KNOWLEDGE SHARING BEHAVIOR, ISLAMIC WORK ETHIC AND INNOVATIVE BEHAVIOR: ENTREPRENEURIAL ORIENTATION AS A MODERATOR

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ABSTRACT

Innovative behavior is one of the most important aspect to improve quality of public service. Thus, resource such as individual characteristic through specific behavior can be an approach to underpin innovative behavior in the public sector. Therefore, key objective of this study is to explore moderating role of entrepreneurial orientation (EO) on the relationship between knowledge sharing behavior (KSB), and Islamic work ethic (IWE) on innovative behavior (IB) in public sector organization supported by Social Exchange Theory and Social Capital Theory as a foundation. The data were collected through questionnaires from individual manager in public sector in Aceh Province. A total of 192 managers were the sample of the study using cluster sampling technique. This study used Partial Least Squares Structural Equation Modeling (PLS-SEM) to test hypotheses developed for the study. The results of this study proved that innovative behavior is mainly dependent on the level of knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation of individual manager in the public sector. The finding of this study found a direct significant effect of knowledge sharing behavior and Islamic work ethic on innovative behavior. Meanwhile, moderating effect of entrepreneurial orientation can be revealed between knowledge sharing behavior, Islamic work ethic on innovative behavior. Thus, Public sector agencies should emphasize on knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation to enhance innovative behavior among its managers that in return will help improve innovation in public sector. Finally, this study also presents theoretical and practical contributions, as well as limitations and suggestions for future research.

Keywords: knowledge sharing behavior, Islamic work ethic, entrepreneurial orientation, innovative behavior, public sector

ABSTRAK

Gelagat berinovasi merupakan antara aspek yang paling penting untuk meningkatkan kualiti perkhidmatan awam. Maka, sumber seperti ciri-ciri individu melalui gelagat tertentu boleh diambil sebagai pendekatan bagi menyokong gelagat berinovasi dalam sektor awam. Oleh demikian, objektif utama kajian ini adalah untuk meneroka peranan orientasi keusahawanan sebagai penyederhana bagi hubungan antara gelagat perkongsian pengetahuan, dan etika kerja Islam terhadap gelagat berinovasi dalam organisasi sektor awam dengan sokongan Teori Pertukaran Sosial dan Teori Modal Sosial sebagai asas. Data dikumpulkan dengan menggunakan soal selidik daripada pengurus individu sektor awam di Wilayah Aceh. Sejumlah 192 pengurus merupakan sampel kajian ini menggunakan teknik persampelan kluster. Kajian ini mengunakan *Partial Least Squares Structural Equation Modeling* untuk menguji hipotesis yang telah dibangunkan. Hasil kajian membuktikan bahawa gelagat berinovasi bergantung kepada tahap gelagat perkongsian pengetahuan, etika kerja Islam dan orientasi keusahawanan seseorang pengurus dalam sektor awam. Hasil kajian ini menemui kesan langsung gelagat perkongsian pengetahuan dan etika kerja Islam terhadap gelagat berinovasi. Sementara itu, kesan penyederhana orientasi keusahawanan turut didedahkan di antara gelagat perkongsian pengetahuan, etika kerja Islam terhadap gelagat berinovasi. Oleh itu, agensi sektor awam perlu memberi penekanan kepada gelagat perkongsian pengetahuan, etika kerja Islam dan orientasi keusahawanan bagi meningkatkan gelagat berinovasi dalam kalangan pengurus yang pada masa yang sama dapat meningkatkan inovasi dalam sektor awam. Akhir sekali, kajian ini juga membincangkan sumbangan teori dan praktikal, serta batasan dan cadangan untuk kajian pada masa akan datang.

Kata kunci: gelagat perkongsian pengetahuan, etika kerja Islam, orientasi keusahawanan, gelagat berinovasi, sektor awam

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ABBREVIATION

IB	Innovative Behavior
CP	Cooperation
EF	Effort
EO	Entrepreneurial Orientation
IVT	Innovativeness
IWE	Islamic Work Ethic
KC	Knowledge Collecting
KD	Knowledge Donating
KSB	Knowledge Sharing Behavior
MR	Moral Responsibility
PBUH	Peace Be Upon Him
PCT	Proactiveness
PW	Perceived Worship
RTK	Risk Taking
SCT	Social Capital Theory
SET	Social Exchange Theory
SWT	Subhanahuwataala
SAW	Sallallahualaihiwasallam

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CHAPTER I

INTRODUCTION

1.0 Background of the Study

In recent years, innovation in the public sector is being considered as the most important aspect for providing the best services to the society, addressing social problems and improving the welfare of citizens (Bloch, 2011). Innovation is one of the key elements that can be utilized by organization as an effective means for survival and sustainability (MacCurtin, Flood, Ramamoorthy, West, & Dawson, 2008; Yu, Yu, & Yu, 2013). Thus, innovation is no longer an optional luxury in the public sector. It should be seen as a core activity as the effectiveness of the government and public sector depends on successful innovation that is needed to sustain improvements of public services quality (Albury, 2005; Kamarck, 2004; Mulgan & Albury, 2003).

Innovation in the public sector was a result of reform movement. It was often known as "new public management" or "reinventing government". This movement was begun in England and New Zealand in 1980s then expanded to other countries, including the United States in 1993 (Kamarck, 2004). In the early 1980s, private sector in the United States created new profound adjustment capabilities that led them to "customer friendly". While, this adjustment is contrary with rigid and uncomfortable service by the public sector. Likewise in Europe in the early 1980s, service industries became more competitive. It looks that public sector is hopeless and unresponsive to the society. Phenomenon of increasing expectations of citizens towards the services provided by the public sector was evident (Kamarck, 2004).

Subsequently, global attention on innovation in the public sector has been increasing substantially over the last 15 years. It began with the launch of an innovation award for the management of the public sector by a number of non-governmental organizations (NGOs), for example, the Ford Foundation's Innovation Award, known as the Ford-KSG Award. It has become an important catalyst for encouraging the development and dissemination of innovation in the public sector (Borins, 2001a).

Today, image of public sector as a stagnant enemy of creativity was denied by innovations of thousands of civil servants around the world. They have found new ways to combat AIDS, promote fitness, educate, vaccinate vast populations, adopt new methods such as intelligence-led policing, and auction for radio spectrum (Mulgan, 2014). All of these innovations were generated to improve service of government by providing excellent work to the public (Bloch, 2011; Mulgan & Albury, 2003; Vigoda-Gadot, Shoham, Schwabsky, & Ruvio, 2008).

Similar to other countries, improving service to the society is evidence of manifestation of good governance that leads to human development (The Local Governance Support Program (LGSP), 2009). Following that, the Grand Design Reforms (in response to the enactment of the Law No. 25 in 2009 about Public Service), stated that in order to build the trust of the community to the state (including investors) and towards the public service sector, there is a need to optimize the quality of services in the public sector, which in turn, can improve the welfare of the community (The Ministry of State Apparatus Empowerment and Bureaucracy Reform Assistance Team, 2016). According to the National Development Planning Agency (2010), innovation in this sector is considered important because the quality of public

services is one of the pillars to indicate a change in governance in favor of improving the welfare of society. Hence, efforts to link good governance with public service is probably not new. It can be found some key service of public sector initiative of Indonesia's local government such as health service, transportation, housing and residential, public works and spatial planning, water service, electricity and etc.

In this context, the Indonesian government is greatly concerned about public sector innovation. As evidence, to facilitate innovation, since 2014, the Ministry of State Apparatus Empowerment and Bureaucratic Reform has been organizing innovation competition of the Public Service; in fact, the year 2014 was set as the year of innovation in the public service. A program known as, "one agency one innovation", was launched which meant that each ministry/agency (central) and local government is required to create at least one public service innovation every year (Investment and Promotion Agency of Aceh Province, 2014).

Furthermore, according to the Cabinet Secretary of the Republic of Indonesia (Pramono Agung), the government will form a special team to oversee public service reform in accordance with the directives of President Joko Widodo (Jokowi). Pramono said this special team's main task is to improve service by the civil servant and eliminate practices that have hampered public services, especially immigration services (both at airports and in the affairs of passport issuance), identity card, land titling, driver's license, vehicle registration, birth certificate and marriage certificate (Public Relation of the Cabinet Secretary of the Republic of Indonesia, 2016).

It is the hope of the Indonesian government that more public service innovations can gain international recognition following the two innovations that won awards from the United Nations (UN) in 2015. Two finalists from Indonesia successfully received world recognition under the United Nations Public Service Awards (UNPSA) as follows: 1) Partnership development for shamans and midwives to reduce child mortality and mothers who give birth; and 2) Integrated services unit for poverty alleviation. This international recognition has increased the trust of investors, which in turn, has driven capital inflows to Indonesia (Public Relations of The Ministry of State Apparatus Empowerment and Bureaucracy Reform, 2016).

Innovation in the public sector is needed due to the following reasons:

- Successful innovation in service by the public sector is an indicator of effective government (Mulgan & Albury, 2003; Lekhi, 2007; De Vries, Bekkers, & Tummers, 2014).
- Innovation can help the public sector to improve performance and enhance rate of response to citizens' expectations (Mulgan & Albury, 2003).
- Innovation helps to adapt to the changing environment, including legislative, technological, social, economic and physical changes (Lekhi, 2007; Akenroye, 2012; McFarlene, 2007).
- It enhances citizens' satisfaction with the public sector services as people have various and differing demands (Akenroye, 2012; De Vries *et al.,* 2014; Bloch, 2011; Vigoda-Gadot *et al.,* 2008).
- Innovation develops trust in governance as it has implications on national and society relationship (Kamarck, 2004; Vigoda-Gadot et *al.,* 2008).

- It increases service efficiency and minimizes cuts and reduces costs and wastage. Without innovation in service delivery in the public sector, it can have an adverse impact on the public budget (public services costs tend to rise very quickly) (Mulgan & Albury, 2003; Lekhi, 2007; Akenroye, 2012; Cankar & Petkovšek, 2013).
- It improves public sector opinion of the service delivery. If there are no innovations, this can lead to complaints from the community. The public sector will be viewed as being unwilling to change and not being proactive (Mulgan & Albury, 2003).
- Innovation enhances the reputation and image of both the local and national governments (McFarlene, 2007; Kamarck, 2004; Vigoda-Gadot *et al.*, 2008).

Public sector needs to develop specific strategy to overcome problem of innovation that is integrated and aligned with the critical resource of organization (Agolla & Van Lill, 2013; Karyotakis & Moustakis, 2016). Some researchers have identified that the success of innovation in the public sector depends on critical resources such as individual characters or personal behavior or attitude (e.g. Park & Jo, 2017; Park, Tseng, & Kim, 2016; Janssen & Moors, 2013). It is the fact that continuous and improvement of innovation are generated by actions of individual (De Jong & Den Hartog, 2010). Thus, innovative behavior is product of individual characteristics (Scott & Bruce, 1994). Senge (1990) and Demircioglu and Audretsch (2017), asserted that unwillingness to empower individual will cause failure in carrying out innovation in the public sector. Critical resource such as individual characteristic or attitudes, behavior and practices embodying innovation elements that are possessed by

individual can be integrated as strategies for change in the public sector (Karyotakis & Moustakis, 2016).

As stated by Kanter (1998), when innovation has entered formal lines and organization level, this will provide a better opportunity for individual to combine or integrate its resources. These resources will lead organization to the higher innovation capacity. It is substantial to integrate or combine resource of individual characteristics or specific behavior such as knowledge sharing behavior, Islamic work ethic, and entrepreneurial orientation for fostering innovation through innovative behavior by employee in the public sector. These are critical resource that directly boost individual to be more innovative (Javed, Bashir, Rawwas, & Arjoon, 2016; Vigoda-Gadot *et al.*, 2008; Michael & Pearce, 2009; Hurley, 1995; Janssen, 2000; Yuan & Wodman, 2010; Kanter, 1988; Scott & Bruce, 1994; Hurley & Hult, 1988; Hu, Horng & Sun, 2009). Therefore, this study considers that it is necessary to know to what extent individual characteristics such as specific behavior can facilitate civil servant for the innovative behavior through knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation in facing problem of innovation in the public sector.

In the same vein, based on the perspective of social exchange theory (SET) and social capital theory (SCT), behavior exchange and social interaction are manifestation of specific behavior or individual characteristic that can be treated as a means to achieve innovation by individual in order to improve quality of public service. When individual obtained value from these activities, it will drive to the innovative behaviors (Nahapiet & Ghoshal, 1998; Blau, 1964). Therefore, SET and SCT confirmed that social exchange and social interaction will strengthen the process of innovation. As

claimed by Blau (1964), Nahapiet and Ghoshal, (1998), resource such as knowledge, positive value, principle, attitude and behavior is the outcome from the social exchange and relationship (social bond) between individual. These activities will help and provide mutual benefit to the individual.

Specifically, Agolla and Van Lill (2013) stressed on intangible resources such as skills or knowledge from the workforce, expertise and experience. Yi (2009) asserted that knowledge sharing behavior between individuals, ultimately brings value added. It contributes to the organization effectiveness that improves productivity, work process, develop opportunities for new business and help to achieve objective. Therefore, Baker (1990) asserted that social capital can be described as a resource that was created through a change in relationship between individual. It was derived from specific social structure that used to pursue interest of individual. Thus, attitude and behavioral change is an equal resource for innovative behavior.

Recently, public sector organizations are characterized as knowledge-based organizations (Sandhu, Jain, & Kalthom, 2011; Titi Amayah, 2013). Knowledge is a critical resource to the public sector as it is to the private sector. It is one of the ways to improve the effectiveness of the public institutions due to knowledge is a key process to enhance the organizational culture (Luen & Al-Hawamdeh, 2001; Willem & Buelens, 2007). In view of this, knowledge sharing behavior can be considered to be particularly relevant for the public sector in order to change culture for supporting innovation of individual. As stated by Trong Tuan (2017), knowledge sharing is driving the power of sustainable change in public sector organizations. When the individual's involvement in knowledge sharing is higher, then the individual will improve more of their knowledge. This condition will give advantages to innovative

behavior (Yu, *et al.,* 2013). A culture of continuously wanting to innovate is very important for the public sector to improve its performance. Thus, knowledge sharing behavior is crucial in the public sector. It is the strongest factor related to innovation of individual through innovative behavior (Wright & Taylor, 2005; Titi Amayah, 2013).

Similarly, ethics and morality are essential resources in the public sector as they are antecedents to public sector innovation through innovative behavior of individual. Citizens assume that public sector personnel who are interested, honest and ethical will perform innovative and creative behavior to serve the community better. Morality has an impact on innovation and entrepreneurship of public sector personnel and public agencies (Vigoda-Gadot *et al.*, 2008). Thus, it can be assumed that Islamic work ethics can also provide a platform based on Islamic principles that can lead to excellence in organizational functions. There is evidence that organizations that apply Islamic work ethics (IWE) have improved staff morale, job satisfaction, increased productivity and reduced stress levels. Therefore, the management of the organization should prioritize IWE to improve the productivity of their staff (Ahmad, 2011). Islamic work ethic has the power to increase the commitment of employees. Strong Islamic work ethic can contribute greatly to the ability to innovate. Human resource professional should strive to understand the norms in the workplace and transform current values to values that encourage a culture of innovation (Kumar & Rose, 2010). Therefore, successful innovation of individual in the public sector depends on the public personnel's ethics, specifically on Islamic work ethic.

In this era of rapid change, entrepreneurial orientation enables organizations to configure internal and external capabilities in order to cope with rapidly changing environments. Without entrepreneurial orientation, organizational behavior is not dynamic and not adaptive (Yang, Lang, & Li, 2010). In the context of the service sector, successful development and delivery of service depend on the entrepreneurial orientation of the organization. EO is an important factor in terms of leading other factors that contribute to improved service innovation (Rattanawong & Suwanno, 2014; Jambulingam, Kathuria, & Doucette, 2005). Morris and Jones (1999) stated that environmental turbulence is an antecedent of entrepreneurial behavior or entrepreneurial orientation. This is because entrepreneurship is an organizational resource that can create institutional change.

Hence, public entrepreneurs are needed to respond to the rapidly changing world to develop a creative and flexible organization, and specifically, to anticipate the issues and problems faced by the public sector. According to Diefenbach (2011), entrepreneurial behavior is a means for the public sector to enhance innovativeness, proactiveness and risk-taking. This can be done by identifying local demands and opportunities. Therefore, the public sector has to create an entrepreneurship culture as it is useful for it to be more innovative (Michael & Pearce, 2009).

Based on the underpinning theory, literature and previous study that have been advanced by some experts on various aspects affecting the success of innovation in public sector organizations, this study considers that the integration of internal drivers such as resource generated from specific behavior is means and key to the success of innovation in the public sector. By empowering intangible resource of individual

characteristics or specific behavior namely knowledge sharing behavior, Islamic work ethics and entrepreneurial orientation, it will lead individual in the public sector to the innovative behavior (Scott & Bruce, 1994; Kanter, 1988; Janssen, 2000; Yuan & Wodman, 2010; Wang & Wang, 2012; Titi Amayah, 2013; Aulawi, Sudirman, Suryadi, & Govindaraju, 2009; Kumar & Rose, 2012; Yaseen, Dajani, & Mazen, 2015; Wu, Chang, & Chen, 2008; Krishnakumar, Prasanna, & Surya Prakasa Rao, 2013).

Therefore, this study intends to investigate innovation by individual in public sector by including knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation in one framework to see the joint effect of these factors in creating and improving innovative behavior in the public sector.

1.1. Problem Statement

As said by Jussuf Kala (Vice President of the Republic of Indonesia), government agencies (both the central government and local government) have to make a breakthrough in innovation to serve the society better. Work must not become routine; personnel must innovate continuously. Moreover, in the local governments, there is a lot of space to innovate. Mindset or the perception of the public service employees should change. This is because the functions and duties of the apparatus of a civil state are to run public services in an effective and efficient way. Therefore, innovations are needed to improve the quality of services (Public Relation of the Ministry of State Apparatus Empowerment and Bureaucracy Reform, 2015).

In Indonesia, complaints on public services delivered by individuals, non-governmental organizations (NGOs), community groups, professional organizations

and others have risen significantly. Between the period of 2002 to 2004, there was a decrease in complaints, from some 396 complaints in 2002 to 372 complaints in the next year, which then dropped to 363 complaints in 2004. But in 2005, it rose sharply to 1,010 complaints, which then dropped slightly to 791 complaints in the next year, and went up to 865 complaints in 2007. In 2010, the Ombudsman followed up on more than 98% of complaints from the public. From the 1,154 reports to the Ombudsman, the institutions which received the most complaints were: Regional Government, 360 reports (31.21%); police department, 242 reports (20.97%); Court Institution, 161 reports (13.95%); the National Land Agency, 97 reports (8.44%); and the Government Agencies/Ministries, 89 reports (7.69%) (The National Development Planning Agency, Republic of Indonesia, 2010). More specifically, in Aceh Province, public service providers have received the most complaints. The data showed that in 2015, there were 88 complaints from 23 districts/cities (Tempo Magazine, 2016). Furthermore, Table 1.1 shows the statistical evidence for unsatisfactory service by one of the public services providers in Aceh, i.e., the Water Company Service in Banda Aceh City.

Table. 1.1
Value Index of the Service of the Tirta Daroy Regional Water Company

No.	Items	Value Index
1.	Requirement of service	2.58
2.	Service Procedure	2.67
3.	Time of service	1.65
4.	Charges or Tariff	2.62
5.	Service of product specification	1.58
6.	Competence of worker	2.54
7.	Behavior of worker	2.45
8.	Notice of service	2.55
9.	The handling of complaints, suggestion and input	2.44
Total		21.06
Index of community satisfaction Value		**58.49**
Standard Deviation		0.22

Source: Regional Development Planning Agency, Banda Aceh, 2015

Table 1.1 indicates that service of the water company of state, which is one of the public sectors in Aceh is still far from what is expected and disappointing. The table shows the survey results of Index of Community Satisfaction for Tirta Daroy Regional Water Company, Banda Aceh. The assessment is based on the regulation of the Ministry of State Apparatus Empowerment and Bureaucracy Reform, No. 16 in 2014 (Guidelines of Community Satisfaction Survey of Public Service Organizations). Nine items were assessed to reflect satisfaction with the service provided. The evidence shows that the standard deviation value is 0.22. Meanwhile, the lowest score is 1.58 and the highest score is 2.67. Based on the ninth element used, the weights used are one-ninth or equal to 0.111. To get the index of community satisfaction value, the accumulated value is multiplied by 0.111 to obtain a value of 2.33. This value is multiplied by 25, and the value obtained from the total Index of Community Satisfaction is 58.49 or category C with the quality of service delivery being "enough or unsatisfactory".

Accordingly, the number of complaints and criticisms on dissatisfaction with service delivery by the public sector indicates that this organization does not produce satisfying service or excellent work to the society (Vigoda-Gadot *et al.*, 2008; Bloch, 2011; De Vries *et al.*, 2014; Cankar & Petkovsek, 2013; Mulgan, 2014). Indeed, public sector in Aceh needs to improve the delivery of its services. Many researchers have conducted extensive research concerning this issue (e.g. Bloch, 2011; Moore & Hartley 2008; Vigoda-Gadot *et al.*, 2008; Cankar & Petkovsek, 2013; Mulgan, 2014; Lekhi, 2007; Mulgan & Albury, 2003; De Vries *et al.*, 2014; Robertson & Ball, 2002; McFarlene, 2007). They considered that public sector needs innovation as it will improve efficiency and effectiveness of public service delivery (Vigoda-Gadot *et al.*,

2008; De Vries *et al.*, 2014; Bloch, 2011). Innovation through innovative behavior is useful to create value for citizens, entire communities and for individual or employees themselves (Serrat, 2012; Karyotakis & Moustakis, 2017).

Specifically, there are 14 indicators of innovative agencies/public sectors based on Regulation of The Ministry of Administration and Bureaucratic Reform of Republic Indonesia No. 15 in 2015 as shown in Table 1.2.

Table 1.2
Indicators of Innovative Agency/Public Sector

No.	Indicator	Service/ Mechanism Offered
I.	**Improvement in Service**	
	1. New approach to improve service	Yes/No
	2. Efficiency of process/procedure and bureaucracy	Yes/No
	3. Actively asking feedback of society	Yes/No
	4. Justice and simplicity for service	Yes/No
	5. Developing partnership with society and private sector	
II.	**Society Involvement/Openness**	
	6. New approach to strengthening society participation	Yes/No
	7. Pushing society involvement in creating service innovation	Yes/No
	8. Providing speed response of society input	Yes/No
III.	**Collaborative Approach in Era of Information**	
	9. New approach based on collaborative approach	Yes/No
	10. Service by technology of information and communication	Yes/No
	11. Effective service through information exchange	Yes/No
	12. Collaboration between public sector and society	Yes/No
IV.	**Gender Responsive in Service**	
	13. New approach to push gender responsive in service	Yes/No
	14. Improving service of gender responsive	Yes/No

Source: The Ministry of Administration and Bureaucratic Reform of Republic Indonesia, 2015

However, innovation by civil servant through innovative behavior is not an easy task in the public sector. There are some complex issues of the problem and barriers for innovation in the public sector. All this time, the analysis shows that public sector

needs to be linked to considerations for improvement, but that should also be understood what processes, barriers and facilitate innovative behavior to implement innovation of individual in the public sector. These issues are worthy to be studied in depth. It is necessary to recognize the context of innovation in public sector more explicitly (Hartley, 2005). Damanpour, Walker, and Avellaneda (2009) stated that the adoption of innovation in the service sector is often due to the pressure on the internal and external environment to adopt new services and internal practices which can help organizations to improve their service performance continuously.

Innovation by individual in the public sector through innovative behavior is considered interfering relationships and behavior formed previously. Therefore, innovative behavior in the public sector requires imagination and courage. This is certainly contrary to the private sector, where worker will get financial rewards and a larger market share when they implement innovative behavior. Therefore, people in the private sector tend to respect and promote innovative behavior as it is considered an investment. This situation does not occur in the public sector. Successful innovation will add financial value to the state and not for individuals who produce innovation. In addition, public sector is indeed a provider of monopoly services and goods, then employees in the public sector have little incentive to invest in innovative behavior for innovation (Kamarck, 2004).

Therefore, innovation in the public sector is manifested in term of improvement in quality of service to the society. Innovation in the public sector is usually not associated with a physical artefact, but it is a change that occurs between service providers with users (Hartley, 2005). Indeed, innovation in the public sector does not always produce new public services, but can be linked to institutional renewal, new

forms of government, innovation in processes, digitalization and or improvement of organizations such as changes in techniques of management, introduction of management performance or strategic planning and others that is not always called as innovation (Cunningham & Karakasidou, 2009). Thereby, there are many ways to manifest innovation by individual in the public sector such as new approach or method to improve service, efficiency of process/procedure and bureaucracy, justice and simplicity of service delivery and effective service by technology of information and communication, for example, e-government and others (The Ministry of Administration and Bureaucratic Reform of Republic Indonesia, Regulation No. 15 in 2015).

Numerous studies have been attempted by some researchers to identify factors **t**hat influence innovation by individual in the public sectors through innovative behavior. The findings showed that innovation of individual is affected by several drivers, both internal and external factor. For example, leadership (Kim & Yoon, 2015; Nusair, Ababneh, & Kyung Bae, 2012; Wipulanusat, Panuwatwanich, & Stewart, 2018), reward (Rainey & Bozeman, 2000; Kim & Chang, 2009), management support (Kim & Lee, 2009), social media (Criado, Sandoval-Almazan, & Gil-Garcia, 2013; Zheng & Zheng, 2014), citizen involvement (Thapa, Niehaves, Seidel, & Plattfaut, 2015). Thus, it can be identified that there are many internal and external variables or factors that can influence process of change for innovation through innovative behavior in the public sector. Indeed, these previous findings present extensive insight for the public sector to understand critical variables or factors for the success of innovative behavior. Yet, there is a very limited study that examining the influence of critical factor such

as individual characteristic and behavior, though it is a very influential factor for innovative behavior in the public sector through.

Many experts postulated that innovation can be achieved by empowering individual characteristics or specific behavior that strongly influence innovative behavior for innovation. They are knowledge sharing behavior (KSB) (Aktharsha & Sengottuvel, 2016; Hu *et al.*, 2009; Ofori, Osei, Ato – Mensah, & Affum, 2015; Lee & Hong, 2014, Hussain, Konar, & Ali, 2016; Aulawi, Sudirman, Suryadi, & Govindaraju., 2009; Yu *et al.*, 2013; Long, Ghazali, Rasli, & Heng, 2012; Rahab, Sulistyandari, & Sudjono, 2011, Islamic work ethic (IWE) (Farrukh, Butt, & Mansori, 2015; Kumar & Rose, 2010; Abbasi, Mir, & Hussain, 2012; Awan & Akram, 2012; Kumar & Rose, 2012), and entrepreneurial orientation (EO) (Karyotakis & Moustakis, 2016, 2017; Maatoofi & Tajeddini, 2011; Nasution, Mavondo, Matanda, & Ndubisi, 2011; Monteagudo & Martínez, 2015; Čivre & Gomezelj Omerzel, 2015; Rattanawong & Suwanno, 2014; Omerzel, 2016; Nybakk & Hansen, 2008; Urban & Streak, 2013).

Yet, there is still inconclusive findings towards knowledge sharing behavior on innovation of individual through its dimensions, namely knowledge donating and knowledge collecting. Many empirical studies have revealed that knowledge sharing behavior and its dimensions are key driver for innovation (Kumar & Rose, 2012; Hussain *et al.*, 2016; Aktharsha & Sengettuvel, 2016; Ofori *et al.*, 2015; Hu *et al.*, 2009; Aulawi *et al.*, 2009; Liebowitz, 2002; Mura, Lettieri, Radaelli, & Spiller, 2013; Hoarau & Kline, 2014; Nugraheni, Grendeng & Tengah, 2012). While, some other researchers (e.g. Yeşil & Hırlak, 2013; Kamaşak & Bulutlar, 2010; Hussein, Singh, Farouk, & Sohal, 2016; Abdallah, Khalil, & Divine, 2012), found that knowledge

sharing behavior with its dimensions do not influence innovation of individual either overall or separately. While others found that only one dimension of knowledge sharing behavior has a significant effect on innovation of individual through innovative behavior.

At the same time, most studies on knowledge sharing behavior have been conducted in the context of private sector (Sandhu *et al.,* 2011; Titi Amayah, 2013; Seba, Rowley & Lambert, 2012; Willem & Buelens, 2007; Yusof, Bakhari, Kamsuriah & Yusof, 2012). It was claimed that public sector is not the ideal environment to implement knowledge sharing behavior (Willem & Buelens, 2007). Public sector is known for embracing a rigid, repeat and routine work environment (Kumar & Rose, 2010). Knowledge sharing in the public sector is fraught with unique challenges. The public sector is a hierarchical and bureaucratic organization, in which it is difficult to promote a culture to facilitate knowledge sharing behavior (Liebowitz, 2002; Seba *et al.*, 2012; Willem & Buelens, 2007). Therefore, there is lack of research that covers knowledge sharing behavior on innovation of individual through innovative behavior in terms of the public sector or government organizations.

Some researchers have revealed that IWE has an important role in enhancing innovation of individual (e.g. Awan & Akram, 2012; Kumar & Rose, 2010, 2012; Marri, Sadozai, Zaman, & Ramay, 2012). Values and principles in the IWE guide attitude and behavior of Muslims in the workplace (Rokhman & Hassan, 2012). IWE leads Muslim to positive behavior that pushes innovation through innovative behavior. However, the IWE's implications have not received much attention from the scholars (Yesil, Sekkeli, & Dogan, 2012). During this time, research on work ethic has flourished in western literature. As a result, only a few studies have examined the role

of Islamic work ethic and its impact on innovation through innovative behavior (Farrukh *et al.*, 2015; Abbasi *et al.*, 2012; Khan & Rasheed, 2015; Marri *et al.*, 2012; Sadozai, Marri, Zaman, Yousufzai, & Nas, 2013.; Kumar & Rose, 2010, 2012; Yeşil *et al.*, 2012; Awan & Akram, 2012).

Besides the positive effect of IWE on innovation by individual, some findings did not prove the positive effect of Islamic work ethic on individual behavior change for innovation. (i.e. Uygur, 2009; Meybodi & Dehghani 2016; Jufrizen, Lumbanraja, Agoes Salim, & Gultom, 2017; Alhyasat, 2012; Rokhman & Hassan, 2012; Farahizade & Belaghat, 2013; Amilin, Ismail, Astuti, Reskino, & Mulazid , 2018). All in all, due to limited studies and inconclusive findings from the previous studies, there is a need to examine the implications of IWE on innovation by individual in the context of public sector (Kumar & Rose, 2010; Awan & Akram, 2012).

Many studies have revealed the positive and strong effect of entrepreneurial on innovation (e.g. Miller & French, 2016; Monteagudo & Martínez, 2015; Omerzel, 2016; Nybakk & Hansen, 2008; Čivre & Gomezelj Omerzel, 2015; Janssen & Moors, 2013; Wynen, Verhoest, Ongaro, & Van Thiel, 2013). They found that entrepreneurial orientation is a very important and influential factor in triggering innovation. Wiklund and Shepherd (2005) asserted that a high EO will provide the ability of organization to discover new opportunities that can differentiate the organization from others to create excellence.

Some researchers have proved that entrepreneurial orientation as moderating variable has a significant effect on innovation. Wu, Chang, and Chen (2008) claimed that the

moderating effect of EO plays its role as a driving force for improving innovation of individual. Yang *et al.* (2010) stated that in the beginning, EO has the direct effect on innovation performance. Gradually, the impact of EO on innovation performance becomes indirect effect. Some researcher suggested exploiting entrepreneurial orientation as a moderator on innovation (Yang *et al.*, 2010; Li, Liu, Wang, Li, & Guo, 2009; Wu *et al.* (2008). However, the previous studies have neglected the moderating effect of entrepreneurial orientation on innovation. To the best knowledge of researcher, only study by Li *et al.* (2009) that examined the relationship between knowledge sharing and innovation by using entrepreneurial orientation as a moderator. Their finding revealed that EO through its moderating effect is important resource that can increase the relationship between intra-knowledge sharing and innovation significantly.

The theories and previous findings have revealed that values exist in Islamic work ethic are very useful in encouraging individuals to be more motivated and responsible for carrying out their duties. These values also lead them to avoid unethical behavior so they will not engage in actions that have a negative impact on the achievement of innovation. Therefore, the value at IWE is very urgent to be implemented in the public sector. However, there is still inconclusive or inconsistent findings on the effect of Islamic work ethic on many other variable or aspect of organization. Therefore, this study considers that it is very important to examine other variables that can support the relationship between Islamic work ethic and innovation by individual through innovative behavior. Kumar and Rose (2012), Farrukh *et al.* (2015), Awan and Akram (2012) recommended examining a moderating or mediating role between IWE and innovation of individual. However, there is an absence of understanding the role of

moderating effect of entrepreneurial orientation on the relationship between Islamic work ethic and innovation of individual. Thus, this study triggers the call to further examine the EO as a moderator in order to recognize how and why public sector needs to exploit an individual characteristic and behavior to enhance innovation since this study has not found empirical study that attempts to investigate this relationship. Hence, this study is one of the first that investigates the role of entrepreneurial orientation as a moderator between Islamic work ethic and innovation.

Meanwhile, being an individual who embraces an entrepreneurial behavior is a challenge in Public sector. Public sector is a bureaucratic organization where civil servants are only fixated on the rules that already exist (Vigoda-Gadot Shoham, Schwabsky, & Ruvio, 2005, Mulgan & Albury, 2003; Kim & Yoon, 2015). These rules certainly reduce their ability to show entrepreneurial behavior which is contrary to the environment and culture of public sector. Even though the public sector is not a profit-oriented organization, they have to provide excellent service to the society. Thus, public sector requires individual with an entrepreneurial orientation character in overcoming problems of society (Vigoda-Gadot *et al.,* 2005; 2008). Although entrepreneurial orientation is highly needed in the public sector to boost innovation, there is a paucity of research on the role of EO as moderator on innovation of individual in the public sector. This study found that there is only one study that investigated this relationship in the public sector through dimensions of EO (i.e. Giebels, de Reuver, Rispens, & Ufkes, 2016).

Therefore, this study attempts to bridge the gaps that have been mentioned above in the light of the relationship of knowledge sharing behavior, Islamic work ethic,

entrepreneurial orientation and innovation by individual through innovative behavior. In addition, this study investigates the theoretical and empirical evidence of this relationship. Finally, this study looks from the practical aspect of how knowledge sharing behavior, Islamic work ethic, entrepreneurial orientation influence innovative behavior in public sector in Aceh Province.

1.2 Research Questions

This study has the following research questions:

1. What is the effect of knowledge sharing behavior on innovative behavior?
2. What is the effect of Islamic work ethic on innovative behavior?
3. Does entrepreneurial orientation moderate the relationship between knowledge sharing behavior and innovative behavior?
4. Does entrepreneurial orientation moderate the relationship between Islamic work ethic and innovative behavior?

1.3 Research Objectives

The primary objectives of this study are as follows:

1. To examine the effect of knowledge sharing behavior on innovative behavior.
2. To investigate the effect of Islamic work ethic on innovative behavior.
3. To identify the moderating effect of entrepreneurial orientation on the relationship between knowledge sharing behavior and innovative behavior.
4. To determine the moderating effect of entrepreneurial orientation on the relationship between Islamic work ethic and innovative behavior.

1.4 Scope of the Study

This study is limited to managerial level staff in public sector agencies in Aceh Province, Indonesia. They are the ones who make critical decisions daily while running their respective department. Study participants are all the individuals of the targeted sample who participated in providing their opinions related to knowledge sharing behavior, Islamic work ethic, entrepreneurial orientation and innovative behavior. In particular, the study participants comprised of the Head/Deputy of Agency, Heads of Department and Heads of Units. The reason behind selecting the managerial level staff as respondents because they are in a position to have knowledge about innovative behavior in their organization and they can represent their individual perspective. Thus, this study highlights innovation from an individual perspective. Therefore, data were collected from individual manager in the public service sector in Aceh Province to obtain the answers to the research questions and also, to address the study's objectives.

Moreover, this study aims to determine the direct effect of 2 (two) independent variable through critical resource such as individual characteristic or specific behavior that was underpinned by Social Exchange Theory and Social Capital Theory namely knowledge sharing behavior by using two dimensions (knowledge donating and knowledge collecting), and Islamic work ethic with four dimensions (perceived worship, effort, cooperation and moral responsibility) on innovation by individual through innovative behavior Subsequently, this study identifies the role of entrepreneurial orientation as a moderator in the relationship between knowledge sharing behavior, Islamic work ethic and innovative behavior in the public sectors in Aceh Province, Indonesia.

1.5 Significance of the Study

In this study, researcher used theoretical and practical approach to examine the relationship between knowledge sharing behavior, Islamic work ethic, entrepreneurial orientation and innovative behavior using quantitative research method. The results of this study are expected to contribute both theoretically and practically in order to improve innovation by individual in the public sector through innovative behavior.

1.5.1 Theoretical Significance

This study is underpinned by the Social Exchange Theory (SET) and Social Capital Theory (SCT) to explain the variables developed for this study (i.e., knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation) which these are all individual behavior resources as catalyst to enhance innovative behavior. Thus, these variables can be combined to significantly affect innovation. Furthermore, this study will empirically present the factors that play an important role in achieving innovative behavior that were included in the framework of this study as a moderating variable (entrepreneurial orientation).

This study is expected to contribute to the extant body of knowledge and can help academicians to increase their knowledge on the concept of knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation in enhancing innovation by individual in the public sector through innovative behavior.

1.5.2 Practical Significance

From the practical aspect, previous studies have empirically proved that all variables used in this study (knowledge sharing behavior, Islamic work ethic and entrepreneurial

orientation) significantly contribute to improve innovative behavior. Therefore, the public sector in Aceh should implement the concepts of knowledge sharing behavior, Islamic work ethics and entrepreneurial orientation in order to improve the quality of service to the society. Generally, past studies have supported the practices of knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation in enhancing innovative behavior.

Furthermore, the findings of this study will practically help the government of Aceh in implementing the concept of knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation to help them become more innovative so as to improve the quality of public services in accordance with what is expected by the society.

1.6 Definition of Key Terms

This section describes the key terms used in the study as follows:

a) Knowledge Sharing Behavior (KSB)

   Knowledge sharing behavior is a pattern of individual toward considering knowledge sharing as behavior that involves a willingness to donate and collect knowledge (Van den Hooff & Van Weenen, 2004; Lin, 2007).

b) Islamic Work Ethic (IWE)

   Islamic work ethic is a set of moral, norm, attitude and principles in the Islamic context that is used to differentiate what is right and wrong in the workplace. It is characterized as a composition of values and beliefs from the Qur'an and Sunnah (Yaseen *et al.*, 2015; Abbasi *et al.*, 2012; Ahmad & Owoyemi, 2012; Rokhman, 2010; Ali, 1992).

c) Entrepreneurial Orientation (EO)

Entrepreneurial orientation is defined as the propensity of behavior that is characterized by innovativeness, proactiveness and risk taking (Miller, 1983; Meynhardt & Diefenbach, 2012; Covin & Slevin, 1991).

d) Innovative Behavior

Innovative behavior refers to the implementation of new idea or significant change and/or improvement through process of idea generation, idea promotion and idea generalization (Janssen, 2000; Scott & Bruce, 1994; Kanter, 1988; Tether, 2003; Bloch, 2011; Mulgan & Albury, 2003; Hartley, 2005).

e) Public sector /Service Sector

Government institutions or agencies that have responsibility providing access to facilitates service and work to the society in the whole area of public interest (Bloch & Bugge, 2013; Vigoda-Gadot *et al.,* 2008; Willem & Buelens, 2007).

1.7 Organization of the Thesis

The study is structured into five sections. Chapter one explains the background of the study, problem statement, research questions, research objectives, scope of study, significance of study, definition of terms and organization of the thesis. Further, chapter two contains review of relevant literature which discusses KSB, IWE, EO and IB, underpinning theory, theoretical framework and research hypotheses development. Chapter three discusses research design, development of the instrument, population and sampling and a pilot study as well as data analysis techniques. While, chapter four discusses data analysis and findings based on the data of survey respondent. Chapter five discusses the conclusion and recommendation from theoretical, practical and implication aspects as the final result of the whole of the study.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter elaborates the review of relevant literature to get an understanding on the variables examined in the study. For the most part, this chapter reviews the independent variable (knowledge sharing behavior and Islamic work ethic), moderating variable (entrepreneurial orientation) and innovative behavior (dependent variable) that support the research objectives and research questions of the study. Furthermore, this study highlights the Social Exchange Theory and Social Capital Theory as the underpinning theory.

2.1 Conceptualization of Innovation

Innovation has become the attention of researchers. However, this concept is still difficult to understand and unclear that inhibits the unification of innovation theory (Kim & Chang, 2009). Defining and identifying innovation in the service sector is more difficult, especially in the public sector. Therefore, innovation can be defined from many perspectives. However, there are some basic concepts of innovation including newness, creativity, implementation, constant learning by doing, new behavior, awareness, new perspectives and mindset, labor saving, efficiency and change to be better through the use of opportunities and combinations from objects, materials and processes (Perry, 2010).

Several researchers view innovation from the behavior perspective. Greenhalgh, Robert, Macfarlene, Bate and Kyriakidou (2004) defined service innovation as a set of new behaviors or routines and work methods in order to improve outcomes, effectiveness of cost, or the customer satisfaction. Similarly, Damanpour (1991) claimed that innovation is an adoption of new ideas or behaviors. Therefore, some researchers confirmed that innovation is an implementation of individual innovation behavior. According to Wang and Wang (2012), innovation depends on the individual initiative due to an innovation is a process of value creation that result from the knowledge, skills and experience of individual. Dionisia Elche Hortelano and Gongález-Moreno (2007), asserted that pattern of innovation in services is quite widespread according to innovative behavior. In this regard, innovation should be innovative behavior (Downs & Mohr, 1976).

Therefore, Scott and Bruce (1994) defined innovation as a process which involves the generation and implementation of ideas that takes a specific behavior of the individual. Similarly, Janssen (2000) pointed out innovation as an innovative behavior that is the generation, promotion and realization of new ideas in order to improve performance through innovative behavior of individual as an effort to provide new outcomes. Yuan and Woodman (2010) also shared the same opinion, whereby they defined innovation as innovative behavior of individual as an employee is implementation of ideas, products, processes, and procedures in their work role, units or organizations through behavior such as searching out for new technologies, proposing new ways to achieve goals, implementing new method of work and investigating and securing resource for implementing new ideas.

Furthermore, some researchers also emphasized innovation as a change or improvement in service delivery. Hu (2009) claimed that one of the ways that can be applied in service innovation is to make improvements or changes to existing services by offering something that did not exist before to meet all the needs and demands of customers as appropriate. Tether (2003) stated that innovation is an introduction of new and significantly improved or changed service and method to produce and deliver efficiency of existing services. A further definition by Evangelista, Sandven, Sirilli, and Smith (1998) confirmed that innovation is the result of the combination of new services and new ways in delivering service by using technologies or other substantive investments with an upgrade or a significant change from the existing services.

However, innovation both in the private and service sector is always associated with the issue of radical and incremental innovation. These two types of innovation direct conceptualization of innovation in the service sector to be inconclusive. According to Hartley (2005), some researchers emphasized innovation in terms of "radical" or "breakthrough" novelty called radical innovation. Other researchers see innovation in a small scale that is often known as incremental changes. Dionisia Elche Hortelano and Gongález-Moreno (2007) defined innovation in service as a combination of changes and improvements that influence the overall service system. It is more to incremental innovation compared to radical innovation. However, Ross (2016) asserted that innovation in the service sector is not only a radical innovation. It involves radical and incremental innovation and both of them is important. In line with this statemen, Albury (2005) claimed that radical innovation is development of new service fundamentally.

Specifically in the public sector, De Vries *et al.* (2014) claimed that several studies do not define actually how radical innovation. It lead to the obscure knowledge on innovation in public sector given that incremental change interpreted as innovation. However, Hartley (2005) asserted that innovation in the public sector is a significant change or improvement on service innovation. It is not a radical or disruptive innovation as in the private or business sector that is more focused on creating fresh or latest (novelty) products by using sophisticated or modern technology.

Bloch (2011) also defined innovation in the public sector as the implementation of significant changes to services and goods, operational processes, organizational methods, or the way an organization communicates with users. Innovations must be new to an organization, although they can have been developed by others. They can either be the result of decisions within an organization or in response to new regulations or policy measures. Meanwhile, Mulgan and Albury (2003) assumed that innovation in the public sector as an application of new products or services or processes and techniques with a necessary enhancement that can lead to success and excellence. Hence, innovation is a process of generating ideas or improve the performance of the products and services that are useful and beneficial for the society (Anggadwita & Dhewanto, 2013).

Given the discussion above, this study defines innovation in the public sector as implementation of new idea or significant change and/or improvement in terms of service being better and more effective than existing service through an innovative behavior, namely idea generation, idea promotion and idea realization in order to be more responsive to the need and aspiration of society by improving service delivery.

2.1.1 The importance of Innovation

Innovation by individual in the service sector is unique. Given service delivery involves both suppliers and clients, specific components are needed to ensure the success of the service sector (Posselt & Förstl, 2011). Thus, this situation is a challenge for the service sector to develop innovations by individual creatively (Komaladewi, Nanere, Suryana, & Rufaidah, 2012). Therefore, innovations undertaken by the service sector have attracted the attention of researchers (e.g., Posselt & Förstl, 2011; Matthews, Lewis, & Cook, 2009; Den Hertog *et al.*, 2010; Berry, Shankar, Parish, Cadwallader, & Dotzel, 2006; Chen, Wang, Huang, & Shen, 2016; Melton & Hartline, 2010; Hipp & Grupp, 2005; Kuusisto & Riepula, 2009; Dionisia Elche Hortelano & Gongález-Moreno, 2007; Durst, Mention, & Poutanen, 2015; Karniouchina, Victorino, & Verma, 2006; Drejer, 2004).

Numerous studies have revealed the effects of innovation by individual in the service sector. Cheng and Krumwiede (2012) found the importance of radical and incremental innovation in service innovation. These type of innovation have a positive effect on firm performance. This study involved 500 of Taiwan's top service firms. Furthermore, Carbonell, Rodriguez-Escudero, and Pujari (2009) conducted a study on 102 Spanish service organizations. This study claims that customer involvement has a positive and significant indirect effect on firm's innovation. Oke (2007) investigated the different types of innovation in the UK service sector. The results show that radical and incremental service innovations are related to performance and efficient management practices.

Hipp and Grupp (2005) investigated the demand for service-specific innovation measurement concepts and typologies. This study was conducted on the German service sector. They recommend that the inclusion of knowledge-intensive business services are particularly has a positive effect on the process of innovation. Menor and Roth (2008) examined the impact of service innovation on customer satisfaction and customer value enhancement in the public transportation service. The finding shows that service innovation has a positive and significant effect on customer satisfaction.

In this context, adoption of innovation is intended as a means for organizations to adapt and anticipate the changing business environment to improve or maintain effectiveness and competitiveness (Damanpour & Gopalakrishnan, 2001). Innovation is key for development of organizations and crucial for achieving excellence. This is crucial due to intense competition in the market; innovation is therefore necessary to address low product life cycle and create superior value of products (Tamer Cavusgil, Calantone, & Zhao, 2003).

In the public sector, innovation, as a competitive strategy, aims at creating new profit opportunities by creating new ways of doing things and enhancing the value for customers, which is a predominant means to sustaining competition in the modern global economy (Potts & Kastelle, 2010). Innovation is vital as it can be the driver for the public sector to be more efficient and effective in using resources and delivering quality services (O'Donnel, 2006). Improvement in performance and efficiency is an important factor to promote public sector innovation, as well as a number of other indicators, such as social challenges, new regulations and policies, and so on and so

forth. Especially during global economic crises, public sector innovation is likely to be a means of breakthrough and radical solutions (Cankar & Petkovsek, 2013).

Therefore, it can be identified that innovation is imperative in the public sector due to some critical issues such as impact of dynamic environment or globalization on social, economic, information and technology (Cankar & Petkovsek, 2013; Akenroye, 2012; Potts & Kastelle, 2010; Demircioglu & Audretsch, 2017; Lekhi, 2007; McFarlene, 2007), demand to become more responsible on citizen's expectations (Mulgan & Albury, 2003; Demircioglu & Audretsch, 2017), simple work method for efficiency of cost, time and resource (O'Donnel, 2006; Cankar & Petkovšek, 2013; Lekhi, 2007), effectiveness of quality of service (O'Donnel, 2006; Mulgan & Albury, 2003; Demircioglu & Audretsch, 2017), and satisfy need of society (Mulgan & Albury, 2003).

Researchers in the public sector also have revealed the significant effect of innovation on many organizational aspects such as maintain skill and expertise, prevent job stress, increase job satisfaction, commitment of worker and satisfaction of career. Previous study by Wipulanusat *et al.* (2018) indicated that innovation has positive effect at workplace that will help engineering professional to maintain and advance expertise in the Australian Public Service (APS). Meanwhile, Lambert and Hogan (2009) revealed that perception of employees on organizational innovation has negative relationship with job stress. Innovation through innovative behavior also has a positive and significant impact on job satisfaction and organizational commitment staff in Prison of Midwestern Correctional Facility, U.S. Furthermore, previous study by Park, Tseng, and Kim (2016) found that practice of innovation by individual through

innovative behavior provides positive effect on career satisfaction of employee in U.S. Federal Agencies.

To sum, as in the private sector, public sector also has realized that they will just continue to grow and thrive by developing innovation as driving for modernization in order to provide best service to the society (Bartlett & Dibben, 2002; Vigoda-Gadot *et al.*, 2008).

2.1.2 Innovative Behavior as an Innovation

The success of innovation is determined by the individual's role as the executor. Individual level was considered as an antecedent on innovation (Rothaermel & Hess, 2007). Innovation requires response of individuals to adapt important external stimulus. Compatibility between individuals and innovations enhance the desire of individuals to take and employ innovation (Choi & Price, 2005). Thus, personal attitudes or behavior of individual plays an important role on innovation as innovative behaviors depend on the value oriented to change of individual (Kaluzny, Veney & Gentry, 1974).

Some researchers have proved that individual innovative behavior is crucial in the workplace. It is the foundation for high service of organizations (Scott & Bruce, 1994; Yuan & Woodman, 2010; Janssen, 2000; Yu *et al.*, 2013; De Jong & Den Hartog, 2010; Carmeli, Meitar, & Weisberg, 2006; Åmo & Kolvereid, 2005). Organizations need the best ideas of individual to see opportunities in change and improvement (Carmeli & Spreitzer, 2009). Therefore, it is important to understand how behavior of individuals in responding an ever increasing of innovations (Choi & Price, 2005).

Along with this line, even though contribution of individual innovation is different from the overall organizational innovation, it is clear that individual innovative behavior has important role on the success of innovation due to it contributes to the organizational innovation. Without individual innovation, organization will have difficulty in achieving organizational innovation (Huang & Wang, 2011). Hence, the degree of fit between individual and innovation is associated with predictions on individual attitudes and behavior in innovation directs to the individual response to innovation (Choi & Price, 2005).

Therefore, this study considers that individual innovation is needed to be investigated more deeply since individual is the main actor of innovation as a means in achieving organization innovation. Thus, innovation of organization can be implemented through an innovative behavior.

2.1.3 Process of Innovative Behavior

Without a powerful innovative behavior process, management cannot effectively listen to the new ideas that mostly come from employees and consequently, the ideas cannot be performed due to they are poor ideas (Ross, 2015). Therefore, a creative leap is needed when talking about innovation since an innovative product is not the result of any new-product-development process. When a creative idea is built into a product and launched in the market, the creative idea needs to be put into practice (Rampino, 2011). However, previous study by Hipp and Grupp (2005) asserted that process of innovation through innovative behavior in the service sector is different from the industrial sector. Innovation by individual in the service sector refers to the intangible services, including the integration of customers and the provisioning process,

organizational aspects and coordination of activities to develop new services. Similarly, Damanpour *et al.* (2009) and Hu (2009) postulated that innovations in the manufacturing sector hold a technological trajectory, which does not hold in the service sector. This leads to the assumption that innovation process in the manufacturing sector cannot be applied to the service sector.

Researchers have their perspective on process of innovation by individual in service sector. Numerous studies identified the stage of innovative behavior process into: accessing new ideas, selecting and developing ideas, implementing ideas and diffusing what works (Hughes, Moore, & Kataria, 2011), generating possibilities, incubating prototyping, replication and scaling up, analysing and learning (Mulgan & Albury, 2003), idea generation, idea promotion, and idea realization (Scott & Bruce, 1994), diffusion (passive deployment), dissemination (effort to convince target team to adopt innovation), implementation (efforts to mainstream an innovation), and sustainability (produce an innovation routine until it will be obsolescence (Greenhalgh *et al.*, 2004).

Specifically, Bland, Bruk, Kim, and Lee (2010) developed a new approach to recognize the process of innovation by individual in the public sector as shown in Figure 2.1. This figure explains that the three stages of process in innovation are idea generation, acceptance and implementation. The first stage confirms that the ideas generated through various personal stimulus or environment in which individuals can play a number of different roles ranging from the role as an initiator to a role as a critic. In the second phase, new ideas were modified and shaped by a variety of stakeholders, organizational routines and external pressure directed against the decision whether those ideas are accepted or rejected. In the third stage, when new ideas are received,

the existing resources and personnel are to be deployed to implement the ideas. Thus, innovative work behavior was begun when individual recognizes the problem to generating new ideas and solutions to promote and develop supporting idea and the last, produces a prototype or model that is suitable for use and benefit the organization (Carmeli & Spreitzer, 2009).

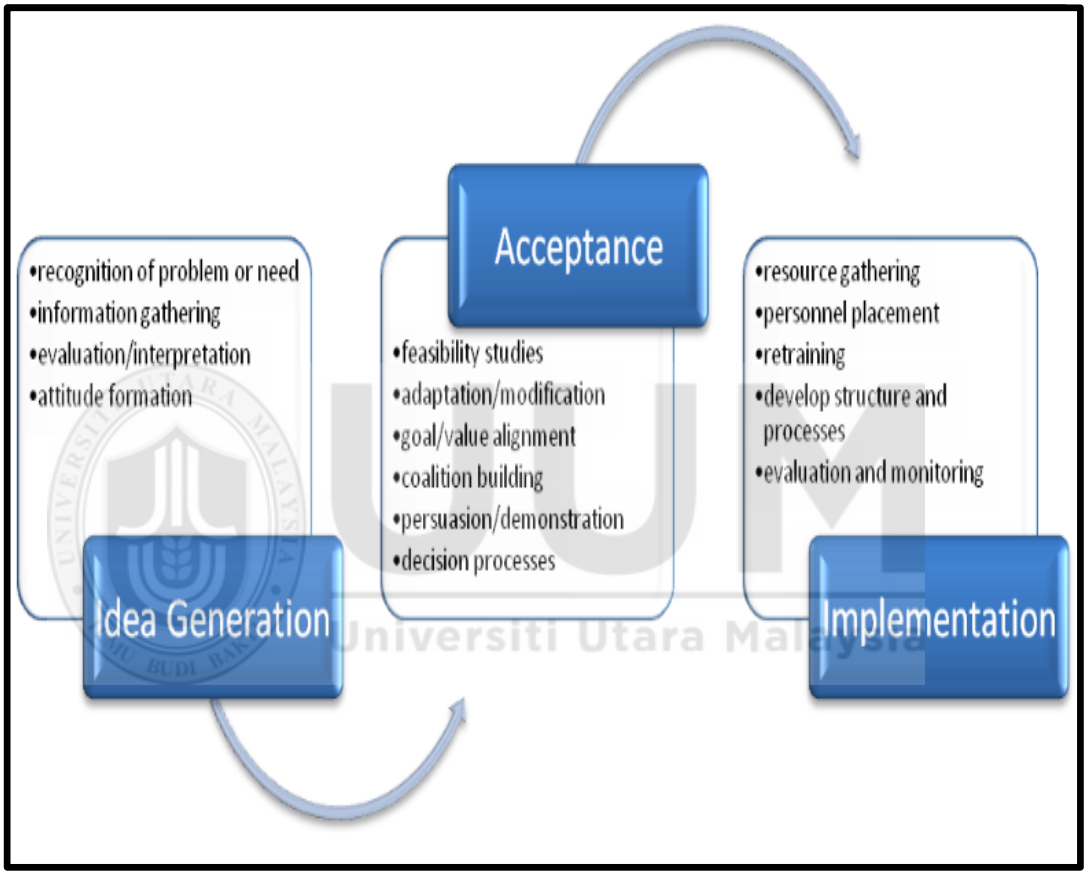

Figure 2.1 The Stages of the Innovation Process by Individual in the Public Sector
Source: Bland *et al.* (2010)

For this study, process of innovation by individual includes three stages. There are idea generation, idea promotion, and idea realization. Firstly, individual begins to generate innovation using the useful and new idea. Secondly, promote individual idea to the potential allies. Finally, produce prototype or model of innovation that can be applied or experienced within a work role, group or organization (Scott & Bruce, 1994; Janssen, 2000).

2.1.4 Innovation in the Public Sector

As in the private sector, currently public sector also realizes that they will just continue to grow and thrive by developing innovation as driving for modernization (Vigoda-Gadot *et al.,* 2008). Public sector innovation is important as citizens satisfaction has been used to measure the performance (Vigoda-Gadot *et al.,* 2008). Some scholars (i.e. Moore, 2005; Moore & Hartley, 2008; Cankar & Petkovsek, 2013; Mulgan, 2014; Lekhi, 2007; Robertson & Ball, 2002) claimed that innovation by individual in the public sector is a key means for the government to improve quality of public service delivery and performance. Even if there are some factors that make innovations difficult to achieve, such as financial pressure, bureaucratic controls and increasing demand from the citizens for better services, innovation is nonetheless important in the public sector since it is the only useful way as a value creating to satisfy citizens by responding to their requests.

Most of the theories and literature related to innovation has been derived from the development of new products which involves technological innovations that can be understood and observed widely. Otherwise, innovation of government and service are becoming more ambiguous (Hartley, 2005). Majority of researchers claimed that innovation in the government is quite different from the private sector (Moore & Hartley, 2008; Wu, Ma, & Yang, 2013). In the private sector, innovation is often seen as a tool to increase competitiveness in new markets or to revive flagging market. While, in public sector, innovation is only justified when it increases public value in terms of quality, efficiency or sustainability for purpose to government or service (Hartley, 2005).

Indeed, implementing innovation in the public sector is complicated compared to the private sector. Public sector organizations have to deal with many challenges. The main issue is this organization is identical with traditional culture. As stated by Bradley and Parker (2000), public sector engages in model of traditional bureaucratic that involve hierarchical culture, although policies are designed by government to drive organizational for the change. It is clear, public sector is under protection of government. Meanwhile, public sector provides services that are not held by the private sector. As a consequence, there is no need for competition (Agolla & Van Lill, 2017).

Therefore, it can be identified that most of barriers and challenges come from internal environment of public sector. This organization is influenced by a very strong cultural bureaucracy such as rules and procedures that causes public sector to be inflexible in running organization operational. For this context, Ministry of Administration and Bureaucratic Reform of Republic Indonesia in regulation No. 15 in 2015 asserted the importance of partnering with citizen and civil society. They confirmed that it is crucial to build partnerships between the public sector, civil society and the private sector in the design and implementation of public services. Borins (2001b) claimed that besides bureaucracy, challenge for public sector to innovate also involves political environment and external environment outside public sector. Thus, there are 3 (three) issues regarding barriers of innovation in the public sector i.e. primarily is bureaucracy and then, because of political aspects and external environment. First, bureaucracy causes negative impact such as skepticism attitudes and hostility, fight or conflict, difficult to coordinate organization, logistical problems, difficult to maintain enthusiasm of staff, difficult to applied new technology, existence of opposing union,

middle manager opposition groups and group opposition on entrepreneurial action. Second, this obstacle stems from the environment i.e. the political aspect, for example inadequate funds or resources, legislative or regulatory constraints, and political opposition. Third, obstacle comes from the outside environment such as public doubts of program effectiveness, difficulties in achieving target group program, opposition influenced by private sector interests, opposition communities, and opposition from private sector unity as producers of innovation who will attack to compete with the public sector.

Also, there are other researchers provide mutual issues for obstacles in the public sector. As proposed by Koch *et al.* (2006), barriers for public sector innovation i.e. size and complexity (complex and large-scale organization can be internal barriers to innovation), legacy (prone to rooted deeply in practices, rules and procedures), resistance of professional communities due to belief system and perspective, risk aversion (public sector under scrutiny of politician and media, then, employees are not rewarded adequately), need for consultation and review changes, innovation fatigued due to there are so various reforms, lack of mechanism for enhancement for learning, public resistance on change, lack of resources such as financial support or relevant skill, technical barriers due to lack technological adoption. Meanwhile, Mulgan and Albury (2003) asserted that these potential barriers include pressure and burdens (there is little space to think differently for service delivering due to dealing with daily service), short-term budget and horizons of strategy or planning that can support organization for innovation, poor skill due to debilitate process of innovation, rewards or incentives to stimulate innovation of civil servant, technological constraint due to organizational arrangements do not support appropriate culture, over-reliance on high

performance is important source for innovation, reluctant to close with failure programmes, culture of risk aversion by balancing appropriate risk and reward.

Finally, this study identified that challenges for innovation in the public sector come from internal and external factor as stated by Cankar & Petkovšek (2013). Indeed, internal factor such as culture has a dominant influence in the public sector. Scholars such as Wynen *et al.* (2013), Kohli and Mulgan, (2010), and Kim and Yoon (2015) asserted that culture of organization determines the success of innovation in the public sector. This statement was supported by previous study by Bradley and Parker (2000) that found four of six public sectors in Queensland has dominant organizational culture towards hierarchical that involving commitment to regulations and attention to technical problems in detail. These four departments are characterized as organizations with a high level of conformity and tend to formal rules and procedures as mechanism of control. Thus, they are not dominated by flexibility and orientation to change that refers to the development of open system (open system). Therefore, generally researchers in the public sector (Vigoda-Gadot *et al*., 2008; Mulgan, 2014; Bradley & Parker, 2000; Albury, 2011; Kumar & Rose, 2010; Sandhu *et al.,* 2011) claimed that bureaucratic is the biggest barrier and challenge for the effective public sector innovation.

In addition, external factor is also important to the success of innovation in the public sector. Some researchers such as McFarlene (2007) and Kamarck (2004) claimed that engaging citizen plays vital role in determining the success of innovation. Citizen has important role when they are boosted to participate in the proposed changes. For example, real grass roots participation is from society of City of Porto Alegre, in

Brazil. This city won an innovative award from the Geutlio Vargas foundation for the program "Participatory Budgeting. People in this city have participated in public meetings designed by the city government for the past decade. Indeed, a World Bank Projects research by Daniel Kaufmann and Lant H. Pritchett found that countries with high levels of democracy and transparency are more successful in state projects than countries with lower levels of democracy (Kamarck, 2004). Most countries attempt to maintain a balance between political influence in government and professional. As in Mexico and Russia, political influence is pervasive that it disrupts the government's performance. However, in countries that with strong and powerful civil service, such as Britain, the political influence of bureaucracy is a constant controversy, then, they have strong civil servants under Prime Minister Tony Blair (Kamarck, (2004).

Further, this study identified that it is crucial to find out and understand critical factors to minimalize challenges and accelerate innovation in the public sector. Moore and Hartley (2008) asserted that innovation in governance must be taken seriously. This is because innovation is changing what will be produced, how new products and services are distributed and how the burden of production is handled. If they do not produce material changes in what is produced and for whom and how to deal with changing social conditions, as a consequence, they will not be able to deliver quality services and satisfy the citizens.

Specifically, Roste and Miles (2005) asserted that there is a striking difference between incentive for innovation by individual in the public sector and the private sector as shown in the following Table 2.1.

Table 2.1
Private and Public Sector Innovation Incentives

Public Sector	Private Sector
Incentives for innovation in the public sector/Individuals: ▪ Prestige ▪ Self-fulfillment ▪ Professional recognition ▪ Potential for spin-off business ▪ Idealism ▪ Career ▪ Power ▪ Money	**Incentives for innovation in the private sector/Individuals:** ▪ Prestige ▪ Self-fulfillment ▪ Idealism ▪ Career ▪ Power ▪ Money (salary, profits, bonuses) ▪ Job security via enhanced company competitiveness and profitability ▪ Imposed requirement

Source: Roste and Miles (2005)

Therefore, researchers have diverse opinions on factors to encourage and accelerate innovation through innovative behavior by individual in the public sector. For example, Borins (2001a) came with comprehensive concept. There are some factors that can be integrated as a strategy to implement innovation. First, support from top management on innovation culture. Second, increasing reward and also incentives for innovative employee. Third, existence of sustainable resources for innovation since it helps fund for innovation program to be sustainable. Fourth, support for diversity and innovation as it creates various opinion and perspective for enhancing innovation. Fifth, learning from outside organization by using workshop, seminar, training, conference and others. since developing learning will encourage for new perspective by collecting or fertilizing ideas to add value. Sixth, building awareness that innovation is obligation everyone by involving middle managers and front-line staff. Seventh, experimenting and evaluating outcomes such as giving lower costs or reward for the staffs who fail and instead provide incentives to those who succeed.

Other researchers also suggested similar factors as elaborated previously. Ahonala, Århus, Barry, Bøtter, Daugulis, Diawara, and Holte (2015) proposed 4 (four)

components for accelerating activity of innovation in the public sector i.e. institutional arrangement for supporting innovation, preparing and developing human resource for innovation, investment (funding) and resource allocation for innovation and cutting red tape: rethinking for regulation and procedures. Meanwhile, Albury (2011) claimed that these factors include culture and leadership, powerful investment for push innovation, rewards and incentive, industry structure, regulation and degree of openness and citizen and user engagement.

However, there are some researchers that highlighted separately these factors. Majority researchers emphasize specifically the importance of factor such as leadership for innovation in the public sector. Previous study by Kim & Chang (2009) found that leadership positively related to innovation. It is the most important factor among others that greatly determines the success of innovations. Leadership style increases capacity of innovation in Korean government organization. Leadership is vital and essential since it determines successful innovation. Furthermore, previous study by Nusair *et al.* (2012) found that transformational leadership positively associated with innovative behavior of employee in the public sector in Jordan. Similarly, Kim and Yoon (2015) also revealed positive influence of transformational leadership on culture of innovation in Metropolitan Government, in Seoul, Korea. A recent study by Wipulanusat *et al.* (2018) revealed leadership for innovation has positive effect on ambidextrous culture for innovation and workplace innovation in public sector in Australia.

Majority of previous studies also emphasized the importance of adequate reward and incentive to motivate civil servant for innovation (e.g., Borins, 2001a; Kim & Chang,

2009; Albury, 2011; Ahonala *et al.*, 2015; Kohli & Mulgan, 2010). As claimed by Albury (2011), applying system of reward and incentive to deploy innovation by individual is actually critical factor for creating condition in order to stimulate innovation. It means, rewards are indeed an important point to accelerate process of innovation. However, Kellough and Lu (1993) asserted that after considering previous experience, there was consensus among administrators and researchers that merit pay in the public sector has failed or unable to obtain desired goals. Merit pay program is generally unable to increase employee job satisfaction or reduce turnover rates. In addition, they claimed that little empirical evidence shows that productivity can be increased by merit pay.

However, it is fact that government does not provide an appropriate reward to civil servant. Majority of researchers have the same view for the issue of reward. As stated by Kim and Lee (2009), environment in the public sector that tends to punish for mistakes and does not provide the best reward in accordance with innovation. Therefore, issue of reward must be a concern of government. Subsequently, reward also should be followed by applying system of punishment appropriately. However, system of reward and punishment will not run well when there is no control dynamic or supervision of management of organization. Although, by increasing control, then organization is considered to be less flexible. Hence, it needs to be balanced between flexibility and control (Stewart, 2014). However, Albury (2011) claimed that money is important for innovation. Nevertheless, the most important than money is how to apply methods and support for discipline to optimize innovation. This condition indicates that reward will not ensure that individual will be motivated to innovate.

Other factors that are considered important by researchers are management support. Kohli and Mulgan (2010) asserted that management support is crucial factor that drives public sector to the innovation. Result of previous studies such as Kim and Lee (2009) and Agolla and Van Lill (2017) found that innovation in the public sector has positive impact on government and management capacity since government designs policies and decisions that support innovative behavior. Management support facilitates worker in the public sector to be motivated in implementing innovation. According to Agolla and Van Lill (2017) and Borins (2001a), management support ensures that work members get support to work optimally in an effort to achieve organizational goals.

Besides all factors previously discussed, attention of researcher on process of innovation by individual in the public sector has increased significantly in recent years. Researchers are interested in exploring the effect of individual empowerment such as individual characteristics for specific behavior i.e. knowledge sharing behavior (Kim & Chang, 2009; Hussein *et al.*, 2016; Kumar & Rose, 2012; Nissen, Evald and Clarke, 2014), Islamic work ethic (Kumar & Rose, 2010; Awan & Akram, 2012; Kumar & Rose, 2012) and entrepreneurial orientation (Park & Jo, 2017; Torugsa & Arundel, 2017; Janssen & Moors, 2013; Miller & French, 2016; Giebels *et al.*, 2016) towards innovation through innovative behavior in the public sector.

This study considers that individual characteristics through specific behavior such as knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation will be a potential factor to solve problem of innovation by individual in the public sector

through innovative behavior. These factors have strong influence to facilitate and accelerate innovation.

2.2 Conceptualization of Knowledge Sharing Behavior (KSB)

Process of innovation requires the use of knowledge to produce and apply something that does not found before or new to the customer (Nusair *et al.,* 2012). Knowledge sharing was recognized as the most important part and a key focus point in knowledge management. This behavior has been the significant aspect in creating and implementing knowledge of organization (Castaneda, Fernández Ríos, & Durán, 2016; Yi, 2009; Hendriks, 1999). Fundamentally, knowledge sharing occurs between individuals. Organization cannot effectively create and transfer knowledge as a resource without individual and team of knowledge as they are as a medium used to disseminate knowledge by way of sharing (Van den Hooff & Van Weenen, 2004; Yi, 2009; Yu *et al.,* 2013). In other words, knowledge is shared by individual as the owner of knowledge, the process of sharing depends on the willingness of individual to share (Rusly, Sun, & Corner, 2014; Yi, 2009).

Therefore, Yi (2009) defined knowledge sharing behavior as a set of behaviors of individual within organization including behavior to share one's knowledge and also one's expertise to others that may contribute to the ultimate of organization effectiveness. Wang and Noe (2010) defined knowledge sharing as the implementation of creating knowledge between individuals by changing knowledge into a structure which can be comprehended, embedded and used by other individuals inside the organization. Similarly, Aktharsha and Sengottuvel (2016), Lee (2001), defined that knowledge sharing behavior as an activity which knowledge such as information,

skills, or expertise is transferred between one people, group and/or organization. Thus, (Henttonen, Kianto, & Ritala, 2016) asserted that the ability of organization to exploit the knowledge depends on its member who is directly involved in sharing, creating and using knowledge.

Meanwhile, numerous researcher (e.g. Van den Hooff & Van Weenen, 2004; De Vries *et al,*. 2006; Al-Shawabkeh, 2017; Lin, 2007; Kamaşak & Bulutlar, 2010; Nugraheni *et al.* (2012); Sandhu *et al.* (2011); Andrawina & Govindaraju, 2009; Rahab *et al.*, 2011; Liao, Fei, & Chen, 2007; Wee, 2012; Goh & Sandhu, 2014; Van den Hooff & de Ridder, 2006), claimed knowledge sharing behavior is an activity to transfer valuable facts, beliefs, perspective, concepts learned through study, observation or personal experience between the donor and the receiver which mutually exchange tacit and explicit knowledge through the process of knowledge donating and knowledge collecting. This definition emphasized the importance of ability or attitude to donate and collect knowledge between individual. Knowledge donating is the willingness of individuals to contribute their knowledge to others. Meanwhile, knowledge collecting is individual's willingness to capture or gain knowledge from others (Van den Hooff and Van Weenen, 2004; Al-Shawabkeh, 2017; Hussein *et al.*, 2016).

Thus, knowledge donating and knowledge collecting are the readiness to both contribute intellectual capital owned and to consult intellectual capital of others (Van den Hooff & Van Weenen, 2004). Thus, knowledge sharing consist of donating or contributing knowledge and collecting (getting) knowledge (De Vries *et al,*. 2006, Van den Hooff, & de Ridder, 2006). Knowing what others actually need to know is expected to positively influence the willingness to contribute knowledge. At the same time, getting a good view on the information needed by others will positively affect

knowledge collecting. Therefore, awareness can be developed on a commitment to knowledge sharing (Van den Hooff & Van Weenen, 2004). Some researchers (e.g. Lin, Lee, & Wang, 2009; Connelly & Kelloway, 2003; Ofori *et al.*, 2015) considered knowledge sharing as a social interaction culture or communication between individual. This interaction is a process to exchange knowledge, experience and skill. Moreover, some researchers defined that knowledge sharing behavior as the degree to which individual actually shares his or her knowledge to others (Bock & Kim, 2002; Ryu, Ho, & Han, 2003; Lee, 2001; Lin & Lee, 2004). Therefore, positive attitudes of individual on knowledge sharing will enhance the propensity of knowledge sharing behavior (Henttonen *et al.*, 2016). In sum, individual behaviors play an important role in knowledge sharing. It will influence in term of ability and action to share knowledge (Yi, 2009).

Given previously definition, this study defined knowledge sharing behavior as a social interaction between individual to transfer facts, beliefs, perspective, concepts learned through study, observation or personal experience in order to improve innovation by individual in the public sector that involved knowledge donating and knowledge collecting.

2.2.1. Knowledge Sharing Behavior in the Public Sector

Some scholars focus on knowledge sharing in the public sector have revealed that knowledge sharing behavior is indeed the most crucial element in the public sector (e.g. Trong Tuan, 2017; Castaneda *et al.*, 2016; Bock & Kim, 2002; Willem & Buelens, 2007; Titi Amayah, 2013; Liebowitz & Chen, 2004; Sandhu *et al.*, 2011; Seba *et al.*, 2012; Wright & Taylor, 2005; Taylor & Wright, 2004; Kumar & Rose,

2012; Yao, Kam, & Chan, 2007). They claimed that improving practice of knowledge sharing behavior can bring benefits as it allows the creation of new knowledge through an exchange of ideas. Besides, it ensures that organizations will still retain the knowledge even though members of the organization are no longer with the organization, due to retirement or resignation. Syed Ikhsan & Rowland (2004) asserted that knowledge sharing behavior in the public sector is needed and must be understood by organizations before they can implement strategies in the public sector. This is because a shared culture can determine the influence of other variables (e.g., technology and techniques of management) on the success of knowledge management implementation.

A study by Wright and Taylor (2005) postulated that knowledge sharing behavior is a key element for achieving quality public service delivery. It is a culture that can positively affect or stimulate innovation by individual. Therefore, knowledge sharing as the main goal of knowledge management in the public sector is to manage knowledge, to strengthen and improve service delivery to the citizens and to perform the public agenda (Wiig, 2002). Internationalized norms is a strong influence on behavior. Knowledge sharing is core behavior in reaching organizational goals. Leaders have a very important role in promoting knowledge sharing behavior on subjective norm. Moreover, there is a need to develop environmental and conditions that support knowledge sharing behavior. This implies that is emergence to facilitate knowledge sharing behavior in public sector. If an individual has perception that organization supports his or her, therefore, this perception will facilitate knowledge sharing behavior in organization. However, this represents a challenge for the human resource leader in public organizations. When individual perceive that his/her has the

ability to share the knowledge, this behavior will enhance that is called as a self-efficacy. Meanwhile, knowledge can not be shared when individual perceives that he or she lack of ability to perform it. Therefore, public sector faces a challenge to conduct the design training program in order to empower knowledge-sharing self efficacy (Castenada *et al.*, 2016).

Specifically, building a knowledge sharing behavior by individual in the public sector as a culture has some unique challenges, including making it an acceptable culture in public agencies (Liebowitz & Chen, 2004). The following are some of the challenges:

1. To develop a "motivation and reward" policy in order to encourage knowledge management and sharing is something that is difficult because the government has limited funds and this can be a barrier for governments to promote knowledge sharing.
2. Government institutions are hierarchical, bureaucratic organizations with many levels. This has led to a long approval process. This has become the driving force for innovation in which knowledge sharing culture is expected to be an important driver.
3. Similar as in the private sector, in many government agencies, members of the organization tend to hoard knowledge because of the perception that, "Knowledge is Power". They are reluctant to share knowledge internally with colleagues in the department and also colleagues outside the department because it is self-defense. They perceive that it will be able to provide a competitive advantage if they have individual expertise. If this knowledge is shared, then, they are less likely to be promoted and rewarded.

Therefore, knowledge sharing in the public sector is a behavior that cannot be imposed on the individual. It is needed to understand the factors that influence them to be willing to share knowledge due to public sector has traditional culture that resists on change (Titi Amayah, 2013). At the same time, scholars have identified models affecting knowledge sharing in the public sector. A study by Kim and Lee (2006) argued that implementation of knowledge sharing in the public sector is affected by three elements: organizational culture (vision and goals, trust among employee, social network), organizational structure (centralization, formalization, performance-based reward system, information technology (IT application usage, end-user focus). Seba *et al.*, 2012 proposed several influencers of effective knowledge sharing in the public sector. These factors positively affect knowledge sharing by involving elements: leadership, organizational structure, trust, reward, time, and information technology. Meanwhile, Taylor & Wright (2004) claimed that there are 4 factors positively influence knowledge sharing in public sector i.e. organizational climate (open leadership climate and learning from failure), infrastructure and process (information quality and performance orientation) and strategy implementation (satisfaction with change process and a vision for a change).

Based on the factors that have been discussed, this study concludes that even though the public sector is a bureaucratic and rigid organization but the application of knowledge sharing behavior in the public sector can also be performed effectively as a private sector or industry considering the same influential factors that have an impact on employee behavior. Thus, to be able to deal with problems related to the implementation of knowledge sharing in the public sector should be by referring to these factors. Titi Amayah (2013) pointed out that despite scholars have proposed

numerous elements that can influence knowledge sharing behavior. In general, there are similar indicators that affect knowledge sharing in both the private and public sectors (Titi Amayah, 2013). As stated by Kim and Lee (2006), both of public and private sector realize that it is important to asses capability of internal knowledge sharing for the success of organization. This implies that the implementation of knowledge sharing in the private sector can also be applied in the public sector.

Organizations should endeavor to embed knowledge sharing in their culture. Behavior is the most crucial aspect of culture. It is believed that effective transformation efforts should aim to produce a series of visible short-term impacts in different parts of the organization. Therefore, organizations have to develop corporate culture that supports norms of group for change in the future rather than avoid it, as it is one of the keys for organizations to succeed (Kotter, 1996). Therefore, nurturing knowledge sharing behavior is an important first step to creating a full-blown knowledge sharing culture (Smith & McKeen, 2003). While, Sandhu *et al.* (2011) found in his study that knowledge positively related to the source of competitive advantage. In this case, organization is viewed as a facilitator to integrate the knowledge that is possessed by the individual. This view encourages the human aspect that involves KM Strategy, human resources and enrichment of the environment that encourage employees to share their knowledge.

There is still debate on the effect of knowledge sharing in the public sector. Considering the literature, theory and previous studies, this study noted that building knowledge sharing culture is important that influences the success of knowledge sharing behavior by individual in the public sector. Supporting culture is very crucial

as it influences individual willingness in engaging knowledge sharing activity. Therefore, public sector should cultivate a culture for knowledge sharing behavior.

2.2.2 Dimensions of Knowledge Sharing Behavior

Some researchers have their own opinions on the element or dimensions of knowledge sharing behavior. Knowledge sharing will only succeed when there is a flow between donor and collector as this is very fundamental as a basic means for individuals in the dissemination of knowledge in order to improve productivity and performance. Therefore, knowledge sharing is a distribution of information that involves action from both sides (Nodari, Oliveira, & Maçada, 2016; Dysvik, Buch, & Kuvas, 2015; Goh & Sandhu, 2014).

Dimension of knowledge sharing behavior involves two aspects i.e. donating (bringing) and collecting (getting). First, knowledge donating is intellectual capital owned by individual to another. Second, knowledge collecting is a behavior to counsel with different individual on the intellectual capital owned. These dimensions comprise of proficiency, think, experience and information that have the different ways and impacts on knowledge sharing behavior (Van den Hoof & Van Weenen, 2004; Andrawina & Govindaraju, 2008; Lin, 2007; Tohidinia & Mosakhani, 2010; Nugraheni *et al.*, 2012; Rahab *et al.*, 2011; Lin, 2007; Goh & Sandhu, 2014; Kim & Lee, 2013; Dysvik *et al*., 2015; Hussein *et al.*, 2016). Therefore, Van den Hoof and Van Weenen (2004), asserted that knowledge sharing as a collective behavior that involved knowledge donating and knowledge collecting. When individuals share knowledge, it will contribute to the collective intellectual capital of organization.

Following the above discussion on opinions regarding the dimension of knowledge sharing behavior, this study holds that knowledge sharing behavior as having two dimensions, namely knowledge donating and knowledge collecting as suggested by some researchers (i.e. Van den Hoof & Van Weenen, 2004; De Vries *et al*,. 2006; Lin, 2007; Kim & Lee, 2013; Dysvik *et al*., 2015; Wee, 2012; Kamaşak & Bulutlar, 2010; Sandhu *et al.,* 2011; Andrawina & Govindaraju, 2008; Tohidinia & Mosakhani, 2010; Nugraheni *et al.,* 2012; Rahab *et al.,* 2011; Lin, 2007; Goh & Sandhu, 2014; Hussein *et al.,* 2016).

2.2.2.1 Knowledge Donating

Knowledge donating is the individual's willingness to deliver their intellectual capital to their partner. Hence, knowledge donating is one's knowledge sharing willingness (Van den Hooff & Van Weenen, 2004; Wee, 2012; Goh & Sandhu, 2014). To ensure success, knowledge donating requires the active participation of individuals to transfer knowledge possessed to other colleagues. By way of donating, then knowledge will be able to develop (Van den Hooff & Van Weenen, 2004; Andrawina & Govindaraju, 2008; Rahab *et al.,* 2011).

Goh and Sandhu (2014) pointed that, for knowledge donating to success, it must consider on the perceived behavior control as it provides influence to individual desire in donating knowledge. Therefore, Hu (2009) asserted that knowledge is power, then it is important to inspire the individual not to hoard and donate their knowledge. However, the impact of knowledge donating also differs depending on where the source of knowledge is obtained from within the organization or from outside. As stated by Van den Hooff and Van Weenen (2004), individuals who work in the same

office have similar values, beliefs and issues. Knowledge donating inside the division will be easier to capture. Hence, knowledge donating outside the office has negative impact on a wide range of innovation, but knowledge donating inside of the office will affect positively innovation of individual.

Furthermore, Van den Hooff and Van Weenen (2004) claimed that knowledge donating actively communicates what one knows to others. Knowledge donating is also a person's intellectual capital with others which means providing benefits through knowledge owned. This activity will increase the ability of individuals to generate new ideas that encourage the creation of innovation (Lin, 2007).

2.2.2.2 Knowledge Collecting

Knowledge collecting is the individual capacity to obtain knowledge in order to negotiate with various individuals in the organization. It is an individual willingness to capture the knowledge based on work proficiency, knowledge, concepts and related to the contextual of their partner (Van den Hooff and Weenen, 2004; Andrawina & Govindaraju, 2009). Thus, knowledge collecting is one's willingness to colleague knowledge (Van den Hooff and Weenen, 2004). Furthermore, knowledge collecting is the development concerning the mechanisms and processes in gathering knowledge and information based on the external and internal sources that involve team or individual knowledge in collecting process (Lin, 2007).

Knowledge collecting has been proven to have a significant impact on innovation by individual. Finding by Kamaşak and Bulutlar (2010) proved that knowledge collecting has a positive and strong effect on the behavior for innovation or innovative behavior

as knowledge was provided by partner can be utilized to create new ideas. In this case, trust is the so important factor for knowledge collecting to success (Goh & Sandhu, 2014). Van den Hooff and Van Weenen (2004) stated that knowledge collecting actively consults with other individuals to know what they know that enable a person to obtain benefit from the intellectual capital of others.

2.2.3 Relationship between Knowledge Sharing Behavior and Innovative Behavior

Knowledge becomes a critical component in the innovation process. Creation of knowledge leads to new capabilities generated in the form of products and services that have value to the market. Knowledge can drive to the innovation in anticipating today's competitive environment (Popadiuk & Choo, 2006). Therefore, it should be noted that promotes knowledge sharing among employees is crucial in enhancing innovation efforts through innovative behavior. Knowledge sharing is helpful in improving service offerings, avoiding service failure and reducing cost in service organizations to support innovation (Mat, Yaacob, & Melhem, 2016). The flow of knowledge allows individuals to build new knowledge and produce innovation (Teresa, Ruiz Moreno, & Carmen Haro Dominguez, 2014; Podrug, Filipovic, & Kovac, 2017). Hence, knowledge sharing could be used to produce new ideas and opinions that lead to innovation (Long *et al.*, 2012).

Generally, theories and empirical studies supported and revealed the significant effect of knowledge sharing behavior on innovation of individual through innovative behavior. Therefore, this study considers that knowledge sharing behavior is an important aspect to improve quality of service. It is crucial to develop culture for

sharing knowledge between individual as this behavior will create a new idea to support innovation in the public sector as a result of idea exchange. Scholars have provided evidence that knowledge sharing positively influences the creation of innovation of individual through innovative behavior. It is an important process in order to support innovation (e.g. Akhtarsa and Sengottuvel, 2016; Hu *et al.*, 2009; Lee & Hong, 2014; MacCurtain *et al.,* 2008; Mura *et al.* 2013; Yu *et al.,* 2013; Aulawi *et al*. 2009). Recent study by Akhtarsa and Sengottuvel (2016) provided evidence that knowledge sharing behavior has a positive and significant effect on innovation by individual. It is the critical aspect of innovative behavior. Knowledge sharing to be a significant predictor for the growth and development of organization due to knowledge sharing of individual facilitate organization to innovate new ideas.

Mura *et al.* (2013) conducted study in health care in Milan, Italy. They found that knowledge sharing is directly and positively associated with higher tendencies to promote and improve capacity in implementing new ideas. In this way, knowledge sharing practice has a direct benefit on higher innovative behavior. Hu *et al.* (2009) also revealed that knowledge sharing positively influences service innovation performance, specifically on individual innovation behavior. Meanwhile, Lee and Hong (2014), found that knowledge sharing behavior positively influences innovation behavior of employee through individual factor and organizational factor. Furthermore, Yu *et al.* (2013) conducted a study in companies of finance and insurance in Taiwan. They found that knowledge sharing behavior has a positive impact directly toward innovative behavior as a result of social interaction among employees. Similarly, Hussain *et al.* (2016) also found that knowledge sharing behavior positively associates to service innovation performance of employees. The effect of knowledge

sharing behavior and team culture on service innovation performance lead to customer satisfaction.

Aulawi *et al.* (2009) successfully provided evidence that the intensity of knowledge sharing behavior has a positive influence on the individual innovation capability. Knowledge sharing and interactive behavior among individual enhance innovative behavior of employee and their ability to create innovation. The study by Long *et al.* (2012) supported that organizations can positively promote a culture of sharing knowledge behavior to foster innovation. The relationship between knowledge sharing enablers, process and organizational innovation, can provide clues as to how the organizational culture, leadership, management support and reward system are very important to help organizations to acquire a knowledge sharing culture that will encourage innovation in the organization. Therefore, organizations that develop a culture of knowledge sharing can also enhance innovation member of organization.

Finally, finding by Rahab *et al.* (2011) showed that the action of knowledge sharing positively has influence on innovation. This indicates that the action of knowledge sharing supports the development of new knowledge of organization. It is very beneficial in order to improve innovation capability. Therefore, Liebowitz (2002) asserted that, in order to anticipate today's rapid changes, organizations need to focus on knowledge of their human capital and innovate, as their success depends on the development of knowledge and innovative efforts.

However, there are still inconsistent findings on the influence of knowledge sharing behavior by its dimension on innovation. Yeşil and Hırlak (2013) revealed that two aspects of knowledge sharing behavior (i.e. knowledge donating and knowledge

collecting) are not significant or there is no positive effect of both these dimensions on innovative behavior of individual. Study by Abdallah *et al.* (2012) found that knowledge collecting and knowledge donating has a negative relationship on innovation. Similarly, study by Hussein *et al.* (2016) also revealed that knowledge donating has negative effect on innovation capability, especially in the public sector such as law enforcement agency in United Arab Emirates (UEA). Further, an empirical study by Kamaşak and Bulutlar (2010) found that knowledge donating has negative or not a significant impact on exploratory innovation. Similarly, finding by De Vries *et al.* (2006) also found that the relationship between knowledge donating and knowledge collecting is unbalanced as the desire to donate knowledge is not stronger than the desire to obtain or collect knowledge from others. Individuals are reluctant to donate their knowledge to colleagues because this activity was perceived as a threat that will spy on their own knowledge.

Similarly, previous study by Andrawina and Govindaraju (2009) found that knowledge collecting of individuals positively become the dominant activity compared to knowledge donating. This indicates that individual still has a passive behavior in sharing knowledge. Individuals just will share their knowledge at the time of his colleagues ask. Recent study by Hussein *et al.* (2016) also revealed that knowledge donating has no effect or negative effect on innovation capability, especially in the public sector such as law enforcement agency in the United Arab Emirates (UEA). In particular, the study by Sandhu *et al.* (2011), found that implementation of knowledge donating in the public sector has negative effect or becomes biased when they are asked to donate knowledge compared to their perception of receiving knowledge from colleagues.

Even though some previous studies still showed inconsistent findings between the effect of knowledge sharing behavior dimensions (knowledge donating and knowledge collecting), generally, theories and empirical studies supported and revealed the positive effect of knowledge sharing behavior on innovation by individual through these dimensions. Therefore, this study considers that both knowledge donating and knowledge collecting is an important aspect of knowledge sharing behavior as the process of sharing knowledge must involve both the provider and the receiver. Therefore, it is crucial to develop a culture for sharing knowledge between individual through knowledge donating and knowledge collecting as this behavior will create a new idea to support innovation through innovative behavior in the public sector as a result of idea exchange.

2.3 Conceptualization of Islamic Work Ethic (IWE)

Work ethic involves norms, traits, attitude, values, beliefs and behavior (Furnham, 1987; McCortney & Engels, 2003). The basic formulation of modern work ethic came from the work of the German scholar, Max Weber, who wrote his books in 1904 and 1905, entitled "Protestant Ethic" and the "Spirit of Capitalism". These books constitute a landmark development on the thinking of work and organizations (Miller, Woehr & Hudspeth, 2002). Rizk (2008) asserted that almost all research on business ethics and work ethics are based on Protestant Work Ethic (PWE) proposed by Max Weber (e.g., Furnham, 1984, 1991; Congleton, 1991). PWE is claimed to have a major role in work ethics and other types of ethics.

Meanwhile, Islam is a collective religion that guides its follower based on Al-Qur'an and Hadith. The concept of Islamic work is to maintain the ethics of its Ummah from the unethical behavior in conducting economic activities. Thus, economic activities

for Muslims really provide benefits, give strength and potential to Muslims (Chanzanagh & Akbarnejad, 2011). IWE is beliefs, norms, rules, practices and principles of Islam on the hard work and commitment to the community contained in the Qu'ran Al-Karim and the Sunnah which confirm the differences between good and evil (Shafique, Ahmad, & Khurshid, 2015; Mohammad, Quoquab, & Omar, 2016; Yousef, 2001; Ahmad & Owoyemi, 2012; Kumar & Rose, 2012; Ali, 1992; Yousef, 2000a, 2000b; 2001; Ali & Al-Owaihan, 2008). As stated by Al-Qudsy (2007), Islamic work ethic is a reflection of good values in Islam whether in behavior, action, mind and even in the heart.

Furthermore, some scholars (e.g. Mahfoudh, Din & Jusoh, 2016; Rafiki & Wahab, 2014) defined IWE as the implementation of "*Akhlaqulkarimah"* based on the main message of God communicated to His Prophet Muhammad (PBUH). Moreover, IWE considers human asset management experts should concentrate on important cravings and needs of individuals and encourage them to do the work for mankind and for human improvement (Awan & Akram, 2012). It is clear that the work ethics in Islam involves the concept of worship to the Creator. Therefore, IWE has a spiritual dimension and connection to the Divine (Ahmad & Owoyemi, 2012).

In this study, Islamic work ethic is defined as a principle, values, concepts, beliefs and norms on hard work which is implemented by individual in behavior, actions and minds sourced from Al-Qur'anul Karim and Hadith to seek Allah's pleasure and meet equilibrium of one's social life and provides benefit for society.

2.3.1. The importance of Islamic Work Ethic

The value of Islamic work ethic is very comprehensive that guides man for the virtue both for the individual and society. Therefore, it is very important for Muslim to apply these values deeply so that actions of immoral or unethical behavior can be prevented. Unethical behavior can be found every time and everywhere. This behavior is certainly very bad and detrimental to others, such as stealing, fraud, conflicts of interest, egoism and so forth. Indeed, it will give a bad impact in the long or short term. Unethical behaviors are no exception in the public sector. There were complaints against corruption, lack of transparency, inconsistency in decision making, abuse of power, difficulty in bureaucracy, dishonesty, favoritism, misuse of asset, information and much more (Al-Qudsy, 2007).

Due to spiritual value of individual in the workplace is rooted in religion, providing religious guidance on ethics will be beneficial in generating professional individuals because deep-rooted of religious values will reinforce in avoiding unethical behavior (Aldulaimi, 2016; Rizk, 2008, Quddus, Bailey & White, 2009; Al-Qudsy, 2007; Mohammed, 2010). Furthermore, the value of goodness in the IWE is clearly stated in the Al-Qur'an (see Table 2.2).

Table 2.2
The Al-Qur' references to Islamic Work Ethic

Subject	Al-Qur'an Verses
Agreements and promises	Ar-Rad 13:25, Al-Qasas 28:28, Yunus 10:71
Consideration for others	An-Nisaa' 4:36, Al-Mumtahina 60:9
Consultation	Ash-Shura 42:38, Taha 20:103, Al-Kahf 18:22
Continuous improvement	Al-Araf 7:42
Cooperation	Al-Hujraat 49:9, Maryam 19:96
Equality and unity	Al-Isra' 17:35
Fairness in dealings	Al-Anaam 6:152, Al-Mumtahina 60:8, An-Najm 53:32, Al-Maida 5:8

Table 2.2 (continued)
The Al-Qur' references to Islamic Work Ethic

Subject	Al-Qur'an Verses
Fairness in wages	Al-Imran 3:57, Saba' 34:37
Hard work	Al-Baqara 2:62; 82, Al-Anaam 6:135
Helping others	As-Saff 61:14, An-Nahl 16:97, Yunus 10:41
Honesty and justice	Al-Baqara 2:177, Az-Zumar 39:2;3
Humble	Hud 11:23
Patience	Hud 11:11
Righteous/Intention	Al-Baqara 2:25; 225, Al-Baqara 2:62, At-Taubah 9:105, As-Saff 61:8, Al-Qasas 28:19
Social order	Al-Imran 3:110, Al-Baqara 2:273
Truth	Al-Anfal 8:27, Yunus 10:61, An-Nur 24:8

Source: Ali (1988)

A study by Ahmad and Owoyemi (2012) claimed that IWE is important in the workplace. It is from Al-Qur'an and the Sunnah of the Prophet Muhammad (PBUH) as follows:

- **Attitude to Wealth**

  The Prophet did not accumulate wealth and use it for personal pleasure to live in luxury. Furthermore, to be rich is not identical to hoarding. In Islam, zakat payment makes all the difference and serves as the purification of treasures.

- **Attitude to Livelihood**

  Prophet Muhammad (PBUH) embraced balance in worship and work. Muslims should be constant in their worship, but also have to work hard to earn a living and survive.

- **Attitude to Time**

  Islam guides that time is an investment. Prophet Muhammad (PBUH) taught Muslims the habit of doing things quickly without delays which could lead to loss.

- **Attitude to Leisure**

  Based on the traditions of the Prophet Muhammad (PBUH), IWE is a balance between hard work and pleasure, such as social activities, sports or recreation. IWE encourages followers to have social relations at work to establish an equilibrium between the individual and social life.

Some researchers (e.g., Abbasi *et al.*, 2012; Awan & Akram, 2012; Kumar & Rose 2010; 2012; Rokhman, 2010; Yousef, 2001) have found evidence that IWE has a positive effect on organization members. It drives them to be more committed to the organization and more satisfied with their job. Furthermore, some principles of IWE have been summarized by some authors as consist of hard work; an equitable and fair distribution of wealth in society; dedication to work as virtue; life without work has no meaning; engagement in economic activities is an obligation; kindness and forgiveness in dealing with employees; advice to Muslims; creativity in service; fairness and justice; integrity; teamwork; obedience; observing dignity and honor of profession; trusteeship; work intention; work type; cooperation and collaboration; perceived worship; effort; and moral responsibility (Yousef, 2001; Chanzanagh & Akbarnejad, 2011; Yaseen *et al.*, 2015).

2.3.2. Dimensions of Islamic Work Ethic

Some researchers have developed their own thinking on the dimensions of Islamic work ethic. Chanzanagh and Akbarnejad (2011) proposed seven dimensions in Islamic work ethic that comprises of work intentions, trusteeship, work type, work results for the Islamic Ummah, cooperation and collaboration, justice and fairness, work as the only source of ownership. Yaseen *et al.* (2015) develop four dimensions of Islamic

work ethic. They are perceived worship, effort, cooperation and moral responsibility. Most researchers also used the dimensions developed by Ali (1988) as many as 46 items. Meanwhile, Ali (1992) suggested seventeen items that can be used as dimensions of Islamic work ethic.

After reviewing aspects or dimensions proposed by some researchers, this study views that in general these aspects have similarities among each other. However, this study considers that Islamic work ethic will be more integrated when divided into 4 aspects or dimensions. They are perceived worship, effort, cooperation and moral responsibility (Yaseen *et al.,* 2015). Values in these dimensions are considered capable to represent all execution of IWE in the workplace in boosting innovation in the public sector.

2.3.2.1 Perceived Worship

Perceived worship means a worship that guides person to perform its obligations sincerely, diligently and patiently (Yaseen *et al.* 2015). Prophet Muhammad S.A.W raised four issues related to work. The first, working in Islam is a worship. Secondly, there are two important aspects of performance in terms of quality and qualification. Therefore, Muslims are required to be able to do their work perfectly and also right. Third, it elevates social aspects and meanings. A good job will benefit and be meaningful to others. Thus, a person in life must provide benefits to others either in a business or a job. Fourth, work or business activity must provide benefits to the public (Ali & Al-Kazemi, 2007).

2.3.2.2 Effort

Efforts are the significant ingredients in serving individuals and society. This behavior or principle will increase productivity and minimize social and economic issues in society as a result of creativity in serving the society. Every Muslim is strongly encouraged to work hard. This leads to the perception that individual is required to get all their goals through effort. In addition, it is also advisable to finish work without delay (Ali & Al-Owaihan, 2008). Meanwhile, Yaseen *et al.* (2015) asserted that effort is an aspect of daily living that provides work motivation in setting and striving to achieve the goals of life.

Furthermore, effort emphasizes that work comes from good intentions. In other words, Muslims are encouraged to get something with good intentions. It does not focus on the benefits or the results due to good results without seeing the intention is not a good attitude. The work should also be done with appropriate effort without delaying a job. Every individual is also encouraged to work hard so that their lives have more meaning or benefit for the society, then, give them confidence. Therefore, everyone is encouraged to achieve goals with effort.

2.3.2.3 Cooperation

Islamic work ethic calls on Muslims to collaborate on all activities, particularly in economic activities. This is one of the results of a special religious collectivity in Islam. It is marked as piety. The spirit of collectivity and unity in Islam has an influence on all aspects of life. A great emphasis on cooperation and collaboration will increase productivity among Muslims (Murtaza, Abbas, Raja, Roques, Khalid, & Mushtaq, 2014; Chanzanagh & Akbarnejad, 2011). Therefore, creative work and cooperation

are considered a glory and a source of happiness (Ali, 1988, 1992). Similarly, Yaseen *et al.* (2015) assumed that cooperation is presumed that work in a team. It is a virtue that gives satisfaction and benefits for the organization member when compared to compete each other (Ali, 1992; Ali & Al-Kazemi, 2007; Ali and Al-Owaihan, 2008).

By working together, all the work will be done more directed to achieve success and generate confidence in work. Cooperation is therefore regarded as a virtue. It also results in satisfaction and benefits. This is in line with the view of Awan and Akram (2012), Islamic work ethic is a concept dedicated to teamwork. This concept encourages Muslim to do work together and collectively rather than working individually. It is important to build groups and teams within the organization by sharing innovative knowledge and ideas with each other in order to lead the success and sustainable intervention of public sector organization. Furthermore, Ali and Al-Owaihan (2008) postulated that trade, and other economic activities are suggested to promote Islamic work ethic. Furthermore, collaboration strengthens all sides of process of innovation that emphasize some different strategies that can be used to facilitate collaborative innovation (Sørensen & Torfing, 2011). Therefore, cooperation will reduce and provide solutions to problems in society. This activity should always be instilled in government organization because it contains good values that will provide benefit to individuals and organizations in doing work or business activity.

2.3.2.4 Moral Responsibility

The concept of moral responsibility emphasizes ethical standards of individual in doing work or business. Work is not just for a profitable, but also as a foundation for salvation in the world and the hereafter. Business activity will not grow well in an

environment that is characterized by harassment and unethical behavior. Irresponsible actions, for example, corruption and harassment will ultimately lead to major obstacles in conducting a business or work that leads to mistrust (Ali & Al-Owaihan, 2008). Negative behaviors are strictly prohibited in Islam. Individuals are encouraged to implement good behavior and forsake all restrictions of Allah S.W.T. Islam leads its people to do as it is advocated in the ethics of Islamic work because such disreputable disgraceful acts will be very harmful to other individuals. Particularly, society is a highly disadvantaged element when public servants engage in immoral acts that are highly reprehensible or inconsistent with ethics in Islam. Therefore, individual in public sector must have moral responsibility that works properly in accordance with ethics for the benefit of society. As stated by Ali and Al-Owaihan (2008), transparency and honesty are important issues that highlight the significance of character and credibility individuals involved in work or business activity. In other words, the moral attitude of the individuals in work or business is a reliable way to keep or avoid scandal.

In this study, individuals are expected to have moral responsiveness through positive behaviors that can be done by improving humanitarian relationships among workers as work is a means to enhance personality and social relations.

2.3.3 Relationship between Islamic Work Ethic and Innovative Behavior

As stated by Yousef (2001) that positive attitude of Islamic work ethic provides benefits for the individual because employee will have a tendency to work hard, have commitment and dedication in working, creatively, working together, having fair competitiveness in the workplace. Indeed, all of these attitudes contribute to

achievement of organization. Empirical studies by some researcher have proved a positive and strong relationship between IWE and innovation by individual through innovative behavior. Islamic ethical values present an impact on individuals' behavior so that they are more committed and dedicated in doing their tasks. Farrukh *et al.* (2015) examined the relationship between Islamic work ethic and capability of innovation by individual. They involved 150 respondents from workers of telecommunication sector in Pakistan. The findings revealed that a positive and significant relationship between Islamic work ethic on innovation capability. The ability of innovation can be achieved through the implementation of value comes from Islamic work ethic. Similarly, previous study by Kumar and Rose (2010) investigated the link of Islamic work ethic and capability of innovation in the public sector in Malaysia by involving 472 officers that have key position in Malaysian Civil Service. They also found that IWE values positively encourage innovation activity. Moral principles, hard work and commitment to society inherent in IWE are also important for individuals to think independently and creatively.

Embracing IWE means that one performs work with honesty, fairness, responsibility, dedication and efficiency. Furthermore, Abbasi *et al.* (2012) conducted study in service sector in Pakistan. As many as 240 employees were included as respondents. They examined the relationship of Islamic work ethic, organizational learning, innovation, and also performance and specifically, how Islamic work ethic affects innovation. They found that IWE is a positive and strong predictor of the innovation through innovative behavior. IWE encourages employees to work better so as to promote innovative work. IWE also promotes innovation within the organization that will ultimately improve organizational performance.

Meanwhile, Awan and Akram (2012) conducted study in public sector organization in Pakistan to explore the link between Islamic work ethic and capability of innovation by using 102 officers as respondents. The finding showed the positive and significant relationship of all variables in Islamic work ethic on innovation of officer of Public sector in Pakistan. The result proves an evidence that innovation is strongly devoted from the Islamic work ethic. Yesil *et al.* (2012) investigated the impact of Islamic work ethic on innovation capability. The study was conducted in Kahramanmaras District, Turkey with distributing questionnaires to 300 companies in this area. The research finding shows the positive impact of Islamic work ethic on innovation ability. The values of Islamic work ethics are capable to foster to innovation capabilities.

Individuals in the public sector play a role to serve the society rather than profit-oriented as in the private sector or manufacture. Therefore, they are more inclined to implement IWE values that lead individuals to be more concerned with community problems. This is in line with study by many scholars, for example, Yousef (2001) examined the relationship between Islamic work ethic, organizational commitment and job satisfaction in 30 organizations in United Arab Emirates by involving 600 individual Muslims. A total of 72 percent of their respondents were employees in government organizations. The study proved that Islamic work ethic positively affects organizational commitment and job satisfaction. Thus, this finding is relevant to the study by Kumar and Rose (2010), Awan and Akram (2012). They found that Islamic work ethic has a positive impact on innovation by individual in Public Sector that is strongly supported by individuals working in service or government organization rather than working in the manufacturing or private organization.

However, some studies found that found no significant relationship between IWE and organizational outcomes. A study by Uygur (2009) revealed that even though the population of Muslim in Turkey is more than 95%, values of Islamic work ethic and principles of Islamic has negative impact on the people in Turkey to nourish devout business. Meanwhile, Meybodi and Dehghani (2016) conducted a study in Yazd Province, Iran by including nurses at the public hospital. They found that there is no significant or negative effect between Islamic work ethic and job satisfaction. Similarly, Jufrizen, *et al.* (2017) also found that Islamic work ethic has no significant or negative impact or on the performance of lecturer through job satisfaction. Another study by Alhyasat (2012) revealed that there is negative effect or no significant effect of values of Islamic work ethic on behavior of organizational citizenship through proficiency, giving advice, responsibility, justice and fairness, integrity and teamwork.

Meanwhile, Rokhman and Hassan (2012) emphasized the importance of organizational justice as underlying principles of IWE due to its influence perception of individual on fairness in organization. They found that Islamic work ethic has a positive impact on organizational justice through three dimensions i.e. distributive justice, procedural justice and interactional justice. However, Farahizade and Belaghat (2013), Amilin *et al.* (2018) found that Islamic work ethic only has a positive effect on two dimensions of organizational justice i.e. procedural justice and interactive justice. Thus, Islamic work ethic has no positive effect on the third dimension of organizational justice i.e. distributional justice. These findings indicated that implementation of Islamic work ethic can not lead employee to the innovative behavior because of the inappropriate reward. They work not to get the grace or blessing of Allah S.W.T. Thus, they give more priority for reward compared to the worship.

2.4 Conceptualization of Entrepreneurship and Entrepreneurial Orientation

Concept of entrepreneurial orientation has received attention in the field of entrepreneurship almost 30 years ago since seminal work of Miller (1983). Attitudes and behaviors embedded in entrepreneurial orientation have been used as a phenomenon that captures a high-level pattern and process of entrepreneurial (Wales, Monsen & McKelvie, 2011). Because of this, some researchers (e.g. Morris, Lewis & Sexton, 1994; Lumpkin & Dess, 2001; Covin & Lumpkin, 2011; Wales *et al.,* 2011) postulated that EO is one of the significant domains in entrepreneurship. It is the attitudinal element of entrepreneurship. Therefore, researchers such as Covin and Slevin (1991), Holt, Rutherford, and Clohessy (2007) claimed that the concept of entrepreneurship is inherent in the model of entrepreneurial behavior. As stated by Nasution *et al.* (2011), entrepreneurship is a process to increase wealth by using innovation and exploit opportunities which require entrepreneurial characteristics. Thus, entrepreneurship is a strategic posture to behave entrepreneurially. This strategic posture includes trends for risk taking, competitive aggressive, proactiveness and product innovation (Covin & Slevin, 1991). Similarly, Morris and Jones (1999) mentioned that entrepreneurship is a process that can be managed with the dimensions of innovativeness, proactiveness and risk taking. Therefore, process of entrepreneurship itself involves the set of characteristics that are crucial to identify an opportunity (Covin & Slevin, 1991; Gupta & Moesel, 2007; Morris, Schindehutte, & LaForge, 2001).

Despite EO is an inherent element in entrepreneurship, previous studies have shown a clear distinction between the concept of "entrepreneurial orientation and entrepreneurship" (Wang & Juan, 2016). Specifically, entrepreneurship is a process

of value creation through the integration of specific resource in order to exploit the opportunity (Stevenson & Jarillo-Mossi, 1986; Nasution *et al.,* 2011). Hence, entrepreneurship is about the ability to identifying opportunities that can generate changes by finding, and exploiting them (Rigtering, Kraus, Eggers, & Jensen, 2014; Matin, Nakhcian & Kashani, 2013).

Meanwhile, some researchers claimed that EO is characteristic of entrepreneurship or entrepreneurial actions. Gupta and Moesel (2007) stated that EO is a tendency and behavior used to introduce changes to the development of resources in order to pursue new opportunities. Kraus (2011) viewed entrepreneurial orientation as entrepreneurial behavior that emphasized innovative behavior. Meanwhile, Huang and Wang (2011) defined EO as behavior that focuses proactively to obtain entrepreneurial opportunities and innovate. According to Rauch, Wiklund, Lumpkin, and Frese (2009), entrepreneurial orientation reflects a unified posture that includes deep-rooted beliefs and values associated with a simultaneous propensity for proactive, risk-taking and innovation. Covin and Slevin (1989) defined entrepreneurial orientation as a combination of innovation, proactive and risky behavior.

However, individual plays an important role as executor or entrepreneur of entrepreneurial actions. Covin and Slevin (1991) viewed the success of entrepreneurial by organization cannot be separated from individuals. It is important to recognize entrepreneurial action in the context of individual level as organization can achieve innovative, proactiveness and risk taking through activities of individual as an organization member (Holt, Rutherford, & Clohessy, 2007). Individual can characterize an organization. Especially, individual behavior allows an effect to the

organization. Hence, the dimensions of EO can be addressed to individuals. The readiness of entrepreneurs to take risks and be proactive that become an important behavior that can drive organization to move forward (Langkamp Bolton & Lane, 2012). Therefore, the entrepreneurial action of individual is defined as the behavior utilized to identify and exploit opportunities, create and develop new ventures (Bird & Schjoedt, 2009).

In this study, EO is attitudinal element of entrepreneurship as propensity behavior of individual in public sector through entrepreneurial actions in order to pursue new opportunities that are characterized by innovativeness, proactive and risk taking. Given that the public sector is an organization that requires tough people with entrepreneurial action in order to change the traditional culture that is inherent and lasting in this organization.

2.4.1 Entrepreneurial Orientation in the Service Sector

Service sector has become a crucial industry that has unique characteristics and challenges compared to other sectors. The advantage of intangible services makes this sector more challenging than tangible output such as goods generated from the industrial or manufacturing. Service sectors are concerned to provide or serve variety demand of customer or user. Customer will be satisfied with the excellent service. Meanwhile, industry or manufacturing sector focuses mainly on the process of producing goods. Thus, service sector directly relies on the human relationship (Wang & Juan, 2016; Durst *et al.,* 2015, Hartley, 2005; Komaladewi *et al.,* 2012).

Due to rapid environmental change, spirit of entrepreneurial orientation becomes vital to create superior value to the customer through various innovations. According to Chell (2013), EO leads to the creativity that lifts people from the present situation to the possible future situation to realize its potential and strive for new innovations. There needs to consider EO characteristics. When individuals have these characteristics, then performance of service innovation can enhance (Wang & Juan 2016). Therefore, service sector absolutely needs individuals with EO that drives to the excellent behavior such as innovativeness, proactiveness and risk taking in order to handle all the diverse demands (Karyotakis & Moustakis, 2016).

EO is needed to support the success of service innovation in order to attract and retain client or customer (Wang & Juan, 2016). Entrepreneurial orientation is the main characteristics of innovation and transformation that leads to a new and unexpected condition. Thus, entrepreneurial orientation becomes a pathway and mechanism affecting organizational performance (Jia, Wang, Zhao, & Yu, 2014; Fang, Yuli, & Hongzie, 2008). Previous studies of some researchers (i.e. Caruana, Ewing, & Ramaseshan, 2002; Diefenbach, 2011; Hassan Al-Dhaafri, 2014; Holt *et al.*, 2007; Tajeddini, 2010; Nasution *et al.*, 2011; Omerzel, 2016; Hernández-Perlines, 2016; George, Robley, & Khan, 2001; Richard *et al.*, 2004; Urban & Streak, 2013; Rattanawong & Suwanno, 2014; Jambulingan *et al.*, 2005), success in revealing entrepreneurial orientation is positively influence innovation in the service sector.

Therefore, this study considers that EO is a critical aspect in the service sector due to anticipate diverse demand from client or customer as shown in Table 2.3. It is urgent for organization to boost an individual to engage in EO. When manufacturing or

industry sector develops this characteristic to motivate individual in achieving high performance, in the service and/or public sector this characteristic is indeed very much crucial. Individual in the service and/or public sector directly serves the client. Hence, the success of service sector is expected to greatly influence by individual who has this characteristic.

Table 2.3
Previous Studies on the Impact of EO in Public Sector and/or Service Sector

Author(s)	Research Setting	Country	Findings
Caruana *et al.* (2002)	Public sector	AUS	Entrepreneurial orientation has a positive relationship on performance of public sector
Diefenbach (2011)	Public Sector	Germany	The relationship between entrepreneurial orientation and public value are positive
Swann (2016)	Public Sector	USA	Entrepreneurial orientation has a direct and positive effect on performance of programme. Meanwhile, EO also has indirect effect to enhance knowledge sharing, interorganizational collaboration and performance of information use
Kim (2010)	Public Sector	USA	Entrepreneurial orientation i.e. risk taking, innovativeness and proactiveness positively foster performance of organizational
Holt *et al.* (2007)	Public Sector	USA	Entrepreneurial orientation by its dimensions plays an important role as a mediating in the relationship between antecedents of individual entrepreneurship (individual characteristics, process, context) and individual outcomes)
Hormiga, Hancock, and Valls-Pasola (2013)	Public Sector	Spain	There is a positive relationship between entrepreneurial orientation through employee propensity to innovative (innovativeness) on entrepreneurial intention
Kearney, Hisrich, and Roche, (2010)	Public Sector	Ireland	Entrepreneurial orientation has a positive relationship on performance of organization in terms of growth and development

Table 2.3 (continued)
Previous Studies on the Impact of EO in Public Sector and/or Service Sector

Author(s)	Research Setting	Country	Findings
Trong Tuan (2016)	Public Sector	Vietnam	Entrepreneurial orientation positively enhance effect of organizational citizenship behavior on knowledge sharing
Khanagha, Dehkordi, Zali, and Hejazi (2017)	Public Sector	Iran	Entrepreneurial orientation has the strongest and positive impact on financial performance in condition of unfavorable environment
Hassan Al-Dhaafri (2014)	Public Sector	Dubai	Entrepreneurial orientation has a positive and significant predictor of organizational performance
Wei-Loon (2013)	Public Sector	Malaysia	Entrepreneurial orientation comprising innovativeness, proactiveness, risk taking, competitive aggressiveness and autonomy are suitably applied in government-linked companies as these components have positive relationship on performance
Bakar and Mahmood (2014)	Public Sector	Malaysia	Three components of entrepreneurial orientation i.e. innovativeness, proactiveness and risk taking have positive relationship with performance
Alanazi (2018)	Public Sector	Saudi Arabia	Entrepreneurial orientation by its dimension has a positive impact on performance of organization through internal environment effectiveness, ability to achieve organization goal and individual self-development
Bbenkele and Madikiza (2016)	Public Sector	South Africa	Entrepreneurial approach has a positive relationship with government institution to assist provincial and national development

Table 2.3 (continued)
Previous Studies on the Impact of EO in Public Sector and/or Service Sector

Author(s)	Research Setting	Country	Findings
George *et al.* (2001)	Banking	USA	Entrepreneurial orientation in organization tends to follow an active networking strategy that leads to enhance performance highly
Llewellyn, Lawton, Edwards, and Jones, (2000)	Public Sector	UK	Entrepreneurial orientation characterized by ethical behavior such as self-interest, coercion and domination, destroying traditions, autonomy, risk taking and equity have a positive impact with process of bureaucratic
Richard *et al.* (2004)	Banking	USA	The relationship between management diversity and firm performance is moderated by dimensions of EO
Omerzel (2016)	Tourism Companies	Slovenia	Entrepreneurial orientation has a positive impact on service innovation
Nasution *et al.* (2011)	Hotels	Indonesia	Entrepreneurial culture has a positive relationsip on innovation and customer value
Tajeddini (2010)	Hotels	German & French	The positive relationship of profit and sales goal achievement, ROI achievement and innovativeness is influenced by entrepreneurial orientation
Hernández-Perlines (2016)	Hotels	Spain	Entrepreneurial orientation influences the performance of hotel
Urban and Streak (2013)	Healthcare	South Africa	Organization with entrepreneurial orientation is a strong predictor of product innovation
Rattanawong and Suwanno (2014)	Tourism Sector	Thailand	Service innovation is indirectly influenced by entrepreneurial orientation, service co-production and information

Source: Author's Literature Review (2001-2018)

2.4.2 Characteristics of Entrepreneurial Orientation

EO in the service sector is made up of different characteristics, for example, Civre and Gomezelj Omerzel (2015) mentioned that EO has two essential characteristics, i.e., risk-taking and proactiveness. Further, Nasution *et al.* (2011) divided characteristics of entrepreneurial orientation into three elements: autonomy, risk taking and proactiveness. Goerge *et al.* (2001) suggested five elements of entrepreneurial orientation: risk taking, proactiveness, innovativeness, autonomy and competitive aggressiveness.

However, concept of innovativeness, proactiveness and risk taking is a solid dimension to measure the degree of entrepreneurship in the service and/or public sector. These dimensions play a significant role in entrepreneurial orientation (Rigtering *et al.*, 2014) that gives a crucial impact on the success of organization as shown in Table 2.4.

As claimed by Kim (2010) that specifically in the public sector, much recent research in public entrepreneurship has been influenced by three dimensional of entrepreneurial orientation i.e. risk taking, innovativeness and proactiveness. Scholars have their own views and opinions on the characteristics of EO in the service sector. However, this study considered that there are three dimensions that can be categorized as characteristics of EO that are very potent in supporting innovation through innovative behavior in the public sector, namely innovativeness, proactiveness and risk taking. These three characters are very appropriate for an environment in public sector in realizing innovation.

Table 2.4

Characteristics of Entrepreneurial Orientation in the Service and/or Public Sector

Authors	Characteristics						
	1	2	3	4	5	6	7
Monteiro, Soares & Rua (2017)	√	√	√				
Karyotakis & Moustakis (2016)	√	√	√				
Kim (2010)	√	√	√				
Abu Bakir (2017)	√	√	√				
Hormiga *et al*, (2013)	√	√	√				
Swann (2016)	√	√	√				
Trong Tuan (2016)	√	√	√				
Wang & Juan (2016)		√	√		√		
Omerzel (2016)		√	√	√	√	√	
Vega-Vázquez, Cossío-Silva, & Revilla-Camacho (2016)	√	√	√	√	√		
Hernández-Perlines (2016)	√	√	√				
Čivre & Gomezelj Omerzel (2015)		√	√				
Zehir, Can, & Karaboga (2015)	√	√	√	√	√		
Rattanawong & Suwanno (2014)	√	√	√				
Rigtering, Kraus, Eggers, & Jensen (2014)	√	√	√				
Urban & Streak (2013)	√	√	√				
Meynhard & Diefenbach (2012)	√	√	√				
Nasution *et al.* (2011)		√	√		√		
Kraus (2011)	√	√	√				
Kim (2010)	√	√	√				
Entebang *et al.* (2010)	√	√	√				
Davis, Greg, Tyge Payne, & Kreiser (2010)	√	√	√				
Monsen & Boss (2009)	√	√	√				
Jambulingan *et al.* (2005)	√	√	√	√	√		√
Gupta & Moesel (2007)	√	√	√				
Goerge *et al.* (2001)	√	√	√	√	√		

Source: Author's Literature Review (2001-2017)

Note: 1 = innovativeness, 2 = proactiveness, 3= risk taking, 4 = competitive agressiveness, 5 = autonomy, 6 = customer orientation, 7 = motivation

2.4.2.1 Innovativeness

There is a lack of clarity to distinguish between innovativeness and innovation. However, there are some researchers that attempt to provide clear boundaries between these two concepts. Hurley and Hult (1998), Axtell, Holman, Unsworth, Wall, Waterson, and Harrington (2000), confirmed that innovativeness and innovation are two different concepts. They emphasized the importance to distinguish between put forward and implementation of idea (innovation). As asserted by Hurley and Hult (1988) and Hult, Hurley, and Knight (2004), innovativeness can be defined as the capacity to produce new product, process or idea. While, innovation can be new product, process or idea. This statement was supported by several past studies. A study by Crisp and Turner (2007) found that attitude or behavioral intention positively influenced attitude toward actual behavior. While, Ajzen (1991) revealed that intention on particular behavior depends on personal motivation of individual. Therefore, Hormiga *et al.*(2013) claimed that embracing innovativeness will motivate to the implement of innovation.

As asserted by Hurley (1995), innovativeness is an aspect that was first formed before the innovation. It is clear that getting attention to boost the creation of new ideas is the main problem or challenge regarding innovation (Van de Ven, 1986). Thus, innovativeness fosters to the innovative behavior that influences organization positively. Past studies by several researchers (e.g. Rattanawong & Suwanno, 2014; Urban & Streak, 2013; Wu *et al.*, 2008; Madhoushi, Sadati, Delavari, Mehdivand, & Mihandost, 2011) revealed that innovativeness positively influences innovation.

Specifically, as confirmed by Meynhardt and Diefenbach (2012), characteristic of public sector by innovativeness tends to be more open, creative and innovative toward innovation. For example, there are some public sectors making an effort to introduce an improvement to the society such as by using seminars, talk, banner, newspaper and others as a strategy in order to be more close and show concern on society to accelerate innovation. Another example, as suggested by Kohli and Mulgan (2010), these public sectors actively involve society participation such as from academician, private, politician and others in order to exchange idea or get feedback or input for the improvement of public service.

Therefore, innovativeness is a propensity or tendency of individual toward innovation (Axtell *et al.*, 2000; Hormiga *et al.*, 2013). Specifically, innovativeness is propensity to embrace and support new ideas, creative processes and experiments to generate opportunities, resource allocation, new products, technological leadership and service to produce new solution to meet customer needs and problems (Stewart, 2014; Hughes & Morgan, 2007; Hormiga *et al*, 2013), willingness and also commitment to pursue, generate, cultivate or adopt new ideas and reconstruction concepts in processes, products or service development (Miller, 1983; Entebang, Harrison, & Run, 2010; Huang & Wuang, 2011; Kim, 2010).

Meanwhile, innovation is implementation, application or introduction of new idea into process, product or procedures to obtain objective organization (Avlonitis & Tzokas, 1994; Damanpour, 1991; Cumming, 1998; Nusair *et al.*, 2012; Åmo & Kolvereid, 2005). Therefore, Aldrich and Ruef (2006) asserted that when individual has propensity to innovate, it will not ensure or imply that this propensity will lead

them to the formation of new venture. As stated by Hormiga *et al.* (2013), application of innovation propensity or innovativeness may be different among public sector.

Previous study of Hurley and Hult (1998) that examined effect of culture of innovativeness on level of innovation in U.S. Government Federal Agency. Result of study showed that when culture of group is represented by openness to new idea, it will be positively related with higher levels for innovation. The greater level of innovativeness, then the greater innovative capacity will be achieved. Thus, the impact of innovativeness on its performance depends on the level of innovation being pursued (Entebang *et al.*, 2010).

In line with previous statements, this study assumes that entrepreneurial orientation through its characteristics namely innovativeness highly support innovation. Individuals characteristics by innovativeness can be ascertained as full of ideas and opinions that encourage innovation. Innovativeness is generated from the propensity to make efforts on new ideas, and depart from established practice (Hansen, Deitz, Tokman, Marino, & Weaver (2011). Indeed, civil servants should be encouraged for innovation propensity or innovativeness to anticipate problems and solutions in serving the society (Karyotakis & Moustakis, 2017). Thus, EO through innovativeness greatly contributes to solving important issues in the public sector (Karyotakis & Moustakis, 2017). Hence, it can be presumed that entrepreneurial action through innovation propensity can be used as a means to foster innovation in public sector. Civil servant should be directed to have the characteristics of innovativeness.

2.4.2.2 Proactiveness

Proactive reflects an aggressive tendency of behavior to capture opportunity that is characterized by actions in anticipating future demand, need or changes (Lumpkin & Dess, 1996; Bateman & Crant, 1993; Hansen, *et al.*, 2011). Furthemore, Bateman and Crant (1993) asserted that individual with proactiveness is not passive recipients. Instead, they can influence their environment. Therefore, proactive behavior will lead individual as a leader and not a follower. Thus, proactive behavior has a perspective towards opportunity-seeking to anticipate the future in order to create changes and environmental capabilities (Lumpkin & Dess, 2001). This implies the need for dynamic behavior, and seek an approach to find the fit opportunity in correlating with rivals (Khalili , Nejadhussein & Fazel, 2013; Voss, Voss, & Moorman, 2005).

According to Salazar (1992), proactiveness public sector is characterized by active search for creative solutions in service delivery, has the initiative to introduce change, implement and respond quickly to opportunities by using the best resources. Proactive public sector must involve many parties such as citizens, political principals and other stakeholders in an effort to find solutions, policies and challenges in service. Public sectors have to strive to be proactive and responsive by involving their environment. However, the proactive public sector can recognize and create opportunities that exist to innovate. Although it is not realistic to expect support from all parties. Yet, this organization should not only wait passively to act when turbulence has been identified. Instead, they must actively respond future demand, need and change of society (Kim, 2010). Thus,

public sector will be able to improve the service to meet the various demands of society by proactiveness through various innovation.

Park and Jo (2017) found that individual characteristic such as proactivity is important for innovation. Proactivity of employee through many activities of human resource positively increases innovative behavior in Korean Government Sector. Further, Park and Jo (2017) asserted that innovation in the public sector will not be possible with employees who are always passive. Although public sector is traditional organizations that always adheres to a strong and rigid hierarchy, it is usually difficult for employees to realize a proactive attitude. However, demand for proactivity in public sector organizations continues to increase due to various changes and uncertainties in the dynamic environment.

This study considers that proactiveness is appropriate for public sector conditions as this organization has to be adapted to various changes of public demand. Proactiveness is urgently needed by the public sector because the civil servant with proactive characteristics is likely to have innovative behavior which certainly may affect innovation in the public sector. These characters are very reliable for a variety of challenges in realizing innovation by individual in the public sector.

2.4.2.3 Risk Taking

Risk Taking is a behavioral tendency or willingness to engage in projects or jobs that have uncertain outcomes or benefits, as well as high profits and looses (Hansen *et al.,* 2011; Stewart, 2014). Risk taking involves taking bold actions by using resources to venture in uncertain environment (Miller, 1983). Recently, the finding

by Craig, Pohjola, Kraus, and Jensen (2014) revealed that entrepreneurial orientation through risk taking characteristic has negative impact on innovation in family firms. On the other hand, innovation in non-family firm can be obtained through risk taking. However, some findings have revealed the positive and significant effect of risk taking on innovation (e.g. Nasution *et al.,* 2011; Omerzel, 2016).

For the public sector, risk taking is required to address the wide range issue related to the society that is always full of risks. Thus, civil servants should be encouraged to be more courageous in taking on the issues. Hence, risk taking implies the ability to control and assess the risks of a business or a job. Therefore, risk taking is an important dimension of entrepreneurial orientation in the public sector. It is associated with risk-taking regarding speculation and strategic decisions, regardless of the possibility that the outcome of the activity is uncertain (Franco & Haase, 2013; Huang & Wang, 2011). However, Mason (2006) stated that risk taking is very rarely found in the public sector. Yet, citizens begin to oppose the status quo in the government. Indeed, laws, procedures and policies have been designed by the government. Thus, workers in the public sector are synonymous with risk aversion. They are reluctant to engage in situations that are very unfavorable for them. Therefore, conducive culture and environment are very influential factor for risk taking.

Referring to the previous findings and theories, this study views that risk taking is very has a positive and significant effect on innovation in the public sector. As we know, public sector is an institution that is highlighted by the society. This

organization requires tough individuals to face every challenge in carrying out the task in serving the society. Therefore, individuals who embrace the characteristics of risk taking will help public sector to improve innovation. When embracing risk taking, civil servant will be more active or not static in the work. They will be braver to take actions in an uncertain environment. This character is certainly encouraging civil servant to be more innovative.

2.4.3 Entrepreneurial Orientation and Innovation in the Public Sector

Specifically in the public sector, researchers found evidence that EO, as the independent variable, has a strong and positive effect on innovation through its characteristics as shown in Table 2.5. High level of EO will provide advantage to organization because it allows to find or create new opportunities to be exploited. EO is very influential in disadvantage and unfavorable environmental condition (Khanagha, Dehkordi, Zali, & Hejazi, 2017). For example, Miller and French (2016) found the positive relationship between entrepreneurial orientation to fulfill mission of organization through innovation of Public Sector Hospital in Canada.

Furthermore, Janssen and Moors (2013) conducted their research to examine the relationships between entrepreneurial orientation and successful development of innovation sustainable. They found the positive effect this relationship to support structural change in Healthcare System in Dutch. Meanwhile, Wynen *et al.* (2013) attempted to test the impact of the EO dimension through autonomy on innovation in Public sector in Belgium, Italy, Netherlands, Hongkong, and Romania. They pointed to a positive influence dimension of EO i.e autonomy on innovation in this

public sector. More autonomy lead agency for more flexibility for using resource, then it will be easier to generate innovation.

Another study by Park and Jo (2017) on the effect of entrepreneurial orientation by its dimension namely proactivity has a positive impact on innovative behavior among employees in Korean Public Sector. They revealed that the positive effect of proactivity since it is antecedents of innovative behavior. Proactivity will enhance innovative behavior through human resource practices. Giebels *et al.* (2016) examine the relationship of EO through proactive personality to solve task conflict for innovation in Public Sector in Netherlands. The finding showed that EO can provide positive effect on innovative behavior of employee. Quinn and Curtney (2016) examined the role of entrepreneurial to encourage innovation implementation in Public Sector in England. The finding showed that entrepreneurial positively supports development of local economies that concern on innovative implementation.

A study by Clark (2016), investigated the link of entrepreneurial orientation and innovation in Public Sector in Nevada and Indiana. The study confirmed the positive relationship between organizational support for innovation on higher risk tolerance. EO and innovation in the public sector provide value to employees, processes, outcomes, generally to the organization and society as a whole (Karyotakis & Moustakis, 2017). Hence, entrepreneurial orientation as an element of entrepreneurship is a means to achieve innovation. However, entrepreneurship in the public sector always involves risks and uncertainties (Meynhardt & Diefenbach, 2012). All innovation in the public sector can have risks, which are

exacerbated by two factors: firstly, innovation in the public sector receives a high level of public scrutiny; and the second factor is the risk to the quality of life of individuals and society (Albury, 2005).

There are many types of risks that occur and should be managed by the government, such as an air crash (accident in the industry or failure of service), flooding (natural disaster), flu pandemics (public health risk), terrorism (direct risk on security), banking crash (economic risk), child protection risks, etc. Such uncertainties are not new but increase tensions between the government and the public. The media always highlights the failure of public sector (Borins, 2001b). Particularly, there are three distinct actors of entrepreneurship in the public sector, namely the stakeholders, entrepreneurs and politicians. These actors optimize the potential of innovation to improve productivity of public sector organizations (Currie, Humphreys, Ucbasaran, & McManus (2008).

Trong Tuan (2016) affirmed that public organizations should integrate the entrenched elements in entrepreneurial into actions that inspire and empower civil servants to the innovative behavior in order to improve sustainable public services. Individuals are essential in the entrepreneurial activity as they are actors that were required to capture and execute entrepreneurial behavior (Holt *et al.,* 2007). Specifically, Roberts (1992) asserted that individuals who run entrepreneurial process in the public sector are referred to as "public entrepreneurs". They are generating, designing and applying of new ideas in public sector practice. Furthermore, Roberts (1992) claimed that implementation of entrepreneurial behavior by civil servant is the creation of novel or innovative ideas, design and

implementation of innovative ideas into public sector practice by individuals within the public such as entrepreneurial actions that generate change in function of production or designing new function of production.

Holt *et al.* (2007) suggested an approach namely integrated model of EO that can be applied to solve issue in entrepreneurial activity at the individual level. The integrated entrepreneurship model involves process, context, individual and outcome. At the process stage, it emphasizes how to facilitate entrepreneurial behavior through the role of leadership and reward support. At the context level, it needs to take into consideration the organizational characteristics in facilitating entrepreneurship i.e. communication climate, organizational perception support and peer perception as it will step into innovation climate. Furthermore, individual characteristics should be a personal impact on the entrepreneur's tendency. In the final stages, the impact of entrepreneurship within the organization will be positively associated with the outcome.

Meanwhile, Hornsby, Kuratko, and Zahra (2002), identified that there are 5 factors that can influence the success of entrepreneurial orientation by a member of organization: appropriate rewards, support from top management, availability of resource, support of organization and risk aversion and tolerance of failure. At the same time, Abu Bakir (2017) conducted study of strategic leadership on employee entrepreneurial orientation in Jordanian Public Sector. The study found that charismatic, change agent and servant style have positive effect on proactiveness of employee. However, it has negative influence or no impact on innovativeness and risk taking. The study suggested that it needs to established innovative public sector

and hold off resource such as finance from bureaucratic environment. Meanwhile, visionary style has negative impact or no significant effect on all dimensions of entrepreneurial orientation. However, Autio, Kenney, Mustar, Siegel, and Wright (2014) asserted that there are six different contexts as a tool that influences entrepreneurial orientation to foster innovation in the public sector i.e. industry and technological context, organizational context, institutional and policy context, social context, temporal context and spatial context.

gTable .2.5
Previous Studies in the Public Sector Investigated Relationship of Entrepreneurial Orientation and Innovation

Authors/Year	Research Setting	Results
Miller and French (2016)	Public Sector, Canada	Entrepreneurial can positively fulfill the mission of the hospital by prioritizing the needs of customers and organizations through innovation
Janssen and Moors (2013)	Public Sector, Dutch	Entrepreneurial orientation as a strategy play positive and significant role for successful development of innovative sustainable to support structural change in healthcare system
Wynen *et al.* (2013)	Public Sector, Belgium, Italy, Netherlands, Hongkong and Romania	Autonomy as one of dimension of entrepreneurial orientation has positive influence on innovation in public organization. More autonomy of managerial directs agency for more flexibility in using resources and then tend to be more free for resource to express and generate innovation
Park and Jo (2017)	Public Sector, Korea	Entrepreneurial orientation by its dimension i.e. proactivity has positive link with innovation in government sector. It is individual's proactivity as antecedents of innovative behavior through many practices of human resource
Giebels *et al.* (2016)	Public Sector, the Netherlands	An increase in task conflicts explains the positive relationship between a proactive personality and innovative employee behavior
Torugsa and Arundel (2017)	Public Sector, Europe	It is crucial to review positive link between dimension of entrepreneurial orientation namely risk aversion and innovation in the public sector. There is crucial to change conventional mindset of worker on culture of risk aversion

Table 2.5 (Continued)
Previous Studies in the Public Sector Investigated Relationship of Entrepreneurial Orientation and Innovation

Authors/Year	Research Setting	Results
Quinn and Courtney, 2016	Public Sector, England	Public sector positively may be seen as a legitimate entrepreneur for development local economic that focus on innovative implementation of space and also infrastructure
Clark (2016)	Public Sector, Nevada and Indiana	The results show the positive relationship between organizational support for innovation on higher risk tolerance
Manimala, Jose, and Thomas (2006)	Public Sector, India	Process of innovation such as conception of idea, development and implementation, and integrating existing portfolio of business is positively and naturally in process of organization which requires behavior of entrepreneurial or intrapreneurial among workers as a resource of organization. Entire process leads to the culture and adequate system to encourage workers are motivated to engage in intrapreneurial ventures

Source: Author's Literature Review (2006-2017)

2.4.4 The Role of Entrepreneurial Orientation as Moderating Variable

This study will attempt to establish the moderating role of EO in the relationship between knowledge sharing behavior, Islamic work ethic and innovative behavior. Entrepreneurial orientation, as a moderating variable in this study, is considered appropriate. In line with Social Exchange Theory and Social Capital Theory, it is clear that innovative behavior can be achieved by using the result of a change of personal behavior or individual characteristic and social interaction between individual. Organizations can get benefit from social exchange and social interaction between individual by creating, acquiring and leveraging the behavior of organization member by using entrepreneurial orientation. innovative behavior and entrepreneurial orientation are vital to the change process in the public sector (Karyotakis & Moustakis, 2017).

EO can be utilized as the means to respond to environmental changes (Lumpkin & Dess, 2001) in the public sector, such as legislative, technological, social, economic and physical changes (Lekhi, 2007; Akenroye, 2012; McFarlene, 2007). EO reflects on the extent to which the organization is innovative. It allows members of the organization to devote themselves more actively and aggressively innovating through the characteristics of innovativeness, risk taking and proactiveness (Wu *et al.*, 2008). Specifically, researchers have examined the relationship between EO and innovation in the public sector. They have found evidence that EO, as the independent variable, has a strong and positive effect on innovation through its characteristics (see Table 2.5). However, this study also attempts to present evidence on the significant effect of EO as a moderating variable in enhancing innovation (see Table 2.6). Al-Nuiami, Idris, and Moh'd AL-Ferokh. (2014)

provided empirical evidence of the moderating effect of EO on the relationship between environmental turbulence and innovation performance in five-star hotels in Jordan. Furthermore, Li *et al.* (2009) conducted their research to examine the relationships among knowledge leveraging activities, EO and innovation from a Chinese business context and found that EO enhances or moderates the relationship between intra-firm knowledge sharing and knowledge application in enhancing innovation. Ahlin, Drnovsek, & Hisrich (2012) attempted to test the impact of the EO dimension of entrepreneurs' proactivity on market information use and innovative performance of SMEs in the United States and Slovenia, They pointed influence of entrepreneurs' proactivity on market information use and innovation performance. Entrepreneurs who are more proactive are more responsive to new information than others.

Another study by Ahlin, Drnovšek, and Hisrich (2014) to determine the moderating role of entrepreneurial self-efficacy between entrepreneurs' creativity and firm innovation from two distinct economies: the United States and Slovenia. They suggested that entrepreneurial creativity affects the level of innovation outputs. The relationship is moderated by the strength of an entrepreneur's perceived self-efficacy beliefs. Wu *et al.* (2008) attempted to examine the moderating role of EO between intellectual capital and innovation in manufacturing and non-manufacturing firms in Taiwan. The finding showed that EO act as a moderator that increase effect of intellectual capital on innovation.

Cai, Liu, Zhu, and Deng (2015) examined the moderating role of entrepreneurial support polices that link market orientation and technological innovation with a sample of 248 new venture firms, respectively, from the Southeast and Northeast

cities of China. The finding shows that entrepreneurial support policies strengthen the relationship between responsive market orientation and radical innovation. A study by Giebels *et al.* (2016) investigated the moderating effect of entrepreneurial orientation through its dimension namely job autonomy. This study was conducted in 35 departments of a large municipality in the Netherlands. They confirmed the positive relationship between a proactive personality and innovative employee behavior was moderated by entrepreneurial orientation through job autonomy.

Based on Table 2.5 and 2.6, the literature supports a strong relationship between EO and innovation. It also shows the role of entrepreneurial orientation as a moderator on innovation. Thus, the moderating effect of entrepreneurial orientation will serve as an impetus for increasing innovation (Wu *et al.,* 2008). Past study by Awan and Akram (2012) suggested that it is needed to examine other variables that can nourish effect on innovation by individual. Their study found the weakness of the relationship between Islamic work ethic and innovation by individual when it was moderated by knowledge sharing behavior. Therefore, some researchers suggested to examine EO as moderator between the relationship of knowledge sharing, Islamic work ethic on innovation of individual through innovative behavior (Li *et al.*, 2009; Yang *et al.*, 2010; Awan & Akram, 2012; Farrukh *et al.,* 2015; Kumar & Rose, 2012). In addition, there are only a few studies using EO as a moderator. Therefore, this study provides justification for using EO as a moderator to examine the relationship between KSB, IWE on IB.

Table 2.6

Previous studies Investigated the Role of Entrepreneurial Orientation as Moderator on Innovation

Authors/ Year	Research Setting	Independent Variable	Moderating Variable	Dependent Variable	Results
Giebels *et al., 2016*	Public Sector in 35 departments of a large municipality in the Netherlands	Proactive Personality	Job Autonomy (Dimension of EO)	Innovative Employee Behavior	The process of the association between proactive personality and task conflict is moderated by job autonomy. An increase in task conflicts explains relationship between a proactive personality and innovative employee behavior.
Li *et al.*, 2009	607 Chinese Firms	Knowledge Management	Entrepreneurial Orientation	Innovation	EO moderates the relationship between knowledge management and innovation
Al-Nuiami *et al*., 2014	Five-star Hotels in Jordan	Environmental Turbulence	Entrepreneurial Orientation	Innovation Performance	Entrepreneurial Orientation, plays indirect role as a moderator in the relationship between environmental turbulence and innovation performance
Wu *et al.,* 2008	Manufacturing firms and non-manufacturing firms in Taiwan	Intellectual Capital	Entrepreneurial Orientation	Innovation	The characteristics of risk-taking, innovativeness and proactiveness have a strong moderating effect on the relationship between intellectual capital and innovation

Table 2.6 (Continued)

Previous studies Investigated the Role of Entrepreneurial Orientation as Moderator on Innovation

Authors/ Year	Research Setting	Independent Variable	Moderating Variable	Dependent Variable	Results
Ahlin *et al.*, 2012	SMEs from the United States and Slovenia	Market Information	Entrepreneur's Proactivity (Dimension of EO)	Innovative Performance	Entrepreneurs who are more proactive, then they are more responsive to new information than others; which enhances influence on SMEs' innovation performance and product innovation
Ahlin et al., 2014	Small and medium firms from two distinct economies: the United States and Slovenia.	Entrepreneurs' creativity	Entrepreneurial self-efficacy	Firm innovation	Entrepreneurial creativity enhances the level of innovation outputs. The relationship is moderated by the strength of an entrepreneur 's self-efficacy beliefs.
Cai *et al.*, 2015	248 new venture firms respectively from Southeast and Northeast cities of China.	Market orientation	Entrepreneurial support policies	Technological innovation	Both responsive market orientation and proactive market orientation are positively related to radical and incremental innovation in new venture firms; and the direct effects are moderated by entrepreneurial support policies in a transitional economy

Source: Author's Literature Review (2008-2017)

2.5. Underpinning Theory of the Study

In this study, the underpinning theory is based on the Social Exchange Theory and Social Capital Theory which is explained as follows:

2.5.1 Social Exchange Theory

Innovative behavior is a process that involves generation and implementation of ideas that demands the specific behavior of the individual as the main actor of innovation. Highly desirable that the individuals involved in the innovation process possess all the behaviors to support innovation (Scott & Bruce, 1994). It is necessary to have an individual who has such positive behavior on innovation. To encourage innovative behavior, it takes the willingness of individuals to improve behavior or personal characteristics. Indeed, the tendency toward innovative behavior is the result of social exchange between individual within an organization. As stated in Social Exchange Theory (SET), a behavioral exchange is a very significant social process between the individuals or groups (Blau, 1964).

Innovation of individual demands a cognitive and social effort that is basically related to idea generation, idea promotion and idea realization (Janssen, 2000). Hence, individual exchange behavior as a social interaction effort directly leads to innovative work behavior. The behaviors of the individual who is responsible will contribute to the effectiveness of an organization that boosts to the innovative and creative behavior on idea exchange. As stated by Settoon, Bennett and Liden (1996), any exchange relationship can affect behavior and attitudes differently. There is a need for multiple exchange relationships by both employees and organizations. Employees secure various

forms of resources and support from each exchange relationship, and the organization benefits from the various attitudes and behaviors of the desired employee associated with each exchange relation. Any exchanges of relationships can be attributed to different employee behaviors.

Social relationships that occur in each individual cannot be explained in terms of rewards because it depends on the strength of relationship of exchange and depends on the interests or motivation of each individual (Blau, 1964). However, the greater the group member or individual changes into the behavior of the other group members or individual, the exchange activity becomes more valuable. The more they feel that the exchange of behavior is beneficial, the greater their tendency toward that behavior (Homans, 1958).

SET views positive on the personal exchange behavior such as knowledge sharing behavior. SET directs a mechanism that leads to innovative work behavior. Sharing knowledge benefits individuals because there is a mutual norm between the recipient and the donor. The results of these activities lead to the promotion and application of new ideas through the incorporation of old knowledge into new forms that can be translated as new ideas into innovation (Mura *et al.,* 2013).

In the same vein, IWE and EO as the inputs that are a voluntary behavior to create innovation. These attitude, value, norm and behavior are aspects related to the innovative behavior as these behaviors have a critical effect on the innovation. Thus, according to the SET that implementation of IWE and EO effectively benefit to the organization as a whole. Individuals who have a high value on work orientation such as

Islamic work ethic will have and take actions on innovative behavior. In this context, entrepreneurial orientation also can be categorized as a behavior that has a positive impact on innovation. Therefore, it can be confirmed that according to the SET, integration of knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation can drive individual to the innovative behavior through an individual exchange behavior.

2.5.2 Social Capital Theory

The concept of Social Capital Theory refers to the relationships between individuals that affect their behavior that enable them to fulfill social motives (Nahapiet & Ghoshal, 1998). These relationships are manifested in shared attributes or paradigms that facilitate common understanding to access specific resources (Tsai & Ghoshal, 1988; Nahapiet & Ghoshal, 1998). However, some experts argued that social capital is not only a relationship, but also the norms and values associated with them (Tsai & Ghoshal, 1988).

Social capital confirms that social interaction among individuals will create new values with reference to common interest and also mutual understanding. Through social interaction, individuals will gain access to resources owned by others as individuals have more opportunities to exchange or combine resources with peers. Thus, social capital theory facilitates integration and exchange of resource. In other words, social capital contributes to innovation within the organization (Tsai & Ghoshal, 1988). Similarly, Albrecht and Ropp (1984) asserted that social activity will aid innovation within the organization as innovative work behavior has a close relationship with social

capital. Individuals involved in social capital will change their behavior to be more innovative as a result of social activities.

Nahapiet and Ghoshal (1998) mentioned that social interaction between individuals will create new knowledge. In this case, Brown and Duguid (2000) stated that when an individual has the same understanding, knowledge will flow smoothly. Indeed, this has an impact on the creation of social networks to exchange knowledge that supports innovation. As stated by Wu *et al.* (2008) social capital plays an important role in supporting innovation. Moreover, McElroy (2002) confirmed that innovation is a social process. According to the social capital theory, integration of individual specific behavior such as knowledge sharing, Islamic work ethic and entrepreneurial orientation as a social process that occurs in social interaction or socialization activities. Therefore, social interaction is important as a catalyst on innovation by individual through innovative behavior.

2.6. Theoretical Framework

Figure 2.2 shows a theoretical framework of the study. A theoretical framework is an important step as it is the foundation of the research process on which the entire research project is based. The theoretical framework is developed to explain, describe and elaborate the relationships among the variables that are considered relevant to the study. It is identified through processes, such as interviews, observation and literature review (Sekaran, 2003; Kumar, 2011). Consequently, this study shows the link between the independent variables (KSB and IWE) on the dependent variable (IB). It also explains the role of EO as a moderating variable.

This study has two independent variables that are shown in the theoretical framework. The first one is knowledge sharing behavior (KSB) with two dimensions namely knowledge donating and knowledge collecting. The second independent variable is Islamic work ethic (IWE) that has four dimensions namely perceived worship, effort, cooperation and moral responsibility. Meanwhile, innovation is the dependent variable. In order to examine the relationship between KSB and IWE on IB, this study will endeavor to establish EO as a moderator in achieving innovation thorugh innovative behavior (see figure 2.2).

Specifically, this study highlights the importance of resources that are vital to the success of innovation by individual in the public sector. Integration of resource such as specific behavior (e.g. knowledge sharing behavior) will boost individual to involve in innovation through innovative behavior. Following to the rationale of behavioral theory (i.e. Social Exchange Theory and Social Capital Theory), behavior exchange and social interaction will provide value and mutual benefit between individual (Blau, 1964, Tsai & Ghoshal, 1988). Thus, behavior exchange and social capital have an important role in fostering innovation. Positive behavior resulted from these activities will improve innovation of public sector (De Vries *et al.*, 2014).

Thereby, it can be presumed that the integrated application of KSB, IWE and EO will help individual to become more innovative. Therefore, these resources (KSB, IWE and EO) have become important asset to support innovation of individual in the public sector through innovative behavior.

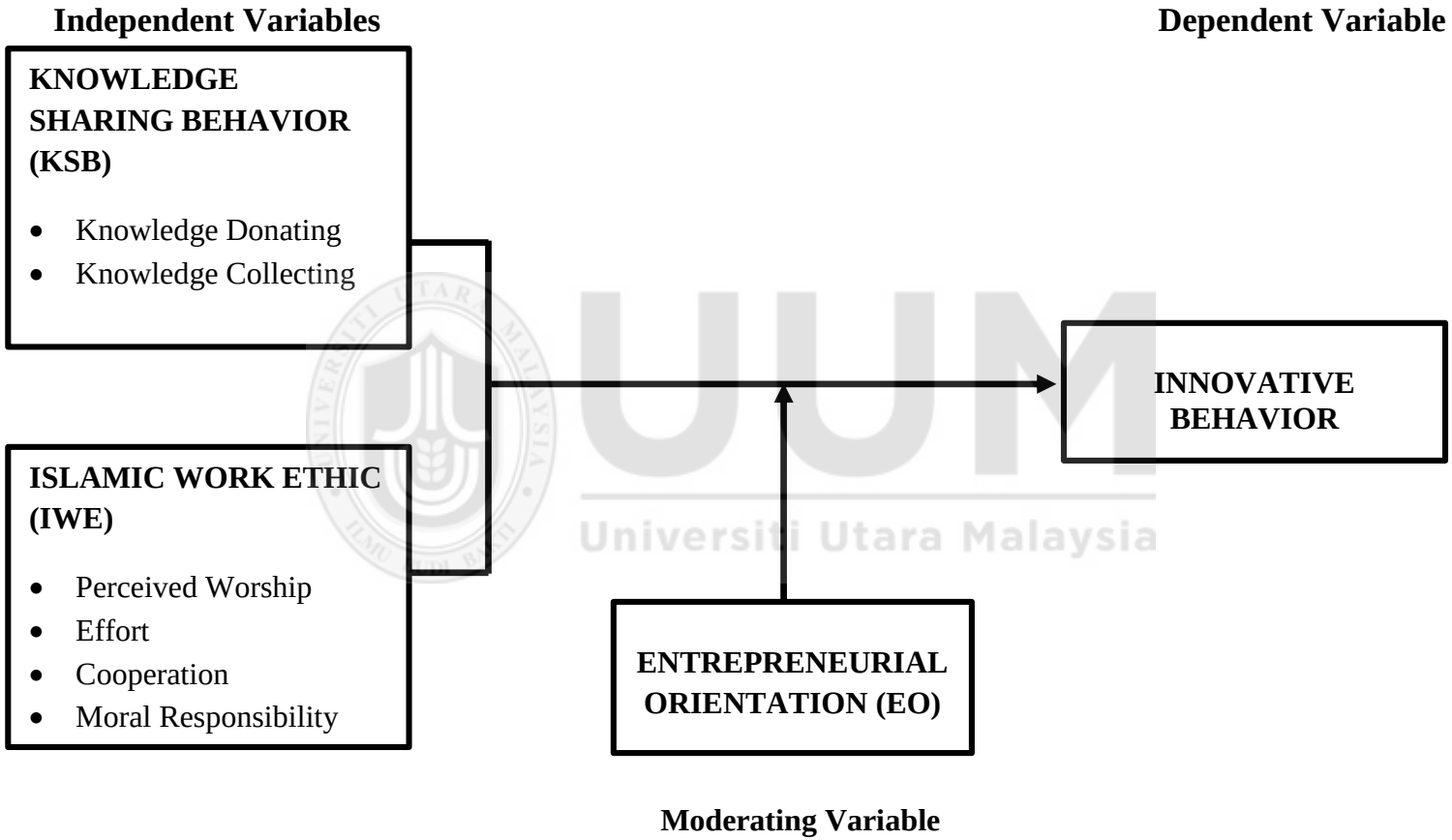

Figure 2.2
Theoretical Framework of the study

2.7 Research Hypotheses Development

Hypotheses are testable statements. Researchers should test whether the relationships that have been theorized hold true based on facts. Testing the relationship among the important variables must be conducted through appropriate statistical analyses to obtain reliable information on the type of relationship between the variables tested. Researchers must investigate if the relationship based on the theory is valid or not in order to obtain credible information on the type of relationship between the variables used to solve the problems (Sekaran, 2003). Based on the theoretical framework, this study formulates hypotheses to investigate the link between KSB, IWE, EO and IB.

2.7.1. The Effect of Knowledge Sharing Behavior on Innovative Behavior

Numerous studies (e.g. Hu *et al.*, 2009; Podrug *et al.*, 2017; Lee & Hong, 2014; Kumar & Rose, 2012; Yu *et al.*, 2013; Hussain *et al.*, 2016; Connelly & Kevin Kelloway, 2003; Ofori *et al.*, 2015; Rahab *et al.*, 2011; Lasisi, Dabiri & Shodiya, 2015; Long *et al.*, 2012) found that knowledge sharing is one of the most critical behaviors. This individual behavior significantly affects innovation through innovative behavior. According to Awan and Akram (2012), the establishment of a knowledge sharing behavior can drive the organization toward changes in the workplace for sustainable development through the creation of new ideas of individual (Awan & Akram, 2012; Yu *et al.*, 2013).

Thus, innovative behavior is achieved through an exchange of knowledge among members of the organization that emerged new ideas and concepts to the birth of innovation. Employees with high levels of knowledge-sharing behavior tend to be more innovative (Hu *et al.*, 2009; Yu *et al.*, 2013). Knowledge sharing builds

individual expertise that is relevant to the innovation process of individual. The specific skills gained from knowledge sharing behavior are needed in innovation (Scarbrough, 2003). This demonstrates that innovation through innovative behavior can be attained through KSB. As stated by Yu *et al*. (2013), knowledge sharing behavior among workers should proactively strengthen workers understanding on innovation. According to Hussain *et al.* (2016), high performance of service innovation can be achieved by developing knowledge sharing behavior within individuals due to this activity has positive impact on innovation.

Meanwhile, some researcher (Tohidinia & Mosakhani, 2010; Van den Hoof & Van Weenen, 2004; Lin, 2007; Nugraheni *et al.*, 2012; Rahab *et al*., 2011) claimed that there are two dimensions that strongly affect knowledge sharing process. They are knowledge donating and knowledge collecting. Therefore, knowledge sharing process will not work if it involves only one party. Active participation from both parties (knower and knowee) is required to voluntarily exchange their knowledge. Lin (2007) revealed that employee willingness to donate and collect knowledge was found strongly related to innovation capability. An organization that has the ability to gather and integrate knowledge tends to sustain high degree of innovation capability. It should be noted that employees' willingness to obtain knowledge and willingness to contribute their knowledge to colleagues including work-related experience, expertise, know-how, skills and contextual information from or to other employees can impact positively on service innovation. Therefore, managers should create a suitable environment that gives special attention to employees' willingness to collect and donate knowledge with colleagues and customers, to learn new capabilities, experience

and skills that enhance service innovation through innovative behavior (Mat *et al.*, 2016).

Thus, KSB is believed to be a significant way to innovate (Smith & McKeen, 2003). KSB is a key component for instilling an innovative culture (Lin, 2007; Sa'enz, Aramburu & Blanco, 2012; Awan & Akram, 2012) that involved knowledge donating and knowledge collecting (Van den Hoof & Van Weenen, 2004; Lin, 2007). Therefore, it is hypothesized that:

H1 : Knowledge sharing behavior has a significant and positive effect on innovative behavior

H1-1 : Knowledge donating behavior has a significant and positive effect on innovative behavior

H1-2 : Knowledge collecting has a significant and positive effect on innovative behavior

2.7.2 The Effect of Islamic Work Ethic on Innovative Behavior

IWE has been revealed as an important factor that supports innovation by individual through innovative behavior due to its contributions. Similarly, Awan and Akram (2012) and Youssef (2000) supported that the significant relationship between IWE and innovation as innovative work is a virtue under IWE values. Some empirical studies have provided evidence that Islamic work ethic plays significant roles on innovation of individual through innovative behavior (e.g., Awan & Akram, 2012; Abbasi *et al.,* 2012; Farrukh *et al.,* 2015; Kumar & Rose, 2010; 2012). It was claimed that IWE values positively encourage innovation by individual that can be achieved

through the values inherent in IWE such as perceived worship (Ali, 1987, 1992; Ali & Al-Owaihan, 2008; Ali & Al-Kazemi, 2007), effort (Ali, 1987, 1992; Rokhman, 2010; Beekun, 1996; Ali & Al-Owaihan, 2008; Ali & Al-Kazemi, 2007), cooperation (Ali, 1987; 1992, Ali & Al-Owaihan, 2008; Ali & Al-Kazemi, 2007) and moral responsibility (Ali, 1987; 1992, Ali & Al-Owaihan, 2008; Ali & Al-Kazemi, 2007; Rokhman, 2010; Beekun & Badawi, 1999). Consequently, strong value of IWE contributes greatly to individual capabilities to innovate that will give positive impact to employees in increasing commitment (Kumar & Rose, 2010). Therefore, Mahfoudh *et al.* (2016) asserted that values of IWE are an essential aspect that can be used to support organization in order to enhance ability to innovate.

According to Yaseen *et al.* (2015), these four aspects of IWE values are significant determinants that have a direct effect on individual. Perceived worship indicates that work is worship, then, it must be done diligently and patiently. This positive behavior is able to encourage individual motivation to work sincerely so as to lead the birth of innovation. Effort is believed can drive individual to be more innovative. Individuals were suggested to work hard and strive with maximum capacity in reaching the goal. Someone who works hard will certainly make various efforts. In order for these effort to succeed, they will do a variety of innovations. Cooperation is the most important element in Islamic work ethic. Individuals are encouraged to work together to make it easier for them to do their jobs. With these conveniences, innovation will be further enhanced due to cooperation. Meanwhile, moral responsibility can be interpreted as avoiding unethical behavior. With Islamic work ethic, individuals will be more responsive and care for their environment so as lead individuals to become more innovative. Therefore, it is hypothesized that:

H2 : Islamic work ethic has a significant and positive effect on inovative behavior

H2-1 : Perceived worship has a significant and positive effect on inovative behavior

H2-2 : Effort has a significant and positive effect on inovative behavior

H2-3 : Cooperation has a significant and positive effect on inovative behavior

H2-4 : Moral Responsibility has a significant and positive effect on inovative behavior

2.7.3 The Moderating Effect of Entrepreneurial Orientation (EO)

Previous studies have revealed that EO as an independent variable has a strong effect on innovation in the service sector (Rattanawong & Suwanno, 2014; Monteagudo & Martínez, 2015; Omerzel, 2016; Kraus, 2011; Tajeddini, 2010; Nybakk & Hansen, 2008; Urban & Streak, 2013; Čivre & Omerzel, 2015). Also, past studies have found that EO has moderating effect on innovation in general (e.g., Li *et al.,* 2009; Al-Nuiami *et al.,* 2014; Ahlin *et al.,* 2012; Ahlin *et al.,* 2014; Giebels *et al.,* 2016).

Organization may not survive in today's rapid changes unless performing innovation which requires an entrepreneurial competence. Thus, organization has to learn how to survive and growth through innovation by becoming more entrepreneurial orientation (Bhattacharyya, 2006). Entrepreneurial orientation allows companies to return to their internal and external abilities in a rapid environment change so organizations become dynamic and adaptive (Yang *et al.,* 2010). It is claimed that entrepreneurial orientation can provide assistance to strengthen effective knowledge sharing that lead to innovation. Therefore, EO is an important aspect that can improve the relationship between knowledge sharing and innovation through its moderating effect (Li *et al.,* 2009). This will certainly has an important influence on innovation. It implies that entrepreneurial orientation plays an important role as a moderator. EO can be a

moderator for relationships among behaviors such as knowledge sharing behavior, Islamic work ethic due it is internal abilities that can support innovation of individual through innovative behavior (Li *et al.,* 2009; Yang *et al.,* 2010).

Therefore, this study proposes EO as a moderating variable in the link of KSB, IWE and IB. It is therefore hypothesized that:

H3 : Entrepreneurial orientation moderates the relationship between knowledge sharing behavior and innovative behavior

H3-1 : Entrepreneurial orientation moderates the relationship between knowledge donating and innovative behavior

H3-2 : Entrepreneurial orientation moderates the relationship between knowledge collecting and innovative behavior

H4 : Entrepreneurial orientation moderates the relationship between Islamic work ethic and innovative behavior

H4-1 : Entrepreneurial orientation moderates the relationship between perceived worship and innovative behavior

H4-2 : Entrepreneurial orientation moderates the relationship between effort and innovative behavior

H4-3 : Entrepreneurial orientation moderates the relationship between cooperation and innovative behavior

H4-4 : Entrepreneurial orientation moderates the relationship between moral responsibility and innovative behavior

2.8 Summary

This chapter provides a relevant extensive literature review on knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation in relation to innovative

behavior. Even though studies on knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation had revealed the positive effect of these variables to the success of innovative behavior, however, there is a lack of understanding on the relationship between knowledge sharing behavior, Islamic work ethic, EO and its effect on innovative behavior in the public sector. This is because these variables have mostly been examined in the private, manufacturing or business sector. Furthermore, paucity of supporting literature on Islamic business has led to insufficient research on IWE and innovation, especially in the public sector. Therefore, some researchers have suggested further studies are needed to better comprehend how and why these relationships can enhance innovation by individual in the public sector through innovative behavior. This chapter is also as a foundation to develop the conceptual framework of the study. The next chapter discusses the research methodology.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents description of research methodology of the study related to the technique or procedure for data analysis in order to answer research question. Specifically, this section discusses research design, data collection and data analysis techniques to examine the effect of knowledge sharing behavior (KSB), Islamic work ethic (IWE) on innovative behavior (IB) through the moderating effect of entrepreneurial orientation (EO).

3.1 Research Design

A research design develops a framework and/or study scheme and also the methods and procedures for collecting and analyzing the necessary information. The purpose in the early phase of the study is to ensure that the information collected is appropriate to resolve the problems. Researcher must decide the sources of information, the technique of design (overview or analysis, for example), sampling systems and the schedule and cost of the study (Zikmund, Babin, Carr, & Griffin, 2012).

A quantitative approach was employed in this study as this method is used when researchers test the theory to reject or accept the hypotheses and then collect and analyze the data by using statistical procedures for interpreting the findings (Creswell, 2003). The objective of this study is to examine the effect of KSB, IWE, EO and IB.

3.1.1 Time Dimension

Time dimension comprises of cross-sectional and longitudinal studies. A cross-sectional study involves the collection of data in order to answer the research questions of the study that is conducted on a one-time basis only, for example, over a period of days, weeks or months **(**Sekaran, 2003; Trochim & Donelly, 2006).

Meanwhile, longitudinal studies are utilized when the data collection is done over two or more time points. Longitudinal studies are conducted when a study investigates people or phenomena that require more than one point of time to answer the research questions of the study (Trochim & Donelly, 2006; Sekaran, 2003). This study used a cross-sectional design as the data were collected for one time only to answer the research questions.

3.1.2 Unit of Analysis

Unit of analysis refers to the 'who' or 'what' is being studied. It can involve: groups, individuals, books, photographs, daily papers (artifacts), towns, registration tracts, states (geographical units), dyadic relations, separations and captures (social cooperations) (Trochim & Donelly, 2006).

The unit of analysis for this study is individual level where individual manager namely managerial staffs at all level were chosen as a respondent. They consist of top manager (Head or Deputy Agency), middle manager (Head of Department) and lower manager (Head of Section). Based on the pilot study, it was found that managers are in a better position to understand innovation process based on their job experience and their responsibility. Therefore, manager is considered as an appropriate respondent for this study. Hence, this study attempts to investigate the individual behavior of

manager towards innovation in the public sector. Therefore, the data were obtained from the individual who holds a position as a manager of the public sector in Aceh Province.

3.1.3 Population, Sample Size and Sampling Technique

Population is the whole group, event or interesting objects that are interested by the researcher (Cavana, Delahaye, & Sekaran, 2001). Based on data from Aceh Government Office of 2017, there is a total of 47 local public sectors in Aceh Province. Therefore, population of this study is all managerial staff of 47 local public sector in Aceh Province. The total number of managerial staff at all level in these 47 agencies are 1028.

Out of 47 agencies, eight agencies were selected using cluster sampling. These agencies were selected because these agencies are representing the vital areas of society needs generally. These agencies are highly highlighted by the public compared to other agencies since they have an important role in providing services on primary needs of society such as provision of clean water, roads, housing, transportation, health services, garbage, drainage, sanitation, licensing of documents and etc. It is fact, when these agencies provide unsatisfactory services to the society, they will immediately reap complaints and were criticized through media. Indeed, it indicates that these agencies still have some weakness in term of service.

Therefore, innovation by individual through innovative behavior is the best solution to improve service delivery in order to reduce complaints and criticism from the public (Mulgan & Albury, 2003; Borins, 2001b; Vigoda-Gadot *et al.,* 2008; De Vries *et al.,*

2014; Bloch, 2011; Cankar & Petkovsek, 2013; Mulgan, 2014). Thus, this study considers that managers in these 8 agencies need more innovative behavior. There are 214 managers of 8 selected agencies as shown in Table 3.1. Since sampling frame is not available, this study employed purposive sampling technique to solicit information regarding factors influencing innovative behavior in public sector among managerial staff. To determine the sample size, power analysis test by using G*Power 3.1 was carried out. The result of power analysis test shows that minimum sample acceptable is 119 (refer Figure 4.1). Further, rule of thumb by Roscoe (1975) where a sample size between 30-500 was followed. Therefore, based on these justifications, the total number of 192 respondents involved in this study as sample.

Table 3.1
Number of Manager in 8 Selected Public Sectors in Aceh Province

No.	Nama of Agency	Number of Managers
1	Agency of Investment and Integrated Licensing Service	37
2	Agency of Population Registration	21
3	Agency of Public Housing and Residential Area	28
4	Agency of Public Works and Spatial Planning	21
5	Agency of Library and Archive	27
6	Agency of Transportation	21
7	Public Service Hospital of dr. Zainoel Abidin	38
8	Public Service of Psychiatric Hospital	21
	Total	**214**

Source: Aceh Government Office (2017)

3.14 Data Collection

There are numerous methods that could be utilized for assembling the required data (e.g., interviews, mailed questionnaires, focused group discussions or observation (Kumar, 2011). This study employs questionnaire designed in an attractive format as a means of collecting data. The managerial staffs from eight public service in the Aceh

Province were presented with the questionnaire (Appendix 1) together with an enclosing letter describing the study and soliciting voluntary participation. Data collection was conducted by visiting the agencies involved in this study where the managers as an individual were asked to voluntarily participate in the study.

Two methods were used to collect the data namely through self-administered questionnaire and through contact person identified by agencies. Four agencies involved in self-administered questionnaire and another four agencies through contact person because there were 4 agencies that did not provide the opportunity to the researchers to meet respondent directly. Thus, researchers only deal with the contact person appointed by the agency. For questionnaire distributed directly, each respondent took approximately 2 to 3 days to fill up the questionnaire. Meanwhile, questionnaires through the contact person were collected within 1 to 2 week after distribution. Finally, the questionnaire required 9 weeks to be completed by all respondents (First of March to first of May 2017).

3.1.5 Questionnaire Design and Development of Instruments

The questionnaire was designed using a format that is easy to understand by respondents. To facilitate respondents in answering, the questionnaire was designed using both English and Indonesian language. It was considered that most managers are familiar in English since they are well educated. It was hoped that the English and Indonesian version will mutually helpful in order to provide compatible answers. Thus, the English version of questionnaire was translated into Indonesian by a lecturer/academic staff of English Department, Syiah Kuala University, Darussalam, Banda Aceh (see Appendix 1). Subsequently, on the cover page of questionnaire, it

explained the purpose of the research conducted in the public sector. The questionnaire comprises the following parts: Part 1: Information on background of respondents or profile of respondents; Part 2.1: The questions to measure innovative behavior; Part 2.2: The questions on KSB; Part 2.3: The questions on IWE and Part 2.4: The questions on EO.

In this study, the development of instrument was performed by referring to the literature and previous studies relevant to the context or setting of this research to examine the effect of knowledge sharing behavior and Islamic work ethic on innovative behavior and also examine the moderating effect of entrepreneurial orientation from the context of individual. Thus, selection of instruments was based on individual perspectives and research settings of previous studies. For dependent variable (i.e. innovation), 9 items were used to measure innovative behavior of individual. This study considers that it is adequate to adapt instrument by Janssen (2000) as this instrument previously was used to measure innovative behavior at individual unit of analysis.

To measure knowledge sharing behavior, this study adopted instrument by Van Den Hoof and De Weenen (2004) because of the context or setting of the previous study that was equally examined in the service sector. In addition, this study considers that the practice of knowledge sharing behavior involves two parties. Thus, two aspects of KSB comprising of 7 items namely knowledge donating and knowledge collecting are considered appropriate to answer the research objective.

Furthermore, instrument to measure Islamic work ethic was adopted from the work of Yaseen *et al.* (2015). This instrument was also previously examined in the same setting (service sector). There are 17 items of IWE with four dimensions: perceived worship, effort, cooperation and moral responsibility. The selection of this instrument is considered appropriate. While, the instrument of entrepreneurial orientation was adopted from the work by Meynhardt and Diefenbach (2012) with 13 items was considered appropriate for measuring moderating variables in this study because of the similarity of context or setting. Previous studies have examined entrepreneurial orientation using the same instrument in the Public Sector. Because of this, the instrument was compatible to capture the effect of entrepreneurial orientation as moderator between knowledge sharing and Islamic work ethic on innovation in public sector.

All measures were tapped on five-point likert-scale (1= Strongly disagree to 5=Strongly agree). Neuman and Robson (2008), Dawes (2008) asserted that likert scale with five points will provide result better. Subsequently, Krosnick and Fabrigar (1997) claimed that five or seven likert scale is more accurate compared to the higher or lower scales. A scale that does not have a midpoint will enhance errors in measurement. Frary (1996) postulated that likert scale with a range starting from point seven or more takes more time of respondents. In addition, it will confuse respondents in answering. Similarly, Krosnick and Presser (2010) mentioned that a rating scale that is too few will restrict respondent to provide a choice to achieve a moderate position. However, the rating scale above 7 will cause the respondent more in interpreting due to there are too many choices. It will cause ambiguity and influence the reliability and

validity of the measurement. Thus, the likert scale with midpoint will provide a convenience to the respondents in answering (Schuman & Presser, 1981).

Thus, total item used in this study are 46 i.e. innovative behavior 9 items, knowledge donating 3 tems, knowledge collecting 4 items, perceived worship 4 items, effort 5 items, cooperation 4 items, moral responsibility 4 items and entrepreneurial orientation 13 tems.

3.1.6 Operational Definition of Constructs

This section describes the constructs that were used to measure the independent variables (KSB and IWE), moderating variable, namely EO and the dependent variable, IB. The following sections describe the details of each construct for the dependent variable, independent variables and moderating variable.

3.1.6.1 Dependent Variable – Innovative Behavior

Innovative behavior refers to efforts to implement of new ideas or significant change and or improvement in order to enhance performance of organization through an idea generation, idea promotion and idea realization (Janssen, 2000; Scott & Bruce, 1994; Kanter, 1998; Yuan & Woodman, 2010; Tether, 2003; Mulgan & Albury, 2003). Measure of innovative behavior was adapted from the work of Janssen (2000). The questions consist of 9 items as shown in Table 3.2.

Table. 3.2
Measures of Innovative Behavior

Variable	Items	Source
Innovative Behavior	I create new ideas for difficult issues	Janssen (2000). Cronbach' s alpha coefficient 0.95.
	I search out new working methods, techniques, or instruments	
	I generate original solutions for problems	
	I mobilize support for innovative ideas	
	I acquire approval for innovative ideas	
	I make important organizational members enthusiastic for innovative ideas	
	I transform innovative ideas into useful applications	
	I introduce innovative ideas into the work environment in a systematic way	
	I evaluate the utility of innovative ideas	

3.1.6.2 Independent Variable – Knowledge Sharing Behavior (KSB)

KSB is defined as the shared value, beliefs and practices of disseminating knowledge by individual within the organization through study, observation or personal experience that are as a collective behavior involved knowledge donating (KD) and knowledge collecting (KC**)** (Van Den Hoof & De Weenen (2004). Knowledge donating refers to one's individual intellectual capital that is communicated to others. This dimension was measured using 3 items. Meanwhile, knowledge collecting is consulting colleagues to get their intellectual capital that was measured by 4 items. Thus, in this study, KSB was measured using 7 items developed by Van Den Hoof and De Weenen (2004) as shown in Table 3.3.

Table. 3.3
Measures of Knowledge Sharing Behavior

Dimensions	Items	Source
Knowledge Sharing Behavior	**Knowledge Donating**	Van Den Hoof & De Weenen (2004). Cronbach Alpha of Knowledge donating 0.83, knowledge collecting 0.90
	When I have learned something new, I tell my colleagues in my department about it	
	When they have learned something new, colleagues within my department tell me about it	
	Knowledge sharing with my colleagues outside of my department is considered a normal thing	
	Knowledge Collecting	
	I share the information I have with my colleagues within my department, when they ask me to	
	I share my skills with colleagues within my department, when they ask me to	
	Colleagues within my department tell me what they know, when I ask them about it	
	Colleagues within my department tell me what their skills are, when I ask them about it	

3.1.6.3 Independent Variable – Islamic Work Ethic (IWE)

IWE is defined as the basic principles for life provided by the Holy Qu'ran and Prophet Muhammad (PBUH) regarding the concept of work (Abbasi *et al.,* 2012; Ahmad & Owoyemi, 2012). There are 17 items to capture perceived worship, effort, cooperation and moral responsibility (Yaseen *et al*., 2015). Perceived worship was measured by using 4 items, effort 5 items, cooperation 4 items and moral responsibility 4 items. **Perceived worship** means work is as a worship that guide person to perform its obligations sincerely, diligently and patiently. **Effort** is an aspect of daily living that provides work motivation in setting and striving to achieve the goals of life. **Cooperation** is presumed that work in a team is a virtue that gives satisfaction and

benefits for the organization member if compared to compete each other. **Moral responsibility** refers to concept that considers the morality aspects related to ethics in the relationship between human. The items used are presented in Table 3.4.

Table. 3.4
Measures of Islamic Work Ethic

Dimensions	**Items**	**Source**
Perceived Worship	Justice and forgiveness in the workplace is essential terms for the benefit of society	Yaseen *et al*. 2015). Cronbach ’s alpha 0.751 to 0.852
	Good work is the result of good faith	
	In Islam, working hard is worship	
	Work is a virtue	
Effort	Work value comes from intentions and not results	
	The work must be done with adequate effort	
	The successful person is the one who commits to a work timeTable	
	Life has no meaning without work	
	Work is a source of self-confidence	
Cooperation	Cooperation in work is a virtue	
	Collaboration produces satisfaction and helps the society	
	Every person should participate in economic events	
	Teamwork is a source of self-confidence	
Moral Responsibility	Human relations between workers should be focused on and encouraged	
	Work is not the goal but a means to improve personality and social relations	
	Community affairs should be taken into consideration at work	
	Problems in our society will be reduced if everyone commits to his/her work	

3.1.6.4 Moderating Variable – Entrepreneurial Orientation (EO)

Entrepreneurial Orientation is a behavioral tendency to engage in and be successful at entrepreneurial activities that are characterized by innovativeness, proactiveness and risk taking (Meynhardt & Diefenbach, 2012; Miller 1983; Covin & Slevin 1991). This study adopted measures of EO developed by Meynhardt and Diefenbach (2012). There are 13 items of EO, i.e. innovativeness consists of 4 items, proactiveness 4 items and risk taking 5 items. **Innovativeness** - is a commitment or willingness to generating and cultivating new ideas that result in the new outcome; **Proactiveness** - is an opportunity-seeking, forward-looking perspective in anticipation of future demand and **Risk taking** - involves taking bold actions in uncertain environment. Table 3.5 gives the full version of measures of EO.

Table 3.5
Measures of Entrepreneurial Orientation

Dimensions	Items	Source
Innovativeness	I am open to innovations	Meynhardt and Diefenbach (2012). Composite Reliability 0.80 to 0.88
	I am creative	
	I am innovative	
	I often implement new approaches to meet my responsibilities	
Proactiveness	I rarely behave hesitantly	
	I respond to public demand changes as they occur	
	I respond most actively to public demand changes	
	I often approach external groups to initiate projects	
Risk Taking	I also implement promising but risky projects	
	I also implement projects with no direct effect on the target system's KPIs	
	I often get involved, even if the outcome is initially uncertain	
	I often enter ventures to promote particularly promising projects	
	I am especially careful in my course of action	

3.1.7 Pre-Test and Pilot Study

Pretesting aims to ensure the questionnaire are clearly understood by the respondent. Therefore, pretesting was conducted to examine validity of instrument (Aaker, Kumar, & Day, 2007). After performing extensive review of literature, this study performed pre-test by asking feedback from expert and academician related to the field of the study. The feedbacks given by expert and academician was satisfactory and no amendment need to be made to the instruments.

Pilot study was conducted before performing the main study. A pilot study is a small-scale study to collect data from respondents who are similar to the respondents that will be used as part of the main study. The purpose of a pilot study is to help the larger study to determine whether strategies used really function as planned. A pilot study is important for refining the survey questions and for reducing the risk of flaws in the main study (Zikmund *et al.*, 2012).

In this study, respondents are 30 managers in the public sector who do not come from agencies in the main study. Thus, it can be ensured that people involved in the main study is not respondent from pilot study. Furthermore, Cronbach alpha is the most common tool of statistic applied in quantitative research to measure reliability (Hair, Money, Samouel, & Page, 2007; Sekaran, 2003). Specifically, Hair *et al.* (2007) asserted the strength of association of value of coefficient alpha of Cronbach as shown in Table 3.6.

Table 3.6
Association of Value of Cronbach Alpha

No.	Range of Alpha Coefficient	Strength of Relationship
1.	< 0.6	Poor
2.	0.6 to < 0.7	Moderate
3.	0.7 to < 0.8	Good
4.	0.8 to < 0.9	Very Good
5.	≥ 0.9	Excellent

Source: Hair *et al.* (2007)

Meanwhile, the result of pilot study of the present study shows that the minimum coefficient value of cronbach alpha is 0.707 and the maximum coefficient is 0.887. Therefore, the Cronbach alpha coefficient of each construct in this study is in accordance with the recommended value for reliability as shown in Table 3.7.

Table 3.7
Reliability Statistics of Pilot Study (N = 30)

No.	Constructs	Number of Items	Cronbach's Alpha
1.	Innovative Behavior	9	0.870
2.	Knowledge Donating	3	0.731
3.	Knowledge Collecting	4	0.887
4.	Perceived Worship	4	0.847
5.	Effort	5	0.786
6.	Cooperation	4	0.707
7.	Moral Responsibility	4	0.853
8.	Entrepreneurial Orientation	13	0.863
	Total Items	46	

3.2 Data Analysis Technique

This study attempted to examine the effect of KSB, IWE and EO on innovative behavior in the context of public service organizations in Aceh province. In examining the hypothesized model, PLS-SEM (Partial Least Squares-Structural Equations Modeling) approach was applied. Therefore, two steps were followed. First, the validity and reliability of the instrument were checked. Second, the hypothesized

relationships were examined and reported. Hair, Black, Babin, and Anderson (2010) confirmed that PLS-SEM is one of the most statistical tools in the area of social science that has the ability to test several relationships simultaneously. Thus, PLS-SEM is a common methodology of research in the field of management (O'Regan, Donnel, Kennedy, Bontis, & Cleary, 2001).

Furthermore, Hair, Ringle and Sarstedt (2011) asserted that PLS-SEM is a crucial method for research that assesses the causes and effects in the relationships. Furthermore, Wan Afthanorhan (2013) also claimed that assessment of reliability and validity of confirmatory factor analysis will also provide better results by using PLS-SEM. In addition, PLS-SEM can simultaneously calculate coefficient and individual item loading paths. Thus, it is possible to avoid bias and inconsistent estimation of parameters (Cabrita & Bontis, 2008). Some researchers such as Ringle, Sarstedt, and Straub (2012); Urbach and Ahlemann (2010); Hair Jr, Hult, Ringle, & Sarstedt (2017) asserted reasons to be considered for using PLS-SEM: (1) adequate for small sample size (2) data should not be normally distributed (3) can be used for reflective and formative models (4) concern on prediction (5) appropriate for data with complex models that have many constructs and indicators (6) primarily for exploratory research (7) better choice for a theoretical confirmation and recommend for theory development for a relationship that have no theoretical base (exploratory) (8) useful for categorical variables (9) PLS-SEM may be used for convergence ensured (10) employed for theory testing (11) PLS-SEM can be used for interaction terms.

This study uses PLS-SEM for several reasons. Specifically, as a purpose of the study is to determine the direct effect of knowledge sharing behavior and Islamic work ethic

on innovative behavior. Then, it also examines the moderating effect of entrepreneurial orientation on the relationship between KSB and IWE on IB. Thus, this study has a complex model that examine direct effects and also moderating effects. Therefore, the use of PLS-SEM is considered adequate as suggested by Ringle, Sarstedt, and Straub (2012); Chin, Marcolin and Newsted (2003); Urbach and Ahlemann (2010); Hair *et al.* (2017). In the same vein, Temme, Kreis and Hildebrandt (2006) affirmed that Smart PLS is needed for an approach of path modeling because it helps the researcher in testing the moderating effect path model through interaction effect. In addition, this study also consists of several exogenous latent variables and endogenous latent variables. Therefore, this study considers using PLS-SEM because it has a complex latent variable and small sample size as proposed by Haenlein & Kaplan (2004).

Furthermore, there are two types of measurement model of PLS-SEM: formative and reflective measurements model (Hair Jr., Sarstedt, Hopkins, & Kuppelwieser, 2014). Bollen and Lennox (1991) and (Hair *et al.*, 2014) claimed that reflective model was indicators that reflect underlying construct. In other words, reflective measurement model has link from latent variable or construct on its indicator. Meanwhile, formative constructs are indicators formed or determining constructs. It is type of measurement model which indicator is caused by underlying construct. Reflective model can be recognized from the arrow of the construct to the indicator that explaining indicator. Meanwhile, the formative model is identified by the arrow of the indicator to the construct that combination of indicator (Hair *et al.*, 2011; Jarvis, Mackenzie, and Podsakoff, 2003; Fornell & Bookstein, 1981).

Hair *et al.* (2014) asserted that in reflective models, relationships occur from constructs to observed indicators. If the constructs change, then there are simultaneous changes in all items because all the indicators are related to each other. Meanwhile, in the formative model, since arrows come from indicators to constructs, they are form constructs through elements that have been selected or represented because they are not correlated with each other. Thus, formative measurement model indicating that indicator causes the construct (Hair *et al.*, 2014). Furthermore, Hair, Sarstedt, Ringle, and Mena (2012), Hair *et al.* (2017) mentioned that reflective measurement referred as an effect indicator, meanwhile formative measurement models can be assumed as the causal indicator. Figure 3.1 provides a sample both of reflective and formative measurement model.

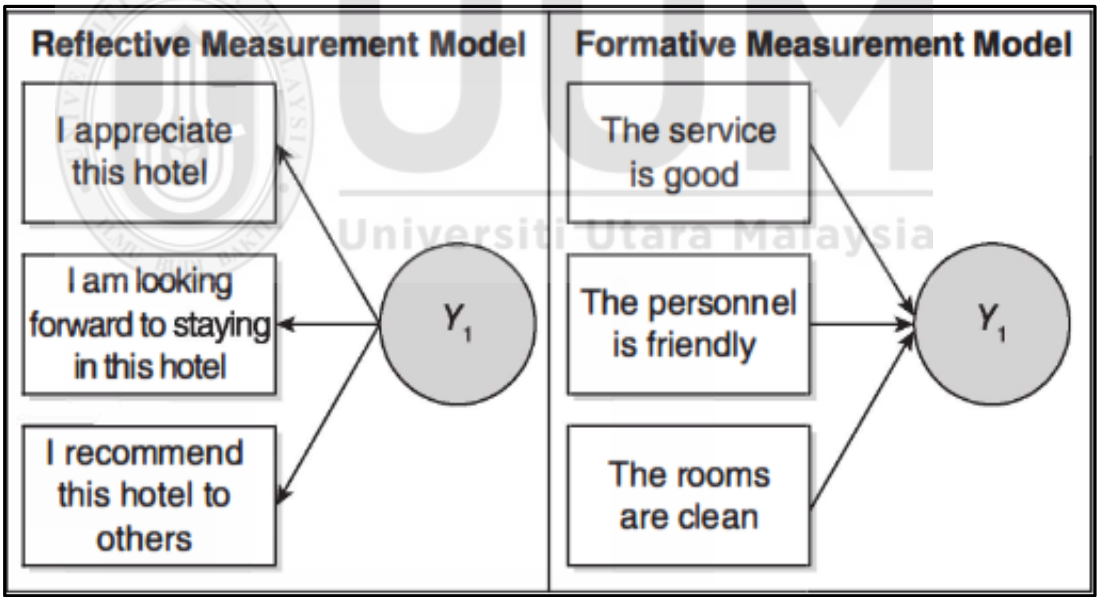

Figure 3.1 Model of Formative and Reflective Construct (Satisfaction or Y_1 as a sample of construct)
Source: Hair *et al.* (2017)

Therefore, it should be distinguished approach between reflective and formative measurement model when evaluating the measurement model. Approach of the reflective measurement model cannot be applied to the formative measurement model because they have different concepts. These concepts require different measurement.

Particularly, reflective measurement model aims to ensure reliability and validity of the measured constructs that involves several criteria such as reliability indicator, composite reliability, convergent validity and discriminant validity. Reflective construct will be applicable to PLS-SEM analysis if it meets all the requirements that have been mentioned. Therefore, these criteria can not be applied to the formative measurement model. Meanwhile, assessment of the formative indicator should be performed into three step. Step 1: assessment of convergent validity of formative measurement model by assessing the results of redundancy analysis of patch coefficient. Step 2, assessment on collinearity of formative measurement by assessing the VIF test. Step 3, assessment of the significance and relevance for the formative indicator by assessing the result of outer weight (Hair *et al.*, 2014; 2017). Table 3.8 summarizes in more detail evaluation of measurement of reflective and formative model.

Table 3.8
Evaluation of Measurement Model (Outer Model)

Evaluation of the Measurement Model	
Reflective Measurement Model	**Formative Measurement Model**
✓ Internal consistency (composite reliability) ✓ Indicator reliability ✓ Convergent validity (average variance extracted) ✓ Discriminant validity	✓ Convergent validity ✓ Collinearity among indicators ✓ Significance and relevance of outer weights

Source: Hair *et al.* (2007)

Particularly, Hair *et al.* (2014) established guidelines between formative and reflective measurement model on some criterion or condition as shown in Table 3.9.

Table 3.9
Guidelines for choosing the measurement model of formative and reflective

Criterion	Decision
Causal priority between the indicator and the construct	• From the construct to the indicators: reflective • From the indicators to the construct: formative
Is the construct a trait explaining the indicators of rather a combination of the indicator?	• If trait: reflective • If combination: formative
Do the indicators represent consequences or causes of the construct?	• If consequences: reflective • If causes: formative
Is it necessarily true that if the assessment of the trait changes, all items will change in a similar manner (assuming they are equally coded)?	• If yes: reflective • If no: formative
Are the items mutually interchangeable?	• If yes: reflective • If no: formative

Source: Hair *et al.* (2014)

This study follows guidelines by Hair *et al.* (2014; 2017) in determining the model of PLS SEM. It can be identified that model in this study is reflective model as appears in original research model (Figure 4.4). Reflective measurement model is considered a suitable model for this study due to some following criteria or reasons. First, causal priority between indicator shows that arrows come from construct to the indicator. Second, constructs in this study (i.e. knowledge sharing behavior, Islamic work ethic, entrepreneurial orientation and innovation) are a trait that explains the indicator and not the combination of the indicator. Third, indicators establish consequences or do not form or causes construct of the study. Four, when trait assessment changes, then all items used in this study simultaneously will change as they are relate to each other. Fifth, items can mutually interchangeable.

Moreover, PLS-SEM involves two part of analyses in term of assessment of measurement model and assessment of structural model. Measurement model or outer

model shows the relationship between the construct or latent variable and their indicator or measures. Measurement model is utilized to present latent variables through specific indicator i.e. indicator reliability, internal consistency reliability, convergent validity and discriminant validity. Meanwhile, structural model or inner model shows the relationship between the construct or latent variables. Thus, structural model involved latent variable and path relationship (Hair *et al.,* 2014, 2017). Therefore, this study used structural model to assess direct effects and indirect effect.

For the direct effect, relationship between constructs i.e. independent variable and dependent variable was examined through path coefficient as suggested by Hanseler *et al.* (2009). While, indirect effect was examined through the role of moderating variable. As stated by Baron and Kenny (1986), moderator is variable that may change the strength of the relationship between predictors (X) and outcomes (Y). Therefore, moderator effect can be interpreted as an interaction since the effect of one variable depends on the other variables (Fairchild & MacKinnon, 2009). Moderators are often introduced when there is unexpected relationship, whether it is a weak or inconsistent relationship (Baron & Kenny, 1986). Thus, interaction effect are important. If the study ignores the role of moderator, then a treatment is inappropriate (Kraemer, Stice, Kazdin, Offord, & Kupfer (2001).

Decision to utilize moderating variables should be based on specific theory about why or under what conditions to use moderator. This choice is essential because it will lead to specific types of interactions that need to be explained (Andersson, Cuervo-Cazurra, & Nielsen, 2014). In this case, Cohen, Cohen, West, and Aiken (2003) emphasized that there are 3 types of interactions between two continuous variables: first, enhancing

interaction: this situation illustrates that both predictors and moderates affect the outcome variables in the same direction and together they have a strong effect rather than just an additive. Second, buffering interaction: the moderator variable weakens the effect of predictor on outcome. Third, antagonistic interaction: predictors and moderators have the same effect on the outcome, but the interaction is in the opposite direction. Therefore, results of the moderating effect are given by the moderating effect to detect shape of the relationship. In order to detect the strength of moderating variable (entrepreneurial orientation) on the relationship between independent variable (knowledge sharing behavior and Islamic work ethic) on dependent variable (innovative behavior), this study utilized the product indicator approach through PLS-SEM as suggested by Chin *et al.* (2003) since it is user friendly through graphical, and create moderating effect for path model by interaction effect (Temme *et al.*, 2006).

3.3 Summary

This chapter outlines procedure of research methodology to achieve the objective of this study. It includes the research design, sampling design, data collection, operational definition of the constructs, measurement or instrumentation and data analysis. Based on the research questions and hypotheses, this study investigates the effect of the independent variables (knowledge sharing behavior, Islamic work ethic), dependent variable (innovative behavior) and moderating variable (entrepreneurial orientation).

CHAPTER 4

DATA ANALYSIS AND FINDINGS

4.0 Introduction

This chapter presents data analysis and results of the study. First, this study conducts screening data and preliminary analysis by using Statistical Package for Social Science (SPSS) version 20. Second, testing of hypothesis was performed by using Partial Least Squares Structural Equation Modeling (PLS-SEM) or PLS Path Modeling through software of SmartPLS version 3. Evaluation model of PLS-SEM involves two step process (i.e. measurement model and structural model). Measurement model was performed to determine the relationship of indicators on latent constructs (i.e. indicator reliability, internal consistency reliability, convergence validity and discriminant validity). Meanwhile, structural model examines the relationship of constructs (i.e. the significance of path coefficient, R-squared value, effect size, predictive relevance and moderating effect).

4.1 Response Rate

Data were collected in 8 (eight) public sector organizations in Aceh Province between March to May 2017. A total of 192 questionnaires were distributed. Out of 192 questionnaires, only 152 or 79% of the questionnaires were returned by the respondents. However, as many as 10 or 5% of the questionnaires are unusable because 10 respondents did not answer more than 50% of the questions and 1 respondent deemed inappropriate to be involved due to respondent provided an answer that has no character - respondent only filled answers to one scale for all questions that is 1 (strongly disagreed). Hence, the total usable questionnaires are 142 or 74%. After

performing outlier test, finally, only 124 questionnaires were used for further analysis as shown in Table 4.1.

Table 4.1.
Response Rate of the Questionnaires

No.	Response	Frequency	Rate/Percentage
1.	Distributed questionnaires	192	100%
2.	Not returned	40	21%
3.	Returned questionnaires	152	79%
4.	Unusable questionnaires	10	5%
5.	Usable questionnaires	142	74%
6.	Outliers	18	9%
7.	**Total**	**124**	**65%**

According to Babbie and Mouton (2001), sample in this study can be considered as appropriate for further analysis as it almost reached the response rate of 70%. However, Hair *et al*., (2014) asserted that it is very essential to conduct power analysis test in order to identify the minimum sample size. Therefore, in this study test of power analysis was utilized by using G*Power 3.1. The test was performed based on the path towards the endogenous variable or examined predictors, confidence interval and the effect size. The parameters used are Power (1-β err prob 0.95), significance of alpha (α err prob = 0.05), effect size (f2 = 0.15) and 3 number of predictors (i.e. knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation). The result of power test analysis recommended 119 for minimum sample size. In more details, the results of G* Power Analysis from this study can be seen in Figure 4.1 as follows.

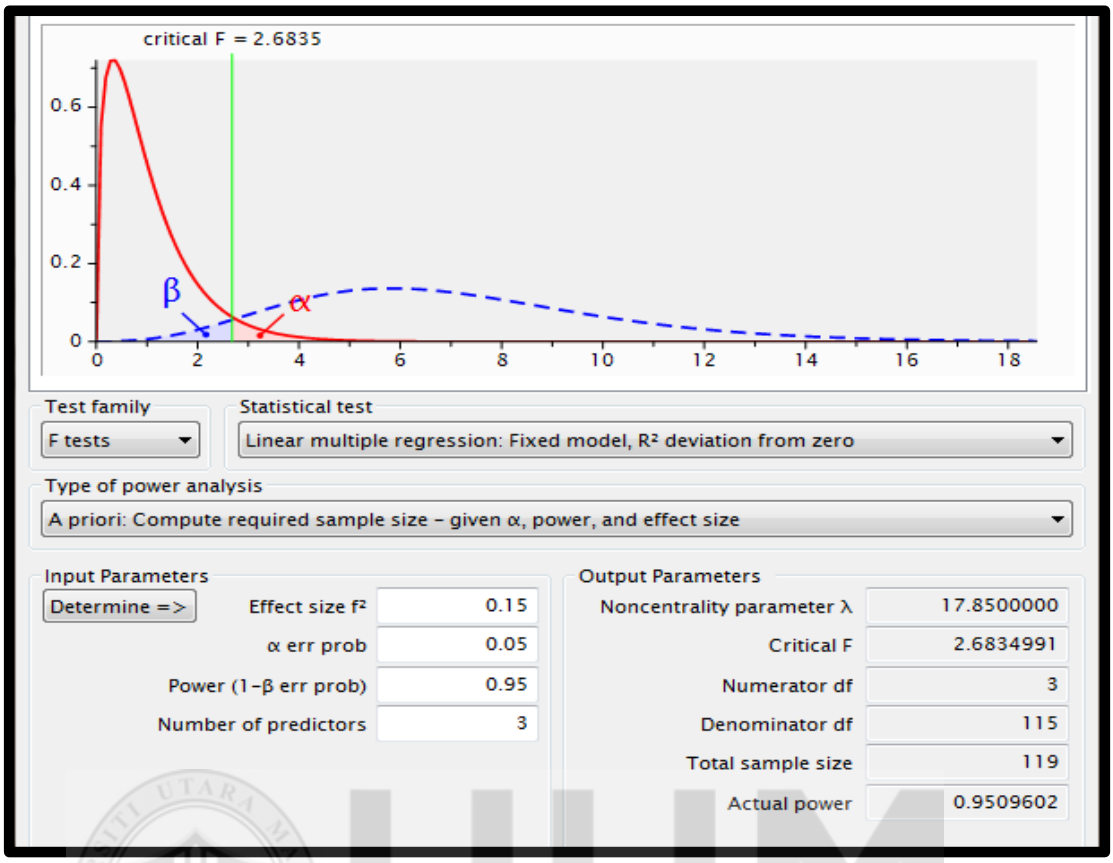

Figure 4.1
*Output of Power Analysis by G*Power*

The result of Power Analysis test supports that sample as much as 124 are considered sufficient to achieve the proper level of statistical power to apply PLS SEM as they fulfill the required minimum sample of 119. As stated by Hair *et al.* (2014; 2017), PLS SEM is considered as the right technique when the number of samples is small. Thus, this study has met the minimum sample needed.

4.2 Screening Data and Preliminary Analysis

Screening and data cleaning are a process of checking data that aim to perform recovery of data before being processed further. It is very easy to make mistakes in entering data that will disrupt the analysis of the data. Before beginning to analyze of

data, the researcher must check the data set against error (Pallant, 2005). Meanwhile, preliminary analysis was performed through a missing data, outlier assessment namely univariate outlier and multivariate outlier, normality and multicollinearity.

4.2.1 Error Detection

Errors can occur in coding procedures or data entry. It is essential to check and repair the error of data. Researcher should be careful in error detection due to this stage will affect the results of the study. According to Pallant (2005), the method to find out an error is by using descriptive analysis of the frequency of each variable. Furthermore, in performing error detection, the data screening process involves several steps: first, checking for errors on each variable that are out of scores.

Second, find the errors that exist in the data file by finding the point where there is a case involved, third, performed an error correction on the data file. After performing error detection as suggested by Pallant (2005), this study found that all the data of each variable were in the range of scores. All respondents responded on the scale 1 (strongly disagree) to 5 (strongly agree). It was also found that all respondents answer about demographic variables accordingly. Therefore, there is no issue of error found in this study.

4.2.2 Missing Data

Missing data is incomplete data related to the questions examined in the study. According to Hair *et al.* (2010; 2014), when the respondent does not complete data greater than 50%, then the data must be deleted or ignored as it can not be used for further analysis. Meanwhile, missing data of 20% to 30% should be replaced by mean.

In this study, one respondent did not fill more than 50% of the questions, thus it was deleted. Furthermore, there were 8 missing data or 5.3% of the total of 152 questionnaire returned. These values were replaced by mean.

4.2.3 Detection of Outlier

Outliers are the most important detection to find the characteristics of abnormal data. According to Tabachnick and Fiddel (2007), outliers is a case on one variable (univariate outlier) or combination of two or more variables (multivariate outlier) that has an extreme value that distorts the statistics. The case with outlier will affect the value of the regression coefficients. Therefore, Hair, Black, Babin, Anderson, and Tatham (2006) confirmed that model with outlier data will cause bias in the next analysis. Therefore, outlier data should be excluded from the model.

4.2.3.1 Univariate Outlier

Univariate outlier is cases with extreme values of items on each variable (Hair *et al.*, 2010; Tabachnick & Fiddel, 2007). Detection of univariate outliers can be examined by employing box plots. As for the advantage of box plot is the observation can be examined in detail on the distribution of values from the data that presented through graphs. Values that are above or below the box plot are categorized as outliers or extreme. Table 4.2 shows the result of univariate outlier.

Table 4.2
Result of Univariate Outlier (N=142)

Construct	Respondent Case Number
Innovative Behavior	6, 11, 15, 70, 124
Knowledge Sharing Behavior	
Knowledge Donating	1, 2, 11, 22, 67, 69, 94
Knowledge Collecting	1, 2, 6, 11, 13, 22, 67, 69, 94, 107
Islamic Work Ethic	
Perceived Worship	22, 69, 67, 94, 130
Effort	130
Cooperation	130
Moral Responsibility	Nil
Entrepreneurial Orientation	8, 73, 101

Table 4.2 shows that outlier can be found in almost any construct used in this study except in the construct of moral responsibility. It can be identified that most cases of outliers were dominated by the same respondent. They are case number 1, 2, 6, 8, 11, 13, 15, 22, 67, 69, 70, 73, 94, 101, 107, 124, 130. As a consequence, 17 cases as univariate outliers in this study cannot be retained for further analysis. These cases should be excluded or deleted from the dataset.

4.2.3.2 Multivariate Outlier

Multivariate outliers are caused by a set of independent variables. Hair *et al.* (2010) mentioned that multivariate outlier is used against all items of the variable as a whole. Furthermore, the procedure to detect multivariate outliers is to use the Mahalanobis Distance (d^2) through evaluation of a chi-square (the critical value of χ^2) (Tabachnick & Fiddel, 2007). In this case, Mahalanobis Distance statistics (d^2) compared with the value of chi square (χ^2) and the error rate is 0.001. Degree of freedom is the total number of items in independent variables. If $d^2 > \chi^2$, with error rate of 0.001, then multivariate outliers do exist. In this study, there are 37 items for an independent variable with chi square value (χ^2) of 69.346. Therefore, the Mahalanobis distance

values of the 9 cases (i.e. 130, 8, 70, 7, 73, 1, 67, 94 and 13) in this study were greater than 69.346 ($d^2 > \chi^2$). Furthermore, the calculation of the Mahalanobis Distance and result of multivariate outlier can be seen in Table 4.3 and 4.4.

Table 4.3
Test of Mahalanobis Distance

Description	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	2.9982	4.9238	3.9405	.37093	142
Std. Predicted Value	-2.540	2.651	.000	1.000	142
Standard Error of Predicted Value	.109	.329	.197	.044	142
Adjusted Predicted Value	2.8002	4.9738	3.9332	.39490	142
Residual	-1.64350	.84595	.00000	.33503	142
Std. Residual	-4.213	2.169	.000	.859	142
Stud. Residual	-4.761	2.886	.007	1.026	142
Deleted Residual	-2.09923	1.49834	.00734	.48873	142
Stud. Deleted Residual	-5.358	2.995	.003	1.056	142
Mahal. Distance	**9.917**	**99.022**	36.739	17.167	142
Cook's Distance	.000	.179	.014	.030	142
Centered Leverage Value	.070	.702	.261	.122	142

a. Dependent Variable: Innovative Behavior

Based on Table 4.3, this study found that the minimum Mahalanobis Distance is 9.917 and the maximum value is 99.022. Therefore, this study will release case with values that exceed the minimum and maximum limits of Mahalanobis Distance as mentioned previously. As shown in Table 4.4, cases with multivariate outlier are 130, 8, 70, 7, 73, 1, 67, 94 and 13. Hence, the outlier data in this study are 18 cases both of univariate and multivariate outlier (i.e. 1, 2, 6, 7, 8, 11, 13, 15, 22, 67, 69, 70, 73, 94, 101, 107, 124 and 130). In this study, cases with univariate and multivariate outliers are either deleted or not processed at the next stage. Therefore, only 124 data were used for further analysis.

Table 4.4
Result of Multivariate Outlier (N=142)

No.	Respondent Case Number	Mahalanobis Value (d^2)
1.	130	99.022
2.	8	85.851
3.	70	85.319
4.	7	79.612
5.	73	79.482
6.	1	76.933
7.	67	72.444
8.	94	70.553
9.	13	70.085

Note: Chi square (χ^2) = 69,346.

4.2.4 Normality

Normality test was employed to find out the normality of data distribution among variables. Tabachnick and Fidell (2007) mentioned that normality test can be applied through graphs and also statistical. By using graph, the normality of data can be found in the histogram graph. Data are normal when the distribution of data in the curve appears to follow a normal curve pattern of histogram graph. Figure 4.2 shows histogram graph for normality testing.

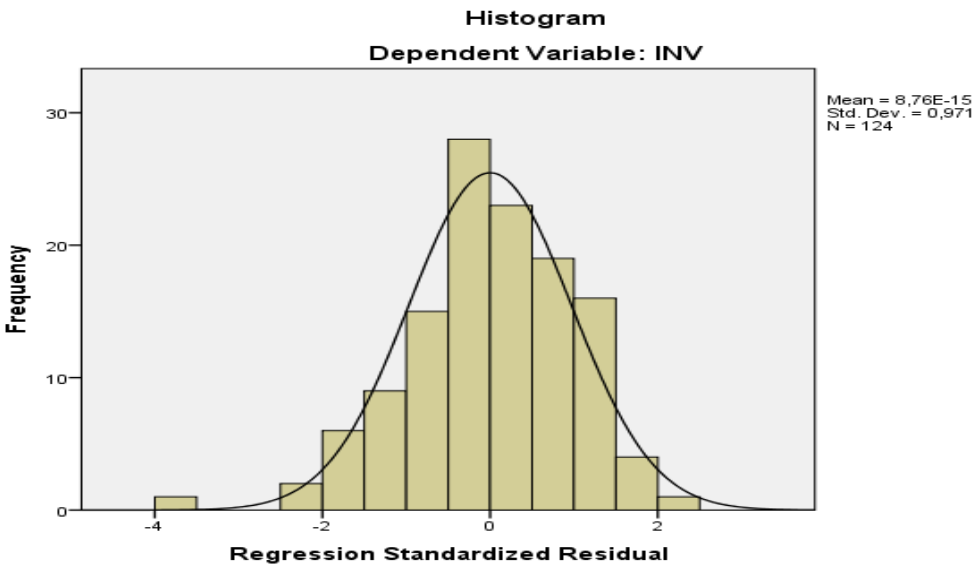

Figure 4.2
Histogram of Normality Test

Figure 4.2 shows that data distribution is normal and follows a normal pattern or curve. In addition, normality test can also be detected by looking at the value of skewness and kurtosis. When the skewness and kurtosis values are high, it will decrease the statistical significance of the coefficient path (Ringle *et al.*, 2012). In addition, it will also influence bootstrapped standard error estimation (Chernick, 2008). According to Chua (2006) the data is normally distributed when having the value of skewness and kurtosis between -2 and +2. Meanwhile, Curran *et al.* (1996) stated that the value of skewness should be less than 2 and the value of kurtosis should be less than 7. However, this study follows Kline (1998) that proposed the absolute value of skewness is between -3 and +3. Similarly, Coakes and Steed (2003) claimed that - 3 and +3 is the range for kurtosis. Based on Table 4.5, the value of skewness and kurtosis in this study is between -3 and +3 which indicated the normality of data.

Table 4.5
Result of Normality Test (N=124)

Construct	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Innovative Behavior	-.219	.217	.666	.431
Knowledge Donating	-.979	.217	2.124	.431
Knowledge Collecting	-.676	.217	-.031	.431
Perceived Worship	-1.301	.217	.928	.431
Effort	-.742	.217	-.151	.431
Cooperation	-.239	.217	-1.038	.431
Moral Responsibility	-.557	.217	-.789	.431
Entrepreneurial Orientation	.006	.217	.721	.431

4.2.5 Multicollinearity

Test of multicollinearity is to determine whether there is correlation between independent variables in a regression equation. When an independent variable has no relationship with each other, it is claimed free from multicollinearity disorder. If the variables are independent of multicollinearity, their predictive power is reliable and

stable. Test of multicollinearity can be applied by using tolerance and variance inflation factor (VIF). Tolerance should be more than 0.1 whereas VIF should not exceed 10 (Hair *et al.,* 2010; Sekaran & Bougi, 2009) to be considered as non multicollinearity. In this study, multicollinearity test results are shown in Table 4.6 below.

Table 4.6
Multicollinearity test (N=124)

Construct	Collinearity Statistics	
	Tolerance	**VIF**
Knowledge Donating	.486	2.057
Knowledge Collecting	.378	2.648
Perceived Worship	.412	2.428
Effort	.350	2.860
Cooperation	.353	2.834
Moral Responsibility	.459	2.179
Entrepreneurial Orientation	.618	1.618

a. Dependent Variable: innovative behavior

Table 4.6 presents evidence that all of VIF values < 10 and tolerance values > 0.1. Tolerance value for all constructs is ranged from .350 to .618 which are greater than 0.1. Meanwhile, VIF value range from 1.618 to 2.860 which are less than 10. Thus, this study revealed that the data used is free from multicollinearity.

4.2.6 Non Response Bias

The non-response bias was conducted to ensure the similarity on some of the main criteria among the participants and total population. In line with the view of Armstrong and Overton (1977), the responses were separated into two periods of time; early response and late response. Questionnaires returned within four weeks (the first of March to the end of March 2017) were classified as early responses. Meanwhile, questionnaires received after four weeks (the first of April to the first of May 2017) were considered as late responses. There were 79 late respondents and 45 early

respondents. As suggested by Pallant (2007), this study employed the independent sample t-test analysis to examine a non-response bias between the early and late responses. Therefore, the first stage is by looking at the mean and standard deviation values between the two groups. The second stage is by considering the result of the significance level test (see Table 4.7).

As shown in Table 4.7, this study found that there is no significant difference of mean and standard deviation between group of early response and late response. It appears that scores of mean of each variable between two groups are not striking or not too much different. In the same vein, value of Levene's Test for equality of Variance also is not significant (i.e. greater than 0.05) as suggested by Pallant (2010). Therefore, it can be concluded that data in this study is free from non-response bias problem.

4.2.7 Common Method Variance

Common method variance (CMV) refers on the variance which is attributable to the method of measurement (form of measurement at different group) rather than for construct of interest (Bagozzi & Yi, 1991). CMV was confirmed to show a false correlation between variables of interest (Krishnaveni & Deepa, 2013). In this study, test of common method variance was performed by referring to Harman's single factor. It was conducted through exploratory factor analysis by using SPSS version 20. The result of unrotated principal components factor showed that the single factor explained only 28.91 % of variance (see Appendix 2). This study reveals that no single factor has variance greater than 50%. Therefore, it indicated that common method variance is not a problem in this study.

Table 4.7
Result of Leven's Test of Independent Sample t-test (N=124)

Variable	Group	N	Mean	Std. Deviation	Levene's Test for Equality of Variances	
					F	Sig.
IB	Early Response	45	3.8914	.48922	1.491	.224
	Late Response	79	4.0056	.40058		
KD	Early Response	45	4.2148	.58238	.511	.476
	Late Response	79	4.3122	.60938		
KC	Early Response	45	4.4444	.42603	.906	.343
	Late Response	79	4.4620	.48220		
PW	Early Response	45	4.7278	.37998	1.747	.189
	Late Response	79	4.6867	.42643		
EF	Early Response	45	4.6178	.34065	2.444	.121
	Late Response	79	4.5949	.39610		
CP	Early Response	45	4.4611	.39151	1.263	.263
	Late Response	79	4.4905	.42260		
MR	Early Response	45	4.5667	.42104	.066	.798
	Late Response	79	4.5190	.42133		
EO	Early Response	45	3.7932	.36738	.001	.971
	Late Response	79	3.7932	.39711		

Note : IB = innovative behavior, KD = knowledge donating, KC = knowledge collecting, PW = perceived worship, EF = effort, CP = cooperation, MR= Moral Responsibility, EO= entrepreneurial orientation

4.3 Descriptive Statistics

Descriptive statistics can be illustrated in terms of mean, standard deviation, minimum and maximum. All measures were tapped on a five-point scale that consists of 1 (strongly disagree) to 5 (strongly agree). Table 4.8 shows in more detail the result of descriptive statistic.

Table 4.8
Descriptive statistics of Variables (N=124)

Latent Variables	Minimum	Maximum	Mean	Std. Deviation
Innovative Behavior	2.4	5.0	3.964	.4364
Knowledge Donating	2.0	5.0	4.277	.5992
Knowledge Collecting	3.0	5.0	4.456	.4609
Perceived Worship	3.3	5.0	4.702	.4091
Effort	3.4	5.0	4.603	.3757
Cooperation	3.5	5.0	4.480	.4102
Moral Responsibility	3.5	5.0	4.536	.4201
Entrepreneurial Orientation	2.7	5.0	3.793	.3851

In this study, descriptive statistic describes characteristic of dataset of respondent by using 8 latent variables i.e. innovative behavior, knowledge donating, knowledge collecting, perceived worship, effort, cooperation and moral responsibility. The result of descriptive statistics showed that innovation (M = 3.96, SD = 0.43), knowledge donating (M = 4.27, SD = 0.59), knowledge collecting (M = 4.45, SD = 0.46), perceived worship (M = 4.70, SD = 0.40), effort (M = 4.60, SD = 0.37), cooperation (M = 4.48, SD = 0.41), moral responsibility (M = 4.53, SD = 0.42), entrepreneurial orientation (M = 3.79, SD = 0.38).

It appears that the mean scores of constructs are in the range of 3.79 to 4.70. Furthermore, the value of standard deviation is in the range of 0.37 to 0.59. This study followed Noor and Kumar (2014) that mentioned 3 categories of mean score; 2.33 (lower), 2.33 to 3.67 (moderate), while more than 3.67 is categorized as high.

4.3.1 Profile of Respondents

Table 4.9 shows the demographic profile of respondents. The information includes the name of public sector, gender, age, department, position, highest educational qualification, working experience. Referring to Table 4.9, eight public sector agencies are involved in the study. More than half (76.6%) of the respondents were male. In terms of age, nearly half (47.6%) of the respondents aged between 40-49 and they came from various departments. The job position covers the range of managerial areas typically represented in public sector agencies with the majority (75%) were Head of Unit. In terms of academic qualification, more than half (54.8%) of the respondents had degree. Respondents had working experience of fewer than 5 years (20.2%), 5-10 years (12.9%), 11-20 (38.7%) and more than 20 years (28.2%)

Table 4.9
Profile of the Respondent (N= 124)

Description	Category	Frequency	(%)
Public Sector	Agency of Investment and Integrated Licensing Service	18	14.5
	Agency of Library and Archive	18	14.5
	Agency of Population Registration	11	8.9
	Agency of Transportation	18	14.5
	Agency of Public Housing and Residential Area	13	10.5
	Agency of Public Works and Spatial Planning	8	6.5
	Hospital of Psychiatric	18	14.5
	Public Hospital of dr. Zainoel Abidin	20	16.1
	Total	**124**	**100**
Gender	Male	95	76.6
	Female	29	23.4
	Total	**124**	**100**
Age	Between 30 and 39	17	13.7
	Between 40 and 49	59	47.6
	Between 50 and 59	48	38.7
	Total	**124**	**100**
Department	Finance, Accounting and Administration	49	39.5
	Program, Information and Public Relation	12	9.7
	Others	63	50.8
	Total	**124**	**100**
Position	Head of Agency	1	0.8
	Deputy of Agency	4	3.2
	Head of Department	26	21.0
	Head of Unit	93	75.0
	Total	**124**	**100**
Highest Educational Qualification	Degree	68	54.8
	Postgraduate	55	44.4
	Total	**124**	**100**
Working Experience	<5	25	20.2
	5-10	16	12.9
	11-20	48	38.7
	>20	35	28.2
	Total	**124**	**100**

4.4 Measurement and Structural Model PLS-SEM of the Present Study

This study adopts two step process measurement and structural model of PLS-SEM analyses as suggested by Henseler, Ringle, and Sinkovics (2009), Hair *et al.* (2014), Urbach and Ahlemann (2010), as follows: (1) Measurement Model Assesment (Outer Model); examining individual item (indicator) reliability, ensuring internal consistency reliability, ensuring convergent validity and ensuring discriminat validity. (2) Structural Model Assesment (Inner Model); evaluating the significance of path coefficient, assessing Coefficient Determinant (level of R-squared), assessing effect size measurement (F^2), ensuring the predictive relevance (Q^2) and assessing moderating effect.

4.4.1 Assesment of Measurement Model (Outer Model)

Measurement model or outer model indicates the link between the construct and their appropriate indicator variable. This measurement model is the basis for examining the link based on the measurement theory. Thus, the measurement model is important to get useful results from PLS-SEM due to the hypotheses test involves the construct being measured (Hair *et al.*, 2017). The measurement model consists of two types of construct. The first type is exogenous latent variables or constructs that explain the other constructs in the model. The second type is the endogenous latent variable that is the construct described in the model (Hair *et al.*, 2014; 2017).

In more detail, the original research model and result of measurement model (outer model) of this study can be seen in Figure 4.3 and 4.4.

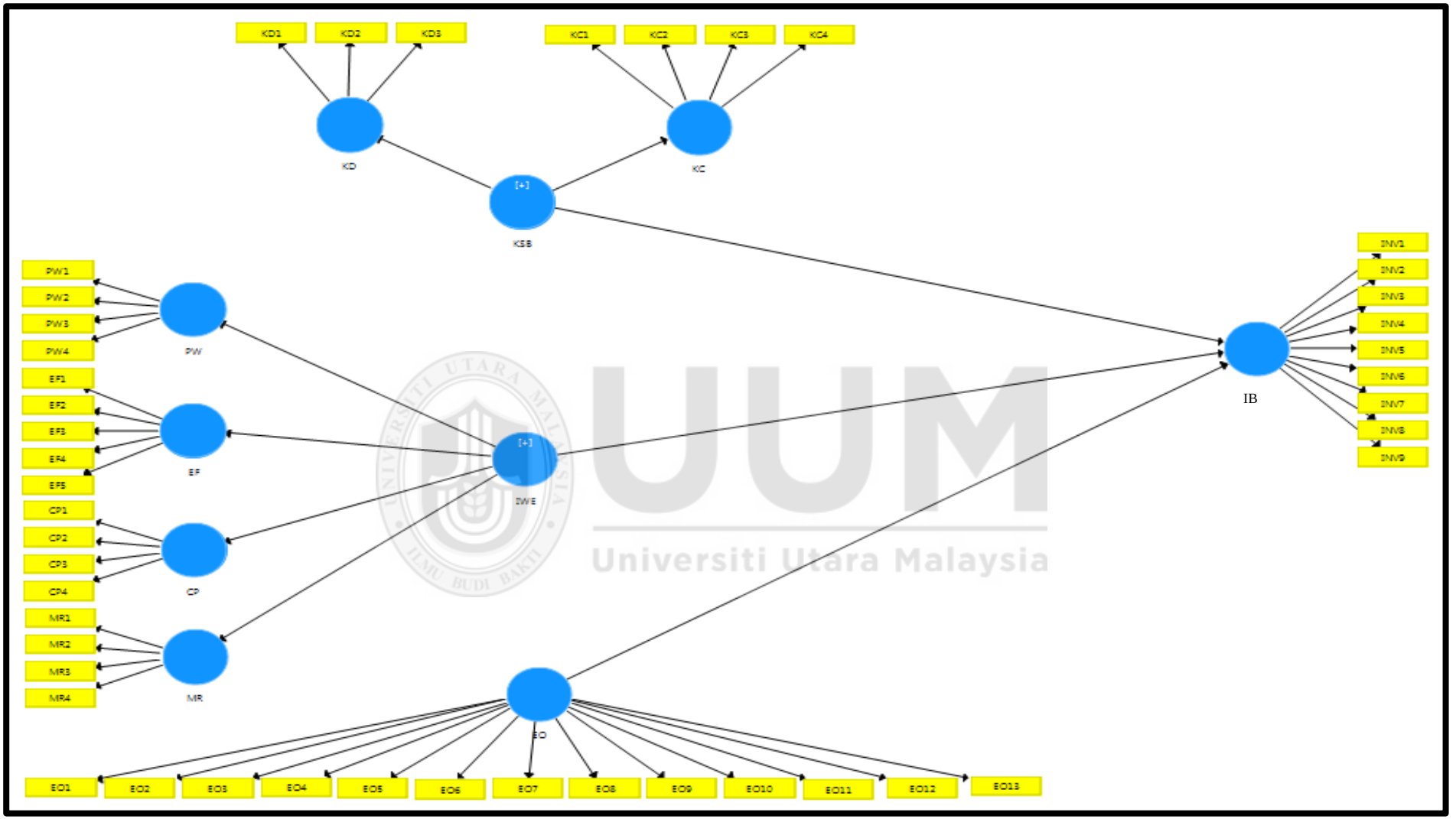

Figure 4.3

Original of Research Model

Note: IB= Innovative Behavior, KSB= Knowledge Sharing Behavior, KD= Knowledge Donating, KC= Knowledge Collecting, IWE= Islamic Work Ethic, PW= Perceived Worship, EF=Effort, CP= Cooperation, MR= Moral Responsibility, EO= Entrepreneurial Orientation

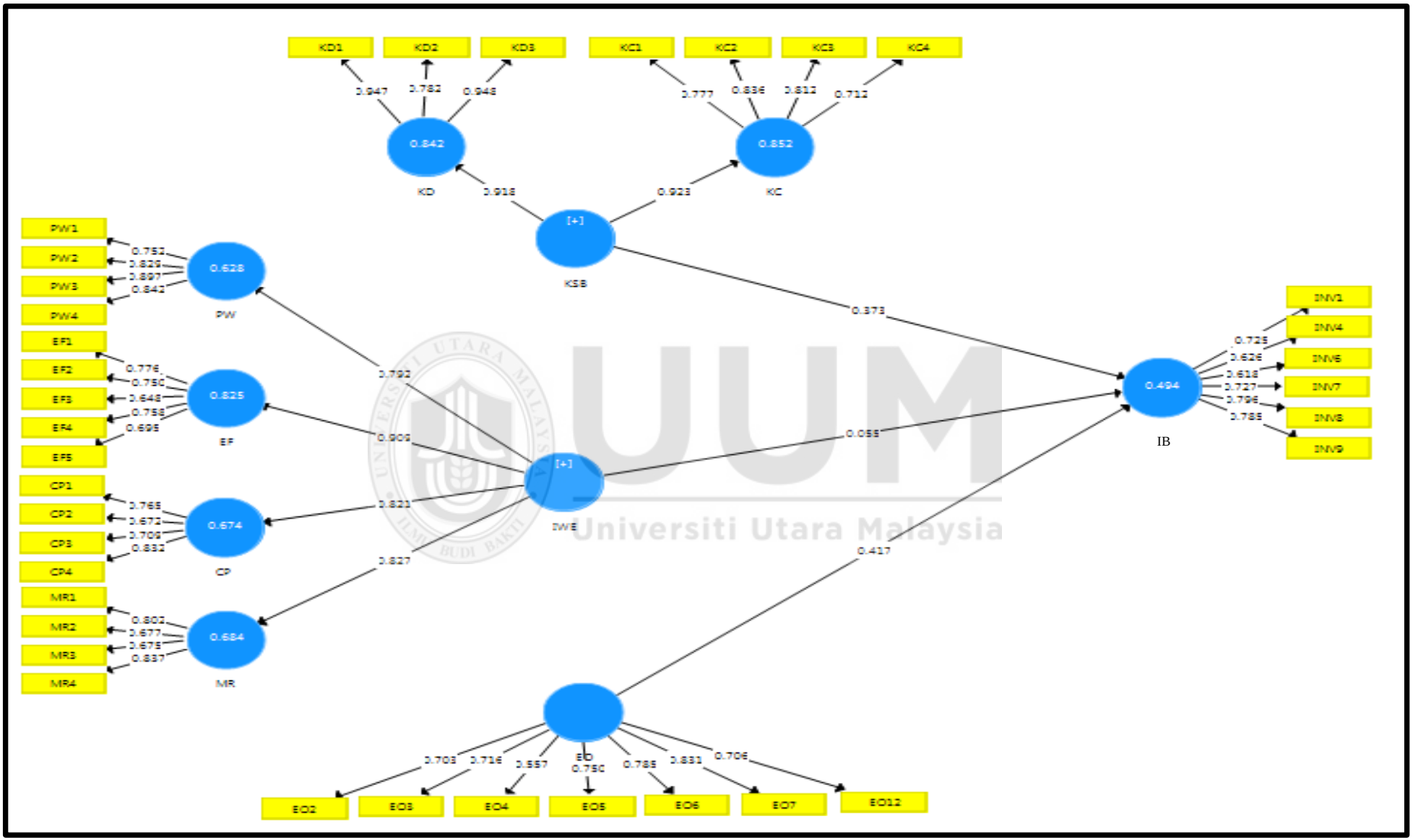

Figure 4.4
Result of Measurement Model

4.4.1.1. Indicator Reliability

Assessment of individual item reliability was conducted through the outer loading. In the PLS model, loading items cannot be retained when it is smaller than 0.4. Meanwhile, indicator reliability 0.70 is preferred. Hence, a rule of thumb for loading items is in the range of .40 to .70 (Hair *et al.*, 2014). According to Hair *et al*. (2017), deleting low loading values will increase the value of AVE and composite reliability. Similarly, Hulland (1999) asserted that for explorative research, a value of 0.4 or higher is accepted.

This study has 46 items as a whole i.e. innovative behavior 9 items, knowledge donating 3 items, knowledge collecting 4 items, perceived worship 4 items, effort 5 items, cooperation 4 items, moral responsibility 4 items and entrepreneurial orientation 13 items.. However, it was found that 3 of 9 items of innovative behavior (dependent variable) i.e. IB3, IB5, IB6 were not accepted due to the small loading. Also, there were 6 of 13 items of moderating variable (entrepreneurial orientation) cannot be retained i.e. EO1, EO8, EO9, EO10, EO11, EO13. Meanwhile, loading of other constructs such as knowledge donating, knowledge collecting, perceived worship, effort, cooperation, moral responsibility and entrepreneurial orientation are having a loading as required i.e. higher than 0.4. Thus, there were 9 items dropped and 37 items retained for further analysis as shown in Table 4.10.

Table 4.10
Outer Loading

Latent Variable (Construct)	Items	Standardized Loading
Innovative Behavior (IB)	IB1	0.725
	IB 2	0.626
	IB 4	0.618
	IB 7	0.727
	IB 8	0.796
	IB 9	0.785
Knowledge Donating (KD)	KD1	0.947
	KD2	0.782
	KD3	0.948
Knowledge Collecting (KC)	KC1	0.777
	KC2	0.836
	KC3	0.812
	KC4	0.712
Perceived Worship (PW)	PW1	0.752
	PW2	0.829
	PW3	0.897
	PW4	0.842
Effort (EF)	EF1	0.776
	EF2	0.750
	EF3	0.648
	EF4	0.758
	EF5	0.695
Cooperation (CP)	CP1	0.765
	CP2	0.672
	CP3	0.709
	CP4	0.832
Moral Responsibility (MR)	MR1	0.802
	MR2	0.677
	MR3	0.675
	MR4	0.837
Entrepreneurial Orientation (EO)	EO2	0.703
	EO3	0.716
	EO4	0.557
	EO5	0.750
	EO6	0.785
	EO7	0.831
	EO12	0.706

4.4.1.2 Internal Consistency Reliability

The criterion of internal consistency measurement is by referring to the value of cronbach alpha and composite reliability which shows reliability on correlation between indicator variables (Hair *et al.,* 2017). Therefore, this study uses cronbach alpha and composite reliability in order to measure internal consistency. Cronbach alpha with values above 0.70 fall into satisfactory categories and 0.60 less reliable, while the composite reliability must be greater than or equal to 0.70 (Hair *et al.*, 2014; Hanseler *et al.*, 2009). It appears in Table 4.11 that cronbach alpha of each construct ranged between 0.733 to 0.873. Meanwhile, the value of composite reliability is in the range of 0.834 to 0.924. Therefore, the value of Cronbach alpha and composite reliability meet all the requirements as suggested by Hair *et al.* (2014).

Table 4.11
Cronbach Alpha and Composite Reliability

Construct	Cronbach's Alpha	Composite Reliability
Innovative Behavior (IB)	0.809	0.862
Knowledge Donating (KD)	0.873	0.924
Knowledge Collecting (KC)	0.792	0.865
Perceived Worship (PW)	0.853	0.899
Effort (EF)	0.777	0.848
Cooperation (CP)	0.733	0.834
Moral Responsibility (MR)	0.741	0.837
Entepreneurial Orientation (EO)	0.850	0.885

4.4.1.3 Convergent Validity

Convergent validity was performed to measure the extent to which measurement is positively correlated with measure on the same construct. To evaluate the convergent validity of the reflective construct, it should look to the outer loading indicator and the average variance extracted (AVE) (Hanseler *et al*., 2009; Hair *et al.,* 2017). The value of AVE is adequate to convergent validity when it has a loading greater than 0.50

(Chin, 1988; Hair *et al.*, 2017). In this study, all construct have range of AVE between 0.51 to 0.80 as shown in Table 4.12.

Table 4.12
Average Variance Extracted (AVE)

Latent Variables (Constructs)	Average Variance Extracted (AVE)
Innovative Behavior (IB)	0.513
Knowledge Donating (KD)	0.802
Knowledge Collecting (KC)	0.617
Perceived Worship (PW)	0.692
Effort (EF)	0.528
Cooperation (CP)	0.558
Moral Responsibility (MR)	0.565
Entepreneurial Orientation (EO)	0.526

4.4.1.4 Discriminant Validity

Discriminant validity is to asses the degree to which a construct is different from other constructs (Hair *et al.*, 2014; 2017; Duarte & Raposo, 2010; Portney & Watkins, 2009). Therefore, discriminant validity implies that the extent to which a construct is unique and capable to capture phenomenon that can not be found in any other constructs in the model. As this study applies reflective measurement model, Fornell-Larcker (1981) criterion was conducted to confirm the discriminant validity. Further, Fornell and Larcker (1981) emphasized that to achieve discriminant validity, the square root average variance extracted (AVE) for each construct must be greater than the other constructs' correlation coefficient in the rows and columns. This study revealed that the square root of AVE of each construct exceeds the value between the latent construct, so it can be concluded that discriminant validity was established. The result is shown in Table 4.13.

Table 4.13
Discriminant Validity (Fornell-Larcker Criterion)

	CP	EF	EO	IB	KC	KD	MR	PW
CP	**0.747**							
EF	0.713	**0.727**						
EO	0.445	0.391	**0.726**					
IB	0.424	0.428	0.606	**0.716**				
KC	0.547	0.439	0.415	0.537	**0.786**			
KD	0.391	0.302	0.402	0.539	0.694	**0.896**		
MR	0.672	0.652	0.407	0.385	0.462	0.287	**0.752**	
PW	0.578	0.724	0.370	0.383	0.592	0.445	0.567	**0.832**

Note: IB= Innovative Behavior, KD= Knowledge Donating, KC= Knowledge Collecting, PW= Perceived Worship, EF=Effort, CP= Cooperation, MR= Moral Responsibility, EO= Entrepreneurial Orientation

4.4.2 Evaluation of the Structural Model (Inner Model)

Once the reflective measurement validity and reliability were confirmed, then the structural model (inner model) was analyzed to test the research hypotheses. To ensure the stability of the result of bootstrapping, it is recommended to use large numbers such as bootstrap subsample (i.e. 5000). According to Hair *et al.* (2017), Hanseler *et al.* (2009), the use of 5000 sampling is to confirm that every model of the parameter having an empirical sampling and the standard deviation distribution would be the proxy of parameter of empirical standard error. Therefore, this study used bootstrapping 5000 resample to measure both direct effect and moderating effect.

Furthermore, the crucial assessment for structural model is R square (R^2) or explained variance, effect size (f^2), predictive relevance (Q^2), and statistical significance of path coefficients (Hair *et al.*, 2017). In this study, the stages or process in the structural model were performed on direct relationship and moderating effect relationship. After

performing the significance test, this study examines R^2, f^2 and Q^2 on direct relationship and moderating effect relationship.

4.5 Hypotheses Test

Hypotheses testing were performed via bootstrapping procedure to test the direct effect between independent and dependent variables and indirect effect through moderator.

4.5.1 Testing for the Direct Effect

Related to the objectives of this study, hypotheses on the direct effect were examined between independent and dependent variables. Hence, this study investigates the direct effect of knowledge sharing behavior (KSB) on innovative behavior (IB). Additionally, it examines the effect of Islamic work ethic (IWE) on innovative behavior (IB) as shown in model 1 (see Figure 4.5). Furthermore, in order to determine the effect of each dimension of independent variables on dependent variable, the model was drawn separately on sub-hypotheses for each dimension of independent variables (Hair *et al.*, 2014). Model 2 shows the direct effect between each dimension of knowledge sharing behavior namely knowledge donating (KD) and knowledge collecting (KC) with innovative behavior (IB). The same goes to Islamic work ethic, along with its dimensions namely perceived worship (PW), effort (EF), cooperation (CP) and moral responsibility (MR) (see Figure 4.6.).

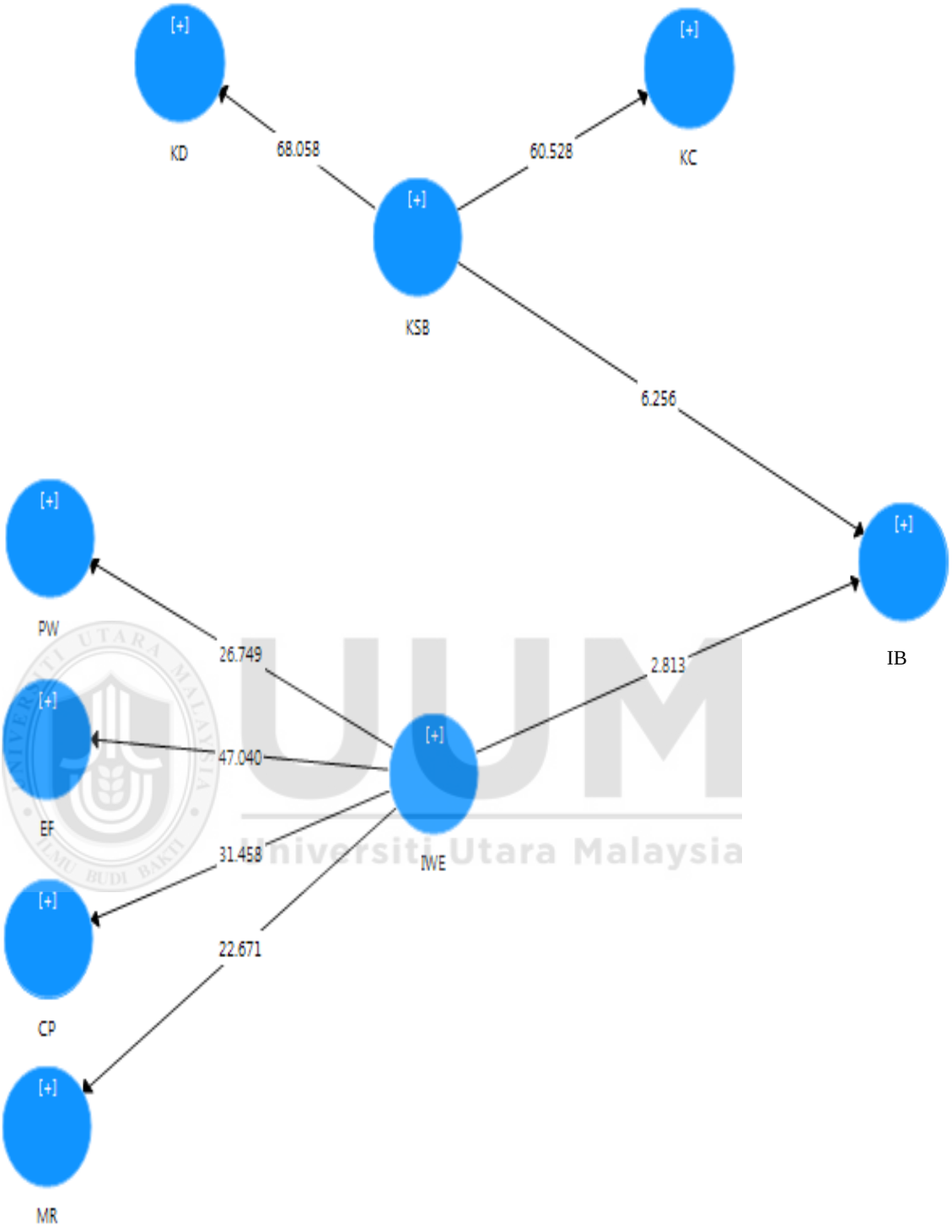

Figure 4.5
Direct Effect Model 1
Note: IB= Innovative Behavior, KSB= Knowledge Sharing Behavior, KD= Knowledge Donating, KC= Knowledge Collecting, IWE= Islamic Work Ethic, PW= Perceived Worship, EF=Effort, CP= Cooperation, MR= Moral Responsibility

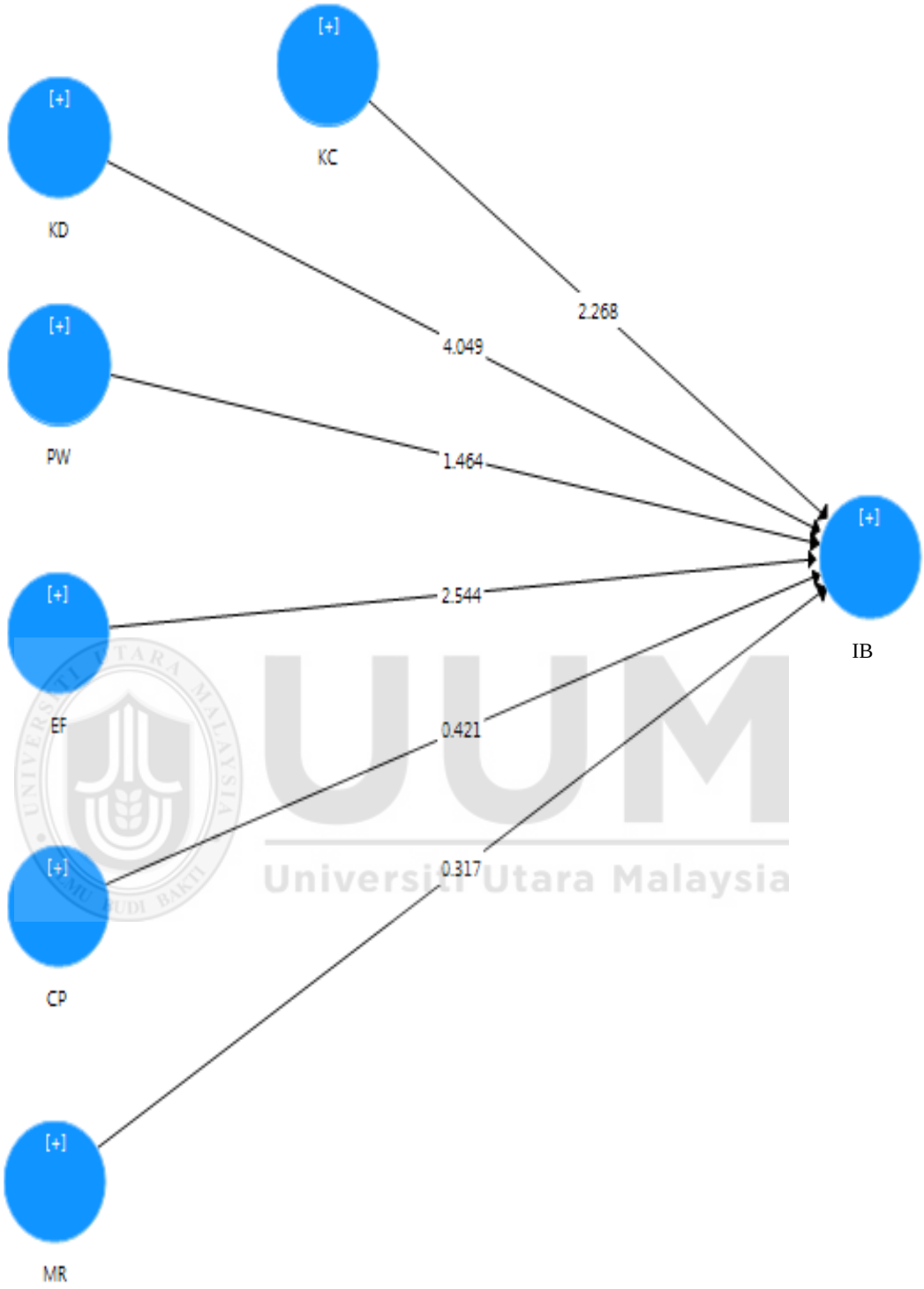

Figure 4.6
Direct Effect Model 2
Note: IB= Innovative Behavior, KD= Knowledge Donating, KC= Knowledge Collecting, PW= Perceived Worship, EF=Effort, CP= Cooperation, MR= Moral Responsibility

Based on the result of PLS SEM, this study found that knowledge sharing behavior and each of its dimension namely knowledge donating and knowledge collecting have a significant effect on innovative behavior. Meanwhile, Islamic work ethic and one of its dimension (i.e. effort) also have a significant effect on innovation. However, the other three dimensions of Islamic work ethic (i.e. perceived worship, cooperation and moral responsibility) have no effect on innovative behavior. The results of direct effect are shown in Table 4.14.

Table 4.14
Result of Direct Effect

Relationship	Path Coefficient (β)	T Value	P Value	Hyphotesis	Result
KSB -> IB	0.478***	6.256	0.000	H1	**Supported**
KD -> IB	0.335***	4.049	0.000	H1-1	**Supported**
KC -> IB	0.245**	2.268	0.023	H1-2	**Supported**
IWE -> IB	0.214***	2.813	0.005	H2	**Supported**
PW -> IB	-0.151	1.464	0.143	H2-1	Not Supported
EF -> IB	0.301**	2.544	0.011	H2-2	**Supported**
CP -> IB	0.044	0.421	0.674	H2-3	Not Supported
MR -> IB	0.032	0.317	0.752	H2-4	Not Supported

Note: ***p<0.01, **p<0.05, *p<0.1
IB = innovative behavior, KSB= knowledge sharing behavior, IWE= Islamic work ethic, KD = knowledge donating, KC = knowledge collecting, PW = perceived worship, EF = effort, CP = cooperation, MR= Moral Responsibility

Table 4.14 shows that this study supported hypotheses H1 to H1-1 and H1-2.. There were significant effect between knowledge sharing behavior on innovative behavior ($\beta = 0.478$, $t = 6.256$, $p < 0.01$), knowledge donating on innovative behavior ($\beta = 0.335$, $t = 4.049$, $p < 0.01$) and knowledge collecting on innovative behavior ($\beta = 0.245$, $t = 2.268$, $p < 0.05$). Furthermore, this study also supported hypotheses H2 and H2-2. There was a significant effect between Islamic work ethic and innovative behavior ($\beta = 0.214$, $t = 2.813$, $p < 0.05$). Islamic work ethic and its dimension (i.e. effort) also has a significant effect on innovative behavior ($\beta = 0.301$, $t = 2.544$, $p < 0.05$). However, another three dimensions of IWE were found to have non significant effects. They are

perceived worship and innovative behavior (β = -0.151, t = 1.464, p = 0.143), cooperation and innovative behavior (β = 0.044, t = 0.421, p = 0.674) and moral responsibility on innovative behavior (β = 0.032, t = 0.317, p = 0.752). Therefore hypothesis H2-1, H2-3 and H2-4 were not supported.

4.5.1.1 Coefficient of Determination (R^2) for Direct Relationship

Assessment of R square (R^2) is important in evaluating the structural model in PLS SEM. R Square (R^2) is coefficient determination that explains the total variance in endogenous constructs (Hair *et al.*, 2010; 2014). Chin (1998) suggested three levels of values in R square. The substantial values are 0.60, moderate 0.33 and weak 0.19. However, Falk and Miller (1992) confirmed that the value of 10% can be accepted in PLS path model. In this study, the result of coefficient determination (R^2) is shown in Table 4.15.

Table 4.15
Result of R^2 for Direct Relationship

Latent Variable	Variance Explaianed (R^2)	
	Model 1	**Model 2**
Innovative Behavior	0.387	0.428

Based on Table 4.16, this study found that R^2 in model 1 is 0.387. It means that the combination of exogenous latent variables explains 39% of total variance in endogenous latent variables (i.e. innovative behavior). In the second model, R^2 is 0.428. Thus, the combination of each dimension of exogenous latent variables (i.e. knowledge donating, knowledge collecting, perceived worship, effort, cooperation and moral responsibility) explains 43% of total variance of endogenous latent variable

(innovative behavior). Following to the guideline of Chin (1998), Falk and Miller (1992), R square (R^2) in this study is above moderate.

4.5.1.2 Effect Size (f^2) for Direct Relationship

Effect size (f^2) is a measurement applied to determine relative impact of predictor construct against endegenous constructs (Hair *et al.*, 2017). Effect size (f^2) was conducted to examine the goodness of the model. Effect size determines the relative effect of a specific exogenous latent variable against an endogeneous latent variable based on a change in R^2 (Chin, 1988). Effect size was measured using Cohen's (1988) formula as follows:

$$f2 = \frac{R^2 \text{ included} - R^2 \text{ excluded}}{1-R^2 \text{ included}}$$

Cohen's (1988) has divided the effect size into three categories. Value of f^2 is high (0.35), medium (0.15) and small (0.02). However, there was no effect size when the values are less than 0.02 (Hair *et al.*, 2017). The effect size of this study is shown in Table 4.16.

Table 4.16
Result of f^2 for Direct Relationship

Construct	(f^2)	Effect Size
Knowledge Sharing Behavior	0.259	Medium
Knowledge Donating	0.103	Small
Knowledge Collecting	0.040	Small
Islamic Work Ethic	0.052	Small
Perceived Worship	0.016	Small
Effort	0.058	Small
Cooperation	0.001	None
Moral Responsibility	0.001	None

4.5.1.3 Predictive Relevance (Q^2) for Direct Relationship

Prediction relevance (Q square) or known as Stone-Geisser's was conducted to determine predictive relevance (Q^2) from exogenous latent variables to endogenous latent variables by using blindfolding procedure (Geisser, 1974; Hair *et al.*, 2014). However, test of construct Cross-Validated Redundancy (Q^2) square can only be performed for endogenous constructs with reflective indicators (Hair *et al.*, 2014). Furthermore, the model has a predictive relevance if the value of Q^2 is greater than zero (Hanseler *et al.*, 2009; Chin, 1998; Hayes, 2009). In this study, the cross-validated redundancy Q^2 test was performed on endogenous constructs that have reflective indicators of innovative behavior. The value of Q^2 can be seen in Table 4.17.

Table 4.17
Result of Construct Cross-Validated Redundancy (Q^2)

Construct	Q^2 (=1-SSE/SSO)
Innovative Behavior (Model 1)	0.168
Innovative Behavior (Model 2)	0.184

Table 4.17 showed that the value of Q^2 for the first model is 0.168. Meanwhile, the value of Q^2 for model 2 is 0.184. Hence, the value of Q^2 in both models is greater than zero. It can be concluded that both models used in this study meet the criteria of predictive relevance.

4.5.2 Testing for the Moderating Effect

The concept of moderation related to the third variable that can directly influence the relationship between exogenous and endogenous latent variables. It can occur when the moderator changes the strength and even direct the relationship between two

constructs in a model (Hair *et al.*, 2017). Therefore, effect of predictor (X) on outcome (Y) depends on the moderator (Z) since moderating variable can affect strength or direction between two variables. Thus, there is effect of other variable i.e. moderator variable on the relationship between independent variable and dependent variable. Thus, outcome variables is explained by effect of moderator variable. It indicates that interaction effect determines the result of the relationship on outcome. In this study, the relationship between knowledge sharing behavior, Islamic work ethic as the independent variable and innovative behavior as the dependent variable will be explained by entrepreneurial orientation as a moderating variable. It asserted that interaction of knowledge sharing behavior, Islamic work ethic and innovative behavior can be influenced by entrepreneurial orientation through enhancing or reducing innovative behavior.

To examine the moderating effect of entrepreneurial orientation, this study uses the bootstrapping approach as suggested by Hair *et al.* (2014) and Preacher and Hayes (2008). Moderating effect of entrepreneurial orientation is shown in two models. First, it examines moderating effect of entrepreneurial orientation on the relationship between knowledge sharing behavior, Islamic work ethic and innovation as shown in model 1 (see figure 4.7). Second, it investigates the moderating effect of entrepreneurial orientation on the relationship between each dimension of knowledge sharing behavior (i.e. knowledge donating and knowledge collecting) with innovative behavior. It also examined the moderating effect of entrepreneurial orientation on the relationship between Islamic work ethic on innovative behavior through its dimension (i.e perceived worship, effort, cooperation and moral responsibility) as shown in Figure 4.8 .and 4.9.

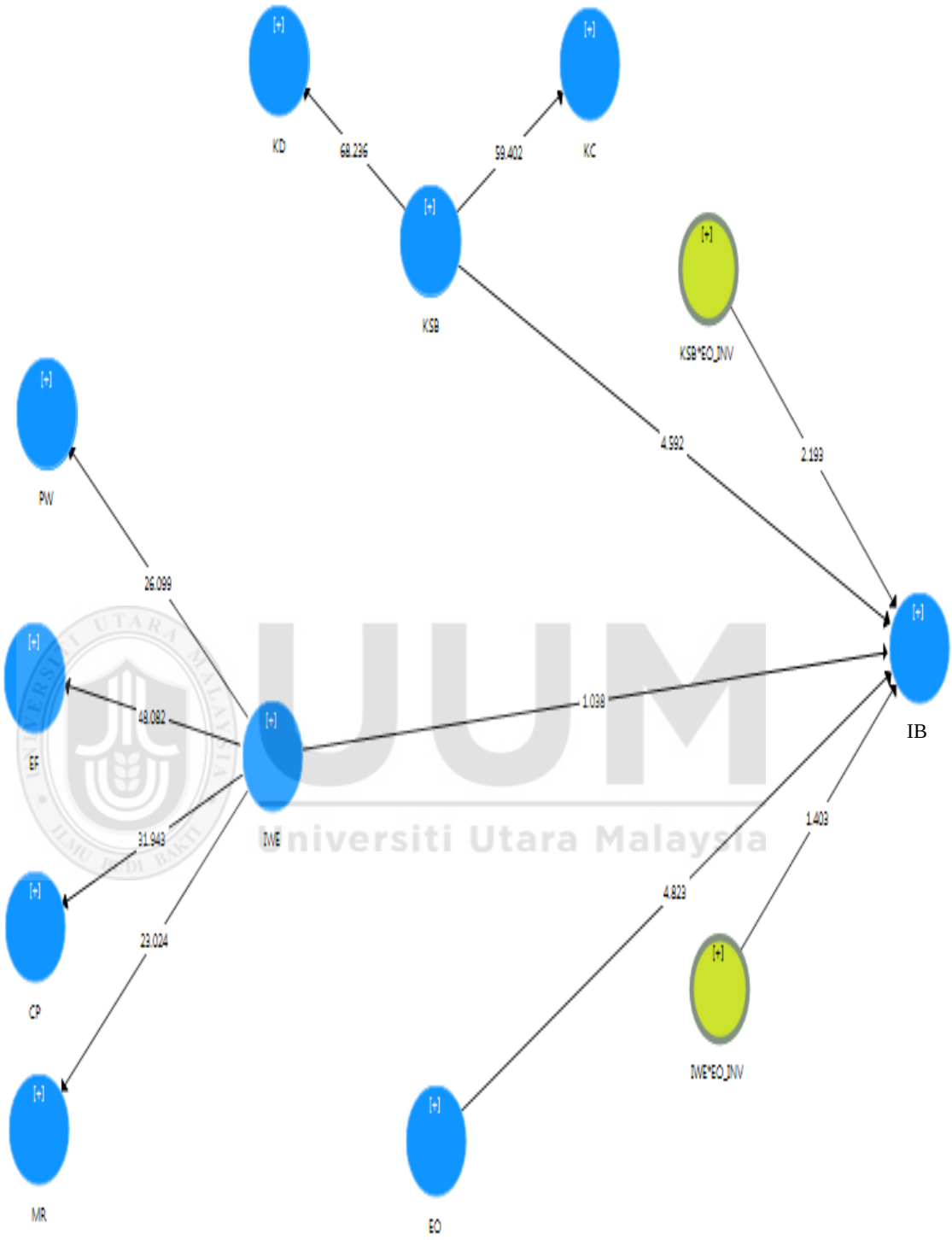

Figure 4.7
Moderating Effect Model 1
EO as a moderator between KSB, IWE and INV
Note: IB= Innovative Behavior, KSB= Knowledge Sharing Behavior, KD= Knowledge Donating, KC= Knowledge Collecting, IWE= Islamic Work Ethic, PW= Perceived Worship, EF=Effort, CP= Cooperation, MR= Moral Responsibility, EO= Entrepreneurial Orientation

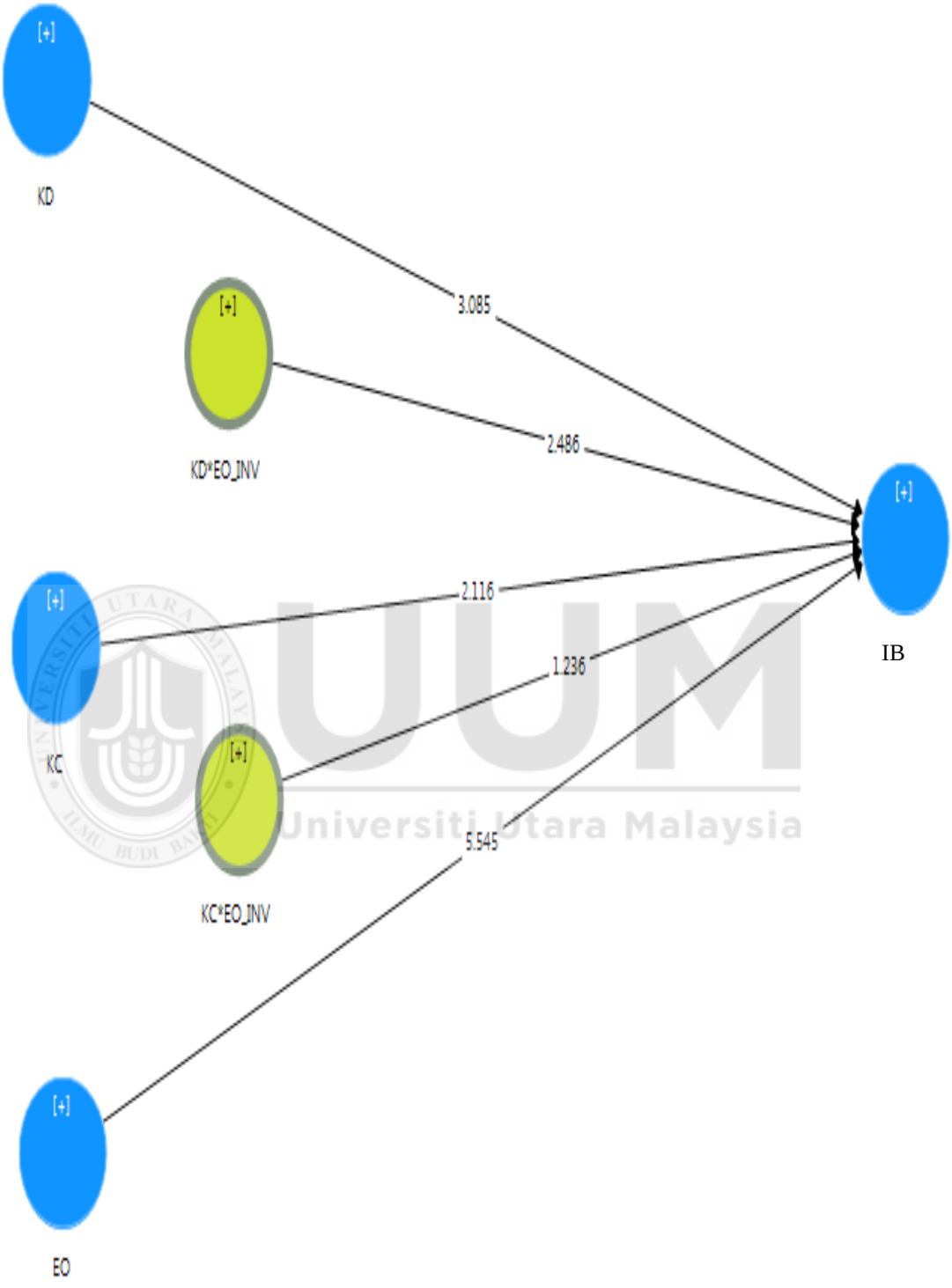

Figure 4.8
Moderating Effect Model 2
EO as a moderator between Dimensions of KSB and INV
Note: IB= Innovative Behavior, KD= Knowledge Donating, KC= Knowledge Collecting, EO= Entrepreneurial Orientation

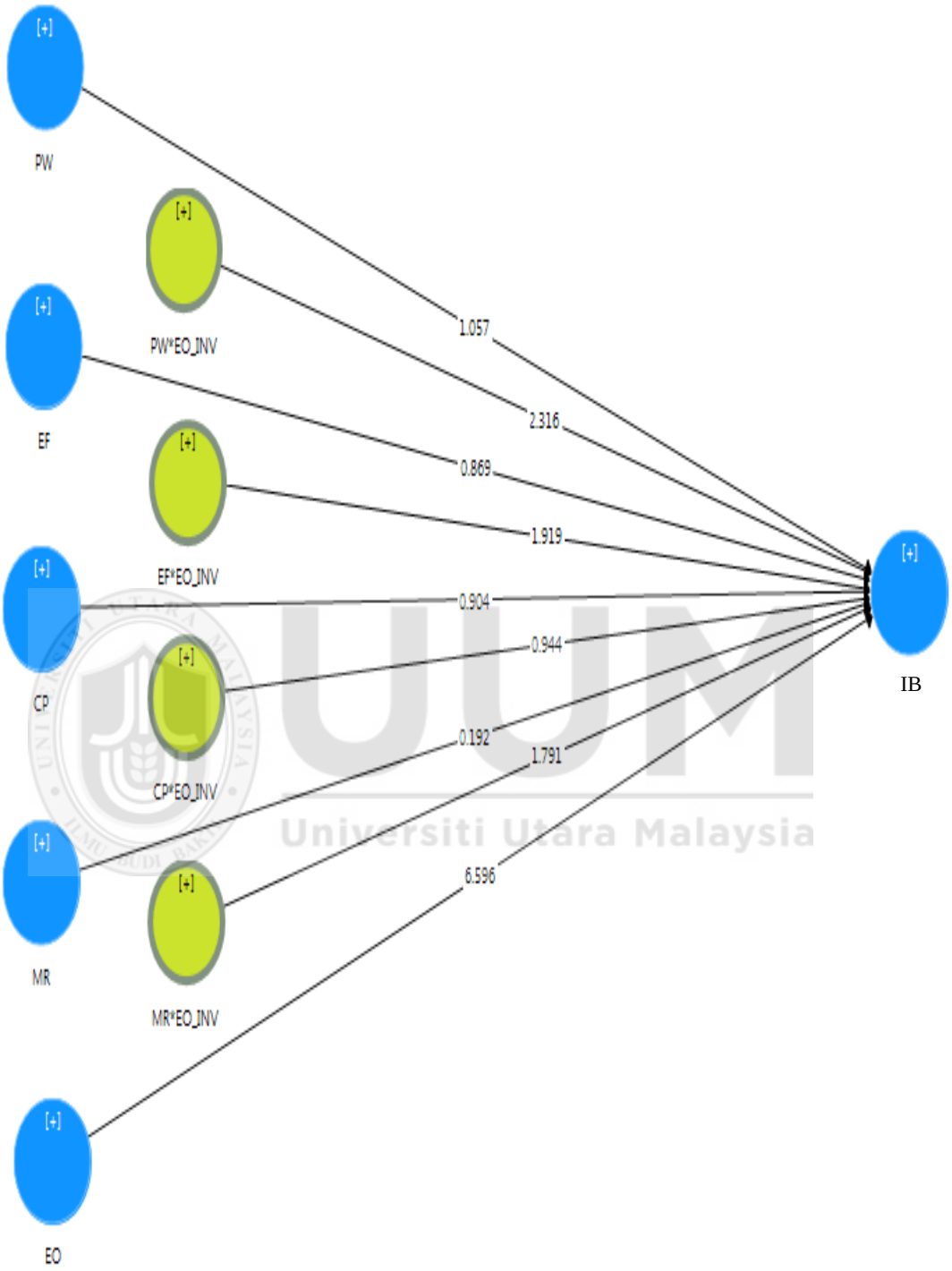

Figure 4.9
Moderating Effect Model 3
EO as a moderator between Dimensions of IWE and INV
Note: IB= Innovative Behavior, IWE= Islamic Work Ethic, PW= Perceived Worship, EF=Effort, CP= Cooperation, MR= Moral Responsibility, EO= Entrepreneurial Orientation

This study found the moderating effect of entrepreneurial orientation on the relationship between knowledge sharing behavior and innovative behavior. Moderating effect of EO can also be found in the relationship of dimension of knowledge sharing behavior (i.e. knowledge donating) on innovative behavior. Similarly, EO has a moderating effect on the relationship between dimension of Islamic work ethic (i.e. perceived worship) with innovative behavior. Therefore, this study supports H3, H3-1 and H4-1. In more detail, Table 4.18 shows the results of moderating effect of entrepreneurial orientation. Furthermore, interaction effect of entrepreneurial orientation on the relationship between knowledge sharing behavior and its dimension, Islamic work ethic along with its dimension can also be revealed in graph of moderating effect (refer Figure 4.11, 4.12 and 4.13).

Table 4.18
Result of Moderating Effect

Relationship	β	T Value	P Value	Hypothesis	Result
Moderating Effect: KSB* EO -> IB	0.177	2.193	0.028	**H3****	**Supported**
Moderating Effect: KD*EO -> IB	0.176	2.486	0.013	**H3-1****	**Supported**
Moderating Effect: KC*EO -> IB	-0.105	1.236	0.216	H3-2	Not Supported
Moderating Effect: IWE*EO -> IB	-0.122	1.403	0.161	H4	Not Supported
Moderating Effect: PW*EO -> IB	0.304	2.316	0.021	**H4-1****	**Supported**
Moderating Effect: EF*EO -> IB	-0.245	1.919	0.055	H4-2	Not Supported
Moderating Effect: CP*EO -> IB	0.138	0.944	0.345	H4-3	Not Supported
Moderating Effect: MR*EO -> IB	-0.238	1.791	0.073	H4-4	Not Supported

Note: ***p<0.01, **p<0.05, *p<0.1
IB = innovative behavior, KSB= knowledge sharing behavior, IWE= Islamic work ethic, KD = knowledge donating, KC = knowledge collecting, PW = perceived worship, EF = effort, CP = cooperation, MR= Moral Responsibility, EO= entrepreneurial orientation

Table 4.18 showed that entrepreneurial orientation has moderating effect on the relationship between knowledge sharing behavior and innovative behavior ($\beta = 0.177$, $t = 2.193$, $p = 0.028$). As shown in Figure 4.10, entrepreneurial orientation strengthens the relationship between knowledge sharing behavior and innovative behavior. Interaction effect between knowledge sharing behavior toward innovative behavior is stronger when entrepreneurial orientation is higher than when entrepreneurial orientation is lower. Thus, the relationship between knowledge sharing behavior and innovative behavior become stronger when individuals have high entrepreneurial orientation than individuals with low entrepreneurial orientation.

The result of figure 4.10 illustrates that there is a synergistic interaction effect. It was found the in the graph that effect of knowledge sharing behavior on innovative behavior is greater for the manager with high entrepreneurial orientation (solid line) than lower entrepreneurial orientation (dash line). Predictor and moderator influence outcome in the same direction. They are together have a strong effect on outcome. Change in the level of moderator (entrepreneurial orientation) enhances relation between independent variable (knowledge sharing behavior) and dependent variable (innovative behavior). Effect of predictor on outcome depends on moderator. Thus, predictor and moderator influence the outcome variable. When individual manager adopts high entrepreneurial orientation, kowledge sharing behavior will enhance innovative behavior. Thus, it can be revealed a synergistic interaction effect in this study, knowledge sharing behavior enhance innovation behavior with entrepreneurial orienttion. On the other words, entrepreneurial orientation moderate the relationship between knowledge sharing behavior and innovative behavior. Therefore, this study supports Hypothesis H3.

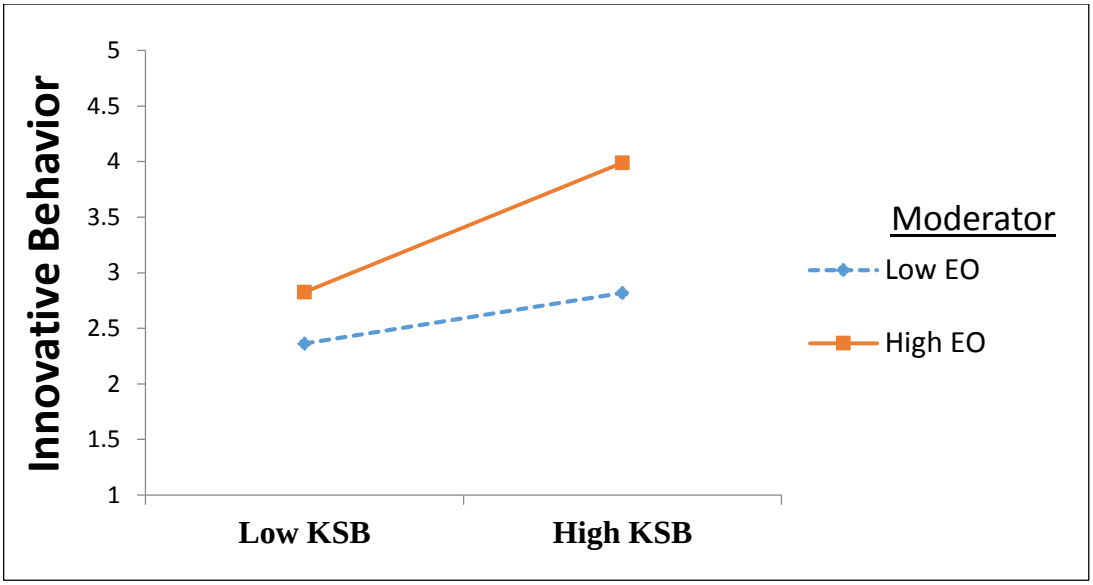

Figure 4.10
Moderating Effect of Entrepreneurial Orientation on the Relationship between Knowledge Sharing Behavior and Innovative Behavior

Entrepreneurial orientation also has a significant moderating effect on the relationship between knowledge donating and innovative behavior ($\beta = 0.176$, $t = 2.486$, $p = 0.013$). This study supports H3-1. As shown in Figure 4.11, a synergistic interaction effect can be found in the graph. It appears that knowledge donating enhances innovative behavior by manager with high entrepreneurial orientation (solid line) than manager with low entrepreneurial orientation (dash line). Change in level of moderator variable improves relationship between independent variable and dependent variable. Thus, interaction effect between knowledge donating and entrepreneurial orientation enhances innovative behavior. Entrepreneurial orientation strengthens the relationship between knowledge donating and innovative behavior. Meanwhile, moderating effect becomes weak with low entrepreneurial orientation. Therefore, relationship between knowledge donating and innovative behavior was determined by entrepreneurial orientation since moderator variable can reduce or enhance effect of predictor on outcome.

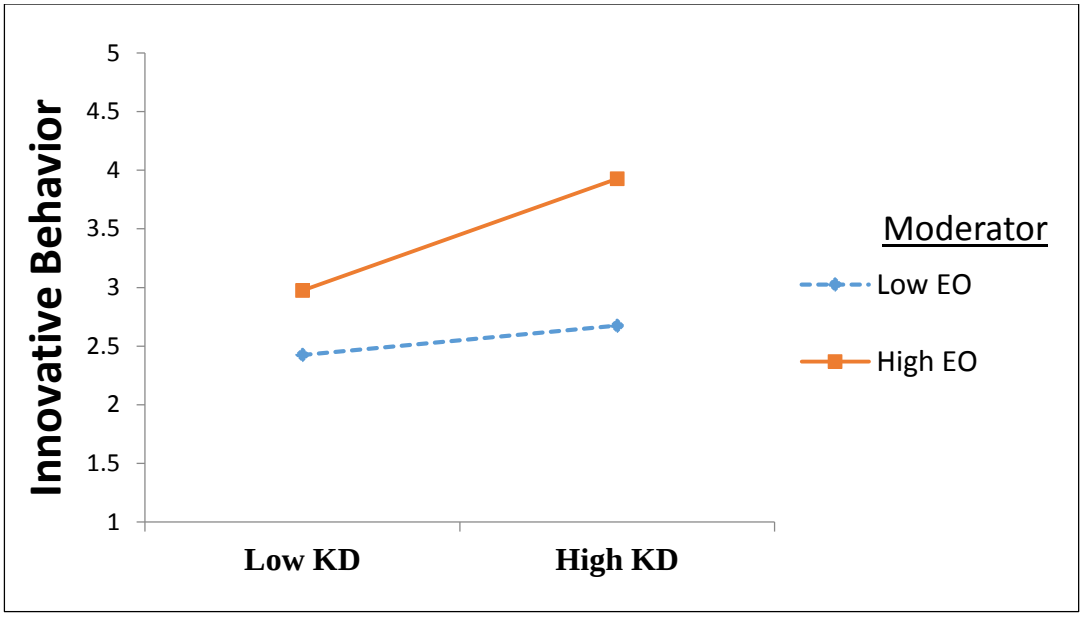

Figure 4.11
Moderating Effect of Entrepreneurial Orientation on the Relationship between Knowledge Donating and Innovative Behavior

Furthermore, moderating effect of entrepreneurial orientation can be revealed in the relationship between Islamic work ethic through its dimension (i.e perceived worship) and innovation ($\beta = 0.304$, $t = 2.316$, $p = 0.021$). Figure 4.12 also depicts that there is a synergistic interaction effect when change in the level of moderator enhances relationship between predictor (X) and outcome (Y) as shown in the graph that perceived worship enhances innovative behavior by manager with high entrepreneurial orientaion (solid line) than manager with low entrepreneurial orientation (dash line). Thus, entrepreneurial orientation enhances or strengthens the relationship between perceived worship and innovative behavior. The relationship of perceived worship and innovative behavior are strengthen when entrepreneurial orientation is high and it becomes low when entrepreneurial orientation decline. Thus, interaction effect of perceived worship and entrepreneurial orientation on innovative behavior is higher when entrepreneurial orientation is higher than when entrepreneurial orientation is lower. Thus, hypothesis H4-1 is acceptable.

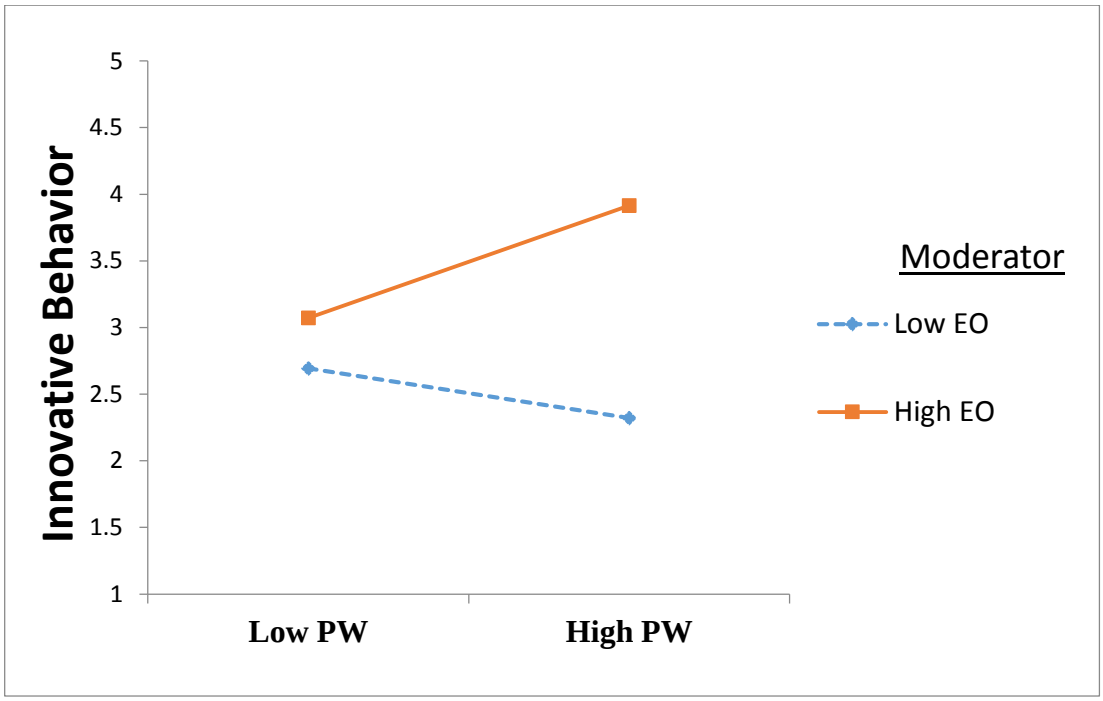

Figure 4.12
Moderating Effect of Entrepreneurial Orientation on the Relationship between Perceived Worship and Innovative Behavior

4.5.2.1 Coefficient Determination (R^2) for Moderating Effect

In this study, assessment of coefficient determination of the moderating effect was conducted in 3 models. Firstly, it determines R^2 for the moderating effect of EO on the relationship between knowledge sharing behavior, Islamic work ethic and innovative behavior. Second, it assesses the moderating effect of EO on the relationship between the dimension of knowledge sharing behavior (i.e. knowledge donating and knowledge collecting) and innovative behavior. Third, it examines moderating effect of each dimension of Islamic work ethic (i.e. perceived worship, effort, cooperation and moral responsibility) with innovative behavior. Table 4.19 shows the result of coefficient determination (R^2) as follows.

Table 4.19
Result of R^2 for Moderating Effect

Latent Variable	Variance Explained (R^2)		
	Model 1	**Model 2**	**Model 3**
Innovative Behavior	0.520	0.529	0.474

This study found that R^2 in model 1 is 0.520. It means that exogenous latent variables explain 52% of total variance in endogenous latent variables (i.e. innovative behavior). In the second model, the value of R^2 is 0.529 or 53%. Meanwhile, in the third model, the value of R^2 is 0.474 or 47%. Therefore, R^2 values in this study can be considered as moderate level (Chin, 1998).

4.5.2.2 Effect Size (f^2) for Moderating Effect

Table 4.20 shows the result of effect size for moderating effect as follows.

Table 4.20
Result f^2 for Moderating Effect

Construct	(f^2)	Effect Size
Knowledge Sharing Behavior	0.046	Small
Knowledge Donating	0.055	Small
Knowledge Collecting	0.013	Small
Islamic Work Ethic	0.017	Small
Perceived Worship	0.047	Small
Effort	0.034	Small
Cooperation	0.010	Small
Moral Responsibility	0.032	Small
Entrepreneurial Orientation (Model 1)	0.255	Medium
Entrepreneurial Orientation (Model 2)	0.338	High
Entrepreneurial Orientation (Model 3)	0.337	High

4.5.2.3 Predictive Relevance (Q^2) for Moderating Effect

The value of Q^2 in the first model is 0.227. Meanwhile, in model 2, the value of Q^2 is 0.233 and in model 3, the value of Q^2 is 0.198. It implies that the models meet the criteria for predictive relevance (Hanseler *et al.,* 2009; Chin, 1998; Hayes, 2009) as shown in Table 4.21.

Table 4.21
Construct Cross-Validated Redundancy (Q^2) for Moderating Effect

Construct	Q^2 (=1-SSE/SSO)
Innovative Behavior (Model 1)	0.227
Innovative Behavior (Model 2)	0.233
Innovative Behavior (Model 3)	0.198

4.6 Summary of Test Hypotheses Result

Table 4.22 shows the overall summary of hypotheses testing in this study.

Table 4.22
Result of Hypothesis Test

Hypotheses	Statement of Hypotheses	Result
H1	Knowledge sharing behavior has a positive and significant effect with innovative behavior	Supported
H1-1	Knowledge donating has a positive and significant effect with innovative behavior	Supported
H1-2	Knowledge collecting has a positive and significant effect with innovative behavior	Supported
H2	Islamic work ethic has a positive and significant effect with innovative behavior	Supported
H2-1	Perceived worship has a positive and significant effect with innovative behavior	Not Supported
H2-2	Effort has a positive and significant effect with innovative behavior	Supported
H2-3	Cooperation has a positive and significant effect with innovative behavior	Not Supported
H2-4	Moral responsibility has a positive and significant effect with innovative behavior	Not Supported

Table 4.22 (continued)
Result of Hypothesis Test

Hypotheses	Statement of Hypotheses	Result
H3	Entrepreneurial orientation moderate positive and significant effect between knowledge sharing behavior on innovative behavior	Supported
H3-1	Entrepreneurial orientation moderate positive and significant effect between knowledge donating on innovative behavior	Supported
H3-2	Entrepreneurial orientation moderate positive and significant effect between knowledge collecting on innovative behavior	Not Supported
H4	Entrepreneurial orientation moderates positive and significant effect between Islamic work ethic on innovative behavior	Not Supported
H4-1	Entrepreneurial orientation moderates positive and significant effect between perceived worship on innovative behavior	Supported
H4-2	Entrepreneurial orientation moderates positive and significant effect between effort on innovative behavior	Not Supported
H4-3	Entrepreneurial orientation moderates positive and significant effect between cooperation on innovative behavior	Not Supported
H4-4	Entrepreneurial orientation moderates positive and significant effect between moral responsibility on innovative behavior	Not Supported

4.7 Summary

This chapter presents the result of the study based on data collected from managers of public sector organizations in Aceh Province. Knowledge sharing behavior and Islamic work ethic are the independent variables, meanwhile, innovative behavior is the dependent variable. Furthermore, entrepreneurial orientation was tested as a moderator. There are 16 hypotheses constructed to examine the direct effect and moderating effect of each variable along with its dimensions. Meanwhile, data were examined by using analysis statistically namely SPSS version 20 and PLS Smart 3. The findings of this study will be discussed in more detail in the following section.

CHAPTER 5

DISCUSSION, RECOMMENDATION AND CONCLUSION

5.0 Introduction

The purpose of this chapter is to summarize findings of the study based on the results of data analysis. This chapter is an overview of discussion, recommendations and conclusions. Therefore, this section will clarify the contribution of research theoretical, methodological and practical and followed by limitations and suggestion for future research and recommendations.

5.1 Recapitulation the Key Findings of the Study

This study attempts to examine the effect of knowledge sharing behavior and Islamic work ethic on innovative behavior through moderating effect of entrepreneurial orientation. This study concentrates to the public sector as there are many emerging issues related to public sector innovation. This organization is identical with complaints. Most of the services given to the community are unsatisfactory. Appropriate approach is needed to address the problems in the public sector. One of the most important approach to improve quality of public service delivery is by adopting innovative behavior for innovation as a strategy. Some experts and previous studies have revealed that innovative behavior is a powerful means to enhance quality of service delivery in the public sector. However, public sector is a bureaucratic organization that causes environment in public sector can be a barrier to innovative behavior. Meanwhile, innovative behavior is largely determined by the actors or individuals involved as a resource of public sector. Therefore, this study highlights

resource such as specific behavior as a strategy to underpin innovative behavior in the public sector.

This study developed a theoretical framework based on literature to show the direct effect of knowledge sharing behavior and Islamic work ethic on innovative behavior. This relationship can be enhanced through the indirect effect of entrepreneurial orientation as a moderator. Knowledge sharing behavior has two dimensions: knowledge donating and knowledge collecting. Islamic work ethic consists of four dimensions: perceived worship, effort, cooperation and moral responsibility. Meanwhile, entrepreneurial orientation is characterized by innovativeness, proactiveness and risk taking.

Four research questions were developed for the study as follows: (1) What is the effect of knowledge sharing behavior on innovative behavior? (2) What is the effect of Islamic work ethic on innovative behavior? (3) Does entrepreneurial orientation moderate the relationship between knowledge sharing behavior and innovative behavior? (4) Does entrepreneurial orientation moderate the relationship between Islamic work ethic and innovative behavior?

The results of PLS-SEM show that for the direct effect: knowledge sharing behavior has a significant effect on innovative behavior. While, two dimensions of knowledge sharing behavior (knowledge donating and knowledge collecting) also have shown a positive and significant effect with innovative behavior. Furthermore, Islamic work ethic and one of its dimensions (i.e. effort) also have a positive and significant effect with innovation through innovative behavior. Also, this study found a positive

moderating effect of entrepreneurial orientation. The results show that entrepreneurial orientation has a positive moderating effect on the relationship between knowledge sharing behavior and its dimension ie. knowledge donating and innovative behavior. Entrepreneurial orientation also positively moderates the relationship between perceived worship and innovative behavior. The results of hypotheses and research objective will be discussed below.

5.2 Results of Hypotheses

This study will discuss the results of hypotheses both the direct effect and moderating effect. First, it will analyze the result of direct effect of knowledge sharing behavior and Islamic work ethic on innovation in the public sector. Second, this study will discuss the result of moderating effect of entrepreneurial orientation on the relationship between knowledge sharing behavior and Islamic work ethic (along with each dimension) on innovative behavior in the public sector.

5.2.1 Direct Hypotheses

This study attempted to measure the effect of knowledge sharing behavior on innovative behavior along with its dimension (i.e. knowledge donating and knowledge collecting) as well as the effect of Islamic work ethic on innovation, specifically through perceived worship, effort, cooperation and moral responsibility Therefore, this study endeavours to test the hypotheses H1 to H2-4.

5.2.1.1 The Effect of Knowledge Sharing Behavior on Innovative Behavior (H1)

The finding of this study revealed that knowledge sharing behavior has a positive and significant effect on innovation by individual in the public sector. This result is consistent with the previous findings by some researchers (e.g. Hussein *et al.,* 2016; Kumar & Rose, 2012; Awan & Akram, 2012). A possible justification for this finding could be due to civil servants in the public sector have an awareness of the importance of knowledge sharing behavior to help improve service delivery to society. Even though the nature of public sector is highly bureaucratic in terms of structure and traditional culture of resist from changes, but civil servants have a strong motivation to share knowledge with each other because of social relationships or bond among them. Social interaction shapes quality of attitude and behavior. It leads civil servant in Aceh Province to develop a cooperative social relationship as they realize that idea exchange will provide added value and benefit. "Knowledge Hoarding" which is very much familiar to public sector culture due to fear of loosing power is no longer considered as a means to compete among civil servant because they assume that knowledge sharing behavior is a way to enhance innovation. Knowledge exchange provides solution to many problems in work environment.

On the same note, civil servants consider that knowledge sharing behavior is crucial in running the routine in work. As elaborated by Hu and Randel (2014), in order to build an innovation team, organization should focus on building shared values by offering extrinsic incentives, cooperative relationship, and encouraging trust among team members. By this way, employees will have motivation to share knowledge and involve in process of innovation. Lin (2007) asserted that knowledge collecting is one of the important aspects of knowledge sharing behavior through exchange of

knowledge which in turn effect innovation. This justification is also consistent with Theory of SET and SCT by Blau (1964) and Nahapiet and Ghoshal (1998).

Thereby, value or benefit obtained from behavior exchange and social relationship i.e. knowledge and ideas will support productivity and performance of civil servant primarily through the creation of new idea for innovations through innovative behavior. It means that challenging structure (e.g., bureaucratic) and culture should not be a barrier for individual in the public sector to implement knowledge sharing behavior successfully in order to improve innovation when they have high motivation and commitment to share knowledge with each other. This explanation is fit with the underpinning theory of this study (i.e. SET dan SCT). As claimed by Blau (1964) and Nahapiet and Ghoshal (1998), behavior exchange and social relationship will provide positive impact or benefit to the individual such as creation of new idea to enhance innovation through innovative behavor.

This is also consistent to the views of some scholar in the public sector (e.g. Trong Tuan, 2017; Castaneda *et al.*, 2016; Hussein *et al.*, 2016; Bock & Kim, 2002; Willem & Buelens, 2007; Titi Amayah, 2013; Liebowitz & Chen, 2004; Sandhu *et al.*, 2011; Seba *et al.*, 2012; Wright & Taylor, 2005; Taylor & Wright, 2004; Kumar & Rose, 2012; Yao *et al.*, 2007; Syed-Ikhsan & Rowland, 2004). They claimed that civil servant in the public sector assumed improving knowledge sharing behavior in the public sector can bring about benefits as it allows the creation of new knowledge through an exchange of ideas. In addition, it ensures that organizations will still retain the knowledge even though members of the organization are no longer with the organization, due to retirement or resignation. However, consistent with the statement

of Lin (2007); Hussein, *et al.* (2016); Connelly & Kelloway (2003); Sandhu *et al.* (2011) claimed that management support is very important to cultivate culture for sharing knowledge.

5.2.1.2 The Effect of Dimensions of Knowledge Sharing Behavior (Knowledge Donating and Collecting) on Innovative Behavior (H1-1 and H1-2)

This study revealed that knowledge donating has a positive and significant effect with innovative behavior. Therefore, this finding was consistent with previous studies such as Lin (2007), Yeşil *et al.* (2013) and Rahab *et al.* (2011). A possible reason can be explained that civil servants in the public sector have high motivation and commitment to donate knowledge with colleagues as they assumed knowledge donating will give a positive impact on the social relationship. Behavior developed from knowledge contribution can help their colleague. Considering environment and culture in the public sector is more challenging, knowledge donating in the public sector requires high motivation and commitment.

However, it can be supported by the positive effect of social relationship and behavior exchange developed among civil servants. Thus, this explanation is congruent with theory of SET and SCT that social relationship and behavior exchange will give positive impact mutually for the civil servant in Aceh Province. Furthermore, as mentioned by Demircioglu and Audretsch (2017), individual in the public sector can create innovation when they are motivated to generate improvements. The best solution for the public sector is to focus on motivation in order to improve performance. In addition, Van den Hoof and Weenan (2004) stated that commitment is an important aspect influence the extent to which people want to donate their knowledge or collect knowledge of others.

Moreover, this study also found that knowledge collecting has a positive and significant effect on innovation. The result of this study is also in line with previous studies such as Lin (2007), Hussein *et al.* (2016), Kamaşak and Bulutlar (2010), Andrawina and Govindaraju (2009), De Vries *et al.* (2006), Sandhu *et al.* (2011). Because of commitment and motivation of the civil servant, then knowledge collecting has a positive and significant effect on innovation of civil servant in Aceh Province. Knowledge gained from their colleague provides a new view and ideas for the individual in creating innovation. When considering the nature of public sector organization, then environment and culture are not to be the emergent issues relating to the knowledge sharing behavior because civil servants get feedback from collaborative relationship among colleague. This justification is also consistent with Theories of SET and SCT by Blau (1964) and Nahapiet and Ghoshal (1998).

As elaborated by Hu and Randel (2014), in order to build an innovation team, organization should focus on building shared values and language by offering extrinsic incentives, cooperative relationship, and encouraging trust among team members. By this way, employees will be directed to have motivation to share knowledge they have and achieve innovation of team. Thus, Lin (2007) asserted that knowledge collecting is one of the important aspect of knowledge sharing behavior through exchange of knowledge which in turn effect innovation.

Therefore, this study considers that knowledge sharing implemented through knowledge donating and knowledge collecting is a very supportive factor for the achievement of innovation in the organization through the creation of new ideas by individuals in the public sector.

5.2.1.3 The Effect of Islamic Work Ethic on Innovative Behavior (H3)

The result of the study showed that there is positive and significant effect of Islamic work ethic and innovation. It was also consistent with previous studies conducted by several researchers (i.e. Yeşil *et al.,* 2012; Abbasi *et al.,* 2012; Awan & Akram, 2012; Kumar & Rose, 2010, 2012; Marri *et al.,* 2012; Farrukh *et al.,* 2015). It can be explained that civil servant in the public sector in Aceh is individual with high-oriented on Islamic work ethic. It may be because Aceh Province is implementing of Islamic Sharia. They are already attached to the values of Islam. Therefore, bureaucratic environment and culture in the public sector do not prevent civil servant in Aceh Province to engage in values and principles of Islamic work ethic. They are aware that Islamic work ethic is a very important principle because it contains concept of work as a guideline in conducting business with ethics in accordance with the demands of Al-Qur'an and Hadith. Thereby, they will be better in doing work as it is main duty. In other words, they have more ability to help organizations to improve innovation of individual through an implementation of Islamic work ethic.

Therefore, when referring to the previous study such as Awan and Akram (2012), Kumar and Rose (2010; 2012), when Islamic work ethic is implemented, it will positively enhance innovation through innovative behavor. Thus, organization will be more innovative when employees have high-orientation towards Islamic Work ethic. It implies that Islamic work ethic is a very important principle that contains guidelines in conducting business with ethical considerations in accordance with the demands of Al-Qur'an and Hadith. Thereby, they will perform better in serving society as part of their moral responsibility and duty. In other words, they have more ability to help organization to improve innovation through an implementation of Islamic work ethic

such as through effort, cooperation, perceived work as part of worship and based on moral obligation (Kumar & Rose, 2010; 2012).

This justification is supported by SET and SCT theories. Civil servants in the public sector realize that they will get value and benefit by implementing Islamic work ethic. It is a crucial factor that emphasizes on the importance of the social relationship with Muslim as suggested by Al-Qur'and and Hadith. Islamic work ethic teaches positive values and goodness in relationship with others. By implementing IWE, they will be better in serving society. Moreover, by having a good relationship with their co-workers, they will also get benefit. This is in line with statement by Murtaza *et al.* (2016) that individuals who follow the principle in IWE are more productive and cooperative in behavior. Therefore, the values obtained from Islamic work ethic are very important in encouraging innovation (Kumar & Rose, 2010, 2012; Awan & Akram, 2012; Khan & Rasheed, 2015; Marri *et al.*, 2012; Sadozai *et al.*, 2013; Kumar & Rose, 2010, 2012; Awan & Akram, 2012).

5.2.1.4 The Effect of Dimensions of Islamic Work Ethic on Innovtive Behavior (H31 to H3-4)

This study revealed that effort, one of the aspects of IWE has a significant effect on innovative behavior. This result is consistent with the previous study by Yaseen *et al.* (2015) that found effort is the crucial element of Islamic work ethic. It can be analyzed that civil servants of public sector in Aceh Province are more aware on the importance of effort to support innovation of individual even they will face challenges related to the environment and culture in the public sector. Therefore, for the environment and culture in the public sector, then effort is one aspect of IWE that has power to drive

innovation by individual throguh innovative behavior. They believe that effort is suggested by Islam in implementing Islam by Kaffah. It is essential value in developing relationship between the creator and also the Ummah. Therefore, principle and value of effort have strengthen individuals in public sector to be more active in doing work. They will be better to serve society by the values and principles of effort. Thereby, value and principle of Islamic work ethic drive civil servant to enhance innovation in the public sector. This justification can explain theories of SET and SCT that claimed the benefit for innovation from social exchange and relationship with Ummah, especially value of effort lead Muslim to develop collaborative social relationship among individual in the public sector.

Therefore, it is claimed that effort plays an important role in the Islamic work ethic. Effort is highly recommended in Islamic work ethic. People are required not to lazy by always trying maximally in doing a job. Islamic work ethic emphasizes on intention to work is very important as it is something that can measure the proximity of his Ummah with the creator (Yaseen *et al.*, 2015; Chanzanagh & Akbarnejad, 2011). Effort is seen as an important aspect in self-serving and society. Muslims are required to struggle in doing something. Getting something without putting an effort is a bad thing. Therefore, individuals who have this principle will tend to perform various initiatives in work because it is considered as a business. Meanwhile, with the efforts will lead to innovation (Ali & Al-Owaihan, 2008). With the effort, people will be more active in work. Indeed, people who have high work effort will be encouraged to do various innovations in work.

However, the results of the study showed that there is no significant relationship between perceived worship, cooperation and moral responsibility with innovation. It

can be explained that this finding provides some reasons and justifications why individual in public sector has low motivation to embrace the value of IWE such as perceived worship, cooperation and moral responsibility. In this case, Al-Qudsy (2007), Aldulaimi (2016), and Rizk (2008), have postulated that Islamic work ethics is related to religious and spiritual values. Application principles of Islamic work ethic highly depends on the religious belief of a servant to God. Organization will benefit directly from having employees who embrace the ethical value of Islamic work. Thus, when an employee embraces IWE values, then automatically they will be motivated to work in earnest that will be realized in the form of innovation as it can generate professional individual (Quddus *et al.,* 2009).Thus, principles of Islamic work ethics must be instilled in public and private sector. Organization must invest the value of Islamic virtue to the worker due to it was addressed to the faith and the devotion of its servant to Allah S.W.T by simply condemning the intention only. It needs to build a strong understanding among individual on value of Islamic work ethic in performing their duties.

As claimed by Aldulaimi (2016), even though Islamic teaching emphasizes a principle that work is worship based on intent as a virtue It is not all Muslims perceived work as a kind of worship. It indicated that civil servant in Aceh still lack of awareness that work is part of worship. They presumed that work is only to fulfill routine responsibility. Since they get a reward in doing work, they considered it as not worship. Only work that is performed with good deed and intention with no reward in return is considered as worship. In addition, bureaucratic structure and culture greatly affect and shape the attitude and mindset of civil servants in the public sector. Vigoda-Gadot *et al.* (2008) confirmed that the old culture or situation in the public sector often

does not match with innovation. Individual public sector does not have a strong desire to improve innovation. Specifically, regarding to the reward and punishment, there is a need to applied appropriate reward and punishment. Clark (2016) asserted that incentives for employee behavior or punishment to employees will hamper behavior opposed by the organization.

Also, it appears that individualism will prevent civil servant in Aceh Province to the innovation by individual through value of Islamic work ethic i.e. cooperation and moral responsibility. They do not realize that the main purpose of working not only to meet daily needs, but work is to get blessing from Allah S.W.T. Because of this, they lack of awareness on the importance of cooperation and responsibility to serve society better as this attitude requires individual not only prioritizes his own interests or individualism but also has to think of others. Indeed, this phenomena is not consistent with the theory of SET and SCT that asserted positive behavior and relationship as contained in principle of Islamic work ethic is important for individual as it will support cooperation and moral responsibility of civil servant that provide mutual benefit or not only for self interest. Vigoda-Gadot *et al.* (2008) confirmed that individual public sector does not have a strong desire to improve innovation. Thereby, Islamic work ethic through its dimensions such as perceived worship, cooperation and moral responsibility will not be able to improve innovative behavior in the public sector. They do not have awareness that perceived worship, cooperation and moral responsibility are an important aspects in Islamic work ethic that influence the success of innovation in public sector. These values give a virtue in doing business.

This finding is not surprising when referring to the statement of Ali and Al-Kazemi (2007) that commitment greatly influences public sector awareness to apply the value of perceived worship, cooperation and moral responsibility. Commitment of individual to IWE's application is as a business and social role of a Muslim because IWE reinforces the social aspect that encouraged Muslims to work for the society. It takes strong commitment from individual to enforce IWE value in order to increase innovation. Therefore, there is a need for management support to encourage this model of Islamic ethics to be applied gradually due to IWE is able to affect job satisfaction and performance of work. Applying IWE will drive to better performance of work through the creation of various innovations.

In this case, Al-Qudsy (2007), Aldulaimi (2016), and Rizk (2008), have postulated that the principles of Islamic work ethics must be instilled in public and private sector. Islamic work ethics is related to religious and spiritual values. The organization must invest the value of Islamic virtue to the worker due to it was addressed to the faith and the devotion of its servant to Allah S.W.T by simply condemning the intention only. Therefore, it needs to build a strong understanding among workers on Islamic work ethic in performing their duties. Because the application of the principles of Islamic work ethic is highly dependent on the religious belief of a servant to God. Organization will benefit directly from having employees who embrace the ethical value of Islamic work. Thus, when an employee embraces IWE values, then automatically they will be motivated to work in earnest that will be realized in the form of innovative behavior for innovation as it can generate professional individual (Quddus *et al.,* 2009).

5.2.2 Indirect Hypotheses

The indirect hypotheses stated that entrepreneurial orientation moderates the effect of knowledge sharing behavior and its dimension (i.e knowledge donating and knowledge collecting) and Islamic work ethic through its dimension (i.e. worship perception, effort perception and cooperation) on innovative behavior. The hypotheses developed then were examined, H3 to H4-4.

5.2.2.1 Moderating effect of Entrepreneurial Orientation on the Relationship Between Knowledge Sharing Behavior and Innovative Behavior (H3)

This study found entrepreneurial orientation has a moderating effect on the relationship between knowledge sharing behavior and innovative behavior. It means that entrepreneurial orientation as moderator enhances relationship between knowledge sharing behavior and innovative behavior. This result indicates that there is a synergistic interaction effect when moderator variable enhances the link between predictor and outcome. Change in moderator enhances the link between predictor and outcome.Thus, when entrepreneurial orientation is high, then knowledge sharing behavior on innovative behavior can be enhanced. Effect of knowledge sharing behavior on innovative behavior is greater by individual manager with high entrepreneurial orientation. Therefore, knowledge sharing behavior can increase innovative behavior by entrepreneurial orientation.

This result is consistent with the finding by Li *et al.* (2009) that revealed entrepreneurial orientation has a moderating role on the relationship between knowledge sharing and innovative behavior. Some previous studies also support the

moderating role of entrepreneurial orientation on innovative behavior (eg. Al- Nuiami *et al*. (2014), Wu *et al.* (2008), Ahlin *et al.* (2012), Cai *et al.* (2015).

Possible justification for this finding can be found when referring to the context of public sector that there are many challenges in the public sector as this organization is identified with the rigid environment and traditional culture. Therefore, knowledge sharing behavior to achieve innovative behavior is quite difficult to be implemented. Thereby, there is a need for other factors to be introduced or integrated in order to support the creation of innovative behavior. When there is individual manager with high entrepreneurial orientation, then it creates synergy for innovative behavior. Relationship between knowledge sharing and innovative behavior can be enhanced with entrepreneurial orientation. It is as a consequence of the integration between two variable i.e. independent variable and dependent variable by using moderating variable. When moderator interacts with knowledge sharing behavior, it will influence innovative behavior. Thus, moderating variable i.e. entrepreneurial orientation may reduce or enhance relationship between predictor and outcome. Therefore, it is necessary to combine knowledge sharing behavior with other factors. It indicated that when a manager as an individual in the public sector in Aceh Province can implement knowledge sharing behavior and entrepreneurial orientation together, then it will automatically enhance innovative behavior.

5.2.2.2 Moderating effect of Entrepreneurial Orientation on the Relationship between Dimensions of Knowledge Sharing Behavior and Innovative Behavior (H3-1, H3-2)

The result of this study found that entrepreneurial orientation moderates the relationship between knowledge donating and innovation. In other words, moderator enhance the effect of predictor on outcome as there is a synergistic interaction effect. A change in moderator (entrepreneurial orientation) enhances relationship between knowledge donating (predictor) and innovative behavior (dependent variable).

Possible reason why entrepreneurial orientation can moderate the relationship between knowledge donating and innovative behavior is that by introducing entrepreneurial orientation, then knowledge donating can improve innovative behavior. Even though entrepreneurial orientation in public sector is not strongly implemented, when knowledge donating was supported by entrepreneurial orientation, then the interaction will work effectively to enhance innovative behavior. Therefore, this relationship can fully encourage innovative behavior. Thus, knowledge donating can interact well with entrepreneurial orientation.

Thus, it is needed to empower these resource between individual in the public sector since implementation of this process through social relationship and behavior exchange will provide mutual benefit to enhance quality of service in organization. This reason is consistent with SET and SCT which emphasizes the importance to strengthen positive behavior such as knowledge sharing and entrepreneurial orientation as it is the influence of predictor on outcome variables through the role of

moderating variable. Thus, Li *et al.* (2009) asserted that entrepreneurial orientation as a moderator to be able to improve innovative behavior.

Meanwhile, this study revealed that there is no moderating effect on the relationship between knowledge collecting and innovative behavior. It could possibly due to entrepreneurial orientation is not a strong moderator in this relationship. Based on analisis done on 8 agencies involved in this study, 5 agencies are classified as more innovative and 3 agencies are less innovative based on the criteria shown in Table 1.2. Indeed, manager behavior among the two types of public sector is different. Managers in more innovative public sector tend to have high entrepreneurial orientation. Thus, this condition will be able to enhance the influence of knowledge collecting on the innovative behavior. On the contrary, in less innovative public sector, managers have tendency to show a low level of entrepreneurial orientation. Thus, in less innovative public sector, interaction effects between entrepreneurial orientation and knowledge collecting will not be able to enhance innovative behavior.

5.2.2.3 Moderating Effect of Entrepreneurial Orientation on the Relationship Between Islamic Work Ethic and Innovative Behavior (H4)

This study found that entrepreneurial orientation does not serve as moderator on the relationship between Islamic work ethic and innovative behavior. In line with this finding, the possible reason why entrepreneurial orientation does not moderate the relationship in supporting innovative behavior in the public sector could be that entrepreneurial orientation is not a strong moderator to support the relationship. When looking at environmental characteristics in government institutions, public servants

tend to have low motivation and productivity. Thus, entrepreneurial orientation will not be able to improve innovative behavior among managers in the public sector. As asserted by Vigoda-Gadot *et al.* (2008), the cultural atmosphere of public sector still retains old knowledge, experience and conservative institutional solutions which hinder creativity and change. Public sector workers are less motivated to be entrepreneurial orientation because public sector is not a conducive environment.

5.2.2.4 Moderating Effect of Entrepreneurial Orientation on the Relationship Between Dimensions of Islamic Work Ethic and Innovative Behavior (H4-1, H4-2, H4-3, H4-4)

This study found that entrepreneurial orientation has a moderating effect on the relationship between Islamic work ethic through its dimension (i.e. perceived worship) on innovation in the public sector. It can be revealed a synergistic interaction effect of moderator variable on the relationship between predictor and outcome. Change in moderator variable i.e. entrepreneurial orientation enhances relationship between perceived worship and innovative behavior. Effect of perceived worship on innovative behavior is greater for the individual manager with entrepreneurial orientation. This finding is consistent with some previous studies where entrepreneurial orientation was a moderator, but with different independent variables such as Li *et al.*, 2009 (internal knowledge sharing); Al- Nuiami *et al.*, 2014 (environmental turbulence), Wu *et al.*, 2008 (intellectual capital), Ahlin *et al.*, 2012 (market information), Cai *et al.*, 2015 (market orientation)

It can be explained that for the best strategy of innovative behavior in the public sector, there is important to introduce supporting factor such as aligning perceived worship

and entrepreneurial orientation to be one force. Thereby, entrepreneurial orientation can strengthen the relationship of perceived worship and innovative behavior. Quality of service in the public sector can be enhanced by aligning these key of orgnizational variables. Meanwhile, existing literature (i.e. Omerzel, 2016; Čivre & Omerzel, 2015; Nasution *et al.*, 2011, 2016; Monteagudo & Martínez, 2015; Rattanawong & Suwanno, 2014) asserted that entrepreneurial orientation is a very influential aspect in improving innovative behavior for innovation.

Specifically, condition in the public sector is more challenging to break through. Managers as an individual in the public sector do not have high motivation to implement entrepreneurial orientation because of bureaucratic and culture hampering process of innovative behavior. Therefore, individual with high perceived worship will have more willingness to implement innovative behavior only supported by entrepreneurial orientation. Perceived worship will be stronger when there is an entrepreneurial orientation. On the other words, perceived worship needs supporting from entrepreneurial orientation in enhancing innovative behavior. Thus, perceived worship cannot be applied to improve innovative behavior when there is no entrepreneurial orientation. As suggested by Kumar and Rose (2010; 2012), Farrukh *et al*. (20150, Islamic work ethic needs to be empowered with other variables. It can be implemented effectively in order to enhance innovative behavior by aligning with entrepreneurial orientation. Therefore, approach for success innovation in the public sector is by aligning supporting variable such as perceived worship and entrepreneurial orientation. When perceived worship is high simultaneously with EO, then it will boost innovation. Thereby, interaction between perceived worship and

entrepreneurial orientation equally can create an innovative behavior in the public sector successfully.

However, this study found that entrepreneurial orientation has no moderating effect on the relationship between Islamic work ethic and its dimension (i.e. effort, cooperation and moral responsibility) on innovative behavior. It could be due to entrepreneurial orientation is not a strong moderator on the relationship between effort, coopertion and moral responsibility. This finding implies that EO does not have an effect as a moderating on the relationship between Islamic work ethic and its dimensions (effort, cooperation and moral responsibility) and innovative behavior in the public sector. It showed that workers in the public sector have lack ability to implement EO. It is a consequence of culture in the public sector and also motivation of civil servant. Consistent with the statement of Wang and Juan (2016) that asserted that characteristic of entrepreneurial orientation can not influence innovation in the service sector because of cultural differences. As claimed by Hormiga *et al.* (2013), there are many different factors that influence positive environmental toward new applications ideas. In terms of government organization, there are elements may influence freedom to apply a higher number of processes for employee participation on innovative behavior. Thus, propensity toward bureaucracy in public organization is a barrier for manager. A study by Hormiga *et al.* (2013) revealed that propensity toward risk as characteristic of entrepreneurial orientation has a weak or no positive relationship on entrepreneurial intention in public sector.

In line with SET and SCT, Adams (1965) asserted that there is a possibility that exchange between individual will not succeed as one or both of them feel that

exchange was implemented inequitably. For example, there are some workers will be motivated for social exchange and interaction because of his service for pay. Thus, it will result negative impact on innovation in organization since member of organizations do not implement attitudes and principles in Islamic work ethic and entrepreneurial orientation effectively. Furthermore, research by Hayati and Caniago (2012) proved that IWE related to intrinsic motivation that is positively related to job satisfaction, commitment, and performance. As stated by Ahmad and Owoyemi (2012), motivation is inherent in work ethics. It will energize and direct individual behavior. Therefore, this study found that when individuals have low motivation to implement IWE, then the entrepreneurial orientation also will not affect innovative behavior.

This study found a significant moderating effect of entrepreneurial orientation on the relationship between Islamic work ethic through its dimension i.e. perceived worship and innovative behavior. Therefore, research objective 4 in this study was satisfied.

5.3 Contributions

The contributions of this study will be specifically discussed which includes theoretical and practical aspects. For more details will be discussed in the following three contributions.

5.3.1 Theoretical Contributions

1. This study contributes to the literature and body of knowledge on the importance of innovative behavior, knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation in public sector. Some researchers (e.g. Kumar & Rose, 2010, 2012; Titi Amayah, 2013; Yesil *et al.,* 2012; Awan & Akram, 2012;

Diefenbach, 2011) claimed that there were very limited studies that examined these aspects, especially in public sector. This study found that many previous studies on innovative behavior, knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation were examined in the business or private sector as asserted by Syed-Ikhsan and Rowland (2004), Titi Amayah (2013), Sandhu *et al.* (2011), Kumar and Rose (2010; 2012) and Diefenbach (2011).

2. This study has not found past studies that examine the relationship between Islamic work ethic and innovation by using entrepreneurial orientation as a moderator, particularly in the context of public sector. In addition, to the best knowledge of this study, there was only one article by Li *et al.,* (2009) that examine the relationship between knowledge sharing and innovation by using entrepreneurial orientation as a moderator. Thus, this study contributes to new knowledge.
3. This study presents empirical evidence that support Social Exchange Theory (SET) and Social Capital Theory (SCT) as a strategy of individual in the public sector to improve the quality of public service delivery due to social relationship and behavior exchange provide benefit and value that is needed to provide excellent service to society by creating innovation.

5.3.2 Practical Contributions

This study has the following practical contribution:

1. This study is the first which examines the relationship between knowledge sharing behavior, Islamic work ethic, entrepreneurial orientation and innovative behavior in the public sector context. The result found that knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation have a positive effect on innovative behavior in the public sector. Therefore, management in the public sector should focus on these variables in improving innovation in Aceh Province.

Government should instill culture and environment that engage in these factors as they determine the success of innovation.

2. This study provides guidelines for the government in order to improve quality of public sector service. The finding of this study will provide an understanding or input for the government as it can be a strategy in the future in order to satisfy the demand of society. Therefore, this study contributes to the public sector in Aceh in understanding strategy to improve innovation in public sector.
3. This study emphasizes the importance of individual resources as a strategy to increase innovation in the public sector. Although there is no severe competition in the public sector, currently the public sector is required to fulfill the need of society which is now increasingly demanding. Therefore, the public sector needs to nurture resource from ability of individuals, such as behavior and positive attitudes that will encourage innovation through innovative behavior. The role of individual as agent of change in the public sector is very important. It should be deployed seriously.
4. This study found the moderating effect of entrepreneurial orientation, Therefore, public sector i.e. government in Aceh Province need to maintain environment and culture that supports civil servant to be more motivated in implementing entrepreneurial orientation as this behavior will empower employee to be powerful in promoting innovative behavior. However, public sector is an organization with full of bureaucracy and very strongly influenced by political elements. The number of procedures greatly hampered the process of innovation. It is necessary to reform the bureaucracy and culture to be more flexible according to the needs and demands of society.

5.4 Limitation of the Study

This study also has limitations that are not accommodated by this study as follows:

1. This study only examines the public sector under the local government of Aceh province. Meanwhile, there are many public sectors that play an important role as well in providing service facilities to the public such as electricity and water, but they are structurally under the central government or a state-owned enterprise. It was considered that central government and local government are different in term of policies.
2. This study involves all levels of managers. Different levels of managers have different points of view with regards to innovative behavior in accordance with their knowledge, experience and responsibility. Thus, there is a need to focus on top level managers which may contribute to more impactful outcome on innovation in public sector.
3. The instrument used in this study is using likert scale which causes the respondent has limitation in giving answer. Respondents tend to grant approval levels without deeply understanding what each item means in the statements so it can be difficult to state that the respondent provided the right answer. Therefore, it is necessary to consider other research methods.
4. The finding of this study found that some factors i.e. perceived worship, cooperation and moral responsibility does not have significant effect on innovative behavior in the public sector. Therefore, there are other factors need to be considered as well.
5. This study attempts to examine innovation in the scope of individual levels through innovative behavior. However, it is also necessary to examine or focus on

innovation within the larger scope i.e. at the organizational level because it will provide a high impact as a whole to the organization.

6. This study found that entrepreneurial orientation is not an absolute moderator for innovative behavior. For example, entrepreneurial orientation only moderates the relationship between knowledge sharing behavior, knowledge donating and perceived worship with innovative behavior. Therefore, other variables need to be examined as a moderator.

5.5 Suggestions for Future Research

Based on the results of the study, some recommendations are obtained for subsequent research:

1. It is suggested to extend the scope of study not only to the public sector operating under local government of Aceh Province. It is important to examine innovative behavior in the public sector under the central government as well. In addition, central government agencies are also synonymous with the environment and culture of government. Therefore, it also needs to involve central agencies because they are involved in providing services to the critical needs of the society in Aceh.
2. Future research should consider top managers as respondent because they have different views on innovation compared to the lower level managers. They appear to be more responsive on the issues of innovation and also on the other emergence problems surrounding public sector. This can be seen from the answers in the questionnaire and also dialogue with the researcher. It may be due to they have greater responsibilities, knowledge and experiences compared to the lower level manager.

3. This study considers that quantitative research is not enough to explore the influence of knowledge sharing, Islamic work ethic, entrepreneurial orientation and innovative behavior. It is also necessary to study with qualitative method, thus, the results obtained are more profound. Therefore, the next research should apply qualitative method or using mixed methods.
4. Subsequent study is suggested to examine other variables that are also crucial to innovative behavior of public sector, such as human resource practices, commitment, culture, environment, leadership and motivation etc..
5. In the future study, it is suggested to examine innovative behavior at the organizational level because this will also provide an important input for the government to improve public sector service delivery through innovation.
6. In this study, the relationship between knowledge sharing behavior, Islamic work ethic on innovative behavior are not totally moderated by entrepreneurial orientation. This could be due to entrepreneurial orientation is not strong enough as a moderator in public sector context. In the future study, it is suggested to identify other important moderator variables that also improve the relationship between knowledge sharing behavior, Islamic work ethic and innovative behavior.

5.6 Recommendation

Public sector service quality is an indicator in measuring the success of government in running the wheel of development. Therefore, public sector needs to improve service delivery to the society. As a whole, quality of service by government agencies in the province of Aceh has increased rapidly. Recently, government agencies are really committed to improve service to the society. Some evidences can be found from many innovations of individual in various service such as online-service, integrated service,

free medical program, free transport program, scholarships program and others. However, there are also some public sector organizations that have unsatisfactory service. Therefore, they still have to improve their quality of services. Their service is still far from being expected to provide maximum service to the society. This is because they still maintain a bureaucratic and old cultural that is not conducive to improve quality of public service delivery.

In addition, civil servants in Aceh Province should change their attitude and mindset to be more adaptive or flexible in order to provide the best service to the community. Condition in the public sector causes negative impact to the performance of civil servant. There are many complaints on the service of civil servant. In this case, innovation as reflected through innovative behavior becomes a necessity. Therefore, a robust strategy or approach to encourage innovation is by integrating supporting aspects or factors for innovative behavior. It is one way to empower resource of individual ability. In this case, by implementing knowledge sharing and Islamic work ethic, civil servants will be motivated and committed to improve their innovative behavior.

Besides that, entrepreneurial orientation is a very potential aspect to improve performance. This aspect can be used as a force that drives innovation. Therefore, implementing entrepreneurial orientation is very important for civil servant in Aceh Province. When they embrace entrepreneurial orientation, then they will be able to strengthen the creation of innovation. Therefore, civil servants were required to have commitment and motivation. They must be aware of the importance of entrepreneurial orientation. Indeed, supportive environment and culture are factors that determine the

successful implementation of entrepreneurial orientation by civil servants considering environment and culture of public sector is not conducive for innovative behavior.

Furthermore, it should be noted by the government that management support is very crucial aspect in encouraging civil servant to the innovative behavior. The main task of the government is to reform culture and environment in the public sector to become more conducive. Moreover, government needs to pay attention on supporting factor to the innovative behavior such as reward, evaluation and punishment as these factors can bolster performance of civil servant. The government must also be emphatic to hold regulations so that civil servants are more enthusiastic in working and obedient to the government. In this way, they will be able to improve performance through various innovations.

5.7 Conclusion

Innovative behavior in the public sector is the main focus and the critical issue. Government has to continue for making new breakthroughs through various innovative behavior in order to improve the quality of service to the society. New approach to public sector organization became mandatory. Public sector needs to change traditional culture or environment in public sector as innovative behavior in the public sector is a driving engine to adapt rapidly change in the current modernization. Individuals with innovative behavior are the main key used to achieve innovative behavior for innovation.

This study found that knowledge sharing behavior has a significant and positive effect on innovative behavior. Similarly, Islamic work ethic has a positive effect on

innovation. The results of the study also found a moderating effect of entrepreneurial orientation on the relationship of knowledge sharing behavior, Islamic work ethics on innovation. In other words, this study is able to show that the improvement of innovative behavior in public sector is the result of knowledge sharing behavior, Islamic work ethic and also entrepreneurial orientation.

Based on the theoretical and practical contributions, this study has been proven to contribute to the academia and practitioner. It can be examined in subsequent research in other sectors. The result of the study proves that workers of public sector in Aceh Province realize the importance of knowledge sharing behavior and Islamic work ethic and entrepreneurial orientation in encouraging the creation of innovative behavior.

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APPENDIX 1

QUESTIONNAIRE

السلام عليكم ورحمة الله وبركاته

Dear Respondent/Bapak/Ibu Yang Terhormat,

I am a doctoral candidate from College of Business (COB), School of Business Management (SBM), Universiti Utara Malaysia. I am currently conducting survey research for my study. The study endeavors to examine the relationship between knowledge sharing behavior, Islamic work ethic and public sector innovation in Aceh Province by using the entrepreneurial orientation as moderator. This research was later expected to be contributing to the improvement of the service quality of public sector in Aceh Province. I would greatly appreciate your willingness to provide approximately not more than 15 minutes to answer this questionnaire.

Saya adalah Kandidat Doktor dari College of Business (COB), School of Business Management (SBM), Universiti Utara Malaysia. Saat ini, saya sedang melakukan survey kuisioner penelitian untuk studi saya. Penelitian tersebut mencoba untuk menguji hubungan diantara perilaku berbagi pengetahuan, etika kerja Islam dan inovasi melalui perilaku inovatif individu di publik sektor di Provinsi Aceh dengan menggunakan orientasi kewirausahaan sebagai moderator. Penelitian ini nantinya diharapkan akan memberikan kontribusi bagi peningkatan kualitas pelayanan publik sektor di Aceh. Saya sangat menghargai kesediaan Saudara untuk menyediakan waktu sekitar tidak lebih dari 15 menit untuk menjawab kuisioner ini.

Thank you for your participation/Terima kasih atas partisipasi Saudara.

Best regards/Hormat Saya,

Muliati Usman
Doctoral Candidate/Kandidat Doktor
College of Business, School of Business Management
Universiti Utara Malaysia

PART 1: *PROFILE OF RESPONDENT*/PROFIL RESPONDEN

Please fill the following information below (please ticks (√) :

1. Name of Public Sector/Nama Instansi Saudara:_____
2. What is your gender/Jenis Kelamin Saudara:_____
3. Age/Umur: _____
4. Your Department/Bagian (Bidang): _____
5. Your Position/Jabatan Saudara: _____
6. Your highest educational qualification/Pendidikan Tertinggi Saudara :
   ( ) Diploma/Diploma ( ) Degree/Sarjana
   ( ) Postgraduate Degree/Pascasarjana
7. Number of years working with the agency/Lama Saudara Bekerja dengan Instansi ini:
   ( ) Less than 5 years/Kurang dari 5 tahun
   ( ) Between 5 and 10 years/Diantara 5-10 tahun
   ( ) Between 10 and 20 years/Diantara 10-20 tahun
   ( ) Above 20 years/Diatas 20 tahun

PART 2: *INNOVATIVE BEHAVIOR*/PERILAKU INOVATIF, *KNOWLEDGE SHARING BEHAVIOR*/PERILAKU BERBAGI PENGETAHUAN, *ISLAMIC WORK ETHIC/ETIKA KERJA ISLAM* AND/DAN *ENTREPRENEURIAL ORIENTATION*/ORIENTASI KEWIRAUSAHAAN

Please indicate your degree agreement with the following statements on innovative behavior, knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation in your organization/Silahkan nyatakan tingkat persetujuan Saudara mengenai perilaku inovatif, perilaku berbagi pengetahuan, etika kerja Islam dan orientasi kewirausahaan

PART 2-1: INNOVATIVE BEHAVIOR/ PERILAKU INOVATIF

No.	**Statemen/Pernyataan**	***Strongly Disagree/ Sangat Tidak Setuju***	***Disagree/* Tidak Setuju**	***Undecided/ Netral***	***Agree/ Setuju***	***Strongly Agree Sangat Setuju***
1.	*I create new ideas for difficult issues* Saya menciptakan ide-ide baru untuk permasalahan yang sulit	☐	☐	☐	☐	☐
2.	*I search out new working methods, techniques, or instruments* Saya mencari metode kerja baru, teknik, atau instrumen-instrumen	☐	☐	☐	☐	☐

3.	*I generate original solutions for problems* Saya menghasilkan solusi mendasar untuk berbagai masalah	☐	☐	☐	☐	☐
4.	*I mobilize support for innovative ideas* Saya menggerakkan dukungan terhadap ide-ide innovatif	☐	☐	☐	☐	☐
5.	*I acquire approval for innovative ideas* Saya mendapatkan persetujuan untuk mewujudkan ide-ide inovatif	☐	☐	☐	☐	☐
6.	*I make important organizational members eenthusiastic for innovative ideas* Saya menjadikan anggota penting organisasi antusias terhadap ide-ide inovatif	☐	☐	☐	☐	☐
7.	*I transform innovative ideas into useful applications* Saya mengubah ide-ide inovatif kedalam aplikasi yang berguna	☐	☐	☐	☐	☐
8.	*I introduce innovative ideas into the work environment in a systematic way* Saya memperkenalkan ide-ide inovatif ke dalam lingkungan kerja secara sistematis	☐	☐	☐	☐	☐
9.	*I evaluate the utility of innovative ideas* Saya mengevaluasi manfaat ide-ide inovatif	☐	☐	☐	☐	☐

PART 2-2: KNOWLEDGE SHARING BEHAVIOR/PERILAKU BERBAGI PENGETAHUAN

No.	**Statemen/Pernyataan**	***Strongly Disagree/ Sangat Tidak Setuju***	***Disagree/* Tidak Setuju**	***Undecided/ Netral***	***Agree/ Setuju***	***Strongly Agree Sangat Tidak Setuju***
1.	*When I have learned something new, I tell my colleagues in my department about it* Ketika saya telah mempelajari sesuatu hal yang baru, saya menyampaikan rekan kerja di departemen saya tentang hal baru tersebut	☐	☐	☐	☐	☐
2.	*When they have learned something new, colleagues within my department tell me something about it* Ketika mereka telah mempelajari sesuatu hal yang baru, rekan kerja didalam departmen saya, menyampaikan kepada saya tentang hal baru tersebut	☐	☐	☐	☐	☐

3. *Knowledge sharing with my colleagues outside of my department is considered normal a normal thing*
   Berbagi pengetahuan dengan rekan kerja diluar departemen dianggap sebagai hal yang normal

4. *I share the information I have with my colleagues within my department, when they ask me to*
   Saya berbagi informasi saya punyai dengan rekan kerja didalam departemen saya, ketika mereka meminta saya untuk berbagi informasi tersebut

5. *I share my skills with colleagues within my department, when they ask me to*
   Saya berbagi keahlian dengan rekan kerja didalam departemen, ketika mereka meminta saya untuk berbagi keahlian tersebut

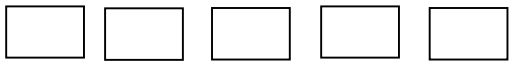
6. *Colleagues within my department tell me what they know, when I ask them about it*
   Rekan-rekan kerja di departemen saya menyampaikan kepada saya apa yang mereka tahu, ketika saya memintanya

7. *Colleagues within my department tell me what their skills are, when I ask them about it*
   Rekan-rekan kerja di departemen saya menyampaikan kepada saya keahlian yang mereka miliki, ketika saya memintanya

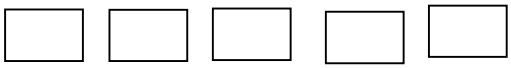
PART 2-3: *ISLAMIC WORK ETHIC/ETIKA KERJA ISLAM*

No.	Statemen/Pernyataan	***Strongly Disagree/ Sangat Tidak Setuju***	***Disagree/* Tidak Setuju**	***Undecided/ Netral***	***Agree/ Setuju***	***Strongly Agree* Sangat Tidak Setuju**
1.	*Justice and forgiveness in the workplace are essential terms* Keadilan dan memaafkan ditempat kerja merupakan hal yang penting					
2.	*Good work is the result of good faith* Pekerjaan yang baik adalah hasil dari itikad baik					
3.	*In Islam, working hard is worship* Dalam Islam, bekerja keras merupakan suatu ibadah					

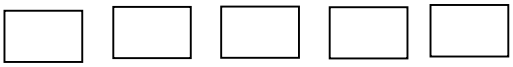
4. *Work is a virtue*
   Bekerja membawa suatu nilai kebajikan



5. *Work value comes from intensions and not results*
   Nilai kerja datang dari niat dan bukan hanya untuk memenuhi target atau hasil yang ingin dicapai

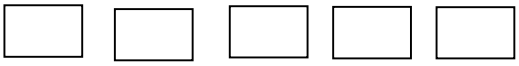


6. *The work must be done with adequate effort*
   Setiap pekerjaan harus dilakukan dengan usaha yang maksimal

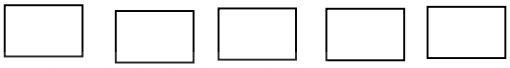


7. *The successful person is the one who commits to a work timeTable*
   Orang sukses adalah orang yang berkomitmen dengan jadwal kerja (pekerjaan yang telah direncanakan)

8. *Life has no meaning without work*
   Hidup tidak akan bermakna/bernilai tanpa bekerja



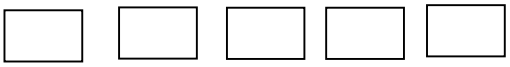
9. *Work is a source of self-confidence*
   Bekerja memberikan rasa percaya diri



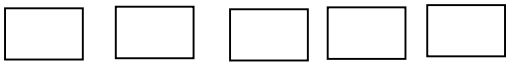
10. *Cooperation in work is a virtue*
    Bekerjasama dalam suatu pekerjan akan memberikan nilai tambah/kebajikan

11. *Collaboration produces satisfaction and helps the society*
    Bekerjasama dalam suatu pekerjaan memberikan hasil yang memuaskan yang berguna bagi kemaslahatan masyarakat

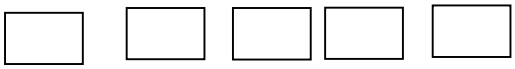
12. *Every person should participate in economic events*
    Setiap orang hendaknya berpartisipasi dalam setiap kegiatan ekonomi.



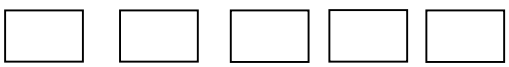
13. *Teamwork is a source of self-confidence*
    Bekerjasama dalam sebuah tim akan menumbuhkan kepercayaan diri



14. *Human relations between workers should be focused on and encouraged*
    Menjaga hubungan baik di antara para staf hendaklah selalu diutamakan dan dianjurkan



15. *Work is not the goal but a means to improving personality and social relations*
    Bekerja bukanlah semata-mata tujuan tetapi sarana untuk memperbaiki kepribadian dan hubungan sosial



16. *Community affairs should be taken into consideration at work*
Hal-hal yang berkaitan dengan masyarakat harus selalu diutamakan

17. *Problems in our society will be reduced if everyone commits to his/her work*
Permasalahan yang terjadi di dalam masyarakat akan dapat dikurangi manakala setiap orang memiliki komitmen terhadap pekerjaannya

PART 2-4: *ENTREPRENEURIAL ORIENTATION/ORIENTASI KEWIRAUSAHAWANAN*

No.	Statemen/Pernyataan	*Strongly Disagree*/ *Sangat Tidak Setuju*	*Disagree*/ Tidak Setuju	*Undecided*/ *Netral*	*Agree*/ *Setuju*	*Strongly Agree* Sangat Tidak Setuju
1.	*I am open to innovations* Saya terbuka terhadap berbagai macam inovasi	☐	☐	☐	☐	☐
2.	*I am creative* Saya adalah orang yang kreatif	☐	☐	☐	☐	☐
3.	*I am innovative* *Saya adalah orang yang inovatif*	☐	☐	☐	☐	☐
4.	*I often implement new approaches to meet my responsibilities* Saya sering menggunakan pendekatan baru untuk menyelesaikan tugas/tanggung jawab	☐	☐	☐	☐	☐
5.	*I rarely behave hesitantly* *Saya jarang memiliki keragu-raguan*	☐	☐	☐	☐	☐
6.	*I respond to public demand changes as they occur* *Saya respon terhadap perubahan tuntutan masyarakat yang terjadi*	☐	☐	☐	☐	☐
7.	*I respond mostly actively to public demand changes* Saya merespon secara sangat aktif terhadap setiap perubahan tuntutan masyarakat	☐	☐	☐	☐	☐
8.	*I often approach external groups to initiate projects* Saya sering mendekati kelompok eksternal saat akan memulai proyek.	☐	☐	☐	☐	☐
9.	*I also implement promising but risky projects* Saya juga melakukan pekerjaan yang menjanjikan tapi memberikan memiliki resiko	☐	☐	☐	☐	☐

10. *I also implement projects with no direct effect on the target system's KPIs (Key Performance Indicators)*
Saya juga melakukan pekerjaan yang tidak berdampak secara langsung pada indikator pencapaian kinerja

11. *I often get involved, even if the outcome is initially uncertain*
Saya sering dilibatkan dalam pekerjaan yang hasilnya belum pasti.

12. *I often enter ventures to promote particularly promising projects*
Saya sering melakukan usaha untuk mempromosikan proyek/pekerjaan yang memberikan harapan.

13. *I am especially careful in my course of action*
Saya sangat berhati-hati dalam setiap tindakan tertentu

THANK YOU FOR YOUR ASSISTANCE/
TERIMA KASIH ATAS BANTUAN SAUDARA

APPENDIX 2: COMMON METHOD VARIANCE

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13,297	28,906	28,906	13,297	28,906	28,906
2	3,684	8,009	36,915			
3	2,863	6,223	43,138			
4	2,529	5,498	48,636			
5	2,094	4,552	53,188			
6	1,734	3,769	56,957			
7	1,394	3,031	59,988			
8	1,345	2,924	62,912			
9	1,221	2,654	65,566			
10	1,175	2,555	68,121			
11	1,070	2,327	70,448			
12	1,032	2,244	72,692			
13	,901	1,959	74,651			
14	,836	1,818	76,469			
15	,832	1,808	78,277			
16	,760	1,652	79,930			
17	,706	1,535	81,465			
18	,663	1,441	82,906			
19	,649	1,412	84,318			
20	,621	1,350	85,667			
21	,551	1,198	86,865			
22	,539	1,171	88,036			
23	,499	1,084	89,121			
24	,472	1,026	90,146			
25	,446	,969	91,116			
26	,412	,895	92,011			
27	,391	,849	92,860			
28	,329	,716	93,576			
29	,319	,693	94,269			
30	,301	,653	94,922			
31	,290	,631	95,553			
32	,267	,582	96,135			
33	,246	,535	96,670			
34	,200	,435	97,105			
35	,187	,407	97,512			
36	,177	,385	97,897			
37	,156	,338	98,235			
38	,142	,310	98,545			
39	,123	,268	98,813			
40	,113	,245	99,058			
41	,106	,229	99,287			
42	,098	,212	99,499			
43	,087	,189	99,688			
44	,061	,133	99,821			
45	,053	,116	99,937			
46	,029	,063	100,000			

Extraction Method: Principal Component Analysis.

APPENDIX 3: PUBLICATIONS

PUBLICATION DERIVED OF THIS THESIS

1. Usman, M., & Mat, N. (2016). Investigating the link between knowledge sharing and innovation capability. *Journal of Technology and Operations Management, 11*(2), 58-67.

2. Usman, M., & Mat, N. (2017). Islamic work ethic and public sector innovation: Entrepreneurial orientation as a moderator. *International Journal of Business and Technopreneurship, 7*(2), 203-212.

3. Usman, M., & Mat, N. (2017). Assessing the importance of entrepreneurial orientation on innovation in service sector. *International Journal of Business and Management Invention, 6*(7), 35-39.

4. Usman, M., & Mat, N. (2017). The Emergence of innovation, knowledge sharing behavior, Islamic work ethic and entrepreneurial orientation: A conceptual framework for the public sector. *International Business Management,* 11(6), 123-1239. doi:10.3923/ibm.2017.1234.1239

5. Usman, M., & Mat, N. (2018). Challenges and solutions: Islamic work ethic and public sector innovation. *Proceeding of National Human Resource Management Conference (NHRMC), 18 September, EDC Hotel, Universiti Utara Malaysia, Kedah, Darul Aman, Malaysia*