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Master Thesis

數位領導對於團隊動態能力及新產品開發成效之影響研究：以創業精神與環境動盪為調節因子

The Impact of Digital Leadership on Team Dynamic Capability and NPD Success: The Moderating Role of Entrepreneurship and Environmental Dynamism

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準碩士推薦函

本校企業管理學系管理科學碩士班研究生__唐奇森__君在本系修業__年，已經完成本系碩士班規定之修業課程及論文研究之訓練。

1、在修業課程方面：唐奇森君已修滿39學分，其中必修科目：研究方法、管理科學、行銷管理專題、企業倫理專題等科目，成績及格(請查閱碩士班歷年成績)。

2、在論文研究方面：唐奇森君在學期間已完成下列論文：

(1)碩士論文：數位領導對於團隊動態能力及新產品開發成效之影響研究：以創業精神與環境動盪為調節因子

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本人認為唐奇森君已完成南華大學企業管理學系管理科學碩士班之碩士養成教育，符合訓練水準，並具備本校碩士學位考試之申請資格，特向碩士資格審查小組推薦其初稿，名稱：數位領導對於團隊動態能力及新產品開發成效之影響研究：以創業精神與環境動盪為調節因子，以參加碩士論文口試。

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論文題目: 數位領導對於團隊動態能力及新產品開發成效之影響研究：以創業精神與環境動盪為調節因子

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論文摘要內容: **廖英凱博士**

由於新技術的出現和工業 4.0 目前正在發生的變化，領導者領導組織的方式也需要改變。通過使用權變理論和組織知識創造理論，本研究旨在確定數位領導對動態能力和新產品開發成功績效的影響。此外，我們還想瞭解創業精神和環境動盪對這種關係的影響。本研究使用亞馬遜 Mturk 平台收集了 263 份於科技業服務者之問卷調查。這項研究的結果顯示，數位領導力對動態能力和新產品開發成功績效有顯著影響。動態能力對新產品開發的成功也有直接影響。此外，環境活力和創業精神對新產品的成功也有顯著影響。

關鍵字：數位領導、團隊動態能力、新產品開發成效、創業精神、環境動盪

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ABSTRACT

The industry 4.0 brought about changes and new emerging technologies, the way leader leads the organization is also needed to be changed. By using the contingency theory and the organizational knowledge creation theory, this thesis plans to determine the effect of the digital leadership and dynamic capability, on New Product Success. Furthermore, we also want to understand the effect of entrepreneurship and environmental dynamism on the relationship. The study collected 263 questionnaire surveys using the Amazon Murk. The result of this study suggested that digital leadership is significantly influence over dynamic capability, and New Product success. Dynamic capability also has the direct effect of the New product success. Furthermore, environmental dynamism and the entrepreneurship also had significant effect on the New Product Success.

Keyword: Digital Leadership, Team Dynamic Capabilities, New Product Success, Entrepreneurship, Environmental Dynamism

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CHAPTER ONE
INTRODUCTION

1.1 Research Background and Research Motivation

The term industry revolution 4.0 or also commonly known as the conceptual age era, occurred due to the influence of the digital technologies, IoT (Internet of thing), etc. (Kagermann, 2015; Schmidt et al., 2015). In this age of the human progression, businesses and firms need to keep up to date with the constant shift in customer demand due to the disruptive innovation and new emerging technologies, the need for firms to modify and transform their process, method, and management system is necessitated in order to effectively answer to the need of the markets. These sorts of transformations include how managers treat their staffs or organization members, how they lead, convey, and motivate their staffs in order for them to effectively perform their given task. (Mihardjo et al., 2019; Rachinger et al., 2018; Wiljén & Khalaf Beigi, 2015). Other scholars mentioned that there are four fundamental components that allow firms to remain competitive and achieved their business success in the industry 4.0, including the capability the firm to integrate, collaborate, innovate, interoperate with their peers as well as competitions. (Bauer et al., 2015; Ibarra et al., 2017; Kiel et al., 2017).

In regard to this, the ability of leaders to effectively trains, and retains the right human capital, which is a fundamental component of the firm resources, in order for them to use their assets to detect, and take their arising business opportunities, as well as making adjustment in order to align with the current environment, will allows firms to maintain competitiveness and achieve higher performance.

First, the above mentioned suggests, the need for clarification in the academic and practitioner sides regarding effective leadership style for the new digital era as well as the utilization of the firm assets in the changing environment of the firm is still lagging, Due to the conceptual age, disruptive technologies, and IoT, many of the commonly operated business strategies and procedures are being transformed into digitalization. The leadership itself is also adapting to the changes in the current trends due to the industry 4.0. However, there are some key elements that can be implemented with these changes in order to for the firm to survive in the industry 4.0.Therefore a research regarding the effect of the digital leadership, dynamic capability on New Product Success is crucial in order to explore any misconception and uncharted knowledges. The most integral part of the success of the firm is from the most basic of resources, the human resources. To develop the right human resources, firms need to have effectively and efficient leadership strategies. (Lee & Chan, 2015; Contractor et al., 2012)

Digital leadership is given the definition by De Waal et al. (2016). It is the combination of the use of technologies and the transformational leaderships. As mentioned in Shah and Patki (2020), leaders are required to understand the importance of the digital technologies, and the way to steer their employee into the correct direction in this shifting world. The demand for the leaders to be creative, and anticipate changes in much required in order for firm to counters their competitions. There is a unanimous agreement between the scholars of the operation and management research regarding the undeniable effect of the digital transformation of the industry 4.0 across all sectors and industries (Hess et al., 2016; Sebastian et al., 2017; Lanzolla et al., 2018; and Frank et al., 2019). Digital leadership has been practiced and honed on the practitioner sides and given close attention by mangers (Neun, 2020). However there has been little publicly available resources regarding the process and

strategies of the firm digital leadership (El Sawy et al., 2016). In total contrast to this, literature regarding the digital leadership is still in its infancy, based on Dinh et al. (2014) conducted a 12 years study and found out that there has be very minimal mentioned and attention given to the digital leadership in the top 10 journals, the authors further stated that the discipline is still an emerging discipline. Due to this negligent from the academic side to the digital leadership, even if the significant of the digital leadership, this research study intend to close the gaps and provide contribution to the digital leadership literatures.

Second Dynamic capability has been given the definition as the sensing, seizing and transforming the business opportunities and their resources or their business to match with the dynamics of the market (Teece, 2000). Scholars have agreed upon the need of new resources and capabilities in order to stay competitive in the digital era (Vial, 2019; Warner and Wager, 2019). However, previous literature presented a conflicting finding regarding the explanatory factor of the dynamic capabilities of the firms and its effects on competitiveness and performance (Eisenhardt and Martin, 2000; Peteraf et al., 2013). Warner and Wager (2019) suggested an empirical significant importance of the dynamic capabilities on the development of firm competitiveness in the digital economy. Due to the lack of consensus between literature, a research in order to confirm the dynamic capabilities effect on the performance and competitive advantages is much required. This study intends to find out the effect of the dynamic capabilities on the New Product Success

Third, due to the major changes in the industry 4.0, the environmental factor has a significant part to play in effecting the New Product Success. New Product Success is the abilities to create profit or income for the company by using innovative ideas. Based on past literature, it seems there is a moderating role for the environmental dynamism on the New product Success (Zulu-

Chisanga et al., 2016; Calantone et al., 2003). In the opinion of Turulja and Bajgoric (2019) mentioned that there is still a lack of empirical proof suggesting the impact of environmental dynamism as a moderator to New Product Success. In this study, the author intends to close this gap by suggesting the environmental dynamism as a moderator for the inter-relationship of digital leadership, dynamic capability and New Products Success.

Finally, scholars in the past also focused their attention on establishing the antecedent of the entrepreneurship by suggesting that the (Top Management Team) TMT are the main cause of the entrepreneurship (Jahanshahi et al., 2018), while other studies such as Shafique and Kalyar (2018) mentioned the effect of transformational leadership on the entrepreneurship. The majority of previous literature has undermined the issue of how entrepreneurship can affect the digital leadership and its dynamic capabilities as well as the performance. This study would like to address this issue by using the entrepreneurship as the moderator on the relationship between the digital leadership, dynamic capabilities and the New product Success.

1.2 Research Objective

1. To find out the influence of digital leadership on dynamic capability, and New Product Success
2. To find out the influence of dynamic capability on New Product Success
3. To find out the moderating role of environmental dynamism on the relationship of digital leadership, dynamic capability and New Product Success

4. To find out the moderating role of Entrepreneurship on the relationship of digital leadership, dynamic capability, and New Product Success

1.3 Research Procedures

The initiation of this research began with the development of the research construct and their relationship, backgrounds, research objectives, and research motivation. Through extensive literature review, the hypothesis and research models were developed.

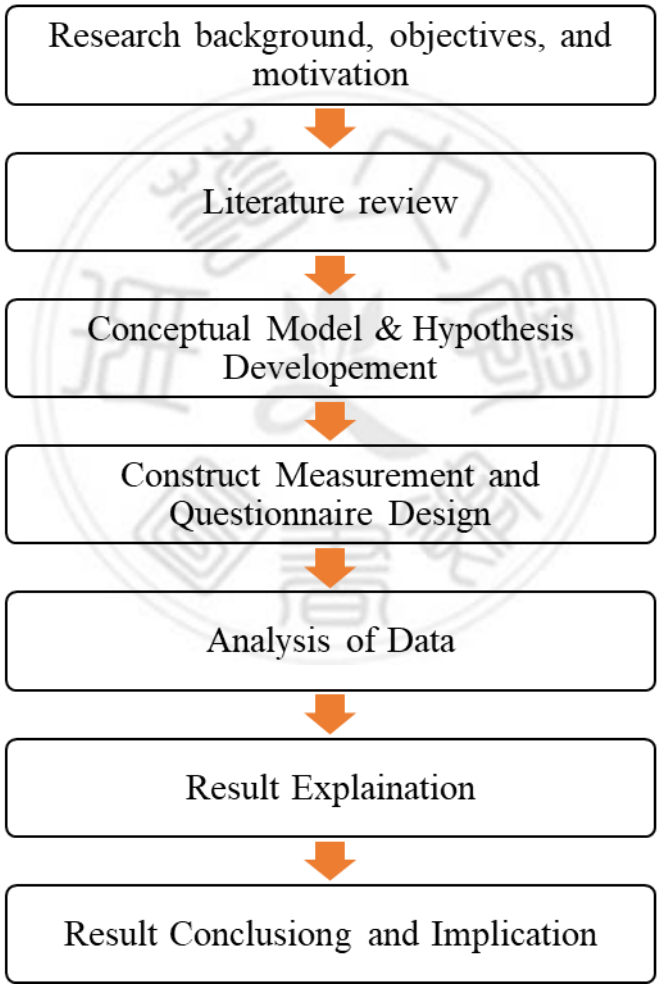

Figure 1.1.Research procedure

Source: Original Study

The measurement items for the constructs and the questionnaire design were developed with previous scholarly work backing. Once the first-stage data

was collected, a pilot test was performed to confirm the reliability and validity of the measurement items. After the collection of the full-set of data the multivariate statistical analysis was conducted in order to determine the hypothesis is rejected or accepted. Finally, this study used the result of the analysis in order to provide conclusion and implication of the research finding.

1.4 Research Structure

The content of this study separated into five chapters, which are describing as below:

Chapter one: Research background, research objective, procedure, and constructs

Chapter two : Theocratical background, definition of variables, and relationship between each of the construct supported by previous works.

Chapter three Showing the research framework, instrument, questionnaire item of each construct,, and methodology that will apply to analyze the data.

Chapter four: Showing the result of the analysis by employing the analysis method such as; descriptive analysis, factor analysis and reliability test, evaluation of the measurement model, evaluation of the structural model, and the moderating effect using the (ANOVA).

Chapter five: summary all the result of the study, discussion, and implication, and suggestion for future research.

CHAPTER TWO
LITERATURE REVIEW

2.1 Theoretical Background

2.1.1 The Organizational Knowledge Creation Theory(OKCT):

The Organizational Knowledge Creation Theory (OKCT) explain how an individual knowledge can be exploited and use for the organizational knowledge. If the individual knowledge is intensified and make available for the entire organization, it allows for the individual experiences to have an impact on their colleagues and organization (Nonaka et al., 2006). In the scholarly community, this theory has been used to explain the phenomenon in many different practical and academic fields such as Management (Yao et al., 2015), knowledge management (Maier and Schmidt, 2015), New Product Developments (Park et al., 2015), Smart production Operation Management and Industry 4.0 (Ordieres-Meré et al., 2020), Knowledge Economy (Choong and Leung, 2021), etc. The theory was first coined by Nonaka (1994), where knowledge is conveyed through four stages including the socialization, externalization, combination, and internalization (SECI).

There are two forms of knowledge: Explicit and Tacit knowledge. The explicit knowledge is the type of knowledge that can be explained clearly, through verbal, nonverbal, as well as written form, While tacit knowledge is tied to the implicit type of knowledge that is based on one experience, their physical memories and physical or psychological ability (Nonaka, 1991). Through knowledge conversion, the individual knowledge, both explicit or tacit, are able to be converted through the SECI model into a global knowledge where the firm will be able to use this knowledge to their advantage (Nonaka and Takeuchi, 1995). The Organizational Knowledge Creation theory, stressed on the importance of leadership as the main actor in helping in the knowledge

conversion and allowing the firms to utilize their resources in order to maintain competitive advantage as well as improve their firm performance. The role of leaders as stated by the Nonaka et al. (2006), is to facilitate in the SECI process of knowledge conversion through interpretation, nurturing, and supporting the knowledge vision led by the top management team. Middle manager will help in the process of conversion of tactic knowledge to the explicit knowledge through the combination of the top and frontline experiences in order to aid in new resource exploration, technologies and products development (Nonaka et al., 2000). Furthering this, Nonaka et al. (2006) redefined the role of the leadership in accordance with the organizational knowledge creation theory as the enabler of knowledge creation, rather than controlling or directing these knowledges from the top to the frontline or vice versa.

On the report of Nonaka et al. (2016) the organizational knowledge creation theory allows for the explanation regarding the antecedent for the firm management in order to have the ability to maintain competitive advantage and improve performance. Drawing upon these assumptions of the organizational knowledge creation theory, it will help explain the phenomenon of how digital leadership could lead to the development of firm dynamic capability and ultimately lead to the improvement of their performance and achieve success.

The organizational knowledge creation theory and the body of the dynamic capability theory also have a complementary relationship (Nonaka et al. 2016; and Khaksar et al. 2020). While there are three components of the dynamic capabilities including sensing, seizing, and reconfiguring. The organizational knowledge creation theory explains the leadership role in assisting in these three steps. Further their study, Nonaka et al. (2016) explained that the seizing and reconfiguring of the firm resources or knowledge happen on an organizational, while the sensing is predominantly in the frontline due to their direct interaction with the environment. However, this information

or knowledge is then transferred through middle management where they played a key role in assisting information flow and developing the dynamic capability of the firm.

In this study the Organizational Knowledge Creation theory is used to explain regarding how the digital leaders, assist in term of using the team knowledge into a resource which can leads to New Product Success. Furthermore, organizational knowledge creation theory will also explain the role of how the dynamic capability will be fundamental in-term of achieving New Product success. In addition to this the, the moderating variable Entrepreneurship effect on the influence of the digital leadership and dynamic capabilities will also be explain by this theory. The entrepreneurs have certain skill and personalities that can influence on the success in addition to this the entrepreneurs past knowledge regarding the technologies can also lead to the improvement of the digital leadership, dynamic capabilities and the New Product success.

2.1.2 The Contingency Theory

Reflecting upon the contingency theory, past literature suggested that the organizational performance of a firm is dependent upon the organizational strategies, leadership, and resources and how well it is fitted to its external environment (Shao, 2019; Vidal et al., 2017; Al-Surmi et al., 2020) . Based on the study of Calantone et al. (2003), the main focus of the contingency theory was on the study that involved the discussion between the relationships among the environment, strategy, organizational structure and the performance. Drawing upon these body of theory, this study would like to use the contingency theory with combination of the organizational knowledge creation theory mentioned in 2.1.1, to explain the research model which involve the digital leadership and its interrelationships with to the dynamic capability, entrepreneurship (the strategies and culture of the firm), the environmental

dynamism, and its impact on the business performance. Calantone et al. (2003) further suggested the importance of the strategic flexibility of the firm in order to cope with the business environment. Based on the contingency perspective, there are two assumption (1) The best structure or strategies is non-existence (Glazer and Weiss, 1993;Yeniaras et al., 2020); and (2) The strategies or structure of a firm must be flexible to meet the different condition of the business environment (Galbraith, 1973; Cheng and Krumwiede, 2017). The burden of determining the performance fall upon how well fitted the organization is to its environment.

2.2 Definition of Key Variables

2.2.1 Digital Leadership:

Digital leadership has been identified with different definitions. One of the most commonly accepted definition of digital leadership or e-leadership is "a social influence process embedded in both proximal and distal contexts mediated by (Advanced Information Technology) AIT that can produce a change in attitudes, feeling, thinking, behaviors, and performance" (Avolio et al., 2014 pp 107). This definition is very abstract and focus on the effect of (Information Communication Technologies) ICT on the leadership process. As mentioned by Li et al. (2016), leaders have significant role in term of ensuring the organizational transformation in order to adapt to the changing environment in industry 4.0.. Other studies defined digital leadership as the competence and culture that is in play in order to take advantage of the change and opportunity of the digital technologies. (Rudito and Sinaga, 2017). Following Zhu (2015), digital leadership is composed of five characteristics including, creative leader, global visionary, though leaders, inquisitive leaders, and profound leaders. Hüsing et al. (2013) suggested that the digital leadership refers to achieving ICT intensive goal through which the human employee uses and maneuver the

ICT to complete the given tasks. De Waal et al. (2016) insisted on the definition of the digital leadership as a combination of the transformational leadership and the integrative use of the digital technologies. He further explained that the digital leaders have to have a keen eye for business opportunities and growth by employing successful and methodical use of the technologies. The digital leaders are required to be proactive toward the digital changes and willing to redesign the business in order to keep up with the dynamism in the technologies (De Waal et al., 2016)

For the purpose of this study, the author would like to operationalize the Digital leadership as the integration of the combination of the transformational leadership and the integrative use of the digital technologies (De Waal et al., 2016).

2.2.2 Dynamic Capabilities:

According to Teece et al. (1997), dynamic capability refers to the value positioning of the asset through building, integrating, and reconfiguring. The firm asset refers to the capital, labor, technology, knowledge, property rights, structures, routines and processes that is required in order to supports the organizational productive activities (e.g., organizational structures and capabilities). Dynamic capability refers to the firm's ability in processes and structure that allow the firm to transform their asset base in order to meet the requirements of the dynamic environment. (Teece, 2018). In addition to this the dynamic capability of the firm also represents the firm ability to sense and seize their opportunities (Teece, 2000; Zhang and Wu, 2017; Zhou and Li, 2012; Jiang et al., 2019). Based on this doctrine, Teece (2003) suggested that the dynamic capability of the firms represent the entrepreneurial aspect of the management. Therefore, in can be implied that the recognition of entrepreneurial opportunity and proactive strategic orientation as well as

creating value through a discipline strategic management action are the cornerstone in creating a dynamic capability framework.

The author of this study believed that in order to sustain a competitive edge, the combination of strategic management and the entrepreneurship perspective is needed. According to Covin and Slevin (1988), the entrepreneurial management style success is dependent upon the how the organization utilize their asset base to support the managers. Countering this belief, Lambertini (2017) suggested the separation of the two perspective and research on strategic management should not involve the entrepreneurship aspect. However, many other scholars support the bridging between the two perspectives. (Titus and Adiza, 2019, Dogan, 2015, Hitt and Ireland, 2017).

This study would like to operationalize the dynamic capabilities as the firm ability to sense and seize the opportunities and use that ability in order to reconfigure their firms to meet the demand of the marketing following (Teece 2000, 2003)

2.2.3 New Product Success

The abilities of the firm to create something new through the integration of the current resource, competence is regarded as the New Product Success (Paladino, 2007). Other researchers have mentioned the involvement of the process innovation and product innovation to be classified as the new product success (Ar and Baki, 2011). Wong and Tong (2012) mentioned the need for the reconfiguration of the innovative ideas into physical products as defined as the new products success. Pre-determination of how to successfully develop new product can be easy, however the verdict of determining the success of the new product after it has been produced is quite challenging (Deshpandé et al., 1993; Song et al., 2006). Flint (2002) mentioned that the new product development is related to the customer retention and growth of the firm. The success of new product development has been determined by the, product

quality, functionality, innovativeness, branding and the exterior design (Kim-Sing Won, 2014; Wong and Tong, 2012)

Following Paladino (2007) and; Akgun et al. (2012), this study would like to operationalize new product success as the ability of the new product to generate the profit and income through the launch to market of the new product.

2.2.4 Environmental dynamism

The study on the changes of the business environment has been an area of interest for the past 30 years as noted by Surty and Scheepers (2020). The amount of uncertainty which the firms face in their business environment is given the name of environmental dynamism (Dess and Beard, 1984, Miller and Friesen, 1983). As recorded in the famous study of Lawrence and Lorsch (1967) the business environment can be seen in various sectors and ranges from very stable to highly dynamic. It can be easily mistaken in identifying the firm level of environmental dynamism due to the misconception that the environmental dynamism is a unidimensional construct. As suggested by previous researches, there are commonalities suggesting that the environmental dynamism comprise of three dimensions including the aspects such as customer, competitors, and their technological environment (Garg et al., 2003; Song and Montoya-Weiss, 2001; and Starbuck, 1976; Alanazi et al., 2015).The term Environmental Dynamism is defined by the degree of changes and inconsistencies within the business environment (Hou et al., 2019). As noted by Bennet and Lemoine (2014), due to the hyper changes, and disturbance of the business environment , it has become more dynamic. Based on Daft (2016) the environmental dynamism is a precise measurement of how the environment changes or stabilize. As noted in McKelvie et al., (2018), the Environmental Dynamism exist in many different forms, for example, the technological dynamism and the market dynamism.

The Market Dynamism is defined as the amount of shift in the need of the customers, (Rodrigo-Alarcon et al., 2017). First of all, The changes in the customer need may provide the firm an opportunity to deal with emerging market segments and new customer needs. Older resources and competencies that were used to meet the old customer need are also obsolesced. Due to the rapid change in consumer preferences, firms are required to be flexible (Bokhari et al., 2020; Haarhaus and Liening, 2020; Li and Zhuo, 2020). There will be higher chance of firms increasing their new product development and launching if they can maintain high flexibilities in the utilization of their company resources and competence under those volatile conditions. However, if the firm is rigid in term of adopting new resource and competencies by maintaining a strong commitment to old resources, it will render the firm abilities to meet the shifting market demands and needs, and the ability for the firm to find exploratory products will also be limited as well (Danneels, 2002; Schriber et al., 2018). The willingness to initiate cannibalization of the firms existing product in order to meet the changing volatile market is an ensure ways in order for the firm to take advantages of the situations and maintain higher competitive nature.

Garcia- Villaverde et al. (2018) and Rodrigo-Alarcon et al., (2017) mentioned that the technological dynamism is the rapid shift of the technological development within the industry. In the study of O'Connor and Veryzer (2001) the dynamism of technologies will make the current technologies of the firms to be less useful and their products to be not as preferable in the market. Firms need to adopt newer technologies in order to seize the new opportunities. Changes in the technologies will allows the creation of new product that will utilize the new technical resources and allow for better differentiation from competitors (Chandy and Tellis, 1998, O'Connor and Veryzer, 2001, Danneels, 2002). Sticking to the current technologies will

render the firm's abilities in order to determine and react to the arising opportunities. Cannibalization will allow the firm to grasp new technologies and use it for further new development of products.

Following the trend of the literature, this study would like to operationalize the definition of the environmental dynamism as the technological dynamism and the Market dynamism (McKelvie et al. 2018).

2.2.5 Entrepreneurship

Bouncken et al. (2016) and Brem (2011) suggested that innovative and entrepreneurial activities are connected and on progress to the others fluently, where the innovation leads to the entrepreneurship. The definition of technologies has been discussed by previous researchers. Kor et al., (2007) proposed a very subjective view regarding the entrepreneurship, which comprise of the individuals' knowledge, skills, resources, abilities, innovativeness, and exploration, on a personal level. Uddin and Bose (2012) defined entrepreneurship as the process seeing and acting on the potential business opportunity by starting their own firm through using innovative idea. Çolakoğlu and Gözükara (2016) mentioned that the entrepreneurship is the result of the individual personality trait that form into behavioral pattern, these personality traits include innovativeness, need for achievement, and great internal locus of control. As noted by previous studies in order to identify the business opportunities, the entrepreneur is required to have the right skillset(Hattab, 2014; Moberg et al., 2014). In the entrepreneurial literature, there has been an established connection between skill and intention of the entrepreneur (Rae, 2006; Reyad et al., 2019).

Hattab (2014) mentioned that the entrepreneurial skill can be nurtured rather than natured. Raposo and Do Paco (2011) mentioned that the entrepreneurial skill consists of ones' ability to identify business opportunities, generate new ideas and the manifestation of those idea into physical platforms

(Majid et al.2017). The consensus belief in the entrepreneurial study is that the skill that the entrepreneur should have must include three dimensions regarding proactiveness, tolerance to risk, and innovativeness (Marten et al., 2016; and Rahman et al., 2015).

Previous study mentioned that the intention is a pre-determined, or planed of an individual to conduct on certain behavior (Yasir et al., 2018). From this definition the entrepreneurial intention can be identified as the intention of the individual to become an entrepreneur or start their own business. Bachleda et al. (2012) defined start-up intention as the individual preparedness to start a business. Lee and Wong (2004) defined the entrepreneurial intention as the initial path to venture creation. Generally, an individual behavior is predicted by their intention based on Ajzen (1991). Reflecting back on the explanation using the theory of planned behavior by Ajzen (1991), which mentioned that the entrepreneurial intention is the individual intention to embark on the entrepreneurial behavior. The definition is later redefined as the intention of becoming an entrepreneur by Linan and Chen (2009)

Based on the explanation above operationalized definition of the entrepreneurship is the combination of the entrepreneurial skill and the entrepreneurial intention

2.3 Hypothesis Development

2.3.1 The relationship of Dynamic Capabilities, Digital Leadership, and New Product Success

Nonaka et al. (2016) mentioned that the dynamic capability can be seen in two forms as in creative and adaptive. The creative aspect of the dynamic capability is seen at the team level, this study further suggested that whiles the dynamic capabilities reside within the entire organization from top to the

frontline employees, it is initially and essentially needed to be promoted by the leaders of the organization (Nonaka et al., 2016). From this we can imply that there is a relationship between the leadership and dynamic capabilities. In Schoemaker et al. (2018), a study on the intertwine of the innovation, dynamic capabilities and leadership, suggested that the VUCA (volatile, uncertain, complex and ambiguous) is what the leader regardless of their field is facing each day.

Given the VUCA condition, a leader must be able to design innovative organizational capabilities that represent an innovative offering and new business model that is made for the next big things (O'Reilly and Tushman, 2008; Kaivo-oja and Lauraeus, 2018). Conger (2004) coined the ideas that a successful leader is such one who can anticipate the change of the emerging technologies, and changing market and able to adapt to the given situation, these ideas were also supported by Kaivo-oja and Lauraeus (2018). Reflecting back to our definition of the digital leadership and dynamic capabilities, it can be implying that the digital leaders must encourage the dynamic capabilities of the firm in order to be successful. Given the definition of Digital leadership as the combination of digital technologies and the transformational leadership, there have been previous studies suggesting how transformational leadership may influence the dynamic capabilities. From the definition of transformational leadership, as a leader who idealized influence, inspirational motivation, intellectual simulation, and individual consideration. These sorts of behavior promote entrepreneurship, intrapreneurship, learning or creative use of existing knowledge, for the individual to sense the opportunity, seizing the opportunity, and reconfigure their actions (Schweitzer, 2014). Based on Schweitzer (2014), the transformational leadership have the influence on the dynamic capabilities. Mihardjo and Rukmana (2018) found out that the dynamic capabilities are dominantly influenced by digital leadership. The

study findings suggested that the firms must use digital leadership in order to develop dynamic capabilities either directly or through the mediation of market orientation:

Base on the literature support above, this study would like to propose the following hypothesis:

H_1: Digital leadership will have a positive influence on the dynamic capabilities.

Asbari et al. (2020) implied that the application of information technology is aimed to help coordinate the business process and increase the competitiveness of the business. This can result a more timely, efficient, and easier business process. Yunarsih (2020) suggested that the improvement on the service made to the customers, online, and in reality through the employment of the IT(information technology) and it can lead to the increase of the company competitive ability. It can be implied that the managers' duties can be carried out more effectively through the use of information technologies. Purwanto et al. (2019) coined that through the application of the appropriate information technologies, managers can adopt the mentality and working style of the e-leadership. Leaders' work has been improved due to the assistance of the new technologies in creating new business model, communicating, and leading their followers (Asbari et al., 2020). That author further reinstated that due to the advances in technologies, the traditional ways of leading has been replaced by electronic media in order to maintain competitive advantages over their competitions.

An in-depth study suggested that there are significant differences between team members under traditional and e-leaders. (Fayzhall et al., 2020). Members from e-leadership are required to be skilled in the digital knowledge and ICT(information communication technology), where in contract members from traditional leadership does not need to have these sorts of knowledge. This

suggest that the members under e-leader have to have higher knowledge in terms of working with new technology and adapt to newer technological changes.

According to Vizano et al. (2020), Pramono et al. (2020), and Dezky et al. (2020), the constant change of the technologies needs the leaders and employees to be able to adjust to the dynamism to achieve their intended purposes. Quddus et al. (2020) showcased the significant and important influence of digital leadership on the university performance. Sartika et al. (2020), Vizano et al. (2020), Sena et al. (2020), and Nugroho et al. (2020) also supported the significant effects of digital leadership on the performance. As mentioned in Fahmi et al. (2020) the digital leadership have significant influence over the market performance of the firm. Similar studies also suggest the above mentioned (Suheny et al., 2020; Slamet et al., 2020; Ismaya et al., 2020; Asbari et al., 2019; Purwanto et al., 2020; Bernarto, et al., 2020. Furthermore, as claimed by Darawong (2019), there is a significant influence of transformational leadership over the New Product Success and the NPD Speed. Previous research also mentioned that the transformational leadership also encourage creative idea which is best suited for New Product Development (Sosik et al., 1997). Furthermore, Sattayaraksa and Boon Itt (2016) mentioned the direct effect of the transformational leadership on the New Product Development Process through organizational culture and learning. These finding can be implicated that the digital leadership is associated with boosting the performance.

Base on the literature support above, this study would like to propose the following hypothesis:

H_2: Digital leadership will have a positive influence on the New Product Success.

According to Simon et al. (2015), a study on the business leaders' view on the strategic and dynamic capabilities for successful financial and non-financial performance, suggested that dynamic capabilities have significant association with the non-financial performance. Winter (2003) proposed the hierarchy of capabilities, implicated that the selection and retention of competence employees, and quality of services and products are the performance of non-financial aspect. Even though these are non-financial aspect but Simon et al. (2015) interjected that it is essential for financial success. From these statements we can suggest that financial and non-financial performance of the firms are measured separately but are interconnected.

Liao et al. (2007); and Vu (2020) argued that in order to gain the competitive advantage the entrepreneur needs to developed dynamic capabilities. In addition, Lin and Wu (2014);and Sijabat et al. (2021) interjected that the dynamic capability helps entrepreneur and organization through their daily routine works. Dynamic capabilities improve the firm's inner capabilities and increases performance. Rafique et al. (2018) insisted that dynamic capabilities are required to improve entrepreneurial, and organizational performance. Zhou et al. (2019) pointed out that firm with innovative capabilities and a proactive behavior change in the dynamic business environment can improves their performance. The past literature suggested that the improvement of the performance can be achieved through the development of the dynamic capability, the ability to sense the changes in the business environment, and adapt to these changes. In short, firms need dynamic capabilities in order to continuously improve the performance. García-Sánchez et al. (2018) coined that the dynamic capabilities mediate the influence of innovative capabilities on organizational performance. Therefore, there is a direct effect of dynamic capabilities on performance. Zhang and Wu (2017), suggested that the sensing, and seizing capability has a positive effect on the

New Product Success. Furthering this the front-line employee role in assisting the dynamic capability, through the sensing process cannot be ignored, due to the fact that they act as an intermediary between the external environment and the firm (Kuester et al., 2017). Due to the information gained by these employees, it can lead to better reaction to the market need and therefore New Product success (Kuester et al., 2017). According to Chen and Chang (2013) there is a direct effect of the dynamic capability and the New Product Development Performance.

Based on the literature support above, this study would like to develop the following hypothesis:

H_3: Dynamic Capabilities will have a positive influence on the New Product Success

2.3.2 Environmental Dynamism as a moderator for the influence of Digital Leadership, Dynamic Capabilities, on New Product Success

According to Kim et al., (2020); and Siggelkow and Rivkin (2005) the turbulence and complexity of the environment has profound effect on the organizations and scholars should pay attention to this matter. Siggelkow and Rivkin (2005);and Latan et al. (2018) suggested that management has a significant role in combating the changes of the business environment, due to their role in jobs allocation, decision making, and communication. Dess and Beard (1984) gave the definition of environmental dynamism as the amounts of changes and dynamism that happened within the business environment. In order for the changes to occurs a certain degree of knowledge that is able to match with the dynamic of the environment is needed. Dong et al. (2020) aroused the ideas of managers' knowledge being influence by the business environment. In order to solve external problems, employees of an organization must have a mutual understanding in carrying out their tasks to sensing and seizing the changes of the environment (Hmieleski and Baron, 2009; Jansen,

Vera and Crossan, 2009) The behavior of leaders will significantly affect the attitude of the employee toward those tasks (Shalley and Gilson, 2004). From the previous work regarding the environmental factor, there is a connection between leadership and the changes in the environment. The environmental factor may force a leader to response a certain way in order to maintain his/her performance.

Dynamic capabilities are the ability of the firms to sense, seize opportunities and reconfigure their resources to meet the changes of the environment (Teece, 2000). Teece et al. (1997) suggested that firm are able to counter and adapt to the changing environments based on their dynamic capability, therefore dynamic capabilities is a direct opposition to the environmental changes.

This can be interpreted that the dynamic capability allows firms to maneuver in high turbulence of the business environment. According to Wang et al., (2012) firms are required to develop core competencies when the environment is calm and can be estimated; However, in highly volatile environment, it is essential for firms to develop and instate changes in their core competencies in order to develop higher level of dynamic capabilities. Furthering this, Eisenhardt and Martin (2000) suggested the dependent of level of dynamic capabilities based on the level of market dynamisms or uncertainty. In higher dynamic markets, firms need to create new knowledge and more flexible processes, while in moderate dynamic market firms need to focus on maintaining their current knowledge and resources for stabilities

The Environmental Dynamism is the external factors outside of the organization which includes the learning orientations and organizational memories (Calantone et al., 2003). Emery and Trist (1965) suggested the environmental dynamism as the factor which is correlation to the firms as well as a high level of environmental changes. Prior researches regarding the

environmental dynamism suggested a negative relationship on performance (Boyne and Meier, 2009). From a logical standpoint, the more unpredictability and changes there are, the more the organization performance suffered, and the instabilities caused by the environmental factors can influence the firm performances (Anning-Dorson, 2017). Calantone et al. (2003) followed the contingency theory, provided the support of the moderate influence of environmental dynamism on the relationship between innovation and performance. Tsai and Yang (2013), depending on the level of market dynamism and the intensity of the competition, confirmed that the effect of innovation on performance is different. Also, Zulu-Chisanga et al. (2016) found out that the environmental dynamism lessens the effect of the new product success on financial performance.

This study argued that the Success of the New Product changed based on the level of changes of the depending on the level of dynamism of the environment. Changes in the business environment could force company to come up with creative idea to combat the change and keep up with the market need, therefore increase the new product success. However too much changes could also make the firm unable to keep up and therefore negatively affect the success of new products. Previous literatures as mentioned above seems to suggest both positive and negative impact of the environmental dynamism and also supported this logic. Therefore, this study would like to propose the following hypothesis:

H_{4a}: Environmental Dynamism will moderate the influence of digital leadership on New Product Success.

H_{4b}: Environmental Dynamism will moderate the influence of dynamic capabilities on New Product Success.

2.3.3 The Moderating role of Entrepreneurship on the influence of Dynamic Capabilities, and Digital Leadership, on New Product Success

According to Bass (1985) and Wu et al., (2020), to become a transformational leader, one must convince his/her subordinates in order to surpass their own goal for the collective interest. Doing so will result in a better review of the input and effort made by their employee. Bass (1985) and Wu et al., (2020) argued that this type of leaders encourage innovative thinking in order to discover new way to deal with their given task. This can be implied that the transformational leaders encourage their employees to solved problems in a more proactive way to find new opportunities for strategic renewal activities and innovation, especially in the middle management position. This line of thinking is supported empirically by many scholars e.g. (Chang, 2016; Krishnan, 2012).

Although there have been theocratical proposition suggesting that transformational leadership and entrepreneurship are connected, the scholarly community has neglected this area (Chang et al., 2017). According to Bass (1998) and Wu et al., (2020), the encouragement of the transformational leaders in terms of risk taking, making new advancements, and problem reevaluation. Vera and Crossan (2004) proposed that transformational leaders are people who are mindful, and able to offer member training, uphold and coaching. As Krishnan (2012) specified, transformational leaders, through passing on their vision, can impact the state of mind and execution of their group members. This result in an increase in team member engagement in defining new opportunities and fresh idea generations. Other researchers have suggested the ability of the leaders to promote the collective identity and vision to initiate in innovative and entrepreneurial activity at the team level (Chang, 2016; Schweitzer, 2014). From the above discussion we can come to the implication that the digital leadership will help to motivate their employee to develop entrepreneurship.

Jonathan (2015) concluded that the entrepreneurship will help catalyze the creation of dynamic capabilities. This author further explained that the resource transformation and renewal are not coincidental and are based on the firm entrepreneurship which includes the proactive, innovative and risk-taking behavior. Dynamic capabilities were seen as a part of the resource-based view where they can ensure the competitive advantage in the continuous changing environment. Helfat et al. (2009) and Schwarz et al., (2020) suggest that the dynamic capability refers to the ability to create, prolongs, and make changes to their resource base. Similar view by Winter (2003) and Yi et al. (2018), they suggested that dynamic capabilities are essential for the firm to match with the market need, this refers to the capabilities that allows the firm to create, extend, and modify their capabilities (Teece et al., 1997). Zollo and Winter (2002) and Yi et al. (2018) proposed that dynamic capabilities is a continuous nurture process and action by which the organization methodically creates and alters its schedules in the interest of making strides adequacy the word capacity alluded to the firm's capacity to perform an assignment in a palatable way to realize compatibility with the changing environment. Notwithstanding, the entrepreneurship should introduce the adjustment or alteration of a firm's resource base. The insight depends on the creative, proactive and hazard taking characteristics of entrepreneurship showed in the determination and the making use of the opportunities that required asset change or modification. it can be hinted that the leading cause of the dynamic capability of the firm is entrepreneurship which allow the firm to determine and grasp the opportunities when it arises, through entrepreneurship the firm is able to conduct resource modification if needed.

It was found out that the entrepreneurship directly affects the profitability of the company and has significant effect on the financial performance of the firm (Vanacker et al., 2017). According to Ambad and

Wahab (2016), empirical study gather data from 130 organizations, found out that entrepreneurship was significant and crucial in helping firms to increase their profitability, therefore improving the overall performance. Otache and Mahmood (2015) discovered the significant influence of entrepreneurship on the firms' performance, however the success of the entrepreneurship is dependent upon the company's culture and their business environment. Kaya (2015) suggested that entrepreneurship has influence over the performance of SMEs , Zehir et al. (2015) found out that the entrepreneurship has significant effect on the performance of a firm.

Drawing upon the OKCT point of view that knowledge can be transferred through the entrepreneur (Leader or enablers) who transform individual knowledge into organizational knowledge. Entrepreneurs can spread their creative ideas to their teammate or co-workers therefore influence the creative working environment and could ultimately influence the New Product success. This may suggest that the degree of the New Product Success may change based on the level of the entrepreneurship. Based on the above discussion, suggested that there is connection between entrepreneur, digital leadership, dynamic capabilities, and firm performs.

With the support of previous scholarly works, this study would like to suggest the following hypothesis:

H_{5a}: Entrepreneurship will moderate the influence of digital leadership on New Product Success

H_{5b}: Entrepreneurship will moderate the influence of dynamic capabilities on New Product Success

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

As the name of this chapter has implied, this chapter covers the methodology and structure of our research. Within this part of the research includes the research framework, the measurement that was used in order to explain the research variables, the data collections, and the analysis procedure. Each of these points are elaborated further into the chapter and given in a detailed layout.

3.1 Research Model

According to the literature review, that was made in Chapter two, this study proposes the research framework as shown in figure 3.1.

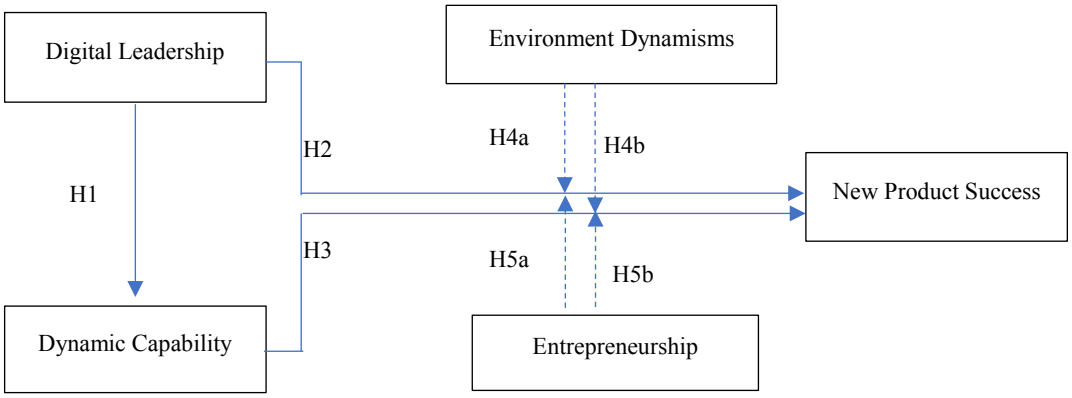

Figure 3.1 Conceptual model of research framework

Source: Original Study

Five major hypotheses were developed in this study:

Hypothesis H_1: Digital Leadership will have a positive influence on Dynamic Capabilities.

Hypothesis H_2: Digital Leadership will have a positive influence on New Product Success

Hypothesis H_3: Dynamic Capabilities will have a positive influence on New Product Success.

Hypothesis H_{4a}: Environmental Dynamism will moderate the influence of Digital Leadership on New Product Success.

Hypothesis H_{4b}: Environmental Dynamism will moderate the influence of Dynamic Capabilities on New Product Success

Hypothesis H_{5a}: Entrepreneurship will moderate the influence of Digital Leadership on New Product Success.

Hypothesis H_{5b}: Entrepreneurship will moderate the influence of Dynamic Capabilities on New Product Success

3.2 Research Instrument

The qualified samples of this research are individuals who are working in a company with a team setting including the team leaders and team members. This study employed the questionnaire survey in order to collect the data from the sample groups. The survey was divided into two part the demographic and the research constructs.

The first part is the demographic information, which includes questionnaires regarding Gender Age, Education Position, Income, Experience, Industry and Locations.,

The second part is the construct measurement, which contains questionnaires of; Digital leadership: consists of three-dimension Leaders' competence in using digital tools contains three items questionnaires, leader's digital skill containing three items, and the transformational leadership quality consisting of 7 items , Dynamic capabilities consisting of three dimensions. The sensing capability which includes five items, Seizing capability includes four items, and reconfiguring five items. Environment Dynamism consists of

two dimensions market dynamism(3 items) and technological dynamism (4 items) , Entrepreneurship consists of two dimensions with entrepreneurial skill consisting of nine items and entrepreneurial Intention consists of 6 items. New Product Success consists of 6 items. The use of 7-points Likert scale was employed for all measurement constructs with “1” denotes as the strongly disagree, “2” denoted as disagree, “3” denotes as somewhat disagree, “4” denotes as neutral, “5” denotes as somewhat agree, “6” denotes as agree, “7” denotes as Strongly agree.

3.3 Research Construct Measurement

3.3.1 Demographic Information:

In order to measure the characteristic of our respondent the researcher gathers information such as:

Respondent information:

1. Respondent gender
2. Respondent Age
3. Working experience
4. Educational Background
5. Income
6. Position in the Company

Company Information

1. Industry
2. Country

3.3.2 Digital Leadership

This study operationalized digital leadership as according to De Waal et al. (2016) definition which includes the integration of the use of digital tools and the transformational leadership. Given the context, this study adopted the

measurement for the use of digital tools, as a measurement scale used for digital leadership developed by Zeike et al. (2019). The measurement scale included two dimensions(Digital Leadership Competence and Digital Leadership Skill) which consists of six items. The transformational leadership qualities were retrieved from Carless et al. (2000), which include seven items, will be named as the Digital Leadership qualities in this study. The items were later operationalized to fit the context of the current research. The part of the questionnaire was divided into two parts measuring the leader's perspective(Self Evaluation) and the member perspective (Measuring their leaders) The questionnaire that was used in this paper include:

Table 3.1 Measurements Items of Digital Leadership Construct

Construct	Dimension	Items	Reference
Digital-leadership		Team Leaders Perspective	Adopted from (Zeike et al., 2019)
	Digital Leadership Competence	[DLC1]As a team leader, I always use digital tools to communicate and do decision making in the process of the NPD	
		[DLC2]As a team leader, I would say that I am a digital expert in my NPD team	
		[DLC3]When it comes to digital knowledge in the context of NPD, I am always up to dates	
	Digital Leadership Skill	[DLS1]As a team leader, I am driving the digital transformation forward proactively to my team members in the process of NPD	
		[DLS2] As a team leader, I always encourage my colleagues to be enthusiastic about digital transformation in the process of NPD	
		[DLS3] As a team leader, I have a clear picture regarding how to make a better digital transformation in the process of NPD	
	Digital Leadership Quality	[DLQ1] As a team leader, I use digital communication to explain vision of NPD team to my NPD team members	Adopted from (Carless et al., 2000)
		[DLQ2] As a team leader, I treat my NPD team members an individual, supports, and encourage them to develop digital knowledges	
		[DLQ3] As a team leader, I always give encouragement and recognition to my NPD team members through digital communication tools	
		[DLQ4]As a team leader, I foster trust, involvement and cooperation among my NPD team members through digital communication tools	
		[DLQ5]As a team leader, I encourage thinking about problems and questions assumptions in new ways through digital communication tools	

Table 3.1 Measurements Items of Digital Leadership Construct

Construct	Dimension	Items	Reference
		[DLQ6] As a team leader I am clear about my value and practices what I preach to my NPD team members	
		[DLQ7] As a team leader, I always instill pride and respect in others and inspires me by being highly digital competent	
Digital-leadership		Team Members' Perspective	Adopted from (Zeike et al., 2019)
	Digital Leadership Competence	[DLC1]As a team member, I feel that my leaders have use digital tools to communicate and do decision making in the process of the NPD	
		[DLC2]As a team member, I feel that my leaders are a digital expert in my NPD team	
		[DLC3]As a team member, I feel that When it comes to digital knowledge in the context of NPD, my leaders are always up to dates	
	Digital leadership Skill	[DLS1]As a team member, I feel that my leader is driving the digital transformation forward proactively to everyone who is in the process of NPD	
		[DLS2]As a team member, I feel that my leaders have always encouraged us to be enthusiastic about digital transformation in the process of NPD	
		[DLS3] As a team member, I feel that my leader has a clear picture regarding how to make a better digital transformation in the process of NPD	
	Digital Leadership Quality	[DLQ1] As a team member, I feel that my leaders have used digital communication to explain version of NPD team.	Adopted from (Carless et al., 2000)
		[DLQ2] As a team member, I feel that my leaders have treated the NPD team members as individual, supports, and encourage them to develop digital knowledges	
		[DLQ3] As a team member, I feel that my leaders have always give encouragement and recognition to the NPD team members through digital communication tools	
		[DLQ4]As a team member, I feel that my leader has foster trust, involvement and cooperation among my NPD team members through digital communication tools	
		[DLQ5As a team member, I feel that my leaders have encouraged thinking about problems and questions assumptions in new ways through digital communication tools	
		[DLQ6] As a team member, I feel that my leader is clear about his/her value and practices what he/she preach to my NPD team members	
		[DLQ7] As a team member, I feel that my leaders have always instill pride and respect in others and inspires him/her by being highly digital competent	

3.3.3 Dynamic Capability

This study operationalized Dynamic Capability as mention in chapter two. Given the context, this study adopted a measurement scale used for Dynamic Capability developed by Kump et al. (2016). The measurement scale included fourteen items, and three dimensions, using 7-point Likert scales to measure the agreeableness of the question ranging from 1 strongly disagree to 7 strongly agree. The items were later operationalized to fit the context of the current research agenda.

Table 3.2 Measurement Items of Dynamic Capabilities

Construct	Dimension	Items	Reference
Dynamic capability	Sensing Capability	[SEC1]My team knows the best practices in the market.	Adopted from (Kump et al., 2016)
		[SEC2]My team is up-to-date on the current market situation.	
		[SEC3]My team systematically searches for information on the current market situation.	
		[SEC4] As a team, we know how to access new information.	
		[SEC5]Our team always has an eye on our competitors' activities.	
	Seizing Capabilities	[SZC1]Our team can quickly relate to new knowledge from the outside.	
		[SZC2] Our team recognize what new information can be utilized in our company.	
		[SZC3]Our team is capable of turning new technological knowledge into process and product innovation.	
		[SZC4]The current information leads to the development of new products or services.	
	Reconfiguring Capabilities	[RC1]By defining clear responsibilities, our team successfully implement plans for changes in our company.	
		[RC2]Even when unforeseen interruptions occur, change projects are seen through consistently in our team.	
		[RC3]Decisions on planned changes are pursued consistently in our team.	
		[RC4]In the past, our team have demonstrated our strengths in implementing changes.	
		[RC5] In our team, change projects can be put into practice alongside the daily business.	

3.3.4 Environmental Dynamism

This study operationalized environmental Dynamism as mentioned in chapter two. Given the context, this study adopted a measurement scale developed by Kim et al. (2010); and Lu and Yang (2004) measuring the two dimensions of the environmental dynamism including market dynamism and technological dynamism respectively. The measurement scale included seven total items , using 7-point Likert scales to measure the agreeableness of the question ranging from 1 strongly disagree to 7 strongly agree. The items were later operationalized to fit the context of the current research

Table 3.3 Measurement Items of Environmental Dynamism

Construct	Dimension	Items	Reference
Environmental Dynamism	Market Dynamism	[MD1] Users continuously put forward new functional requirements for the product/system	Lu and Yang (2004)
		[MD2] Competition for similar products in the market is fierce.	
		[MD3] Policies related to project development are changing rapidly.	
	Technological Dynamism	[TD1] Major changes occur regarding functionality improvements during the next three years is likely to occur	Kim et al. (2010)
		[TD2] Major changes are likely to occur regarding price/performance improvements during the next three years	
		[TD3] Major changes are likely to occur regarding major product innovations during the next three years	
		[TD4] Major changes are likely to occur regarding major manufacturing innovations during the next three years	

3.3.5 Entrepreneurship

The Entrepreneurship construct consists of two main dimensions including the Entrepreneurial Skill and Entrepreneurial Intention. In order to measure this, construct this study would like to adopt the questionnaire from three different authors Jibbe Holwerda (2018); Covin and Sliven (1989); Linan and Chen (2009) The measurement scale of the entrepreneurial skill contains nine items and the entrepreneurial intention contains six items, using 7-point

Likert scale to measure the agreeableness of the research items ranging from 1 strongly disagree to 7 strongly agree. These questionnaire items were also operationalized to fit with the research agenda.

Table 3.4 Measurement Items of Entrepreneurship

Construct	Dimension	Items	Reference
Entrepreneurship	Entrepreneurs' Skills	[ES1] I am able to come up with new ideas	Jibbe Holwerda (2018)
		[ES2] I am good at coming up with new and different solution	
		[ES3] I am good at finding new ways of doing things	
		[ES4] I think failing in your business is just another learning experiences	
		[ES5] I think getting paid according to the results is the same or better than a fixed paycheck	
		[ES6] I see opportunity where others see the risk of failure	
		[ES7] When dealing with the competition, I am often the one to initiate action before my competitor	Covin and Sliven (1989)
		[ES8] I often try to introduce new and creative ideas to outdo my competition	
		[ES9] I am often very competitive	
	Entrepreneurial Intention	[EI1] I am ready to do anything to be an entrepreneur	Linan and Chen (2009)
		[EI2] My professional goal is to become an entrepreneur	
		[EI3] I will make every effort to start and run my own firm	
		[EI4] I am determined to create a firm in the future	
		[EI5] I have very seriously thought of starting a firm	
		[EI6] I have the intention to start a firm some day	

3.3.6 New Product Success

In order to measure the New Product Success , this study adopted the questionnaire items that was developed by Akgun et al., (2012) . The measurement scale contains six items using 7-point Likert scale to measure the agreeableness of the research items ranging from 1 strongly disagree to 7

strongly agree. These questionnaire items were also operationalized to fit with the research agenda.

Table 3.5 Measurement Items of New Product Success

Construct	Dimension	Items	Reference
New Product Success		[NPS1]Our new products meet or exceeds volume expectations.	Akgun et al., (2012)
		[NPS2]Our new products meet or exceed the number expected to be produced and commercialized.	
		[NPS3]Our new products meet or exceeds overall sales expectations.	
		[NPS4]Our new products meet or exceeds profit expectations.	
		[NPS5]Our new products meet or exceeds return on investment expectations.	
		[NPS6]Our new products meet or exceeds senior management expectations	

3.4 Sampling Design and Data Collection

This research is quantitative in nature; therefore, the employment of the survey is most adequate (Codó et al., 2008). The use of e-survey was employed by creating a google survey form and publishing through the Amazon M-turk Platform in order to ensure the validity and reliability of the responses. Any responses that are not completed was taken out of the samples. After the required sample have been collected, the researchers followed the analysis procedure stated below.

There have been many studies on the appropriate sample size required for a certain study Hair et al. (2014) suggested that the sample size should be 5 to 1 of the questionnaire items. However, in order to calculated the sample size required for the analysis and ensured the validity of the data, the formula below was adopted to calculate the sample size of the research (Kerlinger et al., 2000; Marcoulides and Saunders, 2006) as follows:

$$n = \frac{Z^2_{\alpha/2}.\sigma^2}{e^2} \qquad (1)$$

This study adopted a 7 point-scale questionnaire for the survey, sampling assessment was adopted as follows:

$$n = \frac{Z\alpha_{/2}.\sigma^2}{e^2} \qquad (2)$$

Assuming $e = 5\%, Z = 1.96, \sigma = 1.3$

Then, the estimated number of samples was expected to be

$$n = \frac{1.96^2 \times 1.3^2}{(7 \times 0.02)^2} = 331 \qquad (3)$$

Additionally, Hair et al. (2012) suggested the sampling size rule to be as follow (1) for many of the largest number of the formative construct the sample size should be 10 times equal to or greater than that, or (2) For as many of the largest number of the path directed of a certain construct in a particular structural model the number of the sample size should be 10 times greater or equal to that. Following the suggestion of Hair et al. (2012), this study planned on collecting 350 from electrical survey. However, the final data collected was 263 respondents.

3.5 Pilot Test

To reduce the noises in the data this study conducted a trail test by selecting a sample of 80 respondents, where the questionnaire will be sent out to the respondents who are currently working in the creative department of the firm and dealing with the generation of new idea. The exploratory factor analysis will be employed in order to ensure that the research variable have internal consistency. Following the suggestion by Hair et al., (2010) any items that have; a factor score of less than 0.6, eigenvalue lesser than 1, cumulative explained variance lesser than 0.6, item-to-total correlation lesser than 0.5, and the Cronbach alpha lesser than 0.7 was taken out of future analysis and adjustment was made to the questionnaire and published to the respondents.

3.6 Data Analysis Procedure

3.6.1 Descriptive Statistic Analysis:

This study adopted the descriptive statistics analysis in order to better understand the characteristic of the research structure and demographic information. The means and standard deviation for the research variables was shown in the demographic information.

3.6.2 Purification Method

To ensure the dimensionality and reliability of the research construct. The purification test was employed using the EFA (Exploratory Factor Analysis) to confirm the dimensionalities of the research variable and to suggest the inner correlation of the variables to their respective construct. In order to irrigate the data in to different factors, the principal component factor analysis and the varimax rotation was applied. To further the examination of how reliable the construct can explain the phenomenon, the reliability test using the Cronbach alpha was employed with also the test of using the items-to-total correlation as a suggestion of the research reliability and validity. As Hair et al. (2010) suggested, there are certain requirement that is needed to be met in order to ensure that the research construct is reliable and consistence. The following criteria are; (1) factor loading Greater than 0.6; (2) Eigenvalue Greater than 1; (3) accumulated explained variance greater than 0.6; (4) item-to total correlation greater than 0.5; and (5) coefficient alpha (α) greater than 0.7. If there are questionnaire items which has the value lower than the before mentioned, the items must be deleted and not be analyzed further.

Once the reliability of the research variable has been established, the remaining key variables of the research was computed based on their respective construct into a collective means in order to find out the average sum of the

means. This was further used for future analysis that includes the other procedures which will be listed below.

3.6.3 Common Method Variance Method

The common method variance happened when measurements were collected from the same sources and simultaneously the same method is employed. To reduce the above-mentioned possibility, this study employed a two steps approach, firstly the Harman one-factor test, which select every variable into a principal component factor (Podsakoff et al., 2003). Second, by performing the discriminant validity, which compare the square root of the Average Variance extracted (AVE)) with the Pearson correlations with other research constructs (Fornell and Larcker, 1981). Fornell and Larcker (1981); Hair et al. (2017), suggested that the square root of the AVE estimation should be greater than their respective inter construct correlation estimate

3.6.4 Hypothesis Testing:

3.6.4.1. The Partial Least Square (PLS)

The measurement model and the structural model of this study was tested using the Partial Least Square (PLS or PLS SEM) path modeling algorithm. Klein and Schermelleh-Engel (2010) said that, the PLS is more liberating in term of the minimal sample required for the analysis, multicollinearity issue, and the assumption for normal distribution.

Hair et al. (2011) compared the PLS and (VB-SEM) and found out that the PLS is applicable and more fitting these conditions:

1. When the motive of the research is predictive in nature to define their component of the research construct
2. When the research model includes many indicators and construct providing a very complex model
3. The Size of the total sample is low

4. The collected data is non-normal to certain extent.

5. When the intended use of the latent variable score will be in the further analysis.

Due to the above-mentioned criteria, this study would like to reinstated that the PLS was most fitting in order to test the Hypothesis of this study

a. Evaluation of the Measurement Model:

As stated above, this study employed several purifications processes to ensure that there is less data contamination, such as the factor analysis, correlation analysis, and internal consistency (Cronbach's Alpha), this process of purification is done in the purpose of verification of the dimensionality and reliability of the research construct of this study. The Factor analysis as mentioned in the purification section, hold the purpose of identification of the construct dimensionality of each research variables, by the selection of the questionnaire items with high factor loading and making comparison with the theoretical suggestion. While the internal consistency and reliability of the research construct is established by using the item-to-total correlation and coefficient alpha as basis of assessment. To evaluate the reliability and validity of the construct however, this study used average variance extracted (AVE), composite reliability (C.R) and Cronbach's alpha. following the suggestion of Hair et al. (2017), the composite reliability (C. R) should hold the value of higher than 0.6 in order to suggest the robustness of the variance shared by each respected indicator. Nunnally and Bernstein (1994) stated that average variance extracted (AVE) should be higher than 0.5 to assume the latent variables which can explain more than the average. Henseler and Ringle (2009), insisted that Cronbach's alpha should be higher than 0.7 to confirm the internal consistency of the research constructs.

b. Evaluation of the Structural Model:

In light of Hair et al. (2012) suggestion, the coefficient of determination (R^2) should be the primary assessment of the PLS model. Further statement of the same author gave the definition of the coefficient of determination (R^2) as the amount of the variance explained of each endogenous latent variable. Taking in to consideration of the R^2, Chin (1998) suggested that R^2 which contain the value of higher than 0.672 is believed to be substantial, 0.33 is considered as moderate, while 0.19 is believed to be weak. Additionally, a more universal ways of evaluating the structural model is the goodness-of-fit (i.e., the GoF index), which is the geometric mean of the average communality and the models' average R^2 value. (Vinzi et al., 2010) stated that GoF of 0.36 is considered to be large, 0.25 is considered to be moderate, and 0.1 is considered to be low. This study chooses $R^2 > 0.6$, GoF > 0.33 as the cut-off criterion.

Using the above criteria, it allows for the verification of the measurement model's validity and reliability. When the justification and reliability of the measurement model and the structural model is determined, the testing of the hypothesis was conducted using the coefficient of the path parameters (β). The significant of the path was determined by their p-value ($P<0.05$) is considered to be significant. The Smart PLS2 software is applied in this study.

3.6.4.2. The Moderator Testing

In the hierarchical regression, the interaction term which showcase through the relationship of the independent variable and the moderator, was added in the model in order to identify the significant change in the ΔR2 and ΔF. The proof of the moderating effect will be shown in the case that ΔF(Changes in F value is significant or $p<0.05$). The employment of the Analysis of Variance by data grouping based on the average score of the independent

and moderating variables, into four different groups including high IV-high MV, highIV - lowMV, lowIV -highMV, and lowIV-lowMV. The Duncan and F-test showcases the significant differences of the dependent variable between the four groups. Moderating effect can be seen if there are significant differences between the four groups.

CHAPTER FOUR
DATA ANALYSIS AND RESULT

4.1 Pilot Test result:

A pilot test was run before the survey for the formal test in order to ensure the dimensionality and reliability of the research constructs. The employment of the exploratory factor analysis was used with the criteria for cutting off following Hair et al., (2011). Hair et al., (2011) suggested that factor loading Greater than 0.6; Eigenvalue Greater than 1; Cumulative explained variance greater than 0.6; item-to total correlation greater than 0.5; Cronbach alpha (α) greater than 0.7as the minimum cut-off standard.

The results of the pilot testing are shown in the table 4.1. For the digital leadership construct, there are three dimension including digital leadership competence (3 items), digital leadership skill (3 items) and digital leadership quality (7 items). None of the items from these constructs were deleted. All of the items in this construct have a factor loading ranging from 0.748 to 0.898 which are greater than 0.70. The eigen value are all higher than 1 ranging from 2.104 to 4. 516, cumulative explained variance is higher than 0.6 ranging from 64.514% to 75.805%, the item to total correlations are also higher than 0.5 ranging from 0.591to 0.772. The Cronbach alphas of the three factors are also higher than 0.7 ranging from 0.786 to 0.908.

For the Dynamic Capabilities construct consists of three dimensions. One item from the reconfiguring dimensions were deleted (RC4) due to the items bring down the overall cumulative explained variance. However, once the items were removed, the remaining items all have value higher than the criteria.

The Environmental Dynamism construct consists of two dimensions, market dynamism and the technological dynamism. None of the item from this

construct were deleted. The questionnaire item MD3 have an item-to-total correlation slightly lower than accepted limited 0.474 and the Market dynamism dimension have the Cronbach alpha of 0.689. According to (Hulin, Netemeyer, and Cudeck, 2001) the Cronbach alpha of 0.6 to 0.7 is consider acceptable. The author of this study decided to keep the item and wait to see if there are improvement in the formal test.

The entrepreneurship construct consists of two dimensions. The first dimension is entrepreneurial skill which consists of 9 items initially however four items were taken out of the analysis due to low cumulative explained variance (<0.6) including items ES7, ES3, ES8, ES9. The second dimension is entrepreneurial intention which consists of 6 items. No items were deleted from this dimension.

New product Success is a construct that consists of 6 items measurement. None of the items from this construct were deleted, they consist of value higher than the accepted criteria.

The items which were deleted during the pilot test (including RC4, ES7, ES3, ES8, ES9) were not included into further analysis of this research. From the exploratory factor analysis, it can be said that, after deleting some of the unreliable items, there are high dimensionality of each of the measurement items to their respective factors furthermore the questionnaire is also very highly reliable. Therefore, the items can be used for further analysis and hypothesis testing.

Table 4.1 Exploratory Factor Analysis

CONSTRUCT	DIMENSION	Research Items	Factor Loading	Eigenvalue	Cumulative Explained variance	Item to Total Correlation	Cronbach's Alpha
Digital Leadership	Digital Leadership Competence	DLC2	0.882	2.104	70.142	0.700	0.786
		DLC1	0.818			0.602	
		DLC3	0.811			0.591	
	Digital Leadership Skill	DLS3	0.898	2.274	75.805	0.753	0.840
		DLS1	0.863			0.693	
		DLS2	0.850			0.673	
	Digital leadership Quality	DLQ4	0.853	4.516	64.514	0.781	0.908
		DLQ7	0.843			0.772	
		DLQ3	0.825			0.739	
		DLQ6	0.801			0.726	
		DLQ2	0.776			0.697	
		DLQ1	0.771			0.693	
		DLQ5	0.748			0.651	
Dynamic Capability	Sensing Capability	SEC2	0.854	3.223	64.455	0.752	0.861
		SEC1	0.827			0.710	
		SEC3	0.809			0.685	
		SEC5	0.794			0.668	
		SEC4	0.723			0.591	
	Seizing Capability	SZC2	0.831	2.583	64.566	0.672	0.816
		SZC3	0.824			0.670	
		SZC4	0.811			0.652	
		SZC1	0.746			0.560	
	Reconfiguring Capability	RC1	0.818	2.468	61.703	0.642	0.792
		RC3	0.808			0.632	
		RC2	0.778			0.589	
		RC5	0.736			0.546	
		RC4	Deleted Cumulative explain variance < 0.6				
Environmental Dynamisms	Market Dynamism	MD1	0.802	1.851	61.700	0.525	0.689
		MD2	0.794			0.514	
		MD3	0.760			0.474	
	Technological Dynamism	TD3	0.865	2.633	65.822	0.725	0.824
		TD4	0.846			0.689	
		TD2	0.836			0.680	
		TD1	0.686			0.504	

Table 4.1 Exploratory Factor Analysis (Continued)

CONSTRUCT	DIMENSION	Research Items	Factor Loading	Eigenvalue	Cumulative Explained variance	Item to Total Correlation	Cronbach's Alpha
Entrepreneurship	Entrepreneurial Skill	ES4	0.815	3.119	62.373	0.691	0.849
		ES1	0.794			0.660	
		ES2	0.793			0.661	
		ES5	0.776			0.638	
		ES6	0.771			0.635	
		ES7	items Deleted due to Cumulative explained variance <0.6				
		ES3	items Deleted due to Cumulative explained variance <0.6				
		ES8	items Deleted due to Cumulative explained variance <0.6				
		ES9	items Deleted due to Cumulative explained variance <0.6				
	Entrepreneurial Intention	EI6	0.900	4.034	67.226	0.841	0.900
		EI3	0.877			0.805	
		EI5	0.846			0.757	
		EI4	0.843			0.757	
		EI2	0.772			0.680	
		EI1	0.658			0.550	
New Product Success		NPS2	0.865	3.987	66.450	0.794	0.899
		NPS1	0.834			0.747	
		NPS6	0.823			0.734	
		NPS4	0.816			0.727	
		NPS5	0.777			0.673	
		NPS3	0.772			0.673	

Source: Original Study

4.2 Descriptive Analysis:

The descriptive analysis allows the researchers to better understand the characteristic of the respondents as well as the characteristics of the research measurement through displaying the mean and standard deviation of the all of the survey questionnaire. This section will be divided into two parts Characteristic of the respondent and the Descriptive analysis for the questionnaire items .

4.2.1 Characteristic of the respondents:

Table 4.2 provides us with important information about the characteristics of our samples. It seems that majority of the samples are male making up to 65.8% of the total respondents while around 34.2% are female respondents. Our respondents are also from various age groups with 48.7% of them in the age of 29-38 years old , 21.38% of the respondents are between 18-28 years old, 20.9% of the respondents are between 39-48 years old, 5.3 % of the respondents are from 49-58 years old, 2.3 % of them are between 59-65 years old, and the respondents above 65 years old accounted for 1.1 % of the respondents. According to the empirical data around 30.8% of our respondents have 4-6 years of working experience while 20.9 % of the respondents have 1-3 years of working experience, 23.2 % of the respondents have been working for 7-10 years, 24.7 % of them have been working for more than 10 years, while 0.4% of them have only 1 years of working experience. Regarding the respondents' education, it can be said that more than half (54%) of our respondents have a least graduated from university, having a bachelor degree, while 35.7% of the respondents are master degree holders, 3% of them are Ph.D., and 7.2% of them have a high school diploma. The average monthly income of the respondents is, 28.5% of them earn more than 2000 USD per months, 32.3 % of them earn around 1000-2000 USD per month, 29.3 % of the respondents earn 500-1000 USD per month , and 9.9% of them earn under 500USD. The respondents of this research came from different working industries including 37.3% of them are from information technology, 19% of them are from Manufacturing, 7.6% of the ma re from Service, 11.8% of them are from education and health, 9.5% of them are from finance and insurance, 3% of them are from telecommunication, and 9.1% of them are from trade and transportation. The country of origins of the respondents are mainly from America (62.4%), followed by Asia (33.8%), Europe (3.4%), and Africa

(0.4%). With 59.3% of the respondents are team member and 40.7% of the respondents are team leaders.

Table 4.2 Characteristic of Respondents (n=263)

Demographic Variables		Frequency (n=263)	Percent (%)
Gender	Female	90	34.2
	Male	173	65.8
Age	18-28	57	21.7
	29-38	128	48.7
	39-48	55	20.9
	49-58	14	5.3
	59-65	6	2.3
	Above 65	3	1.1
Working Experience	Under 1 Years	1	.4
	1-3 Years	55	20.9
	4-6 Years	81	30.8
	7-10 Years	61	23.2
	More than 10 Years	65	24.7
Education	High School	19	7.2
	Bachelor	142	54.0
	Master Degree	94	35.7
	PhD. Doctorate Degree	8	3.0
Monthly Income	Under 500$	26	9.9
	501-1000$	77	29.3
	1001-2000$	85	32.3
	Above 2000$	75	28.5
Industry	Information Technologies	98	37.3
	Manufacturing	50	19.0
	Service	20	7.6
	Education and Health	31	11.8
	Finance and Insurance	25	9.5
	Telecommunication	8	3.0
	Trade and Transportation	24	9.1
	Others	7	2.7
Country	America	164	62.4
	Asia	89	33.8
	Europe	9	3.4
	Africa	1	.4
Working Position	Team Members	156	59.3
	Team Leaders	107	40.7

Source: Original Study

4.2.2 Descriptive Analysis of the Questionnaire items:

Table 4.3 provided information regarding the mean and standard deviation of the questionnaire items for the formal survey.

The research construct of digital leadership consists of three dimensions. The Digital Leadership Competence dimension consists of three items after the pilot test and the mean score ranging from 5.6 to 5.75. with the standard deviation of 1.198 to 1.330. The Dimension of Digital leadership skill consists of three items after the pilot test and the mean score ranging from 5.55 to 5.62. with the standard deviation of 1.307 to 1.380. The last dimension, digital leadership quality, consists of seven items after the pilot test with the mean score ranging from 5.51 to 5.70 and standard deviation of 1.228 to 1.425. This means that the respondent tends to agree with the questionnaire suggesting that there are digital leadership employed in their team.

The research construct of Dynamic Capabilities consists of three dimensions. The Sensing capability dimension consists of five items after the pilot test and the mean score ranging from 5.58 to 5.65, with the standard deviation of 1.313 to 1.406 The Dimension of seizing consists of four items after the pilot test and the mean score ranging from 5.62 to 5.75 with the standard deviation of 1.313 to 1.414. The last dimension, Reconfiguring Capabilities, consists of four items after the pilot test with the mean score ranging from 5.59 to 5.62 and standard deviation of 1.282 to 1.322. The mean score provided us with the information regarding the tendency to agree of the respondent regarding the dynamic capability within their team.

The research construct of Environmental Dynamism consists of two dimensions. The Dimension of Market Dynamism consists of three items after the pilot test and the mean score ranging from 5.57 to 5.65 with the standard deviation of 1.264 to 1.311. The last dimension technological dynamism, consists of four items after the pilot test with the mean score ranging from 5.57

to 5.73 and standard deviation of 1.188 to 1.314. The mean score provided us with the information regarding the tendency to agree of the respondent regarding the Environmental Dynamism within their respective industry.

The research construct of Entrepreneurship consists of two dimensions. The Dimension of Entrepreneurial Skills consists of five items after the pilot test and the mean score ranging from 5.46 to 5.91 with the standard deviation of 1.155 to 1.453. The last dimension, Entrepreneurial Intention , consists of six items after the pilot test with the mean score ranging from 5.49 to 5.62 and standard deviation of 1.343 to 1.454. The mean score provided us with the information regarding the tendency to agree of the respondent regarding the entrepreneurship existing within themselves.

The research construct of New Product Success consists of six items after the pilot test with the mean ranging from 5.40 to 5.57 and standard deviation of 1.289 to 1.373.

Table 4.3 Means and Standard Deviation of the Questionnaire Items

Research Items	Mean	Std. Deviation
Research Construct Digital Leadership		
Digital Leaders Competence		
[DLC1]As a team leader, I always use digital tools to communicate and do decision making in the process of the NPD	5.75	1.198
[DLC2]As a team leader, I would say that I am a digital expert in my NPD team	5.60	1.306
[DLC3]When it comes to digital knowledge in the context of NPD, I am always up to dates	5.65	1.330
Digital Leaders Skill		
[DLS1]As a team leader, I am driving the digital transformation forward proactively to my team members in the process of NPD	5.62	1.307
[DLS2] As a team leader, I always encourage my colleagues to be enthusiastic about digital transformation in the process of NPD	5.55	1.341
[DLS3] As a team leader, I have a clear picture regarding how to make a better digital transformation in the process of NPD	5.56	1.380

Table 4.3 Means and Standard Deviation of the Questionnaire Items (Continued)

Research Items	**Mean**	**Std. Deviation**
Digital Leader Quality		
[DLQ1] As a team leader, I use digital communication to explain vision of NPD team to my NPD team members	5.51	1.425
[DLQ2] As a team leader, I treat my NPD team members as an individual, supports, and encourage them to develop digital knowledges	5.56	1.388
[DLQ3] As a team leader, I always give encouragement and recognition to my NPD team members through digital communication tools	5.54	1.421
[DLQ4]As a team leader, I foster trust, involvement and cooperation among my NPD team members through digital communication tools	5.59	1.353
[DLQ5]As a team leader, I encourage thinking about problems and questions assumptions in new ways through digital communication tools	5.63	1.228
[DLQ6] As a team leader I am clear about my value and practices what I preach to my NPD team members	5.61	1.340
[DLQ7] As a team leader, I always instill pride and respect in others and inspires me by being highly digital competent	5.70	1.228
Research Construct Dynamic Capabilities		
Sensing Capability		
[SEC1]My team knows the best practices in the market.	5.60	1.374
[SEC2]My team is up-to-date on the current market situation.	5.59	1.389
[SEC3]My team systematically searches for information on the current market situation.	5.60	1.372
[SEC4] As a team, we know how to access new information.	5.65	1.327
[SEC5]Our team always has an eye on our competitors' activities.	5.58	1.406
Seizing Capability		
[SZC1]Our team can quickly relate to new knowledge from the outside.	5.63	1.313
[SZC2] Our team recognize what new information can be utilized in our company.	5.71	1.351
[SZC3]Our team is capable of turning new technological knowledge into process and product innovation.	5.62	1.414
[SZC4]The current information leads to the development of new products or services.	5.75	1.299

Table 4.3 Means and Standard Deviation of the Questionnaire Items (Continued)

Research Items	**Mean**	**Std. Deviation**
Reconfiguring Capability		
[RC1]By defining clear responsibilities, our team successfully implement plans for changes in our company.	5.61	1.282
[RC2]Even when unforeseen interruptions occur, change projects are seen through consistently in our team.	5.59	1.296
[RC3]Decisions on planned changes are pursued consistently in our team.	5.62	1.322
[RC5] In our team, change projects can be put into practice alongside the daily business.	5.62	1.313
Research Construct Environment Dynamism		
Market Dynamism		
[MD1] Users continuously put forward new functional requirements for the product/system	5.57	1.311
[MD2] Competition for similar products in the market is fierce.	5.64	1.264
[MD3] Policies related to project development are changing rapidly.	5.65	1.293
Technological Dynamism		
[TD1] Major changes occur regarding functionality improvements during the next three years is likely to occur	5.57	1.267
[TD2] Major changes are likely to occur regarding price/performance improvements during the next three years	5.73	1.314
[TD3] Major changes are likely to occur regarding major product innovations during the next three years	5.70	1.188
[TD4] Major changes are likely to occur regarding major manufacturing innovations during the next three years	5.60	1.292
Research Construct Entrepreneur		
Entrepreneurial Skill		
[ES1] I am able to come up with new ideas	5.87	1.270
[ES2] I am good at coming up with new and different solution	5.91	1.155
[ES4] I think failing in your business is just another learning experiences	5.70	1.326
[ES5] I think getting paid according to the results is the same or better than a fixed paycheck	5.46	1.453
[ES6] I see opportunity where others see the risk of failure	5.52	1.440
Entrepreneurial Intention		

Table 4.3 Means and Standard Deviation of the Questionnaire Items (Continued)

Research Items	**Mean**	**Std. Deviation**
[EI1] I am ready to do anything to be an entrepreneur	5.61	1.343
[EI2] My professional goal is to become an entrepreneur	5.55	1.448
[EI3] I will make every effort to start and run my own firm	5.49	1.433
[EI4] I am determined to create a firm in the future	5.56	1.426
[EI5] I have very seriously thought of starting a firm	5.51	1.454
[EI6] I have the intention to start a firm some day	5.62	1.451
Research Construct New Product Success		
New Product Success		
[NPS1]Our new products meet or exceeds volume expectations.	5.53	1.298
[NPS2]Our new products meet or exceed the number expected to be produced and commercialized.	5.44	1.318
[NPS3]Our new products meet or exceeds overall sales expectations.	5.40	1.338
[NPS4]Our new products meet or exceeds profit expectations.	5.49	1.373
[NPS5]Our new products meet or exceeds return on investment expectations.	5.57	1.317
[NPS6]Our new products meet or exceeds senior management expectations	5.57	1.325

Source: Original Study

4.3 Factor Analysis and Reliability Test

In order to check the factorability of the measurement items, the employment of the principal component factor analysis was introduced with the varimax rotation by using the SPSS V23 platform. As mentioned in the Chapter three, in order to ensure the dimensionality and reliability of the measurement items, the following criteria must be met such as; (1) factor loading > 0.6; (2) Eigenvalue > 1; (3) accumulated explained variance > 0.6; (4) item-to total correlation > 0.5; and (5) coefficient alpha (α) > 0.7 (Hair et al., 2011).

4.3.1 Digital Leadership:

Table 4.4 illustrate the factor analysis of the digital leadership construct. The digital leadership construct consists of three dimensions. For the digital leadership competence dimension after the pilot three items remained, the empirical result showed strong dimensionality of the research construct with the factor loading higher than 0.7 ranging from 0.861 to 0.867 with the item to total correlation from 0.685 to 0.694 greater than 0.5, eigen value of 2.242 > 1, cumulative explained variance >0.6. The reliability statistic also yields promising result with the Cronbach alpha of 0.831> 0.7 suggest the measurement items is highly reliable.

For the dimension of the Digital leadership skill, three items remained after conducting the pilot test. These eigen value of this factor is 2.354 > 1, with the cumulative explained variance of 78.455% >0.6. Furthermore, the factor loading scores are higher than 0.7 ranging from 0.865 to 0.904 showcasing the high dimensionality of the research construct. In addition to this the reliability statistic also suggest that the questionnaire items for measuring the digital leadership skill is very reliable with the Cronbach alpha of 0.863> 0.7, and the items to total correlation greater than 0.5 ranging from the 0.705 to 0.773.

The last dimension of the digital leadership, the digital leadership quality, consists of seven items after the pilot test. This dimension has the eigen value of 4.921 greater than 1 with the cumulative explained variance of 70.301%, higher than 0.6, and the factor loading score ranging from 0.821 to 0.858 > 0.7. This suggests the high dimensionality of the research variable. Furthermore, the reliability test also has promising result with the Cronbach alpha of 0.930 and the item to total correlation ranging from 0.752 to 0.800. The empirical result suggest that the measurement items are highly reliable.

Table 4.4 Factor Analysis and Reliability test of the Digital Leadership

Research Items	Factor Loading	Eigen Value	Cumulative Explained variance	Item to Total Correlation	Cronbach's Alpha
DIGITAL LEADERSHIP COMPETENCE		**2.242**	**74.733**		**.831**
[DLC2]As a team member, I feel that my leaders are a digital expert in my NPD team	.867			.694	
[DLC3]As a team member, I feel that When it comes to digital knowledge in the context of NPD, my leaders are always up to dates	.865			.691	
[DLC1]As a team member, I feel that my leaders have use digital tools to communicate and do decision making in the process of the NPD	.861			.685	
DIGITAL LEADERSHIP SKILLS		**2.354**	**78.455**		**.863**
[DLS3] As a team member, I feel that my leader has a clear picture regarding how to make a better digital transformation in the process of NPD	.904			.773	
[DLS1]As a team member, I feel that my leader is driving the digital transformation forward proactively to everyone who is in the process of NPD	.887			.741	
[DLS2]As a team member, I feel that my leaders have always encouraged us to be enthusiastic about digital transformation in the process of NPD	.865			.705	
Digital Leadership Quality		**4.921**	**70.301**		**.930**
[DLQ4]As a team member, I feel that my leader has foster trust, involvement and cooperation among my NPD team members through digital communication tools	.858			.800	
[DLQ3] As a team member, I feel that my leaders have always give encouragement and recognition to the NPD team members through digital communication tools	.856			.796	
[DLQ1] As a team member, I feel that my leaders have used digital communication to explain version of NPD team.	.849			.789	

Table 4.4 Factor Analysis and Reliability test of the Digital Leadership (Continued)

Research Items	Factor Loading	Eigen Value	Cumulative Explained variance	Item to Total Correlation	Cronbach's Alpha
[DLQ7] As a team member, I feel that my leaders have always instill pride and respect in others and inspires him/her by being highly digital competent	.836			.770	
[DLQ6] As a team member, I feel that my leader is clear about his/her value and practices what he/she preach to my NPD team members	.825			.760	
[DLQ2] As a team member, I feel that my leaders have treated the NPD team members as individual, supports, and encourage them to develop digital knowledges	.823			.757	
[DLQ5]As a team member, I feel that my leaders have encouraged thinking about problems and questions assumptions in new ways through digital communication tools	.821			.752	

Source: Original Study

4.3.2 Dynamic Capabilities:

Table 4.5 showed the result of the factor analysis and the reliability test for the dynamic capabilities construct, which consists of three dimensions.

The first dimension, the sensing capability, consist of five items after the pilot test. This dimension has the eigen value of 3.569 which is greater than 1 with the cumulative explained variance of 71.374 %, higher than 0.6, and the factor loading score ranging from 0.816 to 0.860 > 0.7. This suggests the high dimensionality of the research variable. Furthermore, the reliability test also has promising result with the Cronbach alpha of 0.900 and the item to total correlation ranging from 0.713 to 0.772. These empirical results suggest that the measurement items are highly reliable.

The second dimension, the seizing capability, consists of four items after the pilot test. This dimension has the eigen value of 2.941 greater than 1 with the cumulative explained variance of 73.514%, higher than 0.6, and the factor loading score ranging from 0.851 to 0.865 > 0.7. This suggests the high dimensionality of the research variable. Furthermore, the reliability test also has promising result with the Cronbach alpha of 0.880 and the item to total correlation ranging from 0.730 to 0.749. The empirical results suggest that the measurement items are highly reliable

The third dimension, the Reconfiguring Capabilities, consists of four items after the pilot test. This dimension has the eigen value of 2.904 greater than 1 with the cumulative explained variance of 72.604%, higher than 0.6, and the factor loading score ranging from 0.809 to 0.876 > 0.7. This suggests the high dimensionality of the research variable. Furthermore, the reliability test also has promising result with the Cronbach alpha of 0.874 and the item to total correlation ranging from 0.670 to 0.766. The empirical results suggest that the measurement items are highly reliable

Table 4.5 Factor Analysis and Reliability Test of Dynamic Capabilities

Research Items	Factor Loading	Eigenvalue	Cumulative Explained variance	Item to Total Correlation	Cronbach's Alpha
Sensing Capability		**3.569**	**71.374**		**.900**
[SEC2]My team is up-to-date on the current market situation.	.860			.772	
[SEC3]My team systematically searches for information on the current market situation.	.855			.765	
[SEC1]My team knows the best practices in the market.	.853			.761	
[SEC5]Our team always has an eye on our competitors' activities.	.839			.743	
[SEC4] As a team, we know how to access new information.	.816			.713	
Seizing Capability		**2.941**	**73.514**		**.880**

Table 4.5 Factor Analysis and Reliability Test of Dynamic Capabilities (Continued)

Research Items	Factor Loading	Eigenvalue	Cumulative Explained variance	Item to Total Correlation	Cronbach's Alpha
[SZC2] Our team recognize what new information can be utilized in our company.	.865			.749	
[SZC4]The current information leads to the development of new products or services.	.858			.741	
[SZC1]Our team can quickly relate to new knowledge from the outside.	.856			.739	
[SZC3]Our team is capable of turning new technological knowledge into process and product innovation.	.851			.730	
Reconfiguring Capability		**2.904**	**72.604**		**.874**
[RC1]By defining clear responsibilities, our team successfully implement plans for changes in our company.	.876			.766	
[RC3]Decisions on planned changes are pursued consistently in our team.	.865			.749	
[RC5] In our team, change projects can be put into practice alongside the daily business.	.856			.734	
[RC2]Even when unforeseen interruptions occur, change projects are seen through consistently in our team.	.809			.670	

Source: Original Study

4.3.3 Environmental Dynamism

Table 4.6 show us the empirical result of the factor analysis and reliability test of the Environmental Dynamism construct which consists of two dimensions.

Table 4.6 Factor Analysis and Reliability Test of Environmental Dynamism

Research Items	Factor Loading	Eigenvalue	Cumulative Explained variance	Item to Total Correlation	Cronbach's Alpha
Market Dynamism		**1.964**	**65.452**		**.736**
[MD3] Policies related to project development are changing rapidly.	.833			.595	
[MD1] Users continuously put forward new functional requirements for the product/system	.807			.556	
[MD2] Competition for similar products in the market is fierce.	.786			.529	
Technological Dynamism		**2.770**	**69.238**		**.851**
[TD3] Major changes are likely to occur regarding major product innovations during the next three years	.873			.754	
[TD4] Major changes are likely to occur regarding major manufacturing innovations during the next three years	.837			.699	
[TD2] Major changes are likely to occur regarding price/performance improvements during the next three years	.822			.676	
[TD1] Major changes occur regarding functionality improvements during the next three years is likely to occur	.793			.635	

Source: Original Study

The first dimension, the Market Dynamism, consists of three items after the pilot test. This dimension has the eigen value of 1.964 greater than 1 with the cumulative explained variance of 65.452%, higher than 0.6, and the factor loading score ranging from 0.786 to 0.833> 0.7. This suggests the high dimensionality of the research variable. Furthermore, the reliability test also

has promising result with the Cronbach alpha of 0.736 and the item to total correlation ranging from 0.529 to 0.595. The empirical results suggest that the measurement items are highly reliable.

The second dimension, the Technological Dynamism, consists of four items after the pilot test. This dimension has the eigen value of 2.770 greater than 1 with the cumulative explained variance of 69.238%, higher than 0.6, and the factor loading score ranging from 0.793 to 0.873 > 0.7. This suggests the high dimensionality of the research variable. Furthermore, the reliability test also has promising result with the Cronbach alpha of 0.851 and the item to total correlation ranging from 0.635 to 0.754. The empirical results suggest that the measurement items are highly reliable.

4.3.4 Entrepreneurship:

Table 4.7 show us the empirical result of the factor analysis and reliability test of the Entrepreneurship construct which consists of two dimensions.

The first dimension, the Entrepreneurial Skill, consist of five items after the pilot test. This dimension has the eigen value of 3.055 greater than 1 with the cumulative explained variance of 61.097 higher than 0.6, and the factor loading score ranging from 0.725to 0.806> 0.7. This suggests the high dimensionality of the research variable. Furthermore, the reliability test also has promising result with the Cronbach alpha of 0.840 and the item to total correlation ranging from 0.582 to 0.675. The empirical results suggest that the measurement items are highly reliable.

The second dimension, the Entrepreneurial Intention, consists of six items after the pilot test. This dimension has the eigen value of 4.317 greater than 1 with the cumulative explained variance of 71.955 higher than 0.6, and the factor loading score ranging from 0.773 to 0.892 > 0.7. This suggests the high dimensionality of the research variable. Furthermore, the reliability test

also has promising result with the Cronbach alpha of 0.922 and the item to total correlation ranging from 0.684 to 0.833. The empirical results suggest that the measurement items are highly reliable

Table 4.7 Factor Analysis and Reliability test of Entrepreneurship

Research Items	Factor Loading	Eigenvalue	Cumulative Explained variance	Item to Total Correlation	Cronbach's Alpha
Entrepreneurial Skill		**3.055**	**61.097**		**.840**
[ES6] I see opportunity where others see the risk of failure	.806			.675	
[ES2] I am good at coming up with new and different solution	.803			.668	
[ES1] I am able to come up with new ideas	.795			.655	
[ES5] I think getting paid according to the results is the same or better than a fixed paycheck	.777			.637	
[ES4] I think failing in your business is just another learning experiences	.725			.582	
Entrepreneurial Intention		**4.317**	**71.955**		**.922**
[EI3] I will make every effort to start and run my own firm	.892			.833	
[EI4] I am determined to create a firm in the future	.873			.808	
[EI5] I have very seriously thought of starting a firm	.863			.794	
[EI6] I have the intention to start a firm some day	.855			.783	
[EI2] My professional goal is to become an entrepreneur	.829			.753	
[EI1] I am ready to do anything to be an entrepreneur	.773			.684	

Source: Original Study

4.3.5 New Product Success:

Table 4.8 shows us the empirical result of the factor analysis and reliability test of the New product success construct which consists of six items after the pilot test. This dimension has the eigen value of 4.368 greater than 1 with the cumulative explained variance of 72.806% more than 0.6, and the

factor loading score ranging from 0.823 to 0.877> 0.7. This suggests the high dimensionality of the research variable. Furthermore, the reliability test also has promising result with the Cronbach alpha of 0.925 and the item to total correlation ranging from 0.745 to 0.815. The empirical results suggest that the measurement items are highly reliable.

Table 4.8 Factor Analysis and Reliability test of New Product Success

Research Items	Factor Loading	Eigenvalue	Cumulative Explained variance	Item to Total Correlation	Cronbach's Alpha
New Product Success		**4.368**	**72.806**		**.925**
[NPS6]Our new products meet or exceeds senior management expectations	.877			.815	
[NPS2]Our new products meet or exceed the number expected to be produced and commercialized.	.874			.811	
[NPS4]Our new products meet or exceeds profit expectations.	.859			.790	
[NPS1]Our new products meet or exceeds volume expectations.	.855			.787	
[NPS5]Our new products meet or exceeds return on investment expectations.	.830			.753	
[NPS3]Our new products meet or exceeds overall sales expectations.	.823			.745	

Source: Original Study

4.4. The Test of Common Method Variance

In order to identify weather, the common method bias exist within this study or not, first of all this study used the Harmon one factors test. As suggested by Podsakoff et al., (2003), all of the variables were loaded into principal component analysis and resulted in 49.575 < 50% of the overall explained variance. Secondly, in order to ensure that the discriminant validity of the research construct, the Fornell-Lacker test was employed. According to Fornell and Larcker (1981), the discriminant validity is achieved by comparing

the squared root of AVE with the Pearson Correlation and showing that the Intra-correlation is higher than its inter-correlation, or that the Square root of AVE is more than the Pearson correlation. Table 4.9 provides us with information regarding the discriminant validity test. The numbers on the diagonal axis are the square root of AVE, while the numbers on the bottom of AVE are the Pearson correlation. As we can see that the square root of AVE for the digital leadership construct is 0.951, which is higher than its inter-correlations with other constructs which are 0.780, 0.895. The Square root of AVE for the Dynamic capability Construct is 0.961which is greater than its inter-correlations with other constructs ranging from 0.809 to 0.895. The Square root of AVE for New Product success is 0.853, which is greater than the inter-correlations between constructs ranging from 0.780 to 0.809. The empirical results confirm that the discriminant validity of the research constructs is fulfilled.

Table 4.9 Discriminant Validity of the Latent Constructs

Discriminant Validity			
Construct	**Digital Leadership**	**Dynamic Capability**	**New Product Success**
Digital Leadership	0.951		
Dynamic Capability	.895**	0.961	
New Product Success	.780**	.809**	0.853

Source: Original Study

4.5 Hypothesis Testing:

4.5.1 Evaluation of the Measurement Model:

According to Hair et al. (2014) we can test how well the data is fitted to the theory or model through using the evaluation of the measurement model, which focuses on the relationship of indicators and their latent variables.

In order to evaluate the measurement model, there are some criteria that must be fulfilled. The R^2 of the measurement model would be considered as weak at < 0.19, Moderate at 0.33, and substantial at >0.672 (Schroer and Hertel, 2009). According to Henseler and Fassott (2010), the Average Variance Extracted (AVE) should be higher than 0.5 to show that there is convergence validity. Another criterion, according to Nunnally and Bernstein (1994) the Composite Reliability (CR) should be greater than 0.6, and Cronbach Alpha as suggested by Hair et al., (2012) should be greater than 0.7.

Table 4.10 showcases the important information regarding the evaluation of the measure model, we can see that the AVE of the research construct is higher than 0.5 ranging from 0.728 to 0.905 thus showing that the construct has a good convergent validity. Furthermore, the composite reliability of the Research Constructs is higher than 0.6 ranging from 0.944 to 0.973 suggesting strong variance shared among each of the indicator for each of the respective items of the construct. In addition, the R^2 of the construct are also higher and considered to be at substantial level, ranging from 0.672 to 0.800. Following the above-mentioned criteria , the Cronbach's Alphas of the constructs are also greater than 0.70, ranging from 0.925 to 0.959 thus suggesting that the reliable fit of the research data to the research model.

Table 4.10 Evaluation of the Measurement Model

	AVE	**Composite Reliability**	**R Square**	**Cronbach's Alpha**
Digital Leadership	0.905	0.966		0.947
Dynamic Capability	0.923	0.973	0.800	0.959
NPS Success	0.728	0.941	0.672	0.925
Goodness of Fit	0.646			

Source: Original Study

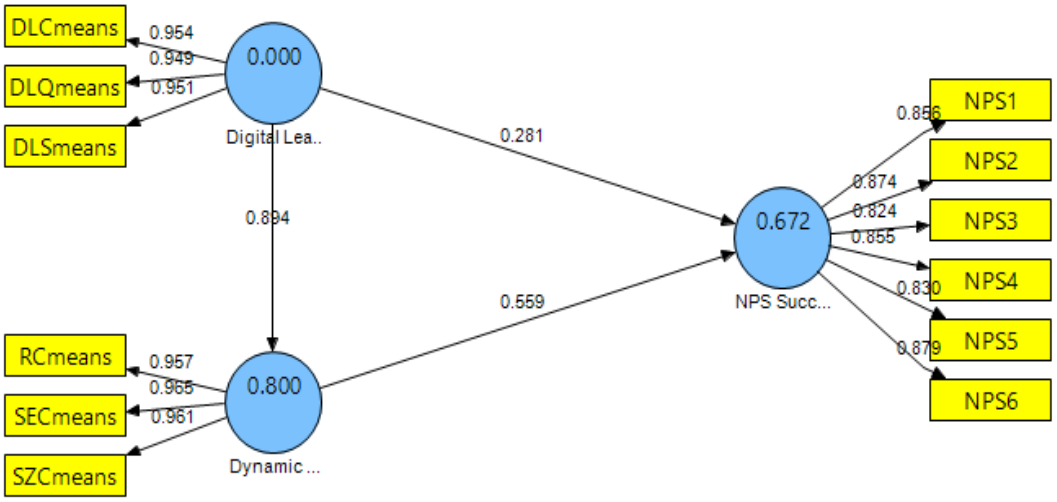

Figure 4.1 Graphical representation of parametric estimate (Beta Value β)

Source : Original Study

4.5.2 Evaluation of the Structural Model

Three of the research hypotheses were tested using the parameter estimates of the PLS path modeling. By employing a 5000 resampling to the 263 original data using the non-parametric bootstrapping procedure, this allows the researcher to obtain the statistical result for the hypothesis testing.

According to Chin (2010); Henseler et al. (2014) and Wetzels et al. (2009), the Goodness of Fit (GoF) is an adequate evaluation of the performance of the structural model, where a GoF between 0.10 to 0.25 is considered as small, 0.25 to 0.36 is considered as medium and GoF of higher than 0.36 is considered as high. In order to obtain the GoF score, it is calculated using formula below:

$$GoF = \sqrt{(Average\ of\ AVEs)\ \times (Average\ of\ R^2)} \qquad (4)$$

Using the excels spreadsheet, the calculated GoF for our structural model is 0.646 which is considered to be large and appropriate for further hypothesis testing using the path estimates.

Table 4.11 provided us with the empirical results for the hypothesis testing of the Hypothesis H1, H2, and H3. In order for the hypothesis to be

statistically significant and reject the null hypothesis the t-value of statistic test need to be higher than 1.96 and significant at a 95% confident interval.

As seen from the empirical results of the hypothesis testing, the impact of Digital leadership on Dynamic Capabilities is statistically significant at three stars level with the (β= 0.895, t= 52.734, P-value <0.001), thus confirming the support of Hypothesis H1. In addition, the impact of Digital Leadership on New Product Success is also statistically significant at two stars with the (β= 0.281, t= 3.070, P-value <0.01), therefore Hypothesis H2 is supported. Furthermore, the influence of Dynamic Capabilities on New Product Success is also statistically significant at three stars level with the (β= 0.560, t= 6.420, P-value <0.001), therefore, the Hypothesis H3 is supported. The empirical result indicated that the Digital leadership of the team will have a positive impact on the dynamic capabilities of the team and the New Product success. Furthermore, the dynamic capabilities also have a significant influence over the success of the new products.

Table 4.11 Evaluation of the Structural Model and Hypothesis Testing

Path Direction	Original Sample (O)	Parameter Estimate (β)	Std. Dev	S.E	T Statistics (|O/STERR|)	P-Value
H1: Digital Leadership -> Dynamic Capability	0.894	0.895	0.017	0.017	52.734	***
H2: Digital Leadership -> NPS Success	0.281	0.280	0.091	0.091	3.070	**
H3:Dynamic Capability -> NPS Success	0.559	0.560	0.087	0.087	6.420	***
N.S. Not Significant t-Value <1.96, p>0.05						
*t-value>1.96 sig p<0.05						
**t-value>2.576 sig p<0.01						
***t-value>3.291 sig p<0.001						

Source : Original Study

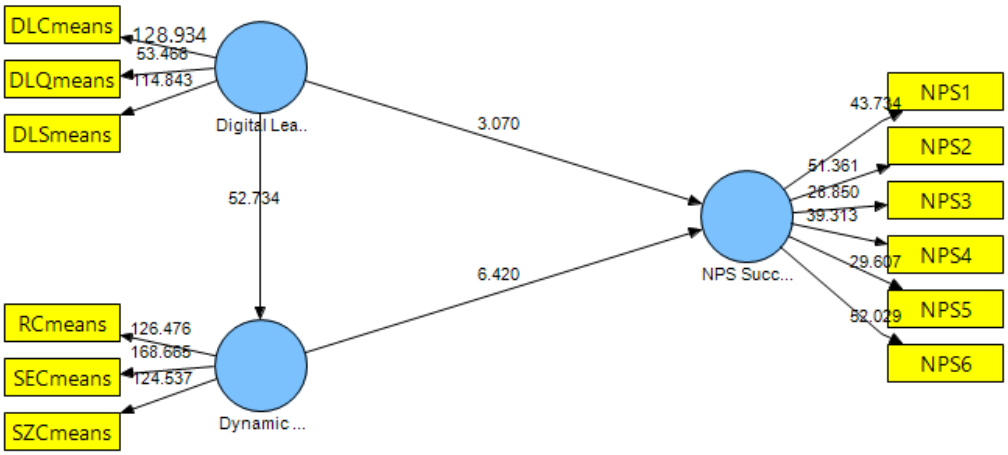

Figure 4.2 Graphical representation of the structural model (t-value)

Source : Original Study

4.5.3 The Moderating Effect

There are two moderators identified in this study including the Environmental Dynamism and the Entrepreneurship. These two variables are supposed to affect the influence of digital leadership, and dynamic capability on New Product success.

4.5.3.1 Regression Analysis

Table 4.12 showcase the regression analysis of the moderation effect on the New Product Success. The model 1, showcasing the effect of the Environmental Dynamism on the influence of the Digital Leadership on the New product success has the R^2= 6.31, R^2 change of 0.0005, F Change=0.033, P<0.856, suggesting that the model is not significant. The interaction effect is also significant with the beta-coefficient =0.008, P>0.05. However, it seems that the Digital Leadership and the Entrepreneurship has a significant influence on the New Product Success with the beta value and p-value of (β=0.609, p<0.001) and (β=0.233, p<0.001) respectively.

The model2 showcasing the effect of the Environmental Dynamism on the influence of the dynamic capabilities on the New product success has the

R^2= 0.664, R^2 change of 0.001, F Change=0.033, P<0.378 VIF ranging from 1.435-2.799 suggesting that the model is not significant. The interaction effect is also not significant with the beta-coefficient =0.038, P>0.05.

Table 4.12 Regression Analysis of the Moderation Effect

Independent Variable	**Dependent Variable**			
	New product Success			
	Model1	**Model2**	**Model3**	**Model4**
Main Effects				
Digital Leadership	0.609***, t-Value= 10.648		0.618***, t-Value= 11.935	
Dynamic Capabilities		0.699***, t-Value= 12.325		0.681***, t-Value= 13.660
Entrepreneurship			0.265***, t-Value= 4.997	0.226***, t-Value= 4.333
Environmental Dynamism	0.233***, t-Value= 3.939	0.165**, t-Value= 2.742		
Interaction effects				
Digital Leadership X Environmental Dynamism	0.008(NS), t-Value= 0.182			
Dynamic Capabilities X Environmental Dynamism		0.038(N.S), t-Value= 0.882		
Digital Leadership X Entrepreneurship			0.056(N.S.), t-Value= 1.358	
Dynamic Capabilities X Entrepreneurship				0.086*, t-Value= 2.180
R2	6.31	0.664	0.642	0.679
R2 Change	0.000	0.001	0.003	0.006
F Change	0.033	0.779	1.845	4.753
P-Value	0.856	0.378	0.176	0.03
VIF	1.419-2.467	1.435-2.799	1.248-2.039	1.267-2.189
Durbin Watson	2.014	1.959	2.023	1955

Source : Original Study

Model 3 showcasing the effect of the Entrepreneurship on the influence of the Digital Leadership on the New product success has the R^2= 0.642, R^2

change of 0.003, F Change=1.845, P<0.176 and VIF ranging from 1.248 to 2.039, suggesting the insignificant of the model. The interaction effect is also insignificant with the beta-coefficient =0.056, P>0.05.

Model 4 showcasing the effect of the Entrepreneurship on the influence of the Dynamic Capabilities on the New Product Success has the R^2= 0.679, R^2 change of 0.006, F Change= 4.753, P<0.05, and VIF ranging from 1.267 to 2.189 suggesting that the model is significant. The interaction effect is also significant with the Beta-Value of 0.086, P<0.05.

4.5.3.2 Analysis of Variance

In order to confirm the difference of the impact of the moderating variables on the influence of the independent variables on the dependent variable, this study employed the K-mean clustering on the independent variables including the digital leadership, and dynamic capabilities, and the moderating variables including the entrepreneurship, and the environmental dynamism. Each of the variables is divided into two groups as high and low. Furthermore, once the categorization has been employed, the interaction between the independent variable and the moderators is observed (IV x Moderator), the dataset is categorized into 4 groups as 1 Low/Low, Low/ High, High/ Low, and High/ High. Afterward, the Univariate analysis(ANOVA) was employed in order to find out the differences between the groups when there is the dependent variable present (New Product Success) and the interaction term was inputted as the fixed factors.

For an instance, the interaction of the digital leadership and the entrepreneurship resulted in the division of the sample into 4 sub-groups, (1). Low Digi/ Low Entrep, (2). Low Digi/ High Entrep, (3). High Digi/ Low Entrep, and (4) High Digi/ High Entrep. The result from the comparison between the groups means of New Product Success indicated Table 4.13 and Figure 4.3 suggested that there are statistically significant differences between

the four group with the (F= 61.890, P <0.001). To be precise the table suggests that the respondent who are working under higher level of Digital Leadership and Have higher level of entrepreneurship tend to achieved better New Product Success better than those who are working under lower Digital Leadership and Lower level of entrepreneurship with the mean value for the New Product Success for the Low Digi/Low Entrep and High Digi/ High Entrep are ($\overline{x_l} = 4.405$) and ($\overline{x_h} = 6.062$) respectively.

Following the same categorization procedure, the empirical results as presented in table 4.13 and figure 4.3 suggested the significant differences among the four groups with (F = 78.807, P <0.001). To be specific respondents who have higher entrepreneurship and have higher Dynamic Capabilities tend to have higher success in New Product Development than those from lower dynamic capability mean values of New Product Success for lower entrepreneurship with the High Dyna/ High Entrep is ($\overline{x_h} = 6.009$) and Low Dyna/Low Entrep are ($\overline{x_l} = 3.667$).

Under the same categorization technique, the empirical result presented in table 4.13 and figure 4.3 suggested the significant differences of means of New Product Success among the four groups with (F = 63.035, P <0.001). To be specific respondents who are under higher environmental dynamism and under higher digital leadership tend to have higher success in New Product Development than those from lower environmental dynamism and lower Digital Leadership with the mean value of New Product Success of High Digi/ High Env are ($\overline{x_h} = 6.086$) and for Low Digi/Low Env are ($\overline{x_l} = 4.344$).

Under the same categorization technique, the empirical result presented in table 4.13 and figure 4.3 suggested that the significant differences of the means of New Product Success among the four groups with (F = 75.131, P <0.001) to be specific respondents who are under higher environmental dynamism and under higher Dynamic Capabilities tend to have higher success

in New Product Development than those from lower environmental dynamism and lower Dynamic Capabilities, with the mean value of New Product Success for High Dyna/ High Env is ($\overline{x_h} = 6.031$) and Low Dyna/Low Env is ($\overline{x_l} = 4.074$).

Table 4.13 Interaction Effect of Entrepreneurship and the Environmental Dynamism

Name of factor	**Low Digital Leadership**		**High Digital leadership**		**F-Value**	**Duncan**
	Low Entrepreneurship	**High Entrepreneurship**	**Low Entrepreneurship**	**High Entrepreneurship**		
NPD Success	4.405	4.717	4.974	6.062	61.890(0.000)	(12,23,4)
Name of factor	**Low Dynamic Capability**		**High Dynamic Capabilities**		**F-Value**	**Duncan**
	Low Entrepreneurship	**High Entrepreneurship**	**Low Entrepreneurship**	**High Entrepreneurship**		
NPD Success	3.667	4.174	5.040	6.009	78.807(0.000)	(1,2,3,4)
Name of factor	**Low Digital Leadership**		**High Digital leadership**		**F-Value**	**Duncan**
	Low Environmental Dynamism	**High Environmental Dynamism**	**Low Environmental Dynamism**	**High Environmental Dynamism**		
NPD Success	4.344	4.921	5.224	6.086	63.035(0.000)	(1,23,4)
Name of factor	**Low Dynamic Capability**		**High Dynamic Capabilities**		**F-Value**	**Duncan**
	Low Environmental Dynamism	**High Environmental Dynamism**	**Low Environmental Dynamism**	**High Environmental Dynamism**		
NPD Success	4.074	4.167	5.201	6.031	75.131(0.000)	(12,3,4)

Source : Original Study

Figure 4.3 Interaction effect of Environmental Dynamism and Entrepreneurship

Source : Original Study

4.6 Additional Analysis (Alternative Model):

Although the hypothesis testing yields favorable results with having all of the hypothesis support through the empirical data analysis. This study would like to conduct additional analysis by testing directly the relationship between the factors of the research constructs. In this study, the digital leadership is a multi-dimensional construct with three sub-dimensions, including the digital leadership competence, digital leadership skill, and digital leadership quality. Furthermore, the dynamic capability construct has three subdimension as well,

including sensing capability, seizing capabilities, and reconfiguring capability. Through the utilization of the SmartPLS 2.0 M3. The model was constructed.

4.6.1 Evaluation of the Measurement Model

By constructing the measurement model and running the PLS Algorithm with the factor weighted, the result is presented in table 4.14. As explained earlier in this chapter, the same criteria were adopted to assess this alternative measurement model.

The results presented in table 4.14 suggested that we can see that the AVE of the research constructs are higher than 0.5 ranging from 0.703 to 0.785, thus showing that the construct has a good convergent validity. Furthermore, the composite reliability of the research construct is higher than 0.6 ranging from 0.899 to 0.943, suggesting strong variance shared among each factor for each of their respective items. In addition, the R^2 is also higher and consider to be substantial , ranging from 0.640 to 0.714. Following the above-mentioned criteria, the Cronbach's Alpha is also greater than 0.70, ranging from 0.831 to 0.930, thus suggesting that the reliable fit of the research data to the research model.

Table 4.14 Evaluation of the Measurement Model (Alternative Model)

	AVE	Composite Reliability	R Square	Cronbach's Alpha
Digital Leadership Competence	0.747	0.899		0.831
Digital Leadership Quality	0.703	0.943		0.930
Digital Leadership Skills	0.785	0.916		0.863
NPS Success	0.728	0.941	0.690	0.925
Reconfiguring	0.726	0.914	0.663	0.874
Seizing Capability	0.735	0.917	0.714	0.880
Sensing	0.714	0.926	0.640	0.900
Goodness of Fit (GoF)	0.533			

Source : Original Study

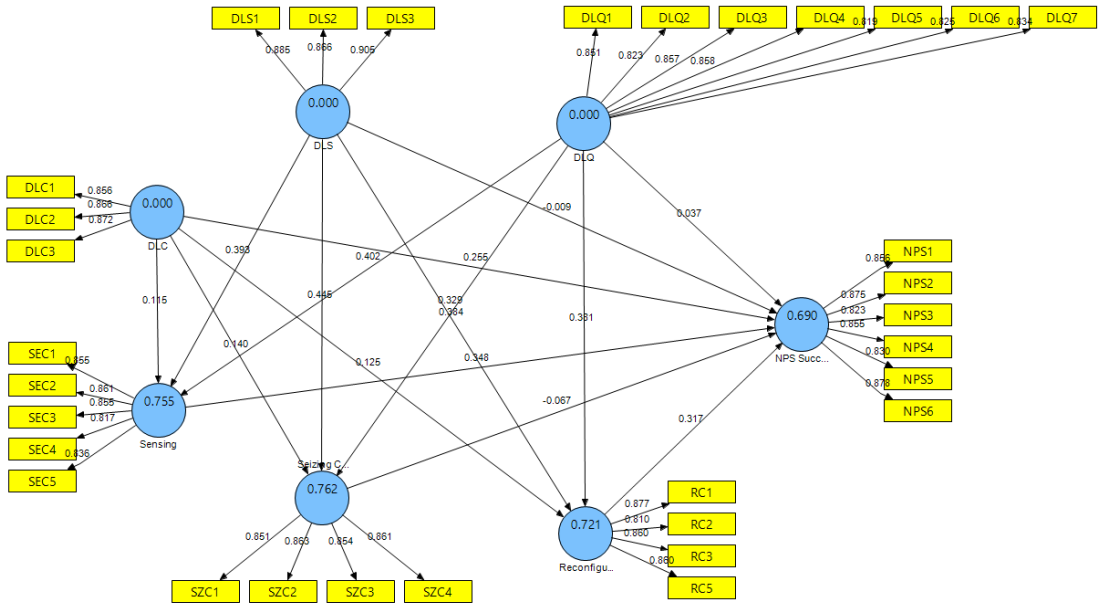

Figure 4.4 Graphical representation of the parametric estimate (β) value of alternative model

Source : Original Study

According to the Information presented in table 4.15, the discriminant of the research construct was also assessed through the comparisons of the Square of the AVEs and the correlation coefficients between construct. The square root of the AVEs are presented along the diagonal axis of the table while the Pearson correlation are presented under the AVEs. It seems that the square root of the AVE of the Latent construct are greater than the Pearson correlation with a few exceptions. The construct of Digital Leadership Quality has the square root of AVE (0.838) lower than its correlation with the digital leadership skill (0.849) and competence (0.859). The construct of the seizing capability has the square root of AVE (0.857) lesser than the correlation with the sensing capability (0.897) and reconfiguring (0.874). The reconfiguring construct also show a lower square root of AVE than the correlation with other construct namely the sensing (0.884) and seizing capabilities (0.874). This might show us that there is discriminant validity issue in this model. One speculation of the cause for

this case is that because the constructs that display the discriminant validity issue belong to the unidimensional construct (digital leadership, and the dynamic capabilities). This might be the reason for the high intercorrelation between these constructs. Compare to the research model in section 4.5.2, there were no discriminant validity issue arise in our research model. This study also notices that due to the data collected from M-turk, there might be a common method bias in the data. The issue has further been addressed in the discussion.

Table 4.15 Discriminant validity of Alternative Model

	Digital Leadership Competence	**Digital Leadership Skills**	**Digital Leadership Quality**	**Sensing**	**Seizing Capability**	**Reconfiguring**	**NPS Success**
Digital Leadership Competence	0.864						
Digital Leadership Skills	.864**	0.886					
Digital Leadership Quality	.859**	.849**	0.838				
Sensing	.799**	.833**	.834**	0.845			
Seizing Capability	.807**	.846**	.827**	.897**	0.857		
Reconfiguring	.784**	.814**	.813**	.884**	.874**	0.852	
NPS Success	.751**	.734**	.740**	.795**	.750**	.788**	0.853

Source : Original Study

4.6.2 Evaluation of the Structural Model (Alternative Model)

Following the formula mentioned in section 4.5.2 where the GoF is regarded as a good measurement for indicating the overall performance of the research model. In this case the GoF was calculated an achieved the point of 0.533, suggesting a significant and large for establishing the path estimate.

Table 4.16, show the path estimate of the alternative model. We can see that digital leadership competence has a significant impact on the New Product Success with the β= 0.245, t= 2.688, P-value <0.01. The Digital Leadership

competence does not have a significant influence on Reconfiguring capabilities β= 0.114, t= 1.316, P-value >0.05. The Digital Leadership Competence does not have significant influence over the Seizing Capabilities β= 0.138, t= 1.486, P-value >0.05. The Digital Leadership Competence does not have significant influence over the Sensing capabilities β= 0.104, t= 1.276, P-value >0.05. The Digital Leadership Quality does not have significant influence over the New Products Success β=0.048, t= 0.370, P-value >0.05. The Digital Leadership Quality have a partially significant influence over the Reconfiguring Capabilities β= 0.431, t= 1.920, P-value >0.1. Digital Leadership Quality have a partially significant influence over the seizing capability β= 0.373, t= 1.904 P-value <0.1. Digital Leadership quality have a significant influence over the sensing capabilities β= 0.402, t= 2.172, P-value <0.05. Digital leadership skill does not have a significant influence over the new product success β= -0.009, t= 0.099, P-value >0.05. Digital leadership Skill have a significant influence over the reconfiguring capabilities with the β= 0.345, t= 2.370, P-value <0.05. The Digital leadership Skill have a significant influence over the seizing capabilities with the β= 0.403, t= 2.827, P-value >0.01. Digital leadership Skill have a significant influence over the sensing capability β= 0.356, t= 2.519, P-value <0.05. the reconfiguring capability have a significant influence over the new product success β= 0.311, t= 3.375, P-value >0.001. The Seizing Capability does not have a significant influence over the New Product Success with β= -0.067, t= 0.719, P-value >0.05. While the sensing capabilities have a significant influence over the new product development success β= 0.349,t= 3.440, P-value <0.001.

Since many of the path estimates are not significant, we can justify that the research model with the unidimensional construct is superior to this alternative model.

Table 4.16 Path Analysis of the structural model (alternative model)

Path	Original Sample (O)	Parameter Estimate (β)	Std. Dev	S.E	T Statistics (|O/STERR|)	P-Value
DLC -> NPS	0.255	0.245	0.095	0.095	2.688	**
DLC -> Reconfiguring	0.125	0.114	0.095	0.095	1.316	N.S
DLC -> Seizing Capability	0.140	0.138	0.095	0.095	1.486	N.S
DLC -> Sensing	0.115	0.104	0.090	0.090	1.276	N.S
DLQ -> NPS	0.037	0.048	0.100	0.100	0.370	N.S
DLQ -> Reconfiguring	0.381	0.431	0.198	0.198	1.920	†
DLQ -> Seizing Capability	0.329	0.373	0.173	0.173	1.904	†
DLQ -> Sensing	0.402	0.448	0.185	0.185	2.172	*
DLS -> NPS	-0.009	-0.010	0.091	0.091	0.099	N.S
DLS -> Reconfiguring	0.384	0.345	0.162	0.162	2.370	*
DLS -> Seizing Capability	0.445	0.403	0.157	0.157	2.827	**
DLS -> Sensing	0.393	0.356	0.156	0.156	2.519	*
Reconfiguring -> NPS	0.317	0.311	0.094	0.094	3.375	***
Seizing Capability -> NPS	-0.067	-0.063	0.093	0.093	0.719	N.S.
Sensing -> NPS	0.348	0.349	0.101	0.101	3.440	***
N.S. Not Significant t-Value <1.833						
† t-value>1.833 , Partially Significant at confident interval of 90%						
*t-value>1.96 sig p<0.05						
**t-value>2.576 sig p<0.01						
***t-value>3.291 sig p<0.001						

Source : Original Study

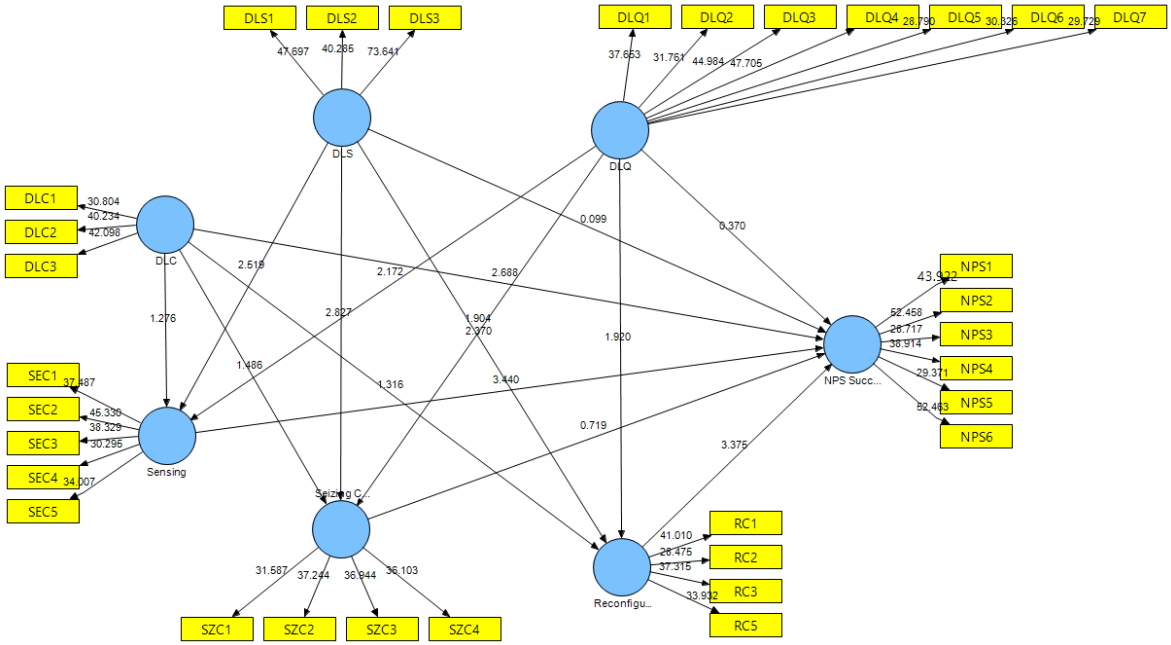

Figure 4.5 Graphical representation of the structural model (alternative model)

Source : Original Study

CHAPTER FIVE

DISCUSSION AND CONCLUSION

5.1 Research Conclusion and Discussion

The aims of this study were to understand the influence of the Digital Leadership on the Dynamic Capability and New Product Success, and the influence of Dynamic Capability on the New Product Success. According to the literature review two moderators including Environmental Dynamism and the Entrepreneurship were identified to have a role in the influence of Digital Leadership and Dynamic Capabilities on New Product Success.

Table 5.1 Summary of the Result of the Hypothesis Testing

Hypo.	Construct	Conclusion
H1	Digital Leadership will have a positive influence on Dynamic Capabilities.	Supported
H2	Digital Leadership will have a positive influence on NPD Success.	Supported
H3	Dynamic Capabilities will have a positive influence on NPD Success.	Supported
H4a	:Environmental Dynamism will moderate the influence of Digital Leadership on New Product Success.	
H4b	Environmental Dynamism will moderate the influence of Dynamic Capabilities on New Product Success	
H5a	Entrepreneurship will moderate the influence of Digital Leadership on New Product Success .	
H5b	Entrepreneurship will moderate the influence of Dynamic Capabilities on New Product Success.	

Source : Original Study

Based on the contingency theories and Organizational knowledge creation theory the research model was constructed as displayed in figure 3.1

showcasing the path impact of the variable to one another. Five main Hypothesis were developed and tested using various statistical methods with the employment of two analysis program SPSS 23 and SmartPLS 2.0 M3.

According to the table 5.1, the results of this study can be interpreted as digital leadership will have a significant influence over dynamic capabilities and new product success. Dynamic capabilities will also have a significant influence over the success of new product. Furthermore, the study also finds out that Environmental Dynamism and the Entrepreneurship had significant effect on the New Product Success.

5.1.1 Conclusion on Objective 1

The first objective of this research is to find out the role of digital leadership on dynamic capability and New Product Success. As confirmed with the empirical result, digital leadership significantly influence dynamic capability. Our finding is also similar to the study conducted by Lopez-Carbrales et al. (2017), who suggested that the transformational leadership is a significant influence over the dynamic capabilities of the firm. Reflecting on the definition adopted in this study, transformational leadership is an aspect that make up the digital leadership quality. In addition to this Nonaka et al. (2016) mentioned that the leadership facilitate the process of the dynamic capabilities. Our findings confirmed that the digital leadership is an important aspect and has significant influence over dynamic capabilities.

On the other hand, as the empirical result suggested, digital leadership also had a significant influence over the New product Success. According to Fahmi et al. (2020) , digital leadership have a significant influence over the market performance. This finding confirmed with our finding that the digital leadership will have significant influence over the success of new product. Furthermore, according to Strukan et al. (2017), the transformational leadership have a significant influence over the New Product Development.

This result is also confirmed with our study result where the Digital leadership have a significant influence over the New Product Success. According to Hassan et al. (2017), transformational leadership has a direct effect over the project success. This finding also confirmed that the Digital Leadership will have significant influence over new product success.

5.1.2 Conclusion on Objective 2

The second objective of this research study is to find out the role of dynamic capability on New product Success. Our empirical findings suggested that the dynamic capabilities have a significant influence over the New Product Success. Our findings are also confirmed with the past literature suggesting that the Dynamic Capabilities is a crucial aspect to the NPD. As stated by Gumusluoglu and Acur (2016), the Dynamic Capabilities is a crucial role in helping to develop new product and its performance. Furthermore, Kumar et al. (2020) also suggested the significant effect of the Dynamic Capabilities on the New Product Development. Similar finding is also found in Liu et al. (2020) and Gupta et al. (2020)

5.1.3 Conclusion on Objective 3

The third objective of this research is to find out the moderating role of environmental dynamism on the influence of digital leadership, dynamic capability on New Product Success. In order to suggest the moderating effect, this study adopted the MRA(Multiple Regression Analysis) and the ANOVA to test the moderating effect. However, the result of the Multiple regression was not significant, but the ANOVA result was significant. This show that there are differences in the interaction level of the Environmental Dynamism and the Digital leadership and Dynamic capabilities and its effect on the New Product success. The higher the level of the environmental dynamism and the higher the level of the digital leadership or dynamic capabilities causes more success

for new product. As discussed in past literatures, González-Zapatero et al. (2019) mentioned that Environmental Dynamism played an important role as a moderator for the New product development. Previous Studied have identified market dynamism as a vital moderating variable for the Performance of the firm (Ting et al., 2012; Cruz-González, et al., 2015; Mohammad, 2019). Just as noted in Li and Liu (2014), the study on the effect of the environmental dynamism suggested moderating effect while other studies suggested the mediating effect. Further study is needed to confirm the role of the environmental dynamism on the influence of the dynamic capabilities.

5.1.4 Conclusion on Objective 4

The fourth objective of this research is to find out the moderating role of the entrepreneurship in the influence of the digital leadership, dynamic capabilities on New Product success. The result of the empirical analysis suggests a significant difference between the interaction of the entrepreneurship and digital leadership and dynamic capabilities on the New Product success. To be precise the higher level the entrepreneurship the more success there is for New Products. Liao and Zhao (2020) confirmed the finding of our study by suggesting the moderating role of Entrepreneurship on New Product innovation Performance. Huang (2016) suggested that entrepreneur who have higher entrepreneurship tend to be more successful.. Previous research from the strategic management discipline determined that the entrepreneurship is an important moderator for the performance of the organization (Kabbara, 2017; Khalid et al., 2016; Aliyu, 2016).

5.2 Theocratical and Managerial Implication

The empirical results of this research provided with some interesting implication that can be used to explained the phenomenon in order to achieved

the New Product success through digital leadership and the Dynamic Capabilities. Through the use of the Organizational Knowledge creation theory which explained the process of how the digital leadership was the driving factor for promoting dynamic capabilities within the team in order to achieved the success in New Product. The results of this study contribute to the organizational knowledge creation theories by: testing the enabling condition of the knowledge creation in order to achieved the New Product Success. This study empirically suggested that the digital leadership both directly impact new product success. In addition, this study also prove that the digital leadership has significantly influence the dynamic capabilities. This help furthers the OKCT and explain that this type of leadership will the employees to developed better sensing, seizing, and reconfiguring in order to use their individual knowledge and turn them into the capabilities for improving performance. The study additional analysis found out that the digital leadership indirectly impact new product success through dynamic capabilities. This suggests that the digital leadership is an important factor for improving the dynamic capabilities with the team in order to sense, and seize the opportunities in order to achieve new product success. Therefore, further explained the enabling condition of the OKCT. Furthermore, this study also determines the significant effect of the entrepreneurship by suggesting that the entrepreneur prior experience will have effect on the new product success. This help to bring the entrepreneurship discipline into the OKCT and bring a new perspective to the theory.

Secondly, the results of this study also provide implication to the contingency theory by suggesting the significant effect of the environmental dynamism on the New Product success. Environmental dynamism is one of the moderating variables. In the view of the contingency theory, there are no best strategies for the firm. In order to achieve success, firms need to achieve strategic flexibility and match their internal with the external environment. The

results of this research also reflect this. In order for firms to achieve the new product success, leaders need to develop the right competence, skill, and quality in order to sense, seize and make changes to their asset within the team. Therefore, matching their internality with their externality enable environmental dynamism to promote New Product Success.

Furthermore, the entrepreneurship also has significant effect on New Product Success. In order to match with the changing environment individual level of entrepreneurship is important. People with higher level of entrepreneurship have higher degree of achieving new product success. Being an entrepreneur, the ability of the person to take risk, innovative, and proactive are the major trait that is required to compete in the changing dynamic.

This study also provides many implications for the professional. First of all, the empirical result suggested that the digital leadership and the dynamic capability is an important factor for establishing the new product success. This implies that in order to achieve new product success, leaders should focus on the development of their digital leadership and their dynamic capabilities within their team. Secondly, the digital leadership also significantly influence on the dynamic capabilities. This suggests that in order to improve by focusing on the digital leadership, the dynamic capabilities can be improved which will ultimately lead to the New product success. Third, environmental dynamism moderates the influence of digital leadership, and dynamic capabilities, on New Product Success. This implies that due to the changing of the environment, firms need to develop stronger leadership, and ability in order to combat those changes and take lead to their competitors. The entrepreneurship is also another important moderator. This can be implied that the firm should focus on improving the entrepreneurship of their employee, empowering their employee to take initiatives because this will help in the process of achieving new product success.

5.3 Research Contribution

This research is expected to provide a contribution through providing an understanding of the impact on the New product Success and what may lead to the improvement on the New product Development. Through extensive literature review this study developed a model which suggest the possible relationship of the digital leadership, and dynamic capabilities New product success. This study identified the moderating effect of the environmental Dynamism and the entrepreneurship on these relationships. In accordance to the goals of the research study, this paper has provided certain contribution to the academic and the practitioners:

1. This study contributed academically to the research on digital leadership, dynamic capability, and New Product development. Our study found out the direct and indirect effect of the digital leadership on the New product success through the dynamic capability. Therefore, this may provide a contribution for a new mediator for the new product success. This study also provided further understanding of the organizational knowledge creation theory by showcasing the enabling factor (Digital Leadership) in helping the resource conversion in order to achieve New Product Success.
2. This study also considered the important role of the environmental dynamism, and entrepreneurship in affecting for the influence of digital leadership, and dynamic capability on New Product Success. The study results that New Product Success needs to consider the moderating role of environmental dynamism, and entrepreneurship.
3. The study results can bring the attention of the business practitioners to focus on strengthening their digital leadership and dynamic capabilities in order to help improve the New Product Success. The results of this study confirm the significant moderating influence of

the environmental dynamism and the entrepreneurship. Therefore, this suggests to the practitioners that aside from focusing on their leadership, they should also utilize their dynamic capabilities in order to deal with the environmental dynamism and using their entrepreneurship strategies to strengthen the performance of their business.

5.4 Limitation and Future Research Direction

Although, the current study provides a lot of contribution to the academic and the practitioners. Several limitations were identified and these limitations may lead to the direction of future research.

The first limitation for this research study is the time limitation and the current pandemic situation. Due to the time limitation and the current COVID 19 pandemic the data collection process was utilized through the Amazon Mturk website for convenience. However, it seems that the data collected have certain degree of common method variance issue. Future researches should consider alternative data collection method, such as administered survey. An alternative research design is also possible, future research can conduct an extensive and more in-depth study by using the mixed method and employing the longitudinal study together with cross-sectional study in order to better explain the phenomenon.

Secondly our limitation of the study falls on the aspect of the digital leadership literature. Due to the early stage of the digital leadership literature, there is not a fixed scale in order to measure this construct. The scholarly community is still blurry regarding their definition. Further research may consider other aspect of digital leadership and provide a more rounded definition.

Thirdly, although our research model considered the aspect of the digital leadership and the inter play of dynamic capabilities on the New Product Success, as well as the moderation of the entrepreneurship and the environmental dynamism, our study samples are the NPD members and Leaders of the company. As mentioned in the literature review, the dynamic capabilities are not only considered to happen in the team setting, but a highly involved process that require the commitment of the entire firm. Future research should also consider the other level of dynamic capabilities such as individual level, team level, and firm level. Furthermore, the same concept can be applied to the digital leadership such as the top-level management digital leadership, middle level management digital leadership, and the frontline level. Distinguishing between these levels and determining in which area is digital leadership highly required can provide a better and more rounded understanding to the academic and the practitioners.

Forth due to the time limitation, this study was not able to conduct a mediation test of the environmental dynamism and the entrepreneurship. This study has determined that there is a significant effect of the Environmental Dynamism and the Entrepreneurship. However, the result of the ANOVA and the MRA is different. Therefore, further research should further investigate regarding the role of the environmental dynamism and the entrepreneurship. The author suspects that these two variables may play a mediating role. Therefore, further confirmation is needed to be verified.

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