,24
Engineering	0,93
Quality	0,93
Sales	0,93
Information Technologies	0,62
Maintenance	0,62
Regulatory Affairs	0,31
Business Development	0,31
Missing	45,03
Team role	
Resource Investigator	9,32
Team Worker	12,42
Co-ordinator	9,01
Plant	3,73
Monitor Evaluator	6,21
Specialist	5,90
Shaper	0,93
Implementer	7,14
Completer Finisher	2,17
Missing	43,17
Tenure with the company	
1-5 Years	72,36
6-10 Years	15,84
11-20 Years	9,32
More than 20 Years	2,48
Missing	0,00
Total work experience	
1-5 Years	33,54
6-10 Years	28,88
11-20 Years	26,40
More than 20 Years	11,18
Missing	0,00

Sector of the company	
Automotive	15,22
Energy	11,49
Chemicals	7,14
ICT*	7,14
Consultancy	6,21
Technology	6,21
Durable Consumption	5,90
Food	4,04
Health	3,42
University	3,73
Textile	3,11
Construction	2,80
Fmcg**	2,80
Defence	2,48
Finance	2,48
Cosmetics	2,17
Steel	2,17
Lubricants	1,86
Manufacturing	1,24
Service	1,24
Dye	0,93
Wood products	0,93
Biyotechnology	0,62
Composite	0,62
Logistics	0,62
Packaging	0,62
Travel	0,62
Agriclture	0,31
Electronics	0,31
Fashion	0,31
Glass	0,31
Human Resources	0,31
Leather	0,31
Recycling	0,31
Missing	0,00
*information communication technologies	** fast moving consumer goods

Table 3 illustrates the profiles of responding employees and their companies. Regarding the profiles of the respondents, the questionnaire items measured age, gender, education, department and position in the company, functional background, team role during the project, work experience in the current company, total work experience and sector of the company. Data for this study came from 322 respondents,

including 165 (51,24 %) male and 157 female (48,76 %) respondents. The age distribution ranged from 21 to 61, and the average age was 33,93 years (SD = 7,37). In terms of highest level of education, 1 (0,31%) employee had completed high school, 122 (37,89%) completed an undergraduate university degree, and 199 (61,8%) completed a postgraduate university degree. A number of 233 (72,36 %) participants had been employed for less than 6 years, 51 (15,84 %) employees had experience between 6 and 10 years, 30 (9,32 %) had employed between 11 and 20 years and 8 (2,48 %) had more than 20 years in their current company. On the other hand, 108 (33,54 %) participants had total work experience less than 6 years, 93 (28,88 %) employees had experience between 6 and 10 years, 85 (26,40 %) had employed between 11 and 20 years and 36 (11,18 %) had more than 20 years. Employees reported their position in the company as 40 high-level manager (CEO, General manager, Director,..etc.) (12,42%), 81 mid-level manager (department manager, coordinator, team leader,..etc.) (25,16%), 170 non-manager (specialist, senior specialist, engineer, researcher,..etc.)(52,80%) and 31 missing value (9,63%). Participants have different backgrounds such as 11 marketing (3,42%), 117 research and development (36,34%), 3 supply chain (0,93%), 4 finance (1,24%), 9 innovation (2,80%), 9 project management (2,80%), 5 ıntellectual property (1,55%), 4 production (1,24%), 3 engineering (0,93%), 3 quality (0,93%), 3 sales (0,93%), 2 information technologies (0,62%), 2 maintenance (0,62%), 1 regulatory affairs (0,31%), 1 bussiness development (0,31%) and 145 missing values (45,03%). Industries represented were automotive (15,22%), energy (11,49%), chemicals (7,14%), information communication technologies (7,14%), consultancy (6,21%), technology (6,21%), durable consumption (5,90%), food (4,04%), health (3,42%), university (3,73%), textile (3,11%), construction (2,80%), fast moving consumer goods (2,80%), defence (2,48%), finance (2,48%), cosmetics (2,17%), steel (2,17%), lubricants (1,86%), manufacturing (1,24%), service (1,24%), dye (0,93%), wood products (0,93%), biotechnology (0,62%), composite (0,62%), logistics (0,62%), packaging (0,62%), travel (0,62%), agriculture (0,31%), electronics (0,31%), fashion (0,31%), glass (0,31%), human resources (0,31%), leather (0,31%) and recycling (0,31%). Respondents were from mostly research and development (34,47%), then innovation (16,77%), project management (10,56%), sales (9,32%), management (7,14%),

marketing (2,80), business development (2,80%), ıntellectual property (2,17%), human resources (1,86%), quality (1,86%), supply chain (0,93%), production (0,93%), product development (0,62%), product management (0,62%), strategy (0,62%), technical services (0,62%), regulatory affairs (0,62%), maintenance (0,62%), accounting (0,62%), logistics (0,31%), EHS (environment, health and safety) (0,31%) and missing (3,42%). Finally, employees had different team roles during projects including 30 Resource Investigator (9,32%), 40 Team Worker (12,42%), 29 Coordinator (9,01%), 12 Plant (3,73%), 20 Monitor Evaluator (6,21%), 19 Specialist (5,90%), 3 Shaper (0,93%), 23 Implementer (7,14%), 7 Completer Finisher (2,17%) and 139 missing value (%43,17%).

After data collected, it has been downloaded into SPSS in order to check for missing variables firstly. A frequency test has been applied to all scale variables. No missing items within the scale variables was reported. Following this preliminary analysis, the scale means have been computed for constructs of interest, namely IWB (idea exploration, idea generation, idea championing, idea implementation), opening leadership behavior, closing leadership behavior, connecting leadership behavior, transformational leadership, team characteristics (team cohesiveness and trust) and TIP . Once the scale means were computed, they have been subjected to normality checks, for which descriptive statistics have been used, namely skewness and kurtosis have been analyzed. The skew value of a normal distribution is zero, usually implying symmetric distribution. When both skewness and kurtosis are zero, the pattern of responses is considered a normal distribution. For skewness, if the number is greater than +1 or lower than –1, this is an indication of a substantially skewed distribution. For kurtosis, if the number is greater than +1, the distribution is too peaked. Likewise, a kurtosis of less than –1 indicates a distribution that is too flat. Distributions exhibiting skewness and/or kurtosis that exceed these guidelines are considered non-normal." (Hair et al., 2017, p. 61). Regarding kurtosis, as indicated in Appendix 7, all variables are between -0.676 and 1,740. For the items, TRS1, TRS2, TRS5, TRS6, and TRS7, kurtosis is higher than 1. However, generally there is no extreme positive or negative kurtosis in the variables. Regarding skewness, all variables are between -1 and 1. Even though new variables could be created via transformation, the original variables have

not been transformed, as stated by Tabachnick 18 and Fidell (2001) reasonably large samples would not be substantially impacted from skewness in the analysis. All variable constructs have been subjected to reliability analysis, which confirmed a Cronbach's alpha above 0.7. Cronbach's alpha for the scales were indicated in Appendix 7.

In this study, Partial Least Square (PLS) analysis technique using the SmartPLS3.0 software was used (Ringle et al., 2015). Following the two-stage analytical procedure, the measurement model (validity and reliability of the measures) as indicated below figure 5 and structural model (Hypothesis testing) recommended by Hair Jr et al. (2014) were tested.

What to check?	*What to look for in SmartPLS?*	*Where is it in the report?*	*Is it OK?*
Reliability			
Indicator Reliability	"Outer loadings" numbers	PLS→Calculation Results →Outer Loadings	Square each of the outer loadings to find the indicator reliability value. **0.70 or higher** is preferred. If it is an exploratory research, 0.4 or higher is acceptable. (Hulland, 1999)
Internal Consistency Reliability	"Reliability" numbers	PLS→Quality Criteria →Overview	Composite reliability should be **0.7 or higher.** If it is an exploratory research, 0.6 or higher is acceptable. (Bagozzi and Yi, 1988)
Validity			
Convergent validity	"AVE" numbers	PLS→Quality Criteria →Overview	It should be **0.5 or higher** (Bagozzi and Yi, 1988)
Discriminant validity	"AVE" numbers and Latent Variable Correlations	PLS→Quality Criteria →Overview (for the AVE number as shown above) PLS→Quality Criteria →Latent Variable Correlations	Fornell and Larcker (1981) suggest that the "**square root**" of AVE of each latent variable should be greater than the correlations among the latent variables

Figure 5 Checking Reliability and Validity using Smart PLS

The statistical inquiry and analysis of this research is based on structural equation modeling (SEM) with component-based partial least squares (PLS). The conceptual model conducts two different sorts of assessments: the assessment of the outer

measurement model and the assessment of the inner structure model. Using smart PLS software, the model's analysis and validity were performed. (Ringle et al 2005). The theoretical framework explains the relationship between enablers and their indicators using the outer measurement model. Both the convergent validity and the discriminant validity of the measurement model are evaluated. Convergent validity, which is calculated to ensure that indicators believed to measure each enabler truly measure them and do not measure another enabler, is the measure of internal consistency. Three tests, namely Cronbach's alpha, Composite reliability scores, and Average variance extracted, can be used to assess the convergent validity of the measured constructs in partial least squares path modeling (AVE). For the discriminant validity, two metrics—the Fornell-Larcker criterion and the Cross loadings test—are employed to determine whether a certain enabler has discriminant validity, which indicates that it differs from other enablers to a certain extent (Hulland 1999). Although the Construct Reliability results were reliable and valid for all items, the item purification method had to be used because the discriminant validity results were not significant for some items. During the assessment of inner structural model, Multi-collinearity assessment criterion was also checked. Checking for large levels of collinearity between predictor or explanatory variables is crucial when using structural models. The following predictor construct sets in the route model are run using Smart PLS by determining the formal detection tolerance and variance inflation factor to check for collinearity (VIF). As a rule of thumb, we need to have a VIF of 5 or lower (i.e., Tolerance level of 0.2 or higher) to avoid the collinearity problem (Hair et al., 2011). Above the tolerance value indicates that there is multi-collinearity problem. Items with a VIF value above the tolerance value were detected as given in Table 4 below and in the scope of the item purification, these items had to be deleted from the data. Analysis results of other items with VIF value below the tolerance value are given in detail in the next section.

Table 4 Items with VIF above the Tolerance Value

	VIF
TRL10	6,674
TRL2	5,170
TRL6	5,374
TRL7	5,249
IEX4	5,616
IEX5	5,342
IEX6	5,824
IGE3	5,335
ICH1	6,602
ICH2	5,123
IIM3	5,230
IIM4	5,076

Another problem faced during data analysis process some invalid results were detected based on Fornell-Larcker Criterion. Due to insufficient discriminant validity, the analysis within the paper weakens the results. If items cross-load on more than one latent variable, removal of offending items should improve discriminant validity (Hamid et al 2017). A researcher may need to gather additional data to ascertain whether discriminant validity or multicollinearity issues are the result of sample flukes if none of the strategies offered address the problem (Bollen, 1989). Cohen, West, & Aiken (2003) recommend removing one (or more) independent variables from the regression equation if issues still exist. These independent variables are collinear variables that exhibit insufficient discriminant validity. In the scope of the discriminant validity, all HTMT values should be lower than the required threshold value of 0.85 by Kline (2011) and 0.90 by Gold and Arvind Malhotra (2001). Based on the results, discriminant validity problems were observed according to the $HTMT_{.85}$ criterion. Samely, it has been observed that there are some problems about the Fornell-Larcker Criterion results as indicated in Table 5, below. Therefore, some items were deleted until the discriminant results were corrected. Analysis results after the elimination were presented in the next section.

Table 5 Fornell-Larcker Criterion Values before Item Elimination

	CLB	COLB	ICH	IEX	IGE	IIM	OLB	TRL	TSU
CLB	0,729								
COLB	0,680	0,837							
ICH	0,471	0,601	0,834						
IEX	0,412	0,515	**0,864**	0,800					
IGE	0,425	0,570	**0,842**	**0,911**	0,849				
IIM	0,506	0,594	**0,923**	**0,862**	**0,871**	0,870			
OLB	0,557	**0,850**	0,633	0,578	0,625	0,666	0,886		
TRL	0,548	0,831	0,602	0,559	0,556	0,591	0,775	0,863	
TSU	0,438	0,497	0,577	0,570	0,562	0,609	0,467	0,526	0,831

In conclusion, as indicated above some variables are still lacking in terms of discriminant validity and so should be explored further.

3.2.4. Findings

3.2.4.1. Measurement Validation

3.2.4.1.1. Reflective Measurement Model

In order to test the validity and reliability of the constructs (latent variables), assessment of the measurement model according to smart PLS 3 was used, that consisted of two approaches which are convergent validity and discriminant validity. Convergent validity specifies that items that are indicators of a construct should share a high proportion of variance (Hair et al., 2014). The convergent validity of the scale items was assessed using three criteria. First, the factor loadings should be greater than 0.50 as proposed by Hair et al. (2014). Secondly, the composite reliability for each

construct should exceed 0.70. Lastly, the Average variance extracted (AVE) for each construct should be above the recommended cut-off 0.50 (Fornell and Larker, 1981). Additionally, one of the most common measurement used for internal consistency is Cronbach alpha in which it measures the reliability based on the interrelationship of the observed items variables. In Smart PLS, the values are calculated based on their indicator's individual reliability. The values range from 0 to 1, where a higher value indicates higher reliability level. In exploratory research, values of composite reliability / Cronbach alpha should be between 0.60 to 0.70, while in more advanced stage the value are higher than 0.70 is acceptable (Hair et al., 2014). However, the value that is more than 0.90 is not desirable and the value that is 0.95 or above is definitely undesirable (Nunnally and Bernstein, 1994). Most of the Cronbach alpha values are between 0.8 and 0.9 and so below the threshold. However, Cornbach alpha for transformational leadership (0.974) and for team innovation performance (0.957) are higher than the threshold. This may represent a high correlation problem. For checking the convergent validity, outer loading of each construct variables, composite reliability, and each latent variable's Average Variance Extracted (AVE) were generated using smart PLS and evaluated in Table 6.

Table 6 Assessment of the reflective measurement model (Convergent Validity (Factor Loadings and AVE) and Construct Reliability and Validity)

			Construct Reliability and Validity		
Construct	**Item**	**Outer/Factor Loadings**	**Cronbach's Alpha**	**Composite Reliability (CR)**	**Average Variance Extracted (AVE)**
Idea Exploration			0.801	0.882	0.719
	IEX1	0.625			
	IEX2	0.937			
	IEX3	0.942			
Idea Generation			0.837	0.925	0.860
	IGE1	0.926			
	IGE2	0.928			

Idea Championing			0.892	0.948	0.902
	ICH3	0.957			
	ICH4	0.942			
Idea Implementation			0.879	0.943	0.892
	IIM1	0.943			
	IIM2	0.946			
Opening Leadership Behavior			0.927	0.954	0.873
	OLB1	0.945			
	OLB2	0.947			
	OLB3	0.910			
Closing Leadership Behavior			0.852	0.890	0.620
	CLB1	0.828			
	CLB2	0.710			
	CLB3	0.844			
	CLB4	0.805			
	CLB5	0.739			
Connecting Leadership Behavior			0.941	0.952	0.739
	COLB1	0.793			
	COLB2	0.782			
	COLB3	0.874			
	COLB4	0.876			
	COLB5	0.893			
	COLB6	0.890			
	COLB7	0.900			
Transformational Leadership			0.974	0.977	0.765
	TRL1	0.860			
	TRL3	0.876			
	TRL4	0.837			
	TRL5	0.878			
	TRL8	0.892			
	TRL9	0.878			
Team Innovation Performance			0.957	0.963	0.723
	TSU1	0.741			
	TSU2	0.709			
	TSU3	0.889			
	TSU4	0.895			

	TSU5	0.882			
	TSU6	0.857			
	TSU7	0.810			
	TSU8	0.889			
	TSU9	0.913			
	TSU10	0.894			

The convergent validty of the scale items was determined using three criteria. Firstly, as suggested by (Hair et al., 2007) the factor loadings should be higher than 0.50. The results showed that the outer/factor loading of the items are above the cut-off 0.50. Secondly, the composite reliability for each construct are exceed 0.70. Hair et al (2014) asserted that an indicator's outer loading should be above 0.708 since that number squared $(0.708)^2$ equals 0.50, in which in the most instances. The composite reliability for the constructs is acceptable for each latent variable and confirmed with the cut-off value >0.70. Such values are shown to be larger than 0.70, so high levels of internal consistency reliability have been demonstrated among all reflective latent variables, values between 0.70 and 0.90 can be satisfactory (Hair et al, 2014). For demonstrating a satisfactory composite reliability in exploratory research, 0.60 or higher is required (Bagozzi & Yi, 1988). However, not exceeding the 0.97 level (Hair et al., 2013). Only composite reliability for transformational leadership (0.977) is higher than 0.97. Thirdly, AVE explains "the amount of variance captured by the latent construct in relation to the amount of variance due to measurement error" and the Average variance extracted (AVE) for each construct should be >0.50 (Fornell and Larcker, 1981). It is found that all of the AVE values are greater than the acceptable threshold of 0.50, so convergent validity is confirmed. One of the well-known methods for assessing discriminant validity is by examining the cross-loadings of the indicators. Specifically, an indicator's outer loading should be greater than all of its loadings on other constructs (Hair et al, 2014). The following table (Table 7) provides the crossing loading of indicators.

Table 7 Assessment of the reflective measurement model (discriminant validity)

Fornell-Larcker Criterion									
	CLB	**COLB**	**ICH**	**IEX**	**IGE**	**IIM**	**OLB**	**TRL**	**TSU**
CLB	0,787								
COLB	0,611	0,859							
ICH	0,401	0,562	0,950						
IEX	0,336	0,435	0,690	0,848					
IGE	0,367	0,504	0,680	0,734	0,927				
IIM	0,455	0,527	0,781	0,677	0,734	0,945			
OLB	0,504	0,776	0,570	0,495	0,543	0,566	0,934		
TRL	0,513	0,800	0,558	0,469	0,522	0,550	0,687	0,875	
TSU	0,408	0,471	0,537	0,478	0,516	0,553	0,428	0,510	0,851
Cross Loadings									
	CLB	**COLB**	**ICH**	**IEX**	**IGE**	**IIM**	**OLB**	**TRL**	**TSU**
CLB1	**0,828**	0,560	0,392	0,299	0,350	0,421	0,502	0,486	0,383
CLB2	**0,710**	0,345	0,219	0,238	0,191	0,229	0,223	0,261	0,257
CLB3	**0,844**	0,632	0,414	0,346	0,394	0,480	0,600	0,542	0,393
CLB4	**0,805**	0,384	0,275	0,223	0,253	0,339	0,270	0,332	0,290
CLB5	**0,739**	0,359	0,157	0,141	0,143	0,193	0,193	0,268	0,200
COLB1	0,476	**0,793**	0,499	0,375	0,426	0,471	0,694	0,700	0,389
COLB2	0,389	**0,782**	0,437	0,325	0,419	0,394	0,680	0,623	0,301
COLB3	0,569	**0,874**	0,478	0,363	0,433	0,479	0,677	0,763	0,432
COLB4	0,496	**0,876**	0,492	0,373	0,455	0,441	0,649	0,655	0,382
COLB5	0,546	**0,893**	0,468	0,365	0,433	0,427	0,661	0,715	0,450
COLB6	0,573	**0,890**	0,482	0,391	0,401	0,430	0,656	0,687	0,433
COLB7	0,594	**0,900**	0,519	0,419	0,468	0,515	0,664	0,664	0,427
ICH3	0,383	0,558	**0,957**	0,645	0,652	0,764	0,575	0,582	0,531
ICH4	0,379	0,506	**0,942**	0,669	0,640	0,716	0,503	0,470	0,485
IEX1	0,194	0,197	0,389	**0,625**	0,412	0,377	0,238	0,216	0,212
IEX2	0,325	0,415	0,653	**0,937**	0,676	0,651	0,472	0,449	0,496
IEX3	0,315	0,439	0,665	**0,942**	0,724	0,644	0,492	0,469	0,444
IGE1	0,350	0,464	0,596	0,612	**0,926**	0,699	0,509	0,472	0,466
IGE2	0,331	0,471	0,665	0,747	**0,928**	0,663	0,497	0,496	0,491
IIM1	0,422	0,491	0,757	0,659	0,714	**0,943**	0,501	0,516	0,537
IIM2	0,438	0,505	0,719	0,621	0,674	**0,946**	0,568	0,524	0,508
OLB1	0,471	0,713	0,523	0,470	0,510	0,510	**0,945**	0,630	0,390
OLB2	0,490	0,745	0,577	0,489	0,509	0,547	**0,947**	0,658	0,422
OLB3	0,451	0,717	0,496	0,426	0,503	0,529	**0,910**	0,638	0,386
TRL1	0,473	0,686	0,438	0,368	0,398	0,446	0,577	**0,860**	0,432
TRL10	0,445	0,715	0,446	0,372	0,435	0,468	0,562	**0,903**	0,427
TRL11	0,453	0,682	0,464	0,390	0,470	0,462	0,564	**0,852**	0,426
TRL12	0,434	0,668	0,475	0,413	0,446	0,473	0,574	**0,848**	0,400

TRL13	0,463	0,716	0,518	0,436	0,486	0,469	0,600	**0,854**	0,476
TRL2	0,512	0,725	0,525	0,430	0,477	0,511	0,657	**0,890**	0,496
TRL3	0,411	0,708	0,510	0,454	0,485	0,508	0,648	**0,876**	0,472
TRL4	0,427	0,661	0,527	0,412	0,429	0,505	0,577	**0,837**	0,459
TRL5	0,455	0,676	0,478	0,422	0,444	0,464	0,593	**0,878**	0,441
TRL6	0,443	0,717	0,503	0,407	0,464	0,491	0,628	**0,901**	0,492
TRL7	0,477	0,722	0,486	0,424	0,492	0,504	0,619	**0,898**	0,458
TRL8	0,415	0,708	0,497	0,418	0,472	0,501	0,605	**0,892**	0,406
TRL9	0,422	0,709	0,459	0,367	0,425	0,440	0,594	**0,878**	0,392
TSU1	0,316	0,347	0,401	0,369	0,404	0,436	0,313	0,345	**0,741**
TSU10	0,344	0,396	0,441	0,425	0,452	0,482	0,385	0,431	**0,894**
TSU2	0,354	0,415	0,433	0,329	0,425	0,433	0,365	0,389	**0,709**
TSU3	0,337	0,368	0,454	0,391	0,388	0,426	0,324	0,380	**0,889**
TSU4	0,346	0,394	0,454	0,421	0,422	0,454	0,359	0,427	**0,895**
TSU5	0,375	0,470	0,515	0,443	0,480	0,530	0,445	0,491	**0,882**
TSU6	0,342	0,443	0,436	0,421	0,452	0,482	0,381	0,495	**0,857**
TSU7	0,352	0,337	0,473	0,410	0,458	0,465	0,315	0,413	**0,810**
TSU8	0,344	0,418	0,485	0,450	0,457	0,494	0,368	0,476	**0,889**
TSU9	0,355	0,386	0,456	0,386	0,433	0,477	0,353	0,452	**0,913**

Heterotrait-Monotrait Ratio (HTMT)

	CLB	**COLB**	**ICH**	**IEX**	**IGE**	**IIM**	**OLB**	**TRL**	**TSU**
CLB									
COLB	0,638								
ICH	0,422	0,611							
IEX	0,374	0,476	0,798						
IGE	0,398	0,569	0,787	**0,872**					
IIM	0,484	0,577	**0,880**	0,786	**0,856**				
OLB	0,507	0,834	0,624	0,549	0,617	0,626			
TRL	0,522	0,835	0,593	0,504	0,577	0,593	0,722		
TSU	0,426	0,491	0,579	0,518	0,576	0,602	0,451	0,523	

Results on the above table shows that the indicator's outer loading on the associated construct is greater than all of its loadings on other constructs. In principle, this means the model has discriminant validity based on the Chin criteria (1998). The second and more conservative approach for assessing discriminant validity is the Fornell-Larcker criterion (1981). It compares the square root of the AVE values with the latent variable correlations. If the square root of each construct's AVE is greater than its highest correlation with any other construct (Hair et al, 2014), this provides a valid discriminant validity for the data. According to the above table that indicates Fornell-

Larcker Criterion results, each item loads highest on its associated construct. The results indicate that discriminant validity is well established.

Multi-trait and multimethod matrix, namely the Hetero-trait Mono-trait Ratio (HTMT) is another way to assess discriminant validity, Henseler et al. (2015). Baed on HTMT approach, if a HTMT value is greater than 0.85, then there is a problem with discriminant validity. Also, by using the statistical test for HTMT inference when the confidence interval of HTMT values for the structural paths contains the value if 1, it indicates a lack of discriminant validity. If the value of 1 fall outside the interval's range, it suggests that the constructs are empirically distinct. HTMT results can be seen in the above Table (6) Based on the results, all HTMT values (except 3 results) are lower than the required threshold value of 0.85 by Kline (2011) and 0.90 by Gold and Arvind Malhotra (2001), indicating that discriminate validity is valid for this study. Only 3 results in bold (0.880, 0.872 and 0.856) indicated discriminant validity problems according to the $HTMT_{.85}$ criterion. However, they are valid based on $HTMT_{.90}$ criterion. As a result, the presence of the discriminant validity of the measures was developed.

3.2.4.1.2. Formative Measurement Model

After conducting validity and reliability analysis, measurement model was tested by using Smart PLS 3.0 software (Ringle et al., 2015). Regarding the assessment of the formative measurement model, the consistent PLS bootstrapping was run and calculated t-statistics, outer weights and variance inflation factors (VIFs) (Hair et al., 2017: 106; Cai et al., 2017: 29). Following the interpretation of the VIFs, the significance and relevance of outer weights was analyzed by simultaneously taking t-statistics and p-values into consideration. Based on the bootstrapping procedure, the outer weights in formative measurement models are significantly different from zero, means that it contributes to forming the construct (Hair et al., 2017: 146). Lateral collinearity was assessed with collinearity statistics VIF. According to Kock and Lynn (2012) although vertical collinearity is met, lateral collinearity may sometimes be misleading the findings. This problem of multicollinearity can arise when two

variables that are hypothesized to be causally related measure the same construct. The results which are presented in Table 8 prove that the problem of multicollinearity is present for some items in the model since some VIFs values for the items are not below the cut-off point of 5.

Table 8 Assessment of the formative measurement model

Formative Measurement Model				
	VIFs	Outer Weights	T Statistics	p-values
IEX1	1,268	0,221	5,353	0.000
IEX2	3,397	0,449	20,195	0.000
IEX3	3,426	0,468	19,470	0.000
IGE1	2,072	0,536	7,184	0.000
IGE2	2,072	0,542	6,140	0.000
ICH3	2,838	0,564	7,419	0.000
ICH4	2,838	0,488	6,359	0.000
IIM1	2,603	0,524	7,961	0.000
IIM2	2,603	0,535	7,256	0.000
OLB1	4,514	0,357	6,922	0.000
OLB2	4,513	0,370	14,891	0.000
OLB3	2,877	0,343	12,439	0.000
CLB1	1,922	0,326	11,343	0.000
CLB2	1,700	0,200	6,988	0.000
CLB3	2,005	0,339	9,300	0.000
CLB4	2,268	0,238	10,298	0.000
CLB5	2,230	0,150	4,517	0.000
COLB1	2,317	0,168	5,240	0.000
COLB2	2,298	0,136	11,521	0.000
COLB3	3,139	0,177	2,896	0.000
COLB4	3,648	0,160	7,256	0.000
COLB5	4,000	0,170	11,037	0.000
COLB6	4,606	0,167	3,930	0.000
COLB7	4,822	0,183	6,140	0.000
TRL1	4,598	0,080	5,706	0.000
TRL11	3,853	0,085	3,707	0.000
TRL12	3,828	0,085	6,315	0.000
TRL13	3,610	0,092	10,961	0.000
TRL3	4,165	0,094	5,473	0.000
TRL4	3,107	0,090	9,864	0.000
TRL5	4,403	0,087	4,500	0.000
TRL8	4,881	0,089	3,596	0.000
TRL9	4,642	0,081	11,192	0.000
TSU1	2,832	0,101	12,471	0.000
TSU2	2,746	0,116	12,219	0.000
TSU5	3,787	0,136	20,386	0.000

TSU6	3,368	0,128	21,272	0.000
TSU7	2,637	0,109	17,389	0.000

*All p-values < 0.05 and t-statistics > 1.96
* All VIF values < 5

As presented in Table (8) the inner VIF values of the independent variables (IEX, IGE, ICH and IIM) that needs to be examined for multicollinearity are less than 5, which is indicating lateral multicollinearity is not a concern in this study according to Hair et al. (2014). After collinearity analysis, the proposed hypotheses were tested by running a bootstrapping procedure as suggested by Hair et al. (2014).

3.2.4.2 Hypothesis Testing

Before testing the hypotheses, because of having the satisfactory level of quality in the overall measurement model, the structural model should be analyzed. In so doing, both the coefficient of determination (R^2) of the endogenous constructs and the standardized root mean square residual (SRMR) criterion are provided to verify the statistical significance of each path coefficient in the model. The R^2 values of the main dependent variables are 0.420 for Idea Exploration, 0,380 for Idea Generation, 0.411 for Idea Championing and 0,280 for Idea Implementation. According to Hair et al. (2017), R^2 values of 0.75, 0.50, or 0.25 can be accepted as substantial, moderate, and weak, respectively. Based on the proper evaluation of the R^2 values, three of them are close to moderate level (0.50) and fourth one is close to weak level (0,280). Another model fit criterion in the context of PLS, the SRMR which is defined as the difference between the observed correlation and the model implied correlation matrix. A value less than 0.10 or of 0.08 (in a more conservative version; Hu and Bentler, 1999) are considered a good fit. Henseler et al. (2017) expects a cut-off value of 0,08 and introduce the SRMR as a goodness of fit measure for PLS-SEM that can be used to avoid model misspecification. SRMR for the model was measured as 0.056 as supporting the explanatory power of the model. Another parameter NFI, indicates the model of interest improves the fit by 95% relative to the null model. It is the measure of incremental fit and the NFI result will be greater (i.e., better) when there are more parameters in the model. NFI results are calculated in values between 0 and 1. The

closer the NFI to 1, the better the fit. NFI values above 0.9 usually represent acceptable fit. According to the model of this study, NFI was measured as 0.971 and this means that it is higher than the threshold 0.95 (Lohmöller, 1989) as the presence of acceptable fit of the model.

In this study, a total of 20 different hypotheses were developed and were tested by running a bootstrapping procedure as suggested by Hair et al. (2014). To understand the role of mediators on the linkage between (idea exploration andTIP), (idea generation andTIP), (idea championing andTIP) and (idea implementation andTIP) in the study model, the Preacher and Hayes (2008) procedure was used instead of Sobel (1982) test because it does not have strict distributional assumptions (Hair et al, 2013). This procedure contains the usage of bootstrapping in 2 ways: (1) The significance of direct effect is first checked without the presence of the mediator competence in the model. If the significance of direct effect cannot be established, there is no mediating effect. Path coefficients explain how strong the effect of one variable is on another variable. The weight of different path coefficients enables us to rank their relative statistical importance. When considering results of the direct effects; idea championing (0.163), idea generation (0.097), idea implementation (0.078) and idea exploration (0.023) in decreasing order, were found to have positive effects on TIP. In the general framework, the results of this study revealed that all of the variables, namely all the stages of IWB, interact positively with TIP. This result provides support to H1, H2, H3, and H4. The results of Table 9 presents the path coefficients of main constructs with their level of significance.

Table 9 Direct Effects of Main Constructs using Smart PLS

	Sample Mean	T Statistics	P Values
Idea Exploration -> Team Innovation Performance	0.023	2.649	0.008
Idea Generation -> Team Innovation Performance	0.097	3.425	0.007
Idea Championing -> Team Innovation Performance	0.163	2.917	0.005
Idea Implementation-> Team Innovation Performance	0.078	3.43	0.001

Second way of the procedure contains to measure (2) Bootstrapping Confidence Interval through statistical tool designed for CI calculation for mediation effect. The VAF would be less than 20%, and one can conclude that (almost) no mediation takes place. In contrast, when the VAF has very large outcomes of above 80%, we can assume a full mediation. A situation in which the VAF is larger than 20% and less than 80% can be characterized as partial mediation (Hair et al, 2014). To analyze the type of a mediation, Zhao et al. (2010) suggest a model, which Hair et al. (2017) also propose to use for PLS-SEM. Analyzing the cause-effect relationship between an exogenous construct and an endogenous construct needs to measure the strength of the mediator variable's relationships with the other constructs. In the simplest form, there is only one mediator variable. However, the path model may include a multitude of mediator variables simultaneously. When considering multiple mediators, the model that includes all relevant mediators at the same time should be analyzed. It also allows in a multi mediator model to analyze the total indirect effect for the total mediation for all mediators. Alternatively, the researcher can use the procedure to analyze the specific indirect effects per mediator variable for each mediators, respectively). According to the results as indicated in Table 10, specific indirect effect was found as 0,171 for IEX -> OLB -> TSU. Based on this value, it can be provided that opening leadership behavior has the strongest mediating effect positively on the link between idea exploration and TIP. Secondly, specific indirect effect was measured as 0.171 for ICH -> TRL -> TSU. This provides that transformational leadership has the stronger mediating effect on the link between idea generation and TIP than opening leadership behavior. Similarly, transformational leadership has the strongest impact on the relationship between idea championing and TIP, idea implementation and TIP. On the other hand, closing leadership behavior and connecting leadership behavior have also mediation effect on the link between idea championing and TIP; and idea implementation and TIP . However, this impact is less than the effect of transformational leadership. The results of Table 10 depict path coefficients of respective constructs with their level of significance.

Table 10 Mediation Analysis of IWB Using PLS

	Direct Effect	Indirect Effect							
Path	**Sample Mean (P3)**	**Path a (P1)**	**Path b (P2)**	**Sample Mean (P1 . P2)**	**SE**	**T-value**	**P value**	**95% LL**	**95% UL**
IEX -> OLB -> TSU	0.450	0.574	0.298	0.171	0.043	2.746	0.006	0.035	0.2000
IEX -> TRL -> TSU	0.408	0.563	0.208	-0.117	0.040	4.213	0.000	0.086	0.250
IGE -> OLB -> TSU	0.450	0.627	0.186	0.116	0.050	2.386	0.017	0.012	0.204
IGE -> TRL -> TSU	0.393	0.558	0.308	0.171	0.040	4.291	0.000	0.095	0.252
ICH -> CLB -> TSU	0.480	0.485	0.217	0.105	0.038	2.681	0.008	0.027	0.179
ICH -> TRL -> TSU	0.406	0.603	0.284	0.171	0.048	3.507	0.000	0.074	0.265
IIM -> COLB -> TSU	0.486	0.592	0.212	0.124	0.045	2.762	0.006	0.036	0.215
IIM -> TRL -> TSU	0.455	0.593	0.260	0.153	0.044	3.417	0.001	0.069	0.241

Table 10 showed that the results provided that the relationship between (idea exploration and TIP), (idea generation and TIP), (idea championing and TIP) and (idea implementation and TIP) through the mediating variables (opening leadership behavior, closing leadership behavior, connecting leadership behavior and transformational leadership) was supported since the lower limit LL and upper limit UL of the confidence interval not crossed by zero, it means both are on the same sides. Also, results show the presence of a complementary partial mediation, in that the direct effect P3 and indirect effect P1 × P2 point in the same (positive or negative) direction (Baron and Kenny, 1986). It is an often observed result that P1 × P2 and P3 are significant and P1 × P2 × P3 is positive, which indicates that a portion of the effect of X on Y is mediated through M, whereas X still explains a portion of Y that is independent of M. Complementary partial mediation is often called a “positive confounding” or a “consistent” model (Zhao et al., 2010). For this reason, main hypothesis (H1a, H2a, H3a, H4a, H1b, H2b, H3b and H4b) were accepted.

Table 11 Hypotheses testing

Hypotheses	Results			
	Standardized coefficients	**T statistics**	**P values**	**Status**
Main Hypotheses				
Hypothesis 1: Idea Exploration is positively related to TIP.	0.023	2.649	0.008	Accepted
Hypothesis 2: Idea Generation is positively related to TIP.	0.097	3.425	0.007	Accepted
Hypothesis 3: Idea Championing is positively related to TIP.	0.163	2.917	0.005	Accepted
Hypothesis 4: Idea Implementation is positively related to TIP.	0.078	3.430	0.001	Accepted
Mediation Impact				
Hypothesis 1a: Opening leadership behavior has a mediating effect on the link between idea exploration and TIP.	0.119	2.746	0.006	Accepted
Hypothesis 2a: Opening leadership behavior has a mediating effect on the link between idea generation and TIP.	0.116	2.386	0.017	Accepted
Hypothesis 3a: Closing leadership behavior has a mediating effect on the link between idea championing and TIP.	0.105	2.681	0.008	Accepted
Hypothesis 4a: Connecting leadership behavior has a mediating effect on the link between idea implementation andTIP .	0.124	2.762	0.006	Accepted
Hypothesis 1b: Transformational leadership has a mediating effect on the link between idea exploration and TIP.	0.167	4.213	0.000	Accepted
Hypothesis 2b: Transformational leadership has a mediating effect on the link between idea generation and TIP.	0.171	4.291	0.000	Accepted
Hypothesis 3b: Transformational leadership has a mediating effect on the link between idea championing and TIP.	0.171	3.507	0.000	Accepted
Hypothesis 4b: Transformational leadership has a mediating effect on the link between idea implementation and TIP.	0.153	3.417	0.001	Accepted
Moderation Impact				
Hypothesis 5a: Team cohesiveness moderates the link between idea exploration andTIP ; the higher team cohesiveness will strengthen the impact of idea exploration on TIP	-0.048	1.015	0.311	Not Accepted

Hypothesis 5b: Team cohesiveness moderates the link between idea generation andTIP ; the higher team cohesiveness will strengthen the impact of idea generation on TIP	-0.055	1.307	0.192	Not Accepted
Hypothesis 5c: Team cohesiveness moderates the link between idea championing andTIP ; the higher team cohesiveness will strengthen the impact of idea championing on TIP	-0.113	2.617	0.009	Accepted
Hypothesis 5d: Team cohesiveness moderates the link between idea implementation andTIP ; the higher team cohesiveness will strengthen the impact of idea implementation on TIP	-0.121	3.327	0.001	Accepted
Hypothesis 6a: Trust moderates the link between idea exploration andTIP ; the higher trust will strengthen the impact of idea exploration onTIP .	-0.034	0.882	0.372	Not Accepted
Hypothesis 6b: Trust moderates the link between idea generation andTIP ; the higher trust will strengthen the impact of idea generation onTIP .	-0.032	0.745	0.457	Not Accepted
Hypothesis 6c: Trust moderates the link between idea championing andTIP ; the higher trust will strengthen the impact of idea championing onTIP .	-0.080	2.032	0.043	Accepted
Hypothesis 6d: Trust moderates the link between idea implementation andTIP ; the higher trust will strengthen the impact of idea implementation onTIP .	-0.078	2.223	0.027	Accepted

In sum, Table (11) depicts that all the stages of IWB (idea exploration, idea generation, idea championing and idea implementation) has a valid and positive impact on TIP. Also, findings showed that the positive relationship between Idea Exploration and TIP is supported by H1: ($\beta = 0.023$, $p < 0.05$), between Idea Generation and TIP is supported by H2: ($\beta = 0.097$, $p < 0.05$), Idea Championing and TIP is supported by H3: ($\beta = 0.0163$, $p < 0.05$) and Idea Implementation and TIP is supported by H4: ($\beta = 0.078$, $p < 0.05$). Also, in the second part, results provided that there is a positive relationship between idea exploration and TIP through opening leadership behavior is supported by H1a: ($\beta = 0.119$, $p < 0.05$). Next, the relationship between idea generation to TIP through opening leadership behavioris accepted by H2a: ($\beta = 0.116$, $p < 0.05$). The relationship between idea championing to TIP through closing leadership behavior is supported by H3a: ($\beta = 0.105$, $p < 0.05$). Next, the relationship between idea

implementation to TIP through connecting leadership behavior is accepted by H4a: (β = 0.124, p< 0.05). H1b showed that the relationship between idea exploration and TIP through transformational leadership is accepted by (β = 0.167, p< 0.05); where the relationship between idea generation and TIP through transformational leadership is accepted by H2b (β = 0.171, p< 0.05). H3b showed that the relationship between idea championing and TIP through transformational leadership is accepted by (β = 0.171, p< 0.05); where the relationship between idea implementation and TIP through transformational leadership is accepted by H4d (β = 0.153, p< 0.05). On the other hand, the results revealed that team cohesiveness moderates the relationship between idea exploration and TIP is rejected by H5a (β = -0.048, p> 0.05); team cohesiveness moderates the relationship between idea generation and TIP is rejected by H5b (β = -0.055, p> 0.05); team cohesiveness moderates the relationship between idea championing and TIP is accepted by H5c (β = -0.113, p< 0.05); and team cohesiveness moderates the relationship between idea implementation and TIP is accepted by H5d (β = -0.121, p< 0.05). Trust moderates the relationship between idea exploration and TIP is rejected by H6a (β = -0.034, p> 0.05); trust moderates the relationship between idea generation and TIP is rejected by H6b (β = -0.032, p> 0.05); trust moderates the relationship between idea championing and TIP is accepted by H6c (β = -0.080, p< 0.05); and trust moderates the relationship between idea implementation and TIP is accepted by H6d (β = -0.078, p< 0.05).

3.2.4.3. Discussion

This study contributes to the existing literature in three distinct ways. First of all, it provided a short and rapid research on what the definition of innovation is and how it varies in innovation processes at the organizational level. As stated in the literature, an answer to the question of whether the innovation work behavior was a single construct or multi-stage process was found; also, whether it involved discrete-sequential and/or discontinuous-overlapping activities, based on the practices in the working life. It was stated that IWB consists of four related dimensions, namely, the idea exploration, idea generation, idea championing and idea implementation as John and Hartog (2010) proposed. The results of the study revealed that all 4 stages of IWB (idea exploration,

idea generation, idea championing and idea implementation) have a positive effect on TIP. As indicated in Shanker et al. (2007), climate for innovation, and in other words innovation performance, was positively associated with innovative work behavior.

During the data analysis process, confirmatory factor analysis (CFA) was used to examine whether these dimensions contribute to an overall construct of innovative work behavior. In addition, during innovation process, team formation criteria were explored how and in what way members came together. Furthermore, dominant roles in the team also were examined. Factors from motivating and demotivating the team were studied throughout the process in order to explore team dynamics. When the presence of leadership emerged from the participants' answers, questions were asked to understand which style of leadership was more effective at which stage of the process and why leadership was needed. Independently from literature studies, participants were asked what TIP meant and how success was described for their team. Thus, the interview results in the first part of the study gave a decisive path for the direction in which should be continued to deeply research.

Secondly, the studies carried out to date provide that leadership of work teams can contribute in a significant way to supporting and spreading innovation (Mumford & Licuanan, 2004). As indicated in previous chapter, leaders of teams show significant impact on the outputs and behaviors of members of work teams (González-Romá, Peiró, & Tordera, 2002; Sy, Côté,& Saavedra, 2005; Schaubroeck, Lam, & Cha, 2007). Also, some studies showed that the type and quality of the leadership has a significant effect on TIP (Burke et al., 2006; G. Chen, Kirkman, Kanfer, Allen, & Rosen, 2007). For this reason, there are good reasons to consider leadership as an important factor in the innovation process at teams. Mumford, Scott Gaddis and Strange (2002) focused on an integrative leadership style that includes three principal functions such as facilitating the generation of ideas, guiding the assessment of ideas and finding support and resources for the application of ideas. For a more detailed analysis, in the second part of this study, the mediating influence of ambidextrous leadership (opening leadership behavior, closing leadership behavior, connecting leadership behavior) and transformational leadership on the link between IWB (idea exploration, idea

generation, idea championing and idea implementatiıon) and TIP was examined. Consequently, our results of the hypothesis testing conform the literature studies, and so it has been concluded that IWB has a significant effect on TIP directly and also ambidextrous leadership (opening leadership behavior, closing leadership behavior and connecting leadership behavior) and transformational leadership have an significant moderating impact on the link between IWB and TIP indirectly. At that point, it is clear that interview results are in parallel with the survey and that the theory-oriented study model reaches a satisfactory model for each dependent variable IWB (idea exploration, idea generation, idea championing and idea implementatiıon). Results proved that there is a positive mediating effect of both ambidextrous and transformational leadership on TIP at all the stages of IWB. Furthermore, there is a significant interaction effect of ambidextrous and transformational leadership, which means that only leaders who show both leadership types foster TIP during IWB. Therefore, this study provides findings about the ambidextrous leadership theory that are complementary supporting IWB (Rosing, Frese & Bausch 2011). However, when all the results of the mediating effect analysis were examined, opening leadership behavior has the strongest impact on the link between idea exploration and TIP and transformational leadership had strongest mediating impact than ambidextrous leadership on the TIP at rest of 3 stages of IWB. As indicated in literature, some research has contended that influential leaders, with their hierarchical power and central position in workflows, can be largely involved in the problem solving and directly followers' contributions to create idea generation (Hargadon & Bechky, 2006; Marotto, Roos, & Victor, 2007). In that way, the leader can influence via a development role rather than as a direct contributor especially as a team leader who encourage and influence team members to proactively enact upon their own capabilities during idea championing and upon pooled team knowledge to produce creative ideas during idea generation.

Thirdly, although the relationship between IWB and TIP is significant, it was examined whether drivers such as team dynamics (team cohesiveness) and trust have an effect on the success of the TIP during only idea championing and idea

implementation. Findings of this study showed that there are other predictors that can be used as additional explanations for this relationship

In the literature, in some studies, person-oriented leadership also correlated positively with participation in the team. West et al. (2003), examined in different samples of healthcare teams, and he observed a positive relationship between group processes and innovation, so that the relationship between leadership and innovation in teams was mediated by group processes. He also pointed out that leadership can also modulate the relationship between team composition and some group processes (see Somech, 2006). Contrary to these inferences, our study shows a link between IWB and success within the team, while the team characteristics (team cohesiveness and trust) have moderator influence at idea championing and implementation on this relationship.

CONCLUSION

The current study presents an important contribution to the innovation management literature. In the literature, the management of innovation at the levels of companies, work groups, networks, and individuals are covered by innovation studies (King & Anderson, 2002). Only a few research have concentrated on the work group's level of analysis. (West & Anderson, 1998). This indicates the need for the research on team-level innovative performance in organizations. In addition, it was investigated whether team characteristics (team cohesiveness and trust) had a moderator effect on the link between IWB and team innovation performance. In the current study the verification of the reality of innovative working behavior was provided, which consists of various activities / steps in teams, in business life through interviews with participants from various sectors. This is because, based on the numerous gaps in the existing literature, IWB is theoretically defined as multi-dimensional, measurements are typically performed as one-dimensional operationally (Scott & Bruce, 1994; Reuvers et al., 2008). It also enables measurement of the degree to which each step of innovative work behavior may be identified and evaluated as a multidimensional construct. According to the research findings that have already been published, one of the most significant preconditions for innovation is leadership. To yet, it is unclear which specific leadership have an effect on certain IWB stages because the impact of most leadership styles on innovation has only been explored in a few studies (Rosing et al., 2010, 2011). This study makes it possible to find answers to these questions in order to fill the gaps pointed out in the literature.

This study offers a valuable insight to practitioners. Firstly, the strong positive relations were observed between IWB stages and TIP as indicated on some studies (eg. Gonzales-Roma (2008)) in the literature. Leaders should not forget that all stages are important and have an impact on team innovation. In addition, some evidence about mediation effect of ambidextrous and transformational leadership was observed through the survey results. This means that the way team innovation performance is generated on a strategic level depends on whether the presence of a leader during IWB

stages. The presence of opening leadership behavior exerts the relatively strong influence on the link between idea exploration and TIP. In this first phase of the IWB, leaders can increase TIP by providing opportunities for development, by encouraging employees to use alternative methods and to think independently in a free environment. In the other phases of IWB, although there is an effect of closing leadership behavior in the second stage, the connecting leadership in the third stage, the results showed that the transformational leadership has the strongest mediator impact during all the remaining 3 stages (idea generation, idea championing and idea implementation). At this point, during innovation stage at teams, after the problem is determined, the characteristics of transformational leadership such as providing support and motivation with a free environment from punishment are needed for the creating, developing and implementing an innovative idea with a solution. Lastly, the results also show that leaders must ensure that a sense of trust and commitment is maintained within the team during the idea championing and idea implementation phases. The requirements at all these stages and the most effective leadership types and the presence of moderators will be suggestions for leaders in the innovation process in real working life.

One of the main aims of this study is to comprehensively review the IWB literature, which is the most popular and active field in management literature. A review of the literature of past studies on the drivers of IWB revealed that previous studies only examined a limited or partial number of variables. Therefore, although some parameters thought to have an impact on team innovation performance were examined in this study, current understanding of the components and dynamics of innovative work behavior is still very limited. In addition, despite the theoretical foundation on the impact of team cohesiveness and trust on the link between IWB and TIP, and extension studies (eg. Study Erdem et al., 2003) about trust and team performance and McLeod et al. (2013) about team cohesion], hypothesis results do not confirm the moderator effect of team cohesiveness and trust on the relationship between Idea Exploration and Idea Generation stages and team innovation performance. It can be said that results may be weakened due to limitations in the current study, both

particularly the relatively small sample size (eg. a sample of 322 workers) and as well as the fact that two team characteristics such as trust and team cohesiveness do not fully match with these two steps (idea exploration and idea generation), which are thought to be carried out individually. This necessitates the determination of moderators that can be effective at a more individual level and then measuring their effects in order to measure the effectiveness of idea exploration and idea generation on team innovation performance.

In the literature, existing studies measured the effects of the factors related to leadership, organization, and individuals. It would be beneficial to extend the radius of current research by including factors related to team such as team composition and roles, group support, and team value correction. For this reason, two characteristics of teams as cohesiveness and trust were examined. Although team cohesiveness and trust did not seem to have an increasing effect on the relationship on TIP at some stages of IWB in this study, it has been seen that leadership is perhaps more dominant and decisive than team dynamics at all stages of the innovation process. Our theoretical model sets the stage for further research in understanding how leadership and moderators have a significant impact on TIP at multiple stages to increase creativity at teams. In this way, guiding findings were obtained for future studies. In this study, during the collecting data from the sample, survey as a qualitative approach was proposed because it will help establish the definitions of IWB dynamics and to test better the theories as a fast measurement method. However, it may be useful to make an interview in addition to the questionnaire in future studies to provide insights into how best to define all the variables to improve team innovation performance in real working life. In this study, while conducting the survey, it was actually tried to reach all team members from different departments or with different duties within the same team in an innovation project. However, this was unfortunately not possible. It was possible to get survey results from a maximum of 3 people from the same team. This caused the team dynamics to not be measured exactly. Perhaps in future studies, the study can be done with fewer people, but can be broaden by applying a questionnaire to all members of the teams. During the 3 interviews before the survey, it was seen that a broad concept such as innovation can be described differently from company to

company. While all R&D activities in some companies are evaluated under the umbrella of innovation, it has been observed that innovation projects with a completely innovative perspective are carried out in some companies. Due to these different scopes created by the companies, the work can be repeated in future studies only for teams that have an innovation department and carry out innovation projects under this roof.

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Appendix 2: Interview questions

1.	Can you give an example of the innovation process you have taken part in the team before and completed successfully? What was the measure of success?
2.	How did the team gather and how were team members selected? Who determined the members?
3.	Was the team set up at the beginning of the process? Or were the members added to the team in the later stages of the process? Is there any invisible member who was not in the team. However, actually involved in the processes?
4.	Were there any prominent roles in the team? Was there a leader? How was your leader determined?
5.	If you divided the process from that the team was formed until that it disbanded, how would you seperate it into stages? What activities were done? Were these done in a specific order or at the same time? Could the processes be separated from each other?
6.	What skills, resources and support did the team need at what stage or during which type of activity? Was the whole process managed with the same skills and resources, or were different skills/resources needed for different activities and different stages?
7.	Have there been any changes in the roles within the team during the process? Have people switched to different roles for different stages/activities? Have various proactive approaches been taken to complete the missing points within the team?
8.	Did the leader guide you with her different talents in the process, or did she always lead the team in the same style?
9.	What do you think was the most prominent and characteristic feature of the team? Can you evaluate each process?
10.	In your opinion, what methods were used to increase innovation efficiency and creativity throughout the process/processes?
11.	During this whole process, what are the most important factors affecting the success of the innovation developed by the team?
12.	What are the factor that negatively affect the innovation developed by the team throughout the entire process (which is said to be more successful if they did not exist)?

Appendix 3: E-mail with request to the participants

This e-mail has been sent to the participants based on their request during data collection stage between 12.3.2020 and 22.12.2020.

Dear Sir/Madam,

I am conducting a doctoral thesis on the subject of "INNOVATION MANAGEMENT" and a survey study on the scientific research process, which I am carrying out at the Yasar University, Business Administration Doctorate Program.

The data collected within the scope of the survey which can be filled in 10-15 minutes, will be used only for scientific purposes and the study is carried out in accordance with academic ethical standards. The suitability of this survey has been approved by the Yasar University Ethics Commission, and no information is needed to reveal the identity of respondents or the organization they work for.

SURVEY LINK: https://forms.gle/sttJTiopMeEJJaNQA

I kindly request that the questions in the survey are answered by considering any innovation project that is being executed or completed successfully and the team actively involved in this project.

--8th Question was prepared to determine how often the project team waste its time for innovative ideas/topics related to the project.

--The term of ‘’leader’’ in the 9th and 10th questions should be considered as the person (one of the team members, mentor, deputy manager, consultant,etc.) who provides intra-group coordination, uses logical and analytical ability, has high communication, controls the functioning of prosesses, etc.

Thank you very much in advance for your valuable time and support.

If you have any further information, please don’t hesitate to contact me.

Appendix 4: E-mail with request to the participants

A note was added to the email so that participants can share the email with at least 5 team member. This e-mail has been sent to the participants based on their request during data collection stage between 22.12.2020 and 11.02.2021.

Dear Sir/Madam,

I am conducting a doctoral thesis on the subject of "INNOVATION MANAGEMENT" and a survey study on the scientific research process, which I am carrying out at the Yasar University, Business Administration Doctorate Program.

The data collected within the scope of the survey which can be filled in 10-15 minutes, will be used only for scientific purposes and the study is carried out in accordance with academic ethical standards. The suitability of this survey has been approved by the Yasar University Ethics Commission, and no information is needed to reveal the identity of respondents or the organization they work for.

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I kindly request that the questions in the survey are answered by considering any innovation project that is being executed or completed successfully and the team actively involved in this project.

--8th Question was prepared to determine how often the project team waste its time for innovative ideas/topics related to the project.

--The term of ‘’leader’’ in the 9th and 10th questions should be considered as the person (one of the team members, mentor, deputy manager, consultant,etc.) who provides intra-group coordination, uses logical and analytical ability, has high communication, controls the functioning of prosesses, etc.

In order to be able to conduct research at the team level, answering the survey of at least 5 people in the project team will further enrich the data.

Thank you very much in advance for your valuable time and support.

If you have any further information, please don’t hesitate to contact me.

Appendix 5: Questionnaire

Cover Letter

INNOVATION MANAGEMENT SURVEY

Dear Respondent,

I am conducting a doctoral thesis on the subject of "SUSTAINABLE INNOVATION MANAGEMENT" and a survey study on the scientific research process, which I am carrying out at the Yasar University, Business Administration Doctorate Program. As members of a sector where innovation management practices of companies gain importance day by day, we are honored to receive your valuable contribution to our scientific work. The data collected within the scope of the survey will be used only for scientific purposes and the study is carried out in accordance with academic ethical standards. The suitability of this survey has been approved by the Yasar University Ethics Commission, and no information is needed to reveal the identity of you or the institution you work for.

Thank you very much in advance for your valuable time and support.

		Mediators	Adapted Sources
		INNOVATION WORK BEHAVIOR	
		Please evaluate the following statements by considering the frequency of the innovative actions of an innovative team when you actively involved in while working in this company. (1=Never, 2=Rarely, 3=Sometimes. However, infrequently, 4=Neutral, 5=Sometimes, 6=Usually, 7=Always)	
		How often do your team…	
Idea Exploration			
1	**IEX1**	...pay attention to issues that are not part of your daily work?	Jong and Hartog (2010)
2	**IEX2**	...look for opportunities to improve things?	Jong and Hartog (2010)
3	**IEX3**	...consider innovative opportunities?	Jong and Hartog (2010)
4	**IEX4**	...wonder how things can be improved?	Jong and Hartog (2010)
5	**IEX5**	...explore new products, processes or services?	Jong and Hartog (2010)
6	**IEX6**	...search out new working methods, techniques or instruments?	Jong and Hartog (2010)
Idea Generation			
7	**IGE1**	...generate original solutions for problems?	Jong and Hartog (2010)

8	**IGE2**	...create new ideas?	Jong and Hartog (2010)
9	**IGE3**	...find new approaches to execute tasks?	Jong and Hartog (2010)
Idea Championing			
10	**ICH1**	...mobilize support for innovative ideas?	Jong and Hartog (2010)
11	**ICH2**	...acquire approval for innovative ideas?	Jong and Hartog (2010)
12	**ICH3**	...make important organizational members enthusiastic for innovative ideas?	Jong and Hartog (2010)
13	**ICH4**	...attempt to convince people to support an innovative idea?	Jong and Hartog (2010)
Idea Implementation			
14	**IIM1**	...transform innovative ideas into useful applications?	Jong and Hartog (2010)
15	**IIM2**	...systematically introduce innovative ideas into work practices?	Jong and Hartog (2010)
16	**IIM3**	...contribute to the implementation of new ideas?	Jong and Hartog (2010)
17	**IIM4**	...put effort in the development of new things?	Jong and Hartog (2010)
Independent Variables			
AMBIDEXTROUS LEADERSHIP			
Please evaluate the following statements by considering the leadership behavior of this team leader (this person may be a member of the team, the manager of your department, your top manager, etc.) during innovation process. (1=Never, 2=Rarely, 3=Sometimes. However, infrequently, 4=Neutral, 5=Sometimes, 6=Usually, 7=Always)			
Our team leader, during the team work,...			
Opening Leadership Behavior			
18	**OLB1**	...allows different ways of accomplishing a task?	Rosing et al. (2011)
19	**OLB2**	...encourages experimentation with different ideas?	Rosing et al. (2011)
20	**OLB3**	...motives to take risks?	Rosing et al. (2011)
21	**OLB4**	...gives possibilities for independent thinking and acting?	Rosing et al. (2011)
22	**OLB5**	...allows errors and encourages error learning?	Rosing et al. (2011)
Closing Leadership Behavior			
23	**CLB1**	...monitors and controls goal attainment?	Rosing et al. (2011)
24	**CLB2**	...sticks to plans and established routines?	Rosing et al. (2011)
25	**CLB3**	...takes corrective action?	Rosing et al. (2011)
26	**CLB4**	...controls adherence to rules?	Rosing et al. (2011)

27	**CLB5**	...pays attention to uniform task accomplishment?	Rosing et al. (2011)
Connecting Leadership Behavior			
28	**COLB1**	...leads through influence rather than control?	
29	**COLB2**	...devolves decision-making across team?	
30	**COLB3**	...has effective communication and connection across the team?	
31	**COLB4**	…is able to build and maintain sustainable relationships with different organizations in the network.	Ingmar van Meerkerk and Jurian Edelenbos (2018)
32	**COLB5**	…has a feeling of what is important and what matters for other organizations in the network.	Ingmar van Meerkerk and Jurian Edelenbos (2018)
33	**COLB6**	...takes care of a good information exchange between the network and their home organizations.	Ingmar van Meerkerk and Jurian Edelenbos (2018)
34	**COLB7**	...makes effective connections between developments in the network and internal work processes of their home organizations.	Ingmar van Meerkerk and Jurian Edelenbos (2018)
35	**COLB8**	...is able to mobilize their home organization in a timely manner in relation to developments in the network.	Ingmar van Meerkerk and Jurian Edelenbos (2018)
TRANSFORMATIONAL LEADERSHIP			
Please evaluate the following statements by considering the leadership behavior of this team leader (this person may be a member of the team, the manager of your department, your top manager, etc.) during innovation process. (1=Never, 2=Rarely, 3=Sometimes. However, infrequently, 4=Neutral, 5=Sometimes, 6=Usually, 7=Always)			
During our team work,…			
36	**TRL1**	...team members have complete faith in the leader.	Aga et al. (2016)
37	**TRL2**	...leader provides appealing images about the project to my team.	Aga et al. (2016)
38	**TRL3**	...leader is enable team members to think about old problems in new ways.	Aga et al. (2016)
39	**TRL4**	...leader gives personal attention to a team member who seems neglected.	Aga et al. (2016)
40	**TRL5**	...team members are proud of being associated with the leader.	Aga et al. (2016)
41	**TRL6**	...leader lets the team know that he is confident that the project goals will be achieved.	Aga et al. (2016)
42	**TRL7**	...leader provides team members with new ways of looking at puzzling things.	Aga et al. (2016)
43	**TRL8**	...leader helps each member of the team to develop his/her strenghts.	Aga et al. (2016)

44	**TRL9**	...leader makes the team members feel good to be around him.	Aga et al. (2016)
45	**TRL10**	...leader helps team members find meaning in their work.	Aga et al. (2016)
46	**TRL11**	...leader gets team members to rethink ideas that they had never questioned before.	Aga et al. (2016)
47	**TRL12**	...leader is attentive to the unique concerns of each team member.	Aga et al. (2016)
48	**TRL13**	...leader shows the team that he is optimisttic about the future of the project.	Aga et al. (2016)
Moderators			
TEAM CHARACTERISTICS			
Team Cohesiveness & Trust			
Please assess the following statements based on the characteristics of your team that you actively take part in while working in this company. (1=Never, 2=Rarely, 3=Sometimes. However, infrequently, 4=Neutral, 5=Sometimes, 6=Usually, 7=Always)			
During our team work,…			
Team Cohesiveness			
57	**TCO1**	...our team is united in trying its goals for performance.	Grossman et al. (2015)
58	**TCO2**	...the members of our team felt proud to be a part of the team.	Grossman et al. (2015)
59	**TCO3**	...people work well together as a team.	Grossman et al. (2015)
Trust			
60	**TRS1**	...we can trust the expertise of team members.	Erdem et al. (2003)
61	**TRS2**	...we can get help easily from team members.	Erdem et al. (2003)
62	**TRS3**	...team members share all sorces with other members at all times.	Erdem et al. (2003)
63	**TRS4**	...team members encourage each other to introduce different ideas and suggestions.	Erdem et al. (2003)
64	**TRS5**	...team members respect each other's emotions and ideas.	Erdem et al. (2003)
65	**TRS6**	...team members fulfill their undertakings successfully.	Erdem et al. (2003)
66	**TRS7**	...team members have the necessary qualifications for effective team performance.	Erdem et al. (2003)
Dependent Variables			
TEAM INNOVATION PERFORMANCE			
Please assess the following statements by considering the innovation performance and project success at team that you actively take part in while working in this company. (1=Never, 2=Rarely, 3=Sometimes. However, infrequently, 4=Neutral, 5=Sometimes, 6=Usually, 7=Always)			
Based on the project,…			
67	**TSU1**	The project was completed on time.	Aga et al. (2016)

68	**TSU2**	The project was completed according to the budget allocated.	Aga et al. (2016)
69	**TSU3**	The outcomes of the project are used by its intended end users.	Aga et al. (2016)
70	**TSU4**	The outcomes of the project have directly benefited the intended end users, either through increasing efficiency or effectiveness.	Aga et al. (2016)
71	**TSU5**	Given the problem for which it was developed, the project seems to do the best job of solving that problem.	Aga et al. (2016)
72	**TSU6**	Project team members were satisfied with the process by which the project was implemented.	Aga et al. (2016)
73	**TSU7**	The project has no or minimal start-up problems because it was readily accepted by its end users.	Aga et al. (2016)
74	**TSU8**	The project has directly led to improved performance for the end users/target beneficiaries.	Aga et al. (2016)
75	**TSU9**	The target beneficiaries were satisfied with the outcomes of the project.	Aga et al. (2016)
76	**TSU10**	Our principal donors were satisfied with the outcomes of the project implementation.	Aga et al. (2016)

Appendix 6: Figures

Figure 6 Consistent PLS Algorithm for Confirmatory Factor Analysis

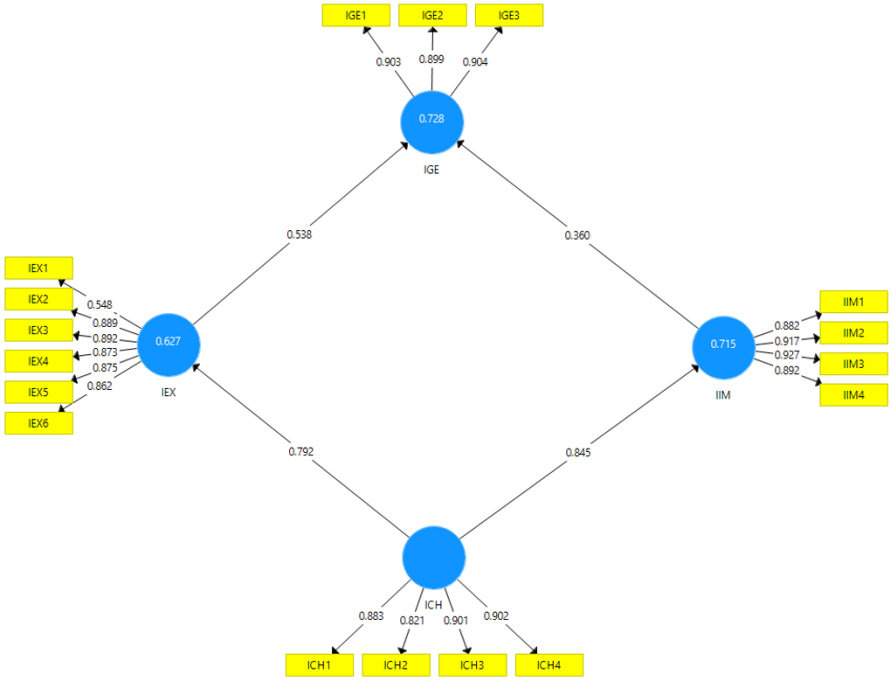


Figure 7 Consistent PLS Bootstrapping for Confirmatory Factor Analysis

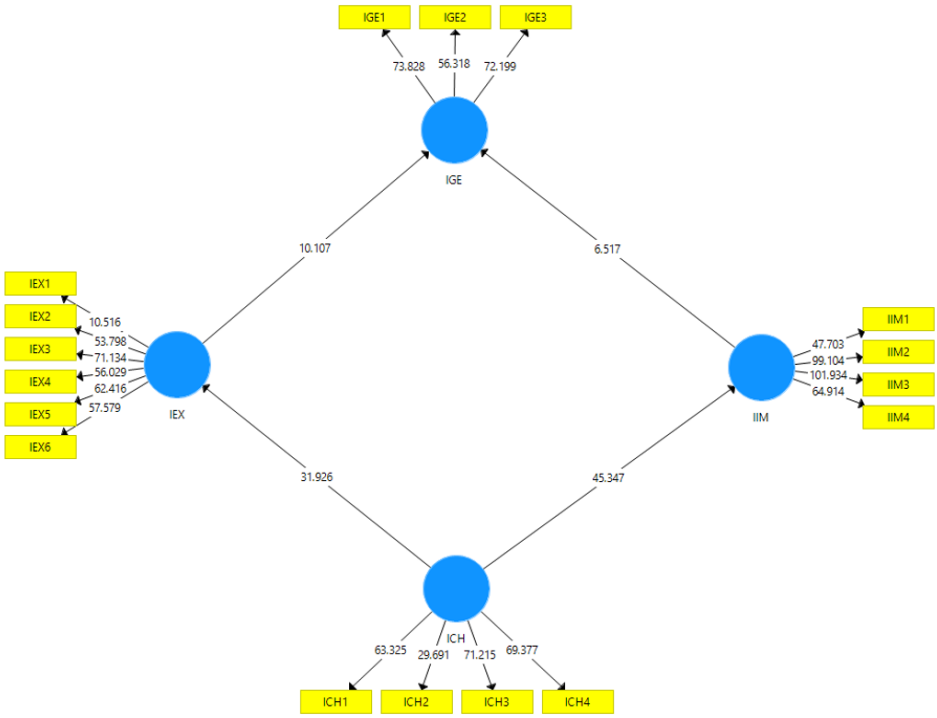


Figure 8 Path Model for Idea Exploration and TIP

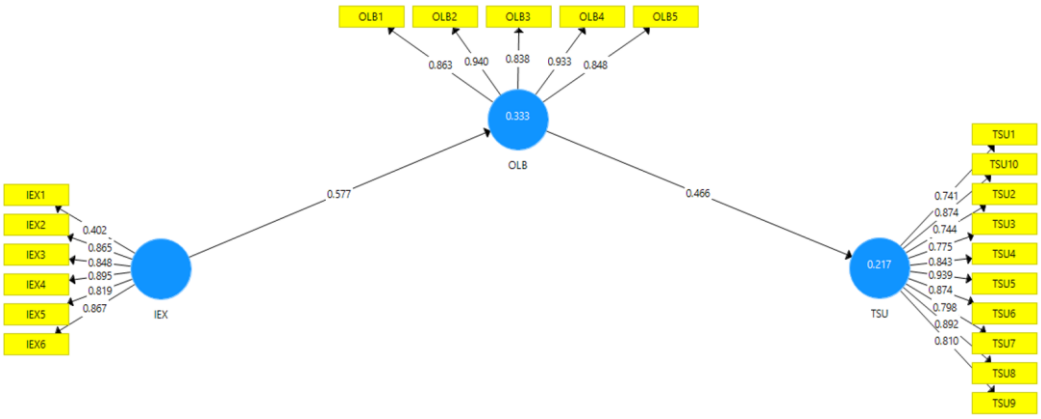


Figure 9 Path Model for Idea Exploration and TIP

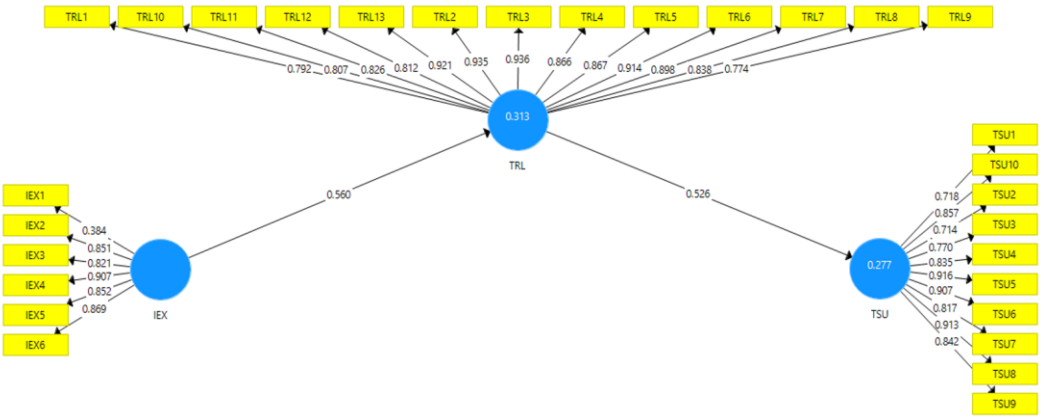


Figure 10 Path Model for Idea Generation and TIP

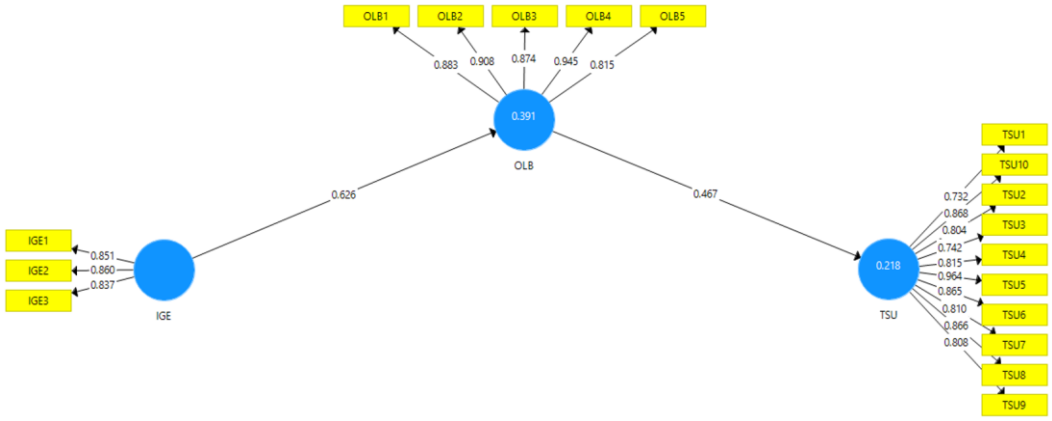


Figure 11 Path Model for Idea Generation and TIP

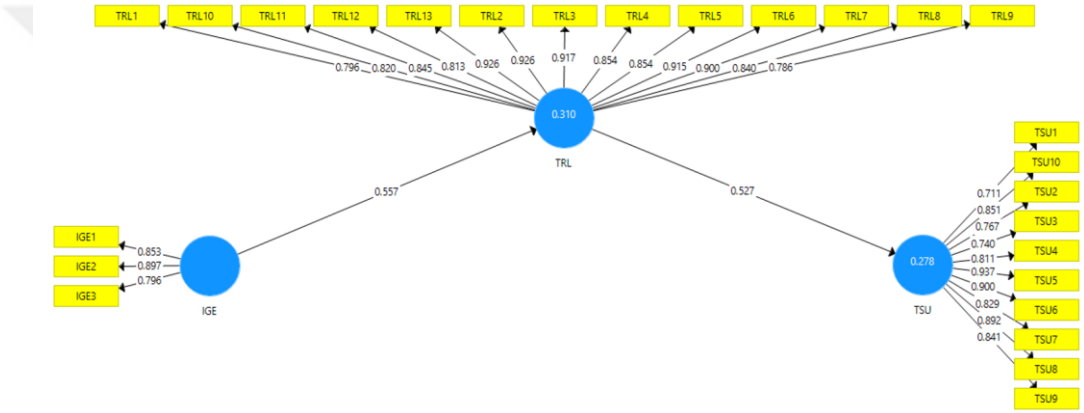


Figure 12 Path Model for Idea Championing and TIP

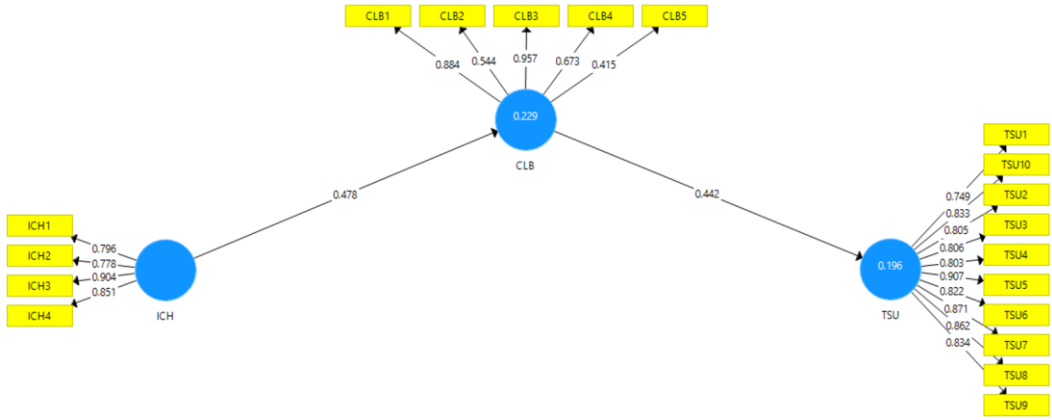


Figure 13 Path Model for Idea Championing and TIP

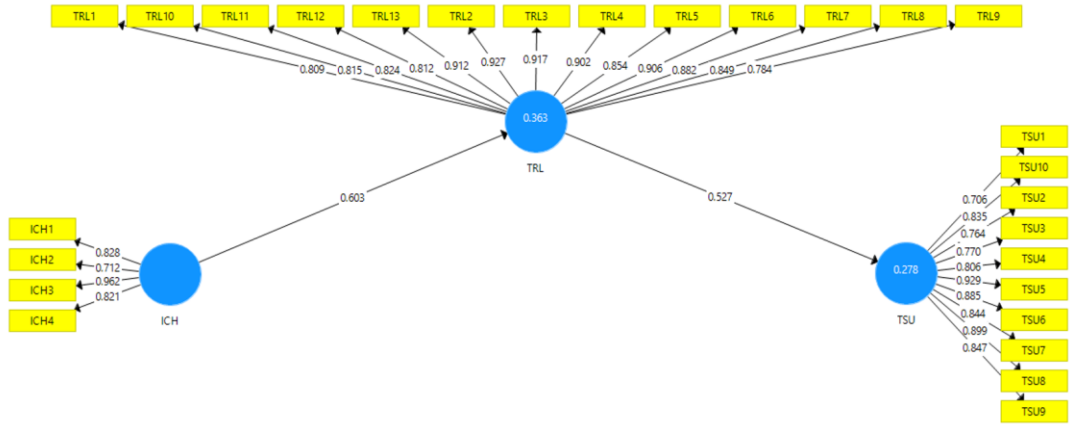


Figure 14 Path Model for Idea Implementation and TIP

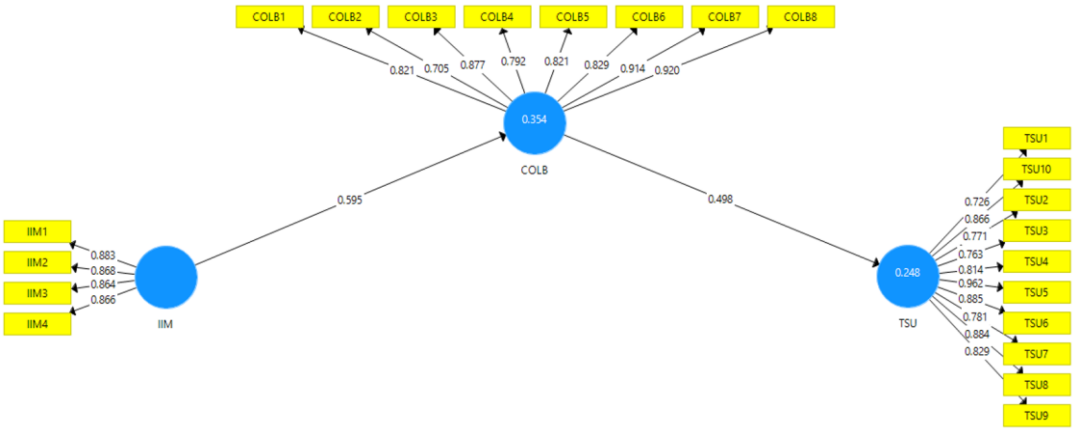


Figure 15 Path Model for Idea Implementation and TIP

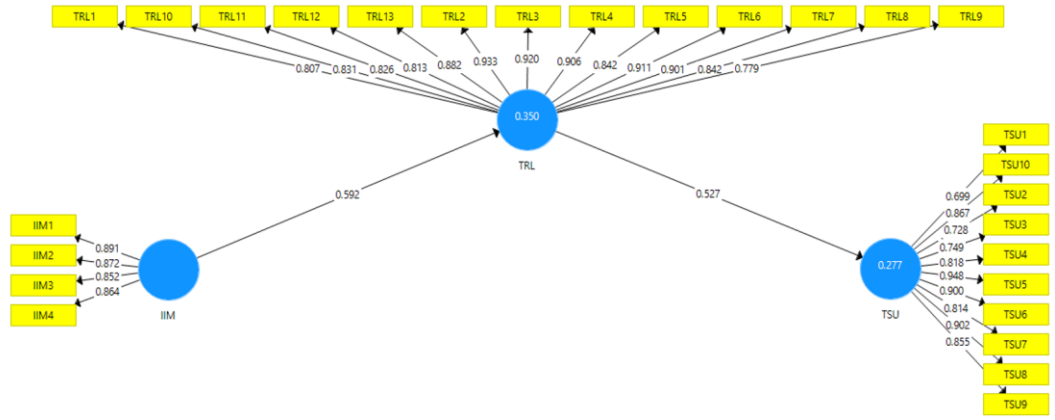


Figure 16 Model Fit for TIP

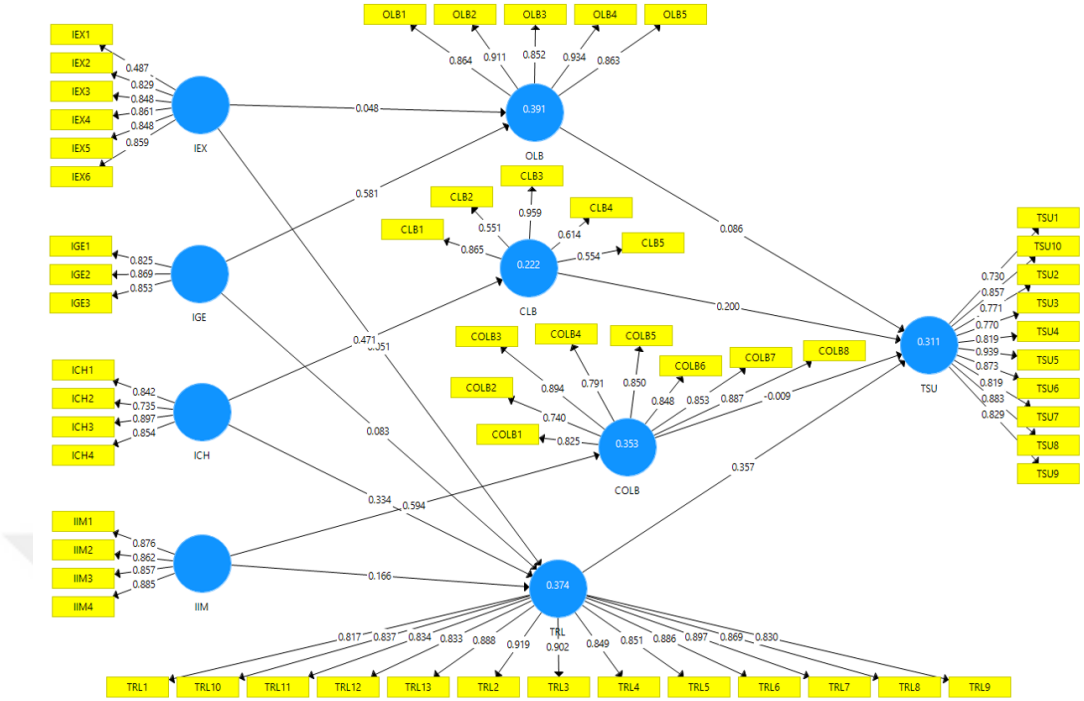


Figure 17 Moderating effect of team cohesiveness between Idea Exploration and TIP

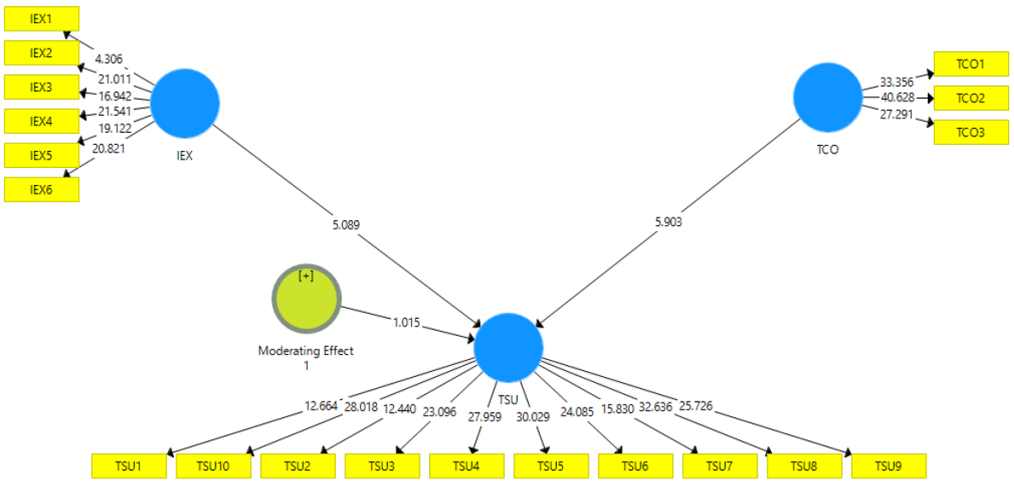


Figure 18 Moderating effect of team cohesiveness between Idea Generation and TIP

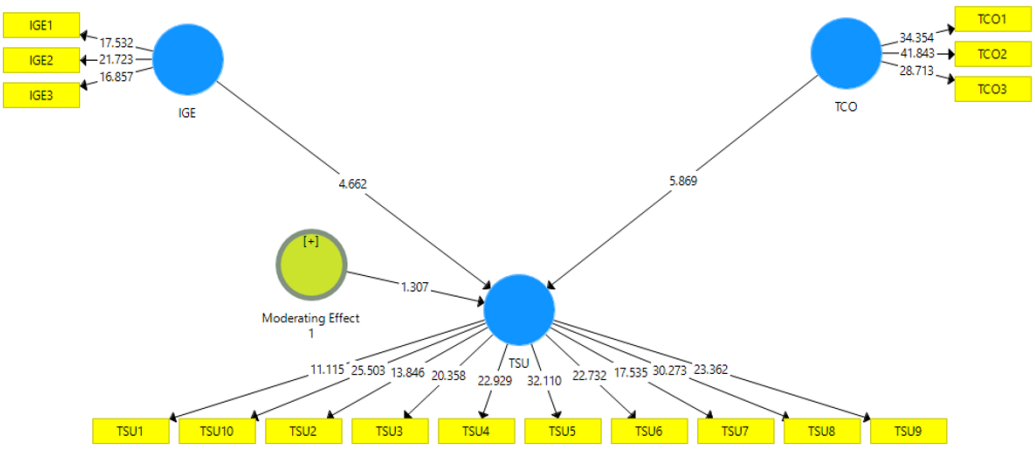


Figure 19 Moderating effect of team cohesiveness between Idea Championing and TIP

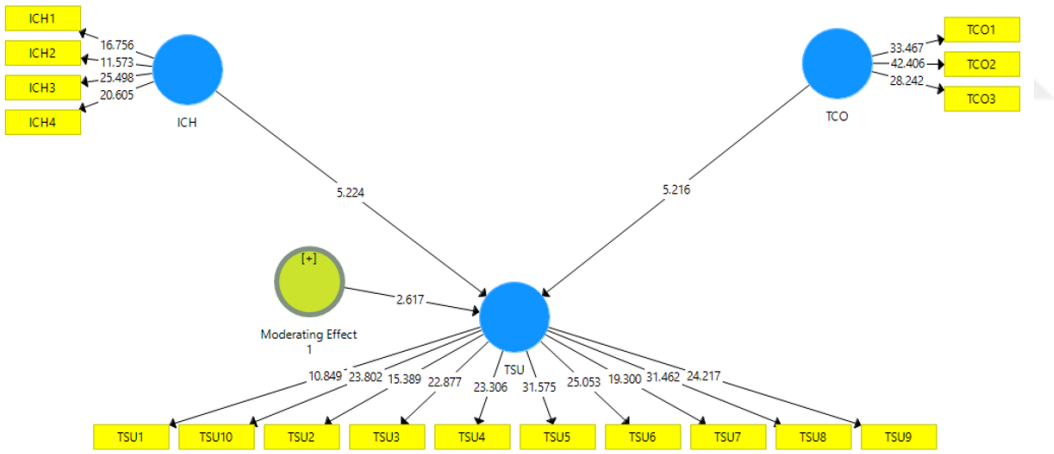


Figure 20 Moderating effect of team cohesiveness between Idea Implementation and TIP

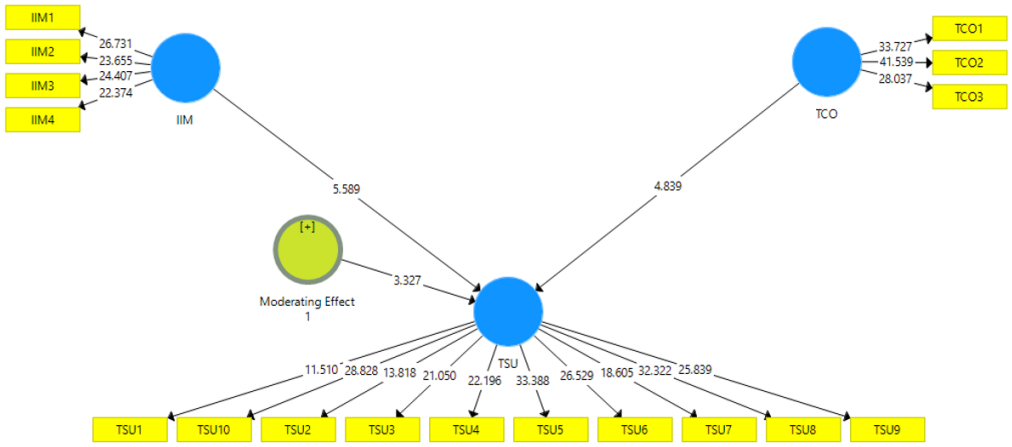


Figure 21 Moderating effect of trust between Idea Exploration and TIP

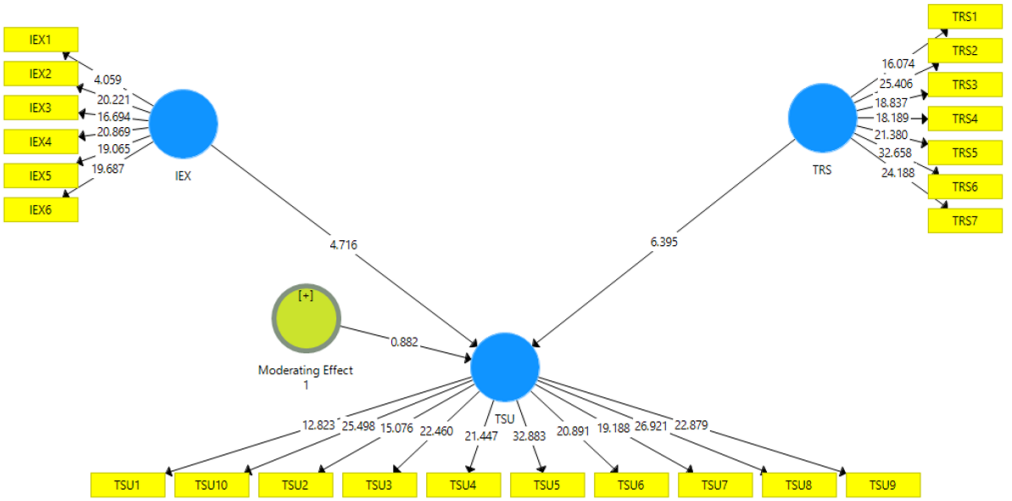


Figure 22 Moderating effect of trust between Idea Generation and TIP

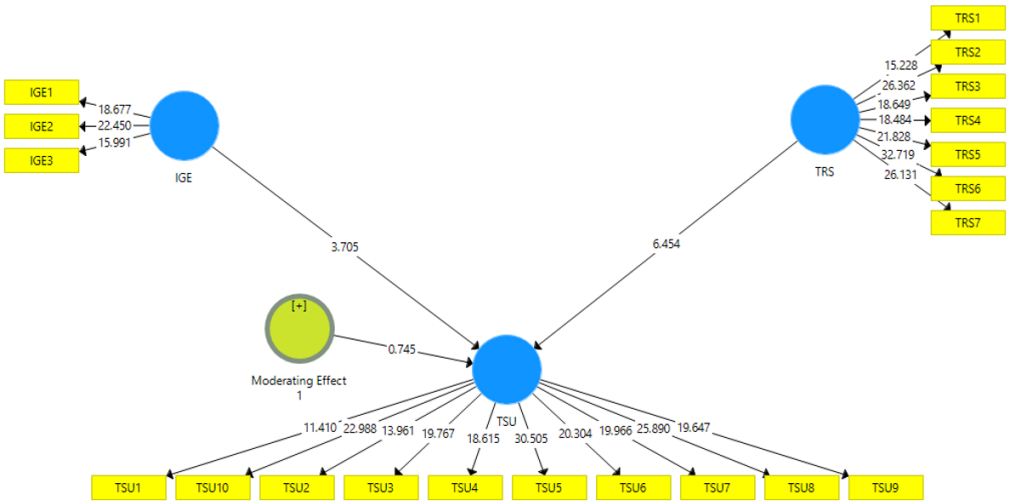


Figure 23 Moderating effect of trust between Idea Championing and TIP

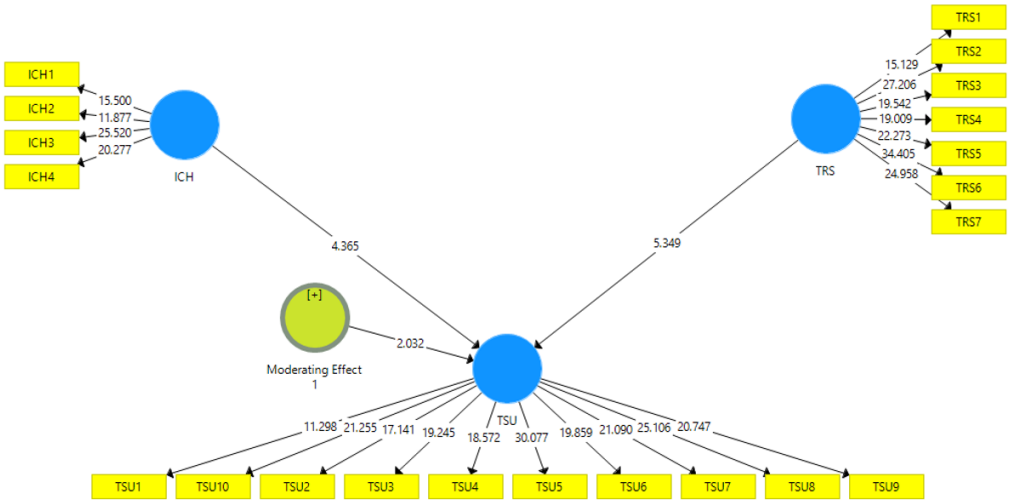


Figure 24 Moderating effect of trust between Idea Implementation and TIP

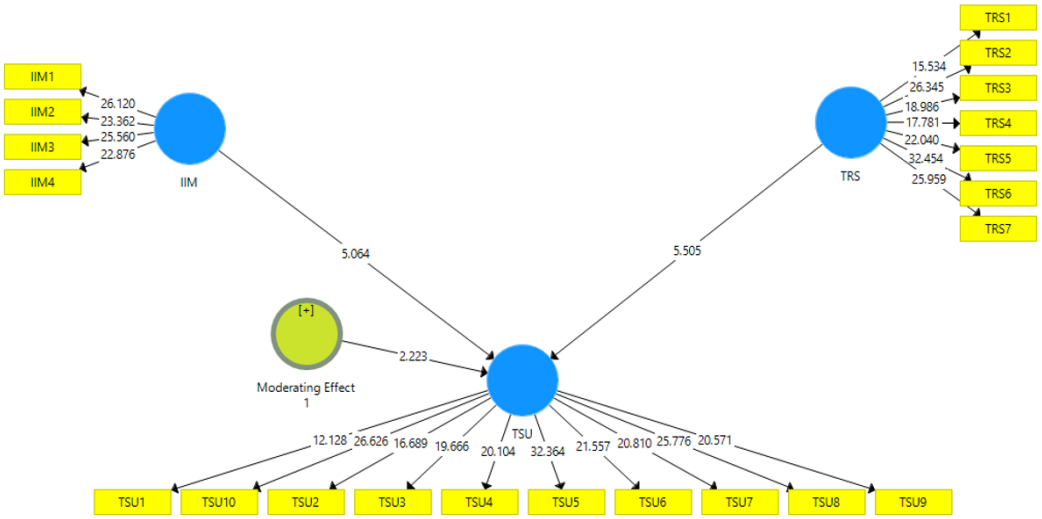


Figure 25 Mediating effect of Opening Leadership Behavior between Idea Exploration and TIP

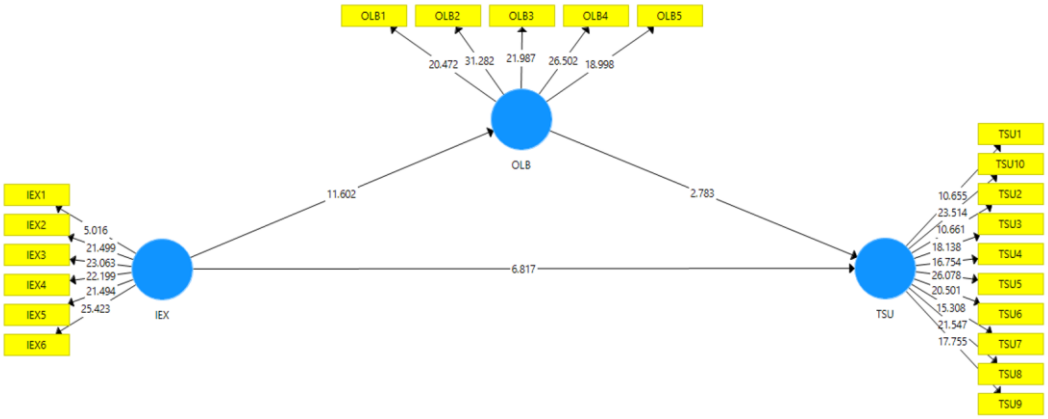


Figure 26 Mediating effect of Opening Leadership Behavior between Idea Generation and TIP

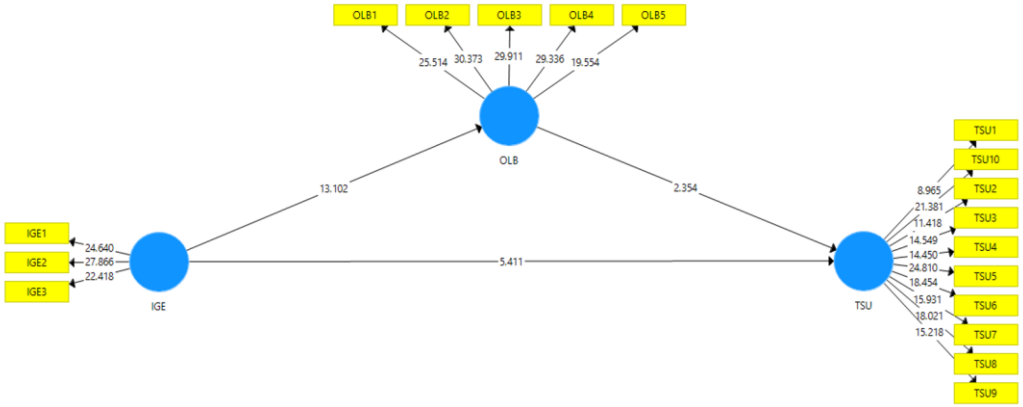


Figure 27 Mediating effect of Closing Leadership Behavior between Idea Championing and TIP

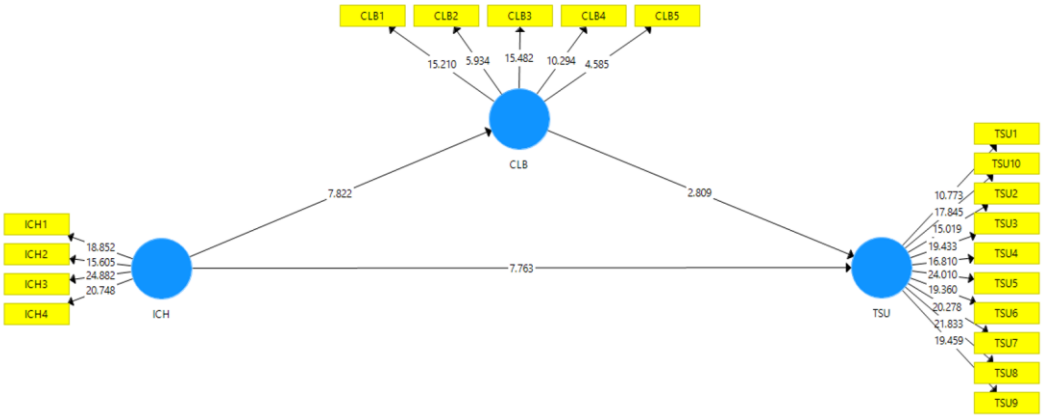


Figure 28 Mediating effect of Connecting Leadership Behavior between Idea Implementation and TIP

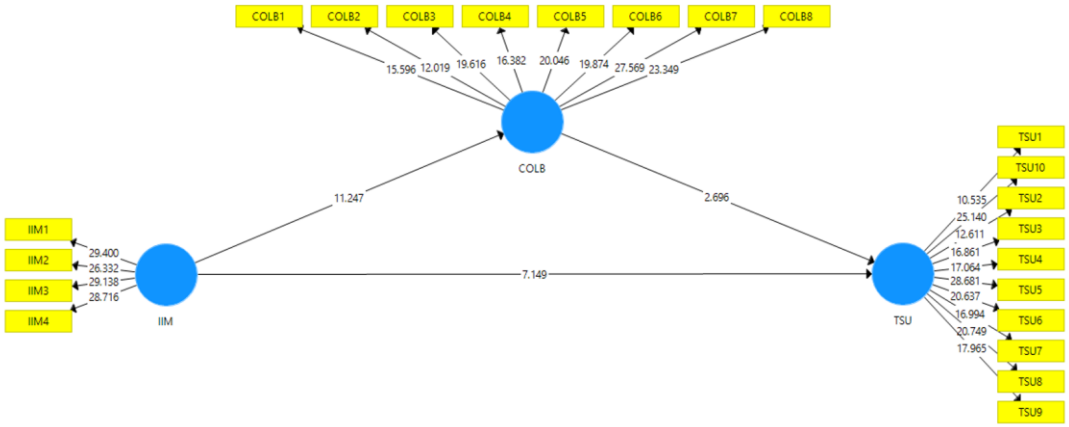


Figure 29 Mediating effect of Transformational Leadership Behavior between Idea Exploration and TIP

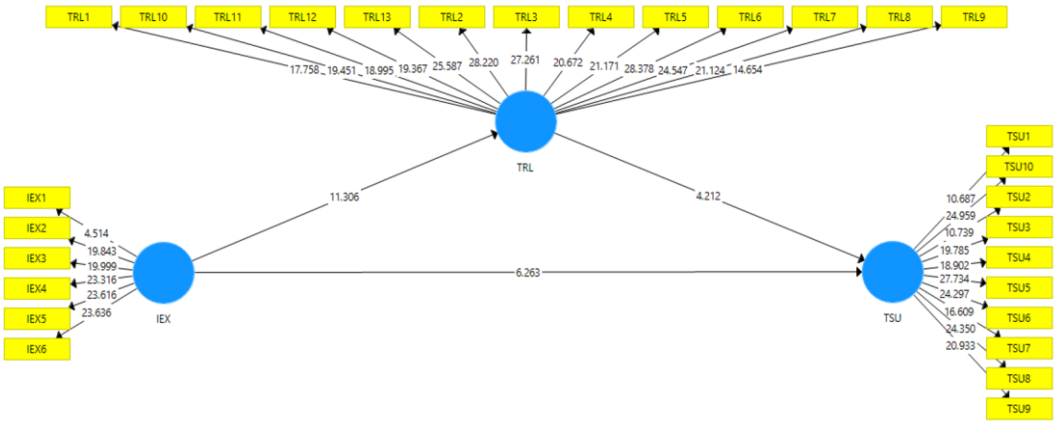


Figure 30 Mediating effect of Transformational Leadership Behavior between Idea Generation and TIP

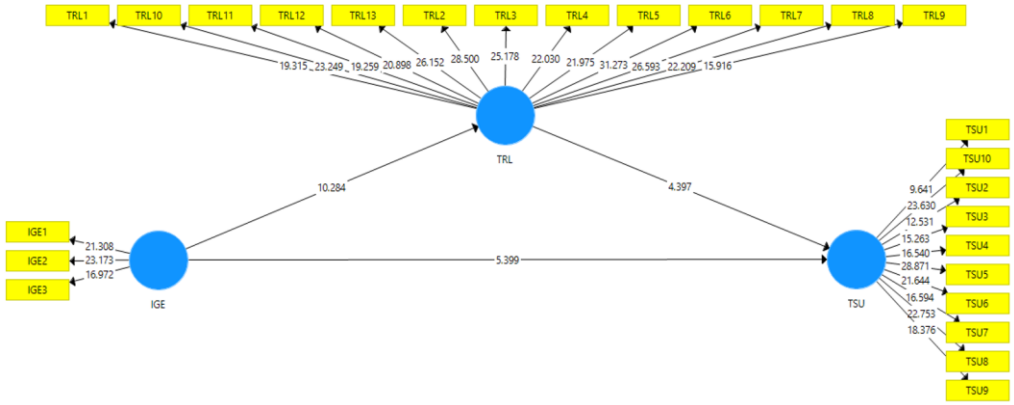


Figure 31 Mediating effect of Transformational Leadership Behavior between Idea Championing and TIP

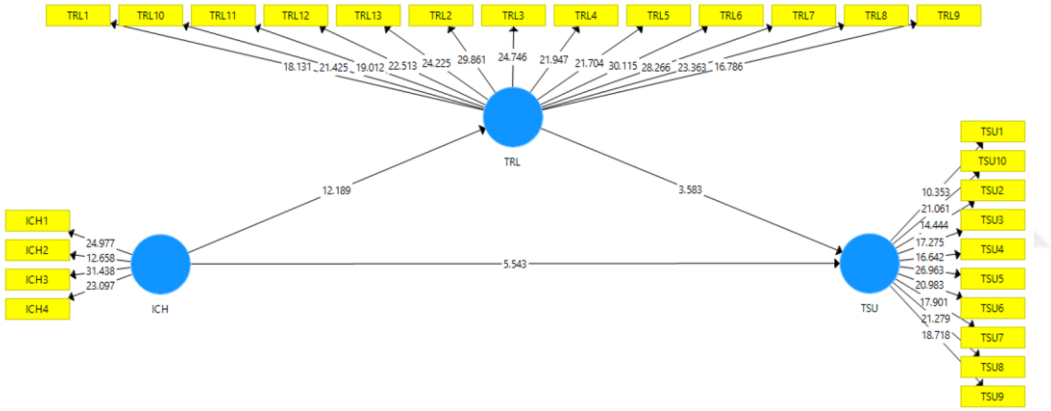
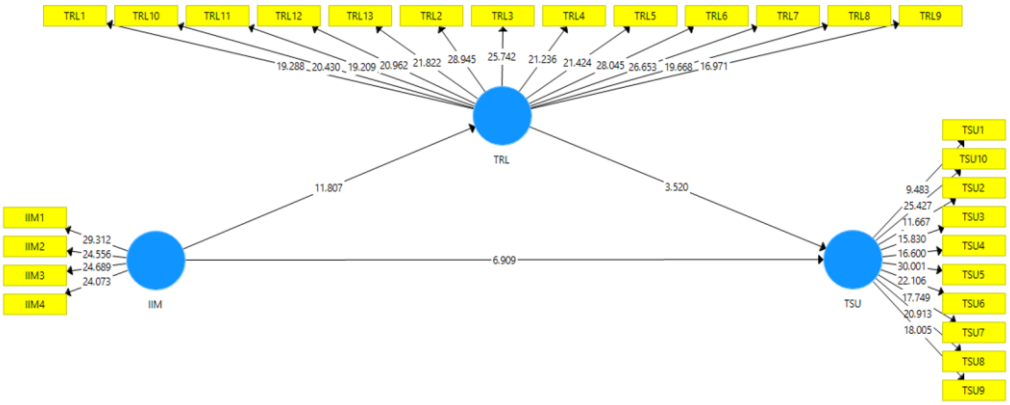


Figure 32 Mediating effect of Transformational Leadership Behavior between Idea Implementation and TIP



In the figures in Appendix 6:

IEX is used for idea exploration

IGE is used for idea generation

ICH is used for idea championing

IIM is used for idea implementation

OLB is used for opening leadership behavior

CLB is used for closing leadership behavior

COLB is used for connecting leadership behavior

TRL is used for transformational leadership

TCO is used for team cohesiveness

TRS is used for trust

TSU is used for team innovation performance

Appendix 7

Table 12 Normality Analysis for Items

	No.	Missing	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
Respondent	1.000	0.000	161.500	162.000	1.000	322.000	92.953	-1.200	0.000
IEX1	2.000	0.000	4.512	5.000	1.000	7.000	1.471	-0.676	-0.189
IEX2	3.000	0.000	5.220	5.000	1.000	7.000	1.444	-0.009	-0.745
IEX3	4.000	0.000	5.385	6.000	1.000	7.000	1.395	-0.106	-0.725
IEX4	5.000	0.000	5.503	6.000	2.000	7.000	1.326	-0.099	-0.749
IEX5	6.000	0.000	5.177	5.000	1.000	7.000	1.439	-0.259	-0.602
IEX6	7.000	0.000	5.199	5.000	1.000	7.000	1.486	-0.465	-0.590
IGE1	8.000	0.000	5.075	5.000	1.000	7.000	1.430	0.144	-0.644
IGE2	9.000	0.000	5.186	5.000	1.000	7.000	1.391	-0.229	-0.573
IGE3	10.000	0.000	5.012	5.000	1.000	7.000	1.388	-0.028	-0.611
ICH1	11.000	0.000	4.870	5.000	1.000	7.000	1.437	-0.396	-0.389
ICH2	12.000	0.000	4.770	5.000	1.000	7.000	1.494	-0.556	-0.337
ICH3	13.000	0.000	4.950	5.000	1.000	7.000	1.585	-0.495	-0.515
ICH4	14.000	0.000	4.953	5.000	1.000	7.000	1.590	-0.407	-0.561
IIM1	15.000	0.000	4.758	5.000	1.000	7.000	1.442	-0.513	-0.345
IIM2	16.000	0.000	4.658	5.000	1.000	7.000	1.500	-0.397	-0.446
IIM3	17.000	0.000	5.081	5.000	1.000	7.000	1.459	-0.378	-0.580
IIM4	18.000	0.000	5.283	6.000	1.000	7.000	1.482	-0.109	-0.748

OLB1	19.000	0.000	5.413	6.000	1.000	7.000	1.436	0.195	-0.839
OLB2	20.000	0.000	5.460	6.000	1.000	7.000	1.472	0.346	-0.944
OLB3	21.000	0.000	5.019	5.000	1.000	7.000	1.623	-0.521	-0.565
OLB4	22.000	0.000	5.335	6.000	1.000	7.000	1.538	-0.112	-0.781
OLB5	23.000	0.000	5.059	5.000	1.000	7.000	1.621	-0.216	-0.729
CLB1	24.000	0.000	5.413	6.000	1.000	7.000	1.438	0.371	-0.920
CLB2	25.000	0.000	4.708	5.000	1.000	7.000	1.577	-0.448	-0.437
CLB3	26.000	0.000	5.019	5.000	1.000	7.000	1.462	-0.032	-0.644
CLB4	27.000	0.000	4.929	5.000	1.000	7.000	1.505	-0.227	-0.592
CLB5	28.000	0.000	4.870	5.000	1.000	7.000	1.492	-0.529	-0.435
COLB1	29.000	0.000	4.960	5.000	1.000	7.000	1.687	-0.576	-0.622
COLB2	30.000	0.000	4.863	5.000	1.000	7.000	1.696	-0.412	-0.679
COLB3	31.000	0.000	5.205	6.000	1.000	7.000	1.616	-0.219	-0.824
COLB4	32.000	0.000	5.233	6.000	1.000	7.000	1.544	-0.098	-0.822
COLB5	33.000	0.000	5.224	6.000	1.000	7.000	1.510	-0.034	-0.825
COLB6	34.000	0.000	5.227	6.000	1.000	7.000	1.557	0.006	-0.838
COLB7	35.000	0.000	5.161	6.000	1.000	7.000	1.530	-0.188	-0.734
COLB8	36.000	0.000	5.059	5.000	1.000	7.000	1.522	-0.560	-0.493
TRL1	37.000	0.000	5.301	6.000	1.000	7.000	1.464	0.313	-0.849
TRL2	38.000	0.000	5.242	6.000	1.000	7.000	1.513	0.077	-0.822
TRL3	39.000	0.000	5.143	5.000	1.000	7.000	1.478	0.089	-0.712
TRL4	40.000	0.000	4.866	5.000	1.000	7.000	1.669	-0.556	-0.544

TRL5	41.000	0.000	5.099	6.000	1.000	7.000	1.669	-0.365	-0.734
TRL6	42.000	0.000	5.345	6.000	1.000	7.000	1.571	0.117	-0.906
TRL7	43.000	0.000	5.252	6.000	1.000	7.000	1.504	0.056	-0.830
TRL8	44.000	0.000	5.146	6.000	1.000	7.000	1.653	-0.330	-0.740
TRL9	45.000	0.000	5.230	6.000	1.000	7.000	1.658	0.183	-0.949
TRL10	46.000	0.000	5.230	6.000	1.000	7.000	1.635	-0.202	-0.806
TRL11	47.000	0.000	5.155	5.000	1.000	7.000	1.565	-0.225	-0.724
TRL12	48.000	0.000	4.932	5.000	1.000	7.000	1.683	-0.565	-0.642
TRL13	49.000	0.000	5.401	6.000	1.000	7.000	1.517	0.069	-0.881
PRM1	50.000	0.000	5.388	6.000	1.000	7.000	1.363	0.529	-0.927
PRM2	51.000	0.000	5.149	5.000	1.000	7.000	1.413	0.445	-0.883
PRM3	52.000	0.000	5.292	6.000	1.000	7.000	1.439	0.472	-0.905
PRM4	53.000	0.000	4.609	5.000	1.000	7.000	1.583	-0.333	-0.519
PRM5	54.000	0.000	4.957	5.000	1.000	7.000	1.503	-0.124	-0.725
PRM6	55.000	0.000	4.736	5.000	1.000	7.000	1.583	-0.256	-0.575
PRM7	56.000	0.000	5.320	6.000	1.000	7.000	1.552	0.388	-0.999
PRM8	57.000	2.000	5.156	5.000	1.000	7.000	1.624	-0.065	-0.813
TCO1	58.000	0.000	5.602	6.000	1.000	7.000	1.402	0.767	-1.108
TCO2	59.000	0.000	5.599	6.000	1.000	7.000	1.435	0.589	-1.052
TCO3	60.000	0.000	5.624	6.000	1.000	7.000	1.470	0.921	-1.171
TRS1	61.000	0.000	5.599	6.000	1.000	7.000	1.396	1.183	-1.146
TRS2	62.000	0.000	5.755	6.000	1.000	7.000	1.409	1.740	-1.384

TRS3	63.000	0.000	5.624	6.000	1.000	7.000	1.461	0.603	-1.099
TRS4	64.000	0.000	5.537	6.000	1.000	7.000	1.405	0.779	-1.034
TRS5	65.000	0.000	5.658	6.000	1.000	7.000	1.401	1.180	-1.212
TRS6	66.000	0.000	5.649	6.000	1.000	7.000	1.272	1.481	-1.191
TRS7	67.000	0.000	5.665	6.000	1.000	7.000	1.314	1.482	-1.203
TSU1	68.000	0.000	5.357	6.000	1.000	7.000	1.564	0.177	-0.949
TSU2	69.000	0.000	5.307	6.000	1.000	7.000	1.569	-0.021	-0.862
TSU3	70.000	0.000	5.550	6.000	1.000	7.000	1.483	0.589	-1.039
TSU4	71.000	0.000	5.571	6.000	1.000	7.000	1.458	0.561	-1.044
TSU5	72.000	0.000	5.354	6.000	1.000	7.000	1.387	0.144	-0.828
TSU6	73.000	0.000	5.289	6.000	1.000	7.000	1.481	0.270	-0.904
TSU7	74.000	0.000	4.907	5.000	1.000	7.000	1.550	-0.386	-0.644
TSU8	75.000	0.000	5.292	6.000	1.000	7.000	1.467	0.039	-0.829
TSU9	76.000	0.000	5.438	6.000	1.000	7.000	1.433	0.505	-1.023
TSU10	77.000	0.000	5.488	6.000	1.000	7.000	1.490	0.623	-1.112