



**An investigation into the impact of transformational leadership on
innovation process and knowledge sharing: the case of UAE
Ministry of Interior (MoI)**

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By

Khaled Aldarmaki

Brunel Business School
Brunel University
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Abstract

The current socio-economic and political challenges, globalisation, introduction of information technology and competition with private firms are challenging the way governments operate. In recent years, the UAE Government have thus invested heavily in the innovative projects to achieve the UAE vision 2021, which is to become one of the most innovative governments globally. Developing a better understanding of how innovation happens in governments appears to be gaining increased traction among policy makers and researchers alike.

This study examined the relationship between Transformational leadership (TL), Innovation process (INN) and Knowledge sharing (KS) within public sector organisation the case of the UAE Ministry of Interior (MoI). There are several models of innovation available, however, most of them are based on product innovation and derived from private sector experiences. Moreover, there is a lack of models linking transformational leadership, knowledge sharing, and innovation within public organisation of developing countries in general and the UAE in particular

The main research objective is to investigate the impact of the four main components of transformational leadership on knowledge sharing and innovation process within the public sector organisation, and the impact of knowledge sharing on the innovation process. To achieve the research objectives, a positivist paradigm is used throughout the research process. Using deductive approach, ten hypotheses were tested in the MoI context. Respondents no. The survey was administered to employees of the ministry of Interior as a method of data collection. Applying SPSS 23 and AMOS 23, the data was analysed and a structural model was developed, which can be serve as a predictive model for workplace innovation. Paragraph3

The findings of this research reveal that inspirational motivation (IM) has non-significant influence on the innovation process within the MoI, while the other three components of transformational leadership were found to have a significant influence on innovation process. Similarly, inspirational motivation (IM), and idealised influence (IF) were found to have non-significant influence on knowledge sharing. In addition, knowledge sharing (KS) was significantly associated with the innovation process. Finally, demographic variables specifically position and level of education were found to have a significant difference in terms of the respondents' views towards the innovation process within the MoI.

Paragraph 3// This study contributes to the field of organizational innovation in public sector as the outcome of the research provides a specific framework for the conditions and needs of the public sector organisation. The study contributes to the theory by providing new insights into the factors that influence innovation process in the MoI. The study identifies four factors that directly and indirectly affect innovation process; these factors based on the degree of their importance are IC, IS, KS and IF. Moreover, the study contributes to the knowledge by investigating the mediating role of knowledge sharing in supporting the relationship between transformational leadership and innovation process. Finally, one major contribution of this study is the development of a 33-item instrument which measures factors

affecting innovation process, particularly in the context of public sector of the UAE. From a practical perspective, MoI leaders trying to implement innovation can use the final model and set of recommendations provided to implement innovation effectively.

Key words:

Innovation Process - Public sector - Transformational leadership - Knowledge sharing - UAE – Ministry of Interior

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List of Abbreviations and Acronyms

AMOS 23	Analysis of Moment Structures
ANOVA	Analysis of variance
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
EFA	Exploratory Factor Analysis
GDP	Gross domestic product
GFI	Goodness-of-Fit Index
H.H.	His Highness
IC	Individualised consideration
IF	Idealised influence
IM	Inspirational motivation
IMF	International Monetary Fund
INN	Innovation process
IS	Intellectual stimulation
KC	Knowledge collecting
KD	Knowledge donating
KMO	Kaiser-Meyer-Olkin Measure of Sampling Adequacy
KS	Knowledge sharing
LMX	Leader-member exchange
MI	Modification Indices
MoI	Ministry of Interior
PCA	Prinicpal Component Analysis
RMSEA	Root Mean Square Error of Approximation
SEM	Structural Equation Modelling
SPSS 23	Statistical Package for Social Sciences
TL	Transformational leadership
UAE	United Arab Emirates

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Chapter 1: Introduction

1.1 Background

Interpol launched a five-year strategy (2016-2020) to enable 190 member countries to combat the growing changes in organised crime and emerging crime in the modern era. In order to achieve this strategy, Interpol identified several objectives; among these objectives is police innovation (Interpol General Secretariat, 2017). In today's vibrant and fast-moving global society, where technological advances and effective communication systems lead and inspire most aspects of every individual and professional lifestyle, innovation acts both as the major driver and as a continuously evasive challenge. There is an on-going debate and a considerable amount of divergent views among scholars about which organizational activities most influence innovation and, more importantly, what may be the internal triggers that enable an organization to innovate (Damanpour, 1987; Berkhout et al., 2007; Birkinshaw, Hamel, and Mol, 2008; Petrakis, 2015). The literature on the topic has emerged over the past decades, particularly since the 1990s, leading to two main schools of thought about what are regarded as the 'drivers' of organizational innovation: the market-based view and the resource-based view. The market-based view, supported by authors such as Tidd et al. (2001), considers that innovative strategies arise from exploring opportunities created by changing market conditions. On the other hand, some classic authors, such as Slater and Narver (1994); and Porter (1985) consider that the market-based view offers a weak foundation for innovative strategies, particularly in dynamic and volatile markets, and support the resource-based view, claiming that resources, such as assets, capabilities, routines and knowledge may offer a more concrete basis for innovative strategies, as pointed out by Davies and Brady (2000).

However, it is important to emphasise at this point that empirical studies that confirm that leadership, and more specifically that transformational leadership affects workplace innovative behaviour are still scarce and inconsistent, as pointed out by (De Jong , and Den Hartog, 2007; Pieterse et al.,2010). It therefore emerges that it is most relevant to contribute to the present knowledge by means of evaluating the inter-connections between leadership, particularly transformational leadership knowledge sharing, and how they drive innovation in public sector service organizations.

The following sections will discuss three central scope of this research which are (i) the role of individual on innovation, (ii) the role of management/leadership style on innovation, and (iii) Empowering knowledge and knowledge sharing across the organization

1.1.1 The role of Individual (non-management) on innovation

Over the past decades, several authors (Woodman et al., 1993; Guimaraes and Langley, 1994; Andriopoulos and Lowe, 2000; McAdam and McClelland, 2002; Thamhain, 2003; Wood, 2003; Smith et al., 2016) have pointed out employees are a potential rich source of ideas and they should be encouraged to take part in the early stages of relevant innovation processes, to ensure a constant supply of ideas is generated. Smith et al. (2016, p.12) reiterate this view, when they state that “non-management employees play a central role in developing ideas as inputs into the innovation process and without ideas the innovation process simply would not function”. Supporting this approach, Bessant and Tidd (2015, p. 11) claim that “The power behind changing products, processes and services comes from individuals – whether acting alone or embedded within organizations – who make innovations happen”. Nevertheless, even though employees can be perceived as fundamental elements at the basis of the generation and development of new ideas, several authors over the past decades have argued that non-management employees need to be given sufficient resources, namely in terms of time, materials and finance, for potential ideas to emerge (Thamhain, 1990; Avlonitis et al., 1994; Pavitt, 2002; Hyland and Beckett, 2005; Mostafa, 2005). Besides, some authors stress that employees need to be consistently trained and educated into the goals and value of their contribution, before they can have a positive impact on the organizational innovation process (Koen and Kohli, 1998; Loewe and Dominiquini, 2006; Pohlmann et al., 2005; Brennan and Dooley, 2005; Shipton et al., 2006). It is also crucial to bear in mind that each person is innovative to a different degree.

This variability makes it difficult to establish which driving force - whether the cultural that informs the organization, the leadership style, or employee-specific ability and willingness to share their knowledge - most affects and influences organizational innovation directly.

These aspects cannot be addressed independently from the role of managers' leadership style, as these are the real enablers or deterrents for employee engagement and development.

1.1.2 The role of management and leadership style

As often addressed in the literature, one of the key enablers (or inhibitors) of innovation, is the level of support given by the management to empower employees' ability to innovate (Knight, 1987; Tang, 1999; Martins and Terblanche, 2003; Mostafa, 2005). Many authors suggest that it is the role of managers to ensure that the innovation process comes to fruition and that employees know how to interact with the innovation process (Vandermerwe, 1987; Johnson, 1990). This is supported by another classic study by Scott and Bruce (1994) who suggests that the quality and nature of the leader-member exchange (LMX) is what influences the creativity of subordinates. On the other hand, the so-called 'upper echelons theory' argues that decisions and choices by top management have an influence on the performance of an organization, and this is particularly through their assessment of the environment, strategic decision making and support for innovation (Bessant and Tidd, 2015, p.267). But most important, is the viewpoint presented by Clawson (2012, p.3) that "Leadership is about managing energy" and he claims that "if the energy level is low, the leadership is likely to be weak. If the energy level is high, there is likely good leadership in place." Moreover, what is meant by energy certainly refers to individual employee engagement, as reflected upon in the previous section and will be mentioned as well in the next section.

Although many leadership styles have been studied in the field of management (Saenz, 2011), the most important is acknowledged to be the transformational leadership. According to some authors, this style leads to increase goal-directed behaviour exhibited by followers (DuBrin, 2012) and thus to enhance performance and innovation for the organisation (Yukl, 2013). Under transformational leadership, the followers feel respect and trust towards the leader and are willing to do more than is expected of them. This style of leadership is perceived as generating greater commitment from subordinates and produces a greater quantity of work and more creative problem solving (Hawkins, 2011; Lynch, 2012; Yukl, 2013).

Some authors such as Trott (2012, p.30) openly claim that innovation needs to be viewed as a management process, and this in turn triggers an iterative process in innovation leading to a cyclic innovation model. This very interesting view will be further addressed in subsequent chapters and will play a key role in the development of the intended model developed in the present research. Others go a step further and take transformational leadership as the sub-dimension that may have the greater influence on creativity and innovation (Rafferty and Griffin, 2004); however, this latter view fully informs the perspective taken in the present research.

1.1.3 Empowering knowledge and knowledge sharing across the organization

Authors, such as Tan et al. (2010) perceive the need to create a knowledge sharing culture in organisations, an imperative which calls for motivating factors to be employed to motivate individuals to share their knowledge. Xiong and Deng (2008) showed that the effectiveness of knowledge sharing among employees is dependent on the leadership style, as the latter is crucial for planning the processes used to donate and collect knowledge. Whilst there is an abundance of research around knowledge sharing as the bedrock of all knowledge management initiatives, there has been a marked interest in this field in the developing world and researchers are becoming increasingly more interested in studying knowledge management with a particular focus on knowledge sharing in the public and private sectors (Asrar-ul-Haq, and Anwar, 2016). Furthermore, knowledge and knowledge sharing are recognised as the most significant resources for competitive advantage in many organisations. If effective knowledge sharing is used, employees can enhance their abilities in their jobs, adding to their personal knowledge due to the amassing of organisational knowledge (Xiong and Deng 2008). This increases problem solving skills, creates an increase in learning and reduces mistakes (Mughal, 2010). However, lack of competition and rewards motivation for knowledge can be a reason to hold back public-sector organisation to manage their knowledge capital (Yao et al., 2007).

Humayun and Gang (2013) found that leaders have the power to affect the intentions of employees regarding the collection of knowledge, by developing a knowledge culture within an organisation. Furthermore, a considerable number of researchers have argued that leadership is an enabler of knowledge sharing (Al-Adaileh and Al-Atawi, 2011, Song et al., 2012, Shih et al., 2012, Allameh et al., 2012, Seba et al., 2012b, Humayun and Gang, 2013) and enhances innovation (Si and Wei, 2012; Al-Omari and Hung, 2012; Eisenbeib and Boerner, 2013). Some of these researchers also claim that knowledge sharing is an antecedent to innovation (Andreeva and Kianto, 2011; Porzse et al., 2012; Ferraresi et al., 2012). An interesting approach was developed by classic authors such as Pavitt et al. (1991) namely, the idea of ‘organisational learning’ and ‘organisational knowledge’. In line with this, it has been put forward by some authors that the organizations, rather than the individuals who work inside them, are the entities which retain and generate innovation (Willman, 1991). This very appealing idea has been fully sustained by Trott (2012, p.204) and will be further developed in subsequent sections.

1.2 The statement of the problem

Gumusluoglu and Ilsev (2009) noted that the proposal that transformational leadership has an effect on innovation at the organisational level has become a topic of empirical research only recently. The nature of the organisational culture has a cumulative influence on the innovation process within organizations (Sarros, Cooper and Santora, 2008). Transformational leadership style shows a mixed result in how it effects employee innovative behaviour (De Jong, and Den Hartog, 2007). According to Pieterse et al. (2010) empirical studies that confirm the positive relation between transformational leadership and employee innovative behaviour are scarce and inconsistency. Therefore, additional research is needed in order to determine the degree to which transformational leadership style affects the Innovation process directly, and whether leadership is a primary influencer for other factors such as knowledge sharing and employee empowerment. Moreover, very little is known about the applicability of the concept of leadership in the Arab Gulf States in general (Common, 2011) and UAE in particular.

Even though the amount of the research work devoted to questions around innovation, knowledge management and knowledge sharing, and leadership, has

been steadily increasing over the last few years, little has emerged specifically addressing each of these aspects in public sector organizations compared to private sector. In fact, as pointed out by Gallouj and Zanfei (2013, p.90) in regard to innovation, for example, despite the important role played by public services, both in quantitative and strategic terms, innovation is in the vast majority of cases neglected and under-estimated; the only exceptions to this generally being in specific sectors such as health and technological research. According to European Union reports of expert group on public sector innovation “efforts to better understand and promote innovation in the public sector are hindered by an overall scarcity of quantitative evidence on innovation which points to the need for more and better data” (European Union, 2013, p.5). Moreover, Mohammed bin Rashid Center for Government Innovation stated that innovation is a complex phenomenon requires inter-linked activities and it involves different group of people, diverse skills, capabilities (MBR Government Innovation, 2015). Understanding these activities is still under- researched within the public sector (Kattel et al., 2014).

The present study attempts to bring some contribution to the existing body of knowledge in this area by addressing these open questions. To address this issue this study is focused on the innovation process within the UAE Ministry of Interior (MoI). A brief overview of the MoI is presented in Chapter 4.

1.3. Aim and objectives of the study

The main aim of this study is to investigate the impact of the four components of transformational leadership model (TL) on the innovation process (INN) and knowledge sharing (KS) and to determine whether knowledge sharing is a mediating variable for the TL-INN relationship in public sector organizations, using primary data from the UAE Ministry of Interior (MoI) as the selected public-sector case informing the present research. Accordingly, the research aim can be attained by the following objectives:

1. To determine and critically analyse the effects of transformational leadership on innovation process.
2. To determine and critically analyse the effects of transformational leadership on knowledge sharing.
3. To determine and critically analyse the effects of knowledge sharing on innovation process.

4. To investigate the effect of demographic variables on the innovation process.
5. To specify a model that conceptualises the fundamental relationships between transformational leadership, knowledge sharing, and innovation process in the UAE MoI.
6. To propose recommendations to policy makers in the UAE MoI in order to enhance strategies for achieving innovation using transformational leadership and knowledge sharing.

1.4. The research questions

The purpose of this study is not only to investigate the contextual factors that directly and indirectly affect innovation within public sector but also understanding of how to enhance the implementation of innovation process within the police organisation and to predict better the likely outcomes of their operational decisions, including mechanism put in place, therefore the following research questions are posed:

1. What is the effect of transformational leadership on innovation process?
2. What is the effect of transformational leadership on knowledge sharing?
3. What is the effects of knowledge sharing on innovation process?
4. Does the innovation process within the UAE MoI influenced by demographic variables?

1.5. Structure of the thesis

This section provides an outline of the contents of the thesis. This thesis is divided into eight chapters:

Chapter 1: This chapter introduces the rationale for the study, highlighting the core drivers, and identifies the research gap. It presents the research question and defines the aim and objectives of the research. The structure of the whole thesis is hereby presented. The chapter ends with a summary of its contents.

Chapter 2: This chapter provides a comprehensive literature review on the three central aspects of this research, namely Transformational Leadership, Innovation Process, and Knowledge Sharing. The chapter reviews the types of leadership and the development of transformational leadership theory and discusses its components. It provides a review of the relevant literature and aspects of innovation in organizations. A description of the different approaches to Knowledge Management and Knowledge Sharing, and the processes of Knowledge Sharing in organizations is addressed, focusing on research addressing public service organizations.

Chapter 3: This chapter establishes the research framework for the study, which is based around critical dimensions of transformational leadership style and their impact on the innovation process via knowledge sharing. The main purpose of the proposed framework is to be used as a road map for empirical data collection and analysis, and to establish a comprehensive overview of the innovation process in the UAE context. Finally, the study hypotheses are provided after a discussion of each components of the conceptual framework.

Chapter 4: This chapter serves to contextualise the presents key aspects about the UAE's economic growth over the past decades, and the new challenges it faces ahead as the global Oil and Gas market declines. The imperative need for change and innovation is presented, together with the 2017-2021 Strategic Innovation Plan, and the government focus on innovation. The chapter also provides a brief review and review of existing contents about

the UAE Ministry of Interior (MoI) where it stands in terms of engagement in novel attitudes and procedures and its potential for further and continued innovation.

Chapter 5: The chapter addresses in detail the methodology of the study, describes and justifies the research philosophy and research approach selected, and provides the relevant details about the primary research methods (quantitative) that inform the research design used. It also presents and justifies the selection of the target-respondents, the contents of the questionnaire, and the measurement scales and data collection used, and describes the procedures used to validate the findings.

Chapter 6: This chapter elaborates on the quantitative findings. This includes the analysis of the demographic data on the respondents using SPSS 23, exploratory factor analysis, the testing of the reliability and validity of the model and multi-group analysis through confirmatory factor analysis with AMOS 23. The chapter then presents the outcomes of testing the hypotheses of the underlying relationships using structural equation modelling (SEM) in the MoI.

Chapter 7: This Chapter summarises and presents a full discussion of the findings and presents the resulting structural model. The modified scale used to test the hypothesis presented. This is followed by supporting the findings by literature and presents implications for theory and practice.

Chapter 8: This chapter summarises the overall research findings, draws a conclusion based on the findings and details recommendations for policy makers. Finally, the chapter highlights the limitations of the study and directions for possible future research.

Chapter 2: Literature Review

2.1. Introduction

This chapter provides a comprehensive literature review on the three main constructs of this research namely; Transformational Leadership, Innovation Process, and Knowledge Sharing. It is important to note at this stage that this overview of existing literature will not necessarily solely focus on public-sector service providers, as the published research work on the topic is quite limited (Kattel et al., 2014), but it is always possible to draw useful insights on public sector organizational innovation capacity and outcomes from analysing the broader spectrum of research, to include product-driven commercial organizations. The role of individual non-management employees' is reviewed to inform the interlinked aspects of employee engagement, knowledge management and leadership styles in enabling such interactions. The chapter begin with reviews of the types of leadership, sheds light on the main theories of leadership, with the development of transformational leadership theory and discusses its components. Moreover, the second part of this chapter covers the dependent variable (innovation process), different types and models of innovation, and factors that affect innovation in the public sector. Finally, a description of the different approaches to Knowledge Management and Knowledge Sharing, and the processes of Knowledge Sharing in organizations is addressed, whenever possible focusing on research addressing public service organizations.

2.2 Leadership

Leadership constitutes one of the most widely researched topics in the field of social science (Derue et al., 2011; Avolio et al., 2003; Bennis, 2007; Bass, 1990). The continued interest in leadership can be attributed to its significant influence on the ability of organisations to realise their vision and mission (Dansereau et al., 2013; Ghazali et al. 2015). Leadership has in this respect been defined in different ways by different scholars, as discussed below. Northouse (2013) defines it as the process through which a given individual has an influence on other individuals or groups in order to achieve common goals. Another noteworthy definition is that leadership comprises the processes by which an individual exerts influence on other individuals (followers) with regard to the nature and direction of a group activity (Schein, 2010). And the definition provided by Clawson (2012, p.3) already presented in Chapter 1, is that “Leadership is about managing energy” and that author claims that “If the

energy level is high, there is likely good leadership in place” where the term “energy can be read both to describe the level of individual employee engagement, as well as the influential drive the leader trigger on the team. In this context, a leader has also been defined as a person who influences other individuals and groups by helping them establish goals and consequently guiding them towards achieving those goals (Ricketts and Ricketts, 2010). Evidently, influence constitutes a recurring theme in the majority of leadership definitions. It involves espousing of values and giving directions that make it possible for followers to not only achieve daily tasks but also contribute to the long-term strategies of the organisation (Schein, 2010). Besides influence other essential elements that constitute the concept of leadership include leaders and followers as the people in the relationship; mutual purposes between leaders and followers; and the intention to engage in real changes (Badshah, 2012).

Traditionally, the concept of leadership has been linked to an individual or focal leader as opposed to groups of individuals. This form of leadership is commonly referred to as vertical leadership (Hoch, 2013). Further review of literature however reveals a gradual acceptance of the view that leadership could also be shared. In other words, the leadership roles can be distributed amongst different individuals in an organisation (Friedrich et al., 2009; Morgeson, DeRue and Karam, 2010). Shared or collective leadership has been defined as a form of leadership that involves multiple individuals within the organisation assuming formal and informal leadership roles (Yammarion et al., 2012). Research has in this respect demonstrated that shared leadership can have significantly positive organisational outcomes in aspects such as employee performance and satisfaction. The underlying rationale is that unlike single individuals, leadership teams have access to a larger knowledge pool (Morgeson et al., 2010). Teams with shared leadership are also well placed to respond to the demands of today’s work environment which is not only complex but also based on the ability to effectively share knowledge and remain creative (Drescher and Garbers, 2016).

Notwithstanding the increase in popularity of the concept of shared leadership some studies have suggested that the importance of the focal leader cannot be overlooked. According to Friedrich et al. (2016) it is the focal leader who creates conditions in which other individuals can emerge as informal leaders.

Similarly, Hernandez et al. (2011) assert that most workplace teams are usually structured around a formal leader. As such, the role of the focal leader in influencing the behaviours of followers and other leaders cannot be ignored. Leadership can only remain highly effective to the extent that there are coordinated efforts between the main leader and other emergent leaders (Friedrich et al., 2016). In agreement, Hoch (2013) also argues that vertical and shared approaches to leadership are not mutually exclusive. They can be engaged in simultaneously in order to obtain the benefits and overcome weaknesses that are inherent in each of the approaches.

Besides the issue of vertical and shared leadership prior research suggests that leadership is enacted through formal and informal relationships (Yammarino et al., 2012). The role performed by informal interactions and exchanges is often overlooked. This is despite the ability of informal networks to help provide support to the organisation by offering vital backstage support to the formal leadership relationship (White, Currie and Lockett, 2016). Some studies such as (Shipilov et al. 2014; Lee and Monge, 2011) however warn that if the two forms of interactions are disconnected the authority of the formal leaders can be greatly undermined.

2.2.1. Application of leadership

One of the main areas where the concept of leadership has been considered as vital to the success of organisations pertains to driving change and innovation (Anderson and Anderson, 2010; Vaccaro et al., 2012). As underscored by Pasmore (2010), the majority of organisations operate in a business environment that is characterised by high levels of volatility and uncertainty. In such an environment, leaders perform a pivotal role by ensuring that they successfully drive the organisation through change/innovation. It is the role of leaders to identify and comprehend all forces that have an influence on the organisation's operations and manage them effectively in order to ensure that the organisation is well aligned with dynamics in its environment (Schein, 2010). By, Burnes, and Oswick (2012) also opine that successful change management in modern organisations is dependent on the extent to which there is effective leadership.

Leadership in a change management and organisational development context requires that the leader encourages associates to experiment, take risks, as well as ensuring that all individuals are connected. It has also been strongly suggested that, during organisational changes, leaders must lead from the front and by example as part of the good leadership principles (Northouse, 2015; Zhu et al., 2013). In other words, it is incumbent for leaders to show the way to achieve the desired transformations. Change/innovation, as suggested in extant research needs the commitment of individuals in the upper hierarchy of the organisation (Doz and Kosonen, 2010; Bezold, 2010). Through their leadership role these individuals provide strategic foresight that enables the organisation to remain relevant and competitive in the industry. As part of this strategic foresight, leaders are required to continuously develop a culture of change and provide the necessary empowerment to employees and other members of the organisation in lower hierarchical levels (Doz and Kosonen, 2010).

The development of leadership practices also constitutes one of the areas that have gained interest among researchers over the years. One stream of research suggests that leadership practices such as the dynamic capabilities to anticipate contextual changes and transform an organisation's operations are largely shaped by firm specific asset positions (e.g. difficult-to-trade knowledge assets) and the evolutionary path that has been adopted during the growth (Chew and Dovey, 2014). In agreement, an earlier study by Teece (2007) argued that in order to sustain competitive advantage an organisation needs to adapt, integrate and reconfigure its internal and external resources and competencies so as to match the changing nature of the environment. Such contextual issues facing the organisation thus influence the behaviour of its leaders.

From yet another perspective it has been suggested that leadership practices are shaped by the need to create value within the organisation among individuals entrusted with the firm's resources (Lewin, 2011).

In order to create additional value, leaders have to develop an absorptive capacity which is defined as a leader's ability to recognise value inherent from new and external information and assimilate it to meet commercial ends. In this respect, the study by Noblet et al. (2011) points out that outcomes of leadership such as organisational innovation are dependent on the internal and external absorptive

capacity of leaders. Such absorptive capacity is enhanced by the need to ensure that superior organisational value is created. Leaders have in this case been found to engage in self-reflective practices that involve learning from previous experiences as part of the continuous value creation process (Chew and Dovey, 2014).

2.2.2 Key leadership roles in organisations

Under the concept of leadership leaders can perform a wide range of organisational roles. Five main organisational roles that each leader should seek to fulfil have however been highlighted. They are: contribution to quality strategic decision making; facilitating decision implementation; promotion of efficient collaboration and coordination within the organisation; addressing of organisational performance issues and maintenance of productive relationship with followers (Neatby, Rioux and Aube, 2015). The role of strategic decision making is one that encompasses responsibilities such as defining and sharing the organisation's vision and strategy as well as active involvement in monitoring the internal and external environment. Such monitoring acts as the basis on which strategic decisions to ensure that the organisation is well aligned with its environment are made (Nielsen and Nielsen, 2011).

Decision implementation as another important organisational leadership role revolves around translating of decisions into concrete actions and identification of individuals who should be responsible for the actions. It also requires the leader to continuously follow up until satisfactory completion is achieved (Doz and Kosonen, 2010). Some authors (Abernethy et al. 2010) have however noted that not all decision implementation is carried out exclusively by organisational leaders. A great number of decisions are implemented in collaboration with subordinates and through delegation.

As regards collaboration and coordination it has been argued that the absence of these aspects significantly impedes effective decision making. In greater detail, failure of leaders to facilitate coordination and collaboration within the organisation leads to formation of silos which are a major obstacle to decision implementation (Doz and Kosonen, 2010).

The role of monitoring organisation performance issues among leaders revolve around the need to ensure that set goals and expectations are achieved in the most optimal way. Leaders are in this respect expected to identify issues affecting the performance of their organisations and suggest possible solutions to ensure the desired performance is achieved (Von Krogh et al., 2012). Lastly, maintaining productive relationships with peers require leaders to ensure that unnecessary conflicts do not prevent the organisation from attaining the set goals. Neatby, Rioux and Aube (2015) posit that maintenance of good relationships within the organisation is one of the antecedents of superior organisational performance.

2.3 Leadership theories – critical evaluation of leadership theories

Continued research in the field of organisational behaviour has over time led to the development of varying approaches to leadership. According to Chemers (2014), the most reliable approaches that can be used for diagnosis, training and development must be ground in theory. More specifically, the approaches must comprise concepts and assumptions that are acceptable to and can be used by managers and emergent leaders. Accordingly, three main theories of leadership have been advanced namely: traits theory of leadership, behavioural leadership theories and situational/contingency theory of leadership (Northouse, 2015). In this section, each of these theories is critically reviewed.

2.3.1 Traits theory of leadership

The trait theory of leadership is based on the view that leaders possess certain characteristics (physical and psychological) that distinguish them from other individuals and position them to have an influence on others (Walter and Scheibe, 2013). The theory also has its basis in the observation of past historical figures such as Caesar and Napoleon, who led their nations during times of war and great uncertainties. From the observation of such individuals, some experts were convinced that leaders were born as opposed to being made or developed over time (Northouse, 2015). Eagly (2007) also argued that leaders must possess stable traits that enable them to carry out their leadership roles effectively.

Empirically, early survey in the 1940s and 50s by notable authors such as Bass and Stogdill reviewed a total of 124 traits and found that there was a pattern of

characteristics that were unique to individuals holding influential positions of leadership (Colbert et al., 2012). Specifically, it was suggested that the average leader is characterised by traits such as: intelligence, high levels of dependability in exercising responsibilities and initiatives, social participation, self-confidence, cooperativeness, adaptability and verbal skills (Nichols and Cottrell, 2014). It has also been argued that certain physical characteristics such as physique, appearance, mood control and energy can predict an individual's capacity to hold leadership positions (Walter and Scheibe, 2013).

The five-factor model of personality has also been used to identify personality traits that are most suited to leadership roles. These five factors are neuroticism, extraversion, openness to experience, agreeableness and conscientiousness (Chang, Connelly, and Geeza, 2012). In this context, research by Colbert et al. (2012) found that high scores in each of the factors besides neuroticism are positively related to perceptions of leadership. Neurotic individuals were found to be less suitable for leadership roles due to undesirable traits such as anxiety, insecurity, hostility and anger. (Chang, Connelly, and Geeza, 2012; Oh et al., 2011) also reported similar findings.

However, despite the popularity of the traits theory of leadership, it has been widely criticised and less relied on since the mid-20th century. One of the main lines of criticism has been that there is no definitive list of characteristics that are essential for leadership.

Attempts to make such lists have been criticised on the basis that they are value laden (Day et al., 2014). In addition, some scholars such as Dansereau et al. (2013) argue that the approach used in this theory is too simplistic. Specifically, the theory fails to take into account other aspects such as environment and organisational situations that have a considerable influence on leadership practices. In agreement, Derue et al. (2011) postulate that in actual leadership contexts, a leader will need to possess different qualities to handle different situations. As such, leadership has to be viewed from a flexible perspective.

2.3.2 Behavioural leadership theories

In light of the criticism directed towards the trait theory of leadership attention in research has gradually shifted to leadership behaviour. Behavioural leadership theory in this case suggests that there is a certain set of behaviours that can help distinguish between effective and ineffective leaders (Badshah, 2012). As such, behavioural leadership theories attempt to identify distinct behaviours that can facilitate an understanding of leadership. The behaviour of a leader should be ideal before their followers and therefore capable of influencing the desired actions (Lussier and Achua, 2015).

McGregor's X and Y theory is considered as one of the key foundations of behavioural leadership theory. The theory suggests that the behaviours of managers towards their subordinates could be described as two polarities (X and Y) (Kopelman, Prottas, and Falk, 2010). Managers who fit under the 'Theory X' description hold a negative view towards their employees. They in particular consider them to be lacking in motivation and also characterised by a general dislike of work. Managers adopting such a view are considered likely to lead and supervise based on directive and autocratic ways (Iqbal et al., 2012). This gives rise to the transactional approach to leadership, which is based around the need to ensure that followers comply with set rules. Close supervision is emphasised in this approach, with subordinates being rewarded or punished based on their level of compliance (Odumeru and Ogbonna, 2013).

Managers who fall under 'Theory Y' are, on the other hand, characterised by more positive perceptions about their subordinates. They perceive the average employee as one who enjoys challenges and responsibilities and is willing to engage in self-regulation (Kopelman, Prottas, and Falk, 2010). Leaders with such perceptions are likely to depict behaviours that empower employees as well as adopting participatory approaches of interacting with other members of the organisation. Such behaviours are commensurate with transformational leadership which involves changing attitudes and assumptions among organisational members as well as building commitment for the organisation's mission (Lehmann-Willenbrock et al., 2015).

The behavioural practices maintained by leaders are suggested to be dependent on four main factors. These are individual qualities of the leader; employee's faith and trust in the leader; the nature of organisational goals facing the leader; and the level of achievement of the set goals (Chemers, 2014). While the theory has been considered to be more accurate in explaining leadership practices it has also been criticised from several perspectives. Derue et al., (2011), for instance, posit that individuals with ideal behaviours will not always succeed in all leadership situations. Specifically, certain behaviour can be successful at one time but fail at another time. Accordingly, time is an essential attribute that impacts on leadership but is not adequately captured in the behavioural leadership theory.

2.3.3 Situational/contingency theory of leadership

The majority of organisations operate in an environment that is constantly changing (Pasmore, 2010). The dynamism of the business environment has in this context led to the notion that different styles of leadership will be suitable or work best in different organisational situations. This concept is commonly referred to as the Fielder's contingency/situational view of leadership (Fielder, 2015). Within this context, the fundamental assumption of the contingency theory is that leadership should be dependent upon the factors within the specific organisational situation. As McCleskey (2014) further explains, the contingency theory emphasises the need for leaders to be more flexible or sensitive to the organisation's environment. The leader's level of effectiveness is thus judged from their ability to adapt to the existing conditions.

The contingency theory further identifies three main dimensions/situations that are likely to influence the type of leadership to be adopted. The first situation pertains to leader-member relations. According to Fielder (2015), leaders who enjoy good relationships with other organisational members are likely to have greater power and influence and therefore be successful in their leadership roles. The second dimension relates to task structure. It is assumed that leaders who have their tasks well-structured are likely to be more effective compared to their peers who operate in an environment where the tasks are not only vague but also unstructured. Lastly, position power may influence leadership effectiveness. Leaders who have high

power and influence can engage in actions such as rewarding good behaviours and errant behaviours. In such a situation, leadership performance is expected to be high (McCleskey, 2014; Fielder, 2015). Another key aspect of contingency theory pertains to the concept of least-preferred co-worker (LPC). Leaders who hold positive perceptions of their LPC are considered as high-LPC leaders, By contrast, leaders who hold negative perceptions of their LPCs are described as low-LPC leaders (Fiedler, 2015). In terms of application a low-LPC leader is expected to be more effective in extreme organisational settings where situational control is either extremely high or extremely low. High-LPC leaders, should on the other hand be matched with environments with moderate LPC since they can focus better on relationship issues. Wide support for the contingency theory has been attributed to its recognition that leadership does not take place in a vacuum (Von Krogh et al., 2013). The leader's success is dependent on their competency and situational variables. Efforts should therefore be made to ensure a fit between the leader and the environment/situations they encounter. The theory, however, not without its own set of criticism. Northouse (2015) argues that the theory fails to provide a plausible explanation pertaining to why some individuals who possess certain leadership styles are successful only in some situations. The validity of the LPC scale has also been questioned. According to Northouse (2015), the scale's correlation with other standards for measuring leadership is low. Lastly, the theory also fails to offer insights regarding measures that should be undertaken by organisations once they find that there exists a mismatch between a workplace situation and the leadership style of a given individual (McCleskey, 2014). In other words, it does not provide guidelines for how leaders can adapt to different organisational situations.

2.4 Transformational leadership

The original idea behind the concept of transformational leadership was introduced by Burns an expert in leadership in his book "Leadership", published in 1978 (Winkler, 2010). Burns argued that transformational leadership is the process through which leaders and their followers help each other to achieve higher morality and motivation levels (Winkler, 2010). According to Gong, Huang, and Farh (2009) transformational leadership seeks to inspire and actively engage subordinates. It also involves transforming the subordinates in a manner that enables them to perform better than perceived.

Leaders, on their part, depict transformational leadership behaviour through articulation of a shared vision of the future, setting high expectations as well as providing intellectual stimulation (Deichmann and Stam, 2015).

In its most ideal form, transformational leadership has been argued to facilitate valuable and positive change among followers with an aim of transforming them into leaders (Vecchio, Justin, and Pearce, 2008). Eisenbeiss et al., (2008) further argue that, when transformational leadership is well implemented, it enhances morale, motivation and performance of followers through several mechanisms. The specific mechanisms employed by leaders to achieve the above may involve inspiring followers through being a role model; understanding the followers' strengths and weaknesses in order to align them with responsibilities that optimise their performance and abilities; connecting followers' sense of identity to the mission and the general identity of the organisation; and empowering employees to have high levels of autonomy at work, among other creative and innovative ways to help subordinates exploit their maximal potential (Eisenbeiss et al., 2008; Wang and Rode, 2010).

At the time of introduction of the concept of transformational leadership the main focus pertained to political leaders (Winkler, 2010). However, the term is now widely used in the field of organisational behaviour to show how organisational leaders can use this approach to enhance the potential of their employees leading to benefits for both the employees and the organisations. The initial study by Burns (1978) argued that although it is difficult to distinguish between leadership and management, the differences can be traced in behaviours and characteristics.

This attempt to differentiate the two aspects was part of the research on the differences between transactional and transformational leadership which are part of the full-range leadership theory (Deinert et al., 2015; Bass and Bass, 2009). Within this context Bass, and Bass (2009) posit that the transactional leader strives to work within the existing organisational structures, norms and ideologies through three main dimensions: contingent rewards, passive management by exception and active management by exception. The transformational leader on the other hand primarily aims at shaping the organisational culture, values and norms mainly through communication and symbolizing the vision for future performance.

In support, Deinert et al. (2015) articulate that transformational leadership tends to create a greater impact than other leadership styles since it focuses on influencing followers to transcend their self-interest for the benefits of the larger good. Followers who adapt to transformational leadership style are thus able to optimise their individual and organisational performance levels.

Burns' original ideas on transformational leadership attracted the interest of a large number of scholars. In 1985, Bernard Bass further expanded Burn's ideas on transformational leadership by suggesting various psychological mechanisms that could be used in the measurement of the efficacy of the transformational theory. Bass was particularly interested in the assessment of how transformational leadership influences performance and motivation among followers (Vecchio, Justin, and Pearce, 2008; Wright, Moynihan, and Pandey, 2012). According to Bass, a leader's transformational levels can first be measured in terms of his or her influence on their followers (Bass, and Bass, 2009). In most cases, the followers of transformational leaders experience higher levels of admiration, trust, respect and loyalty towards their leaders (Jasper, 2009). To this end, such followers (employees) tend to work harder than they did before the arrival of the transformative leader.

Vecchio, Justin, and Pearce, (2008) further reveal that such outcomes occur because transformative leaders offer their employees something more than working for self-gain. Such leaders do not only inspire their followers through a mission and vision; they also recognise the needs of their followers and elevate them from lower to higher levels of maturity (Bennett, 2009).

The leaders further motivate and transform employees through intellectual stimulation, their idealised influence (charisma), and individual recognition and consideration (Bass, and Bass, 2009). This means transformative leaders are able to establish cordial relationships with their followers due to their ability to resonate with people, and engage in intellectual simulation, and by having personalised relationships with their subjects. Consequently, leaders are able to understand the weaknesses and strengths of their subjects and develop the best way of addressing any gaps effectively and efficiently (Gong, Huang, and Farh, 2009). However, it is essential to note that, in developing Burns' ideas and approaches to leadership, Bass suggested that leaders can utilise both transactional and transformational leadership at the same time (Bass and Bass, 2009).

According to Gong, Huang, and Farh (2009), decades of research and a considerable number of meta-analyses have indicated that transformational and transactional leadership can positively predict several important performance outcomes. Such performance outcomes may include group-, organisational-, and individual-level variables such as creativity and engagement at the workplace (Wright et al., 2012).

According to (Bass, and Avolio 2000); Purvanova, and Bono, 2009) there are four basic elements that underlie transformational leadership: idealised influence, inspirational motivation, intellectual stimulation and individualised consideration. Each of these elements is considered below:

Idealised Influence

Under this element, transformational leaders act as a role model for their followers and set high ethical standards for their followers to emulate. Through acting as a role model, leaders are able to instil pride in and gain trust and respect from their followers (Avolio and Yammarino, 2013). Herold et al. (2008) also argue that a leader's ability to resonate with people helps in this process as transformational leadership is majorly about influencing people through establishing and maintaining positive relationships. Idealised influence is also achieved through the leader's personal accomplishments, exemplary behaviour and charismatic characteristics or attributes (Wang and Howell, 2010).

Inspirational Motivation

This is about a leader's ability to develop and articulate a vision that is not just acceptable to the followers but is also appealing and inspiring (Gumusluoglu and Ilsev, 2009). The vision should be such that it gives due consideration to the importance of tasks as well as promoting a strong sense of cohesion among followers. Transformative leaders are therefore able to understand the interests of their subordinates. As a result, they engage in leadership practices that captivate the interests of the subordinates and further motivate them to achieve the set vision. Gooty et al. (2009) also enlighten that leaders employing inspirational motivation manage to transform their followers by motivating them through setting high

standards, communicating optimism in regard to future goals and underscoring the importance of current tasks.

In the specific case of current tasks, the transformational leader emphasises their importance towards the realisation of organisational goals. In other words, the leader makes employees understand that their daily tasks, no matter how small they might seem play an important role in enhancing the success of the entire organisation. Avolio and Yammarino (2013) while on this context articulate that employees/followers need to possess a strong sense of purpose as it motivates them to act. Similarly, Schaubroeck, Lam and Cha, (2007) advise that visionary and transformational leaders enhance and support the subordinates to achieve the vision through effective communication that ensures everyone understands the organisation's intended direction. Through inspirational motivation, followers tend to exert more efforts in completing their tasks as they are encouraged, believe in their abilities and have immense optimism for the future. This leads to increased organisational performance as employees become more competent through empowerment and positivity stemming from increased self-awareness and faith in their abilities (Gumusluoglu and Ilsev, 2009).

Intellectual Stimulation

This facet involves the extent to which a leader is able to challenges pre-set assumptions, take risks and solicit ideas from his or her followers (Sarros, Cooper and Santora, 2008). Leaders employing this style of leadership empower, stimulate and encourage their followers to be highly creative and innovative as well as reframe problem and develop novel ways of approaching old situations (Wang and Rode, 2010). According to Jasper (2009), such leaders are able to understand the strengths and abilities of and help them to utilise such abilities through encouragement, empowerment and provision of a good environment to help them excel. In other words, such leaders develop and nurture their subjects to think independently and come up with ideas to enhance the work place, their personal lives and ultimately their competence levels. The leaders consider learning to be highly valuable to their followers (Bai, Lin and Li, 2016).

To this end, they treat unexpected scenarios as learning opportunities where employees can utilise their critical thinking skills to provide creative and innovative solutions.

In this approach, followers are guided to ask questions to help shape their thinking in a manner that allows them to work out issues more clearly, and hence develop ability to come up with better and improved ways of executing their tasks (Bass and Bass, 2009). This leads to followers being independent and feeling more responsible for their organisational tasks and hence they will strive to always find solutions to any problems at work without necessarily waiting for their leaders to work out issues for them. This helps an organisation to become more flexible and respond effectively to any external changes as workers are empowered and trained to come up with innovative and creative solutions (Sarros, Cooper and Santora, 2008). It also means that decisions are made quickly since employees do not need to consult their leaders for every little complication.

Individualised Consideration

Individualised consideration is concerned with the extent to which a leader is able to understand individual followers and attend to their unique personal needs and feelings (Sarros, Cooper and Santora, 2008). Here, the leader acts as a coach and/ or a mentor and provides empathy and support, ensures that communication is open and presents challenges to followers (Winkler, 2010). Such challenges are designed to help followers rediscover and utilise their full potential. Leaders also portray high levels of respect and recognise, appreciate and celebrate an individuals' contributions to an organisation (Jasper, 2009). Liu, Zhu and Yang, (2010) opine that this develops the will and aspiration for self-development among followers which further leads to intrinsic motivation in regard to performing organisational tasks. Transformational leadership cannot therefore be effective in cases where leaders want to exert their authority upon the followers. In fact, Bass and Bass (2009) argue that transformative leaders are self-aware individuals and do not feel the need to exert their authority over their subordinates. They aim at establishing mutual relationships where both parties have respect for each other and aim to work together to advance to a higher level.

2.4 Criticism of transformational leadership theory

In the contemporary world, transformational leadership is widely used in various organisations. In fact, Winkler (2010) argues that transformational leadership has been adopted widely in all sectors, especially in western societies, and this includes government organisations. Such wide adoption has been attributed to empirical evidence and meta-analyses showing that this style of leadership is highly effective compared to styles such as transactional leadership and laissez-faire leadership (Wang et al., 2011).

However, despite its popularity and ability to enhance performance in organisations, the theory is also the subject of several criticisms. For example, it may be difficult to teach transformational leadership as it encompasses multiple perspectives to leadership (Tourish, 2013). There is a risk that the transformational leader may manipulate their loyal and enthusiastic followers in a subtly coercive manner as opposed to using overtly exploitive behaviour.

As an example, a leader may use transformational leadership to gain a loyal base of followers but over time ignore their problems or induce them to return acts of service that are self-centred (Tourish, 2013). Such opportunities for manipulation often arise since the transformational leader commands high levels of trust and respect from their followers.

Some researchers (e.g. DeRue et al. 2011; Follesdal and Hagtvet, 2013) also point out that the four-factor structure proposed in the theory is often difficult to replicate in organisations. Difficulties in accurate replication are in part attributed to the view that the four elements of transformational leadership are highly inter-correlated and hence difficult to examine and apply separately (Yukl, 2013). From yet another perspective, Van Knippenberg and Sitkin (2013) argue that there is a large set of behaviours that are considered as part of transformational leadership. According to these authors, some of these behaviours are too distinct from one another to be merged into one composite score. The benefits of transformational leadership have, however, been shown to outweigh the potentially negative sides (Northouse, 2015).

To understand and appreciate the potential of the transformational leadership theory in regard to enhancing organisational performance, there is a need to compare this

theory to other leadership theories that constitute the full-range leadership theory (Bass and Avolio, 2004). These theories include the transactional theory of leadership and the laissez-faire leadership theory (Diebig, Bormann and Rowold, 2016). The aim of the comparison is to highlight the potential advantages and limitations of using the transformational leadership approach rather than transactional or laissez-faire leadership.

To achieve this goal, this section reviews each theory separately and then compares them against the transformational leadership theory.

2.5 Transactional leadership theory

The transactional leadership theory was first introduced by Max Weber in 1947 and has since then received a lot of attention from leadership thinkers and scholars (such as Bass, 1981; Avolio, Walumbwa, and Weber, 2009). As part of the research on full-range leadership theory, Bass (1985) investigated the various dimensions of transactional leadership and suggested that it consists of three main components: contingent reward, active management by exception and passive management by exception. Contingent reward entails the extent to which the leader provides clear expectations of performance and then backs them up with exchanges. In greater detail, leaders engaging in contingent reward leadership behaviour obtain subordinates' prior agreement on the tasks to be performed and provides rewards when the tasks are delivered within the stipulated time limit (Bass and Riggio, 2006). Employees who fail to meet the desired performance levels are subjected to disciplinary actions such as loss of rewards. According to Birasnav (2014), the transactional leader who pursues active management by exception is characterised by intensive supervision of employee behaviour. Whenever errors and mistakes are identified, the leader takes the necessary corrective actions. By contrast, transactional leaders who pursue passive management by exception only interfere with the employees' work when mistakes or errors occur (Birasnav, 2014).

Prior research suggests that transactional leadership is mainly used by middle-level managers as opposed to organisational leaders in the upper hierarchies of the organisation (DeConinck, 2010). Such greater use among managers has been attributed to its association with the basic processes of management such as

organising, controlling, and short-term planning (Pieterse et al., 2010). Avolio, Walumbwa and Weber, (2009) further indicate that transactional leadership is based on the desire to wield power and hence its preference among managers. For instance, it is typical for people to obey their managers or their seniors (by position) at work. In this regard, transactional leaders understand their positions holds authority and they use its power to lead their followers. This leadership style involves motivating and directing people primarily based on appealing to their interests (Avolio, Walumbwa, and Weber, 2009). As such, leaders utilising this style of leadership believe in motivating people through rewards and punishments.

Rewards are offered to the followers that behave according to the leaders's expectations while punishment is given to those who go against these expectations (Avolio, Walumbwa, and Weber, 2009). Transactional leaders believe that people are generally seeking ways to maximise positive experiences and minimise negative experiences (Harms and Credé, 2010). To this end, leaders hold the view that, by rewarding followers well and punishing those who go against their expectations, the followers will be motivated to act as per the leaders' expectations so as to maximise pleasurable experiences and minimise negative unpleasant experiences.

While transactional leadership has mainly attracted a negative connotation, an in-depth analysis of this leadership style reveals several strengths. For example, transactional leadership approaches are simple and easy to administer (Mahmoud, 2008). This is especially because the authority of a leader is held in his or her position and it is easy to reward and punish as required to enhance performance. It has been argued that the transactional approaches utilise well-known, tested and proven ideas (Breevaart et al., 2014). It has, for instance, been established that the majority of individuals have an innate tendency to seek out the receipt of rewards after good performances while at the same time minimising practices that might lead to unpleasant experiences such as punishments (Russell, 2014). This forms the basis of the contingent reward in transactional leadership. Accordingly, leaders are likely to achieve their desired goals by offering rewards to performers and punishment to defectors. There is also no need to train people to become leaders in the short run as they do not have a choice other than obeying, unless they want to be punished (Haider and Riaz, 2010). This means that leaders can easily get people channelling their efforts towards accomplishing organisational goals. Transactional leadership

approaches can also be highly useful in situations where time is of the essence. This is the case since organisational members do not need to consult or exchange ideas but rather follow the leader's directions (Mahmoud, 2008). This saves times and helps in getting things accomplished quickly.

Despite the above strengths, the transactional approach has several weaknesses. For example, transactional leaders assume that all people are rational (Pieterse et al., 2010). Such an assumption disregards important factors such as emotions and social values that play an important role in enhancing individual choices and performance (Haider and Riaz, 2010).

The theory also maintains that people are solely motivated by rewards and punishment and, in the process, ignores the role of willpower and altruism (Mahmoud, 2008).

It has further been found that transactional leaders are likely to use their authority and power to suppress employees' voices through threats of punishments towards anyone who questions their leadership. In other words, transactional leaders are marked by limited tolerance for dissent (Walumbwa, Wu and Orwa, 2008). This approach may also not be applicable when the demand for workers is high and the supply is low. At such times, workers can easily move to new workplaces if their leaders threaten to punish them, which may lead to leaders having no means to control their workers. In this approach, an organisation may become dependent on one or a few leaders, which may affect the organisation negatively if such leaders leave (Zagoršek, Dimovski and Škerlavaj, 2009). Organisations utilising transactional leadership may also not be able to respond to external forces efficiently and effectively (Walumbwa, Wu and Orwa, 2008). This is because, in most cases, the workers are not empowered to make decisions, which means a high level of centralisation in decision making, which may take time to make decisions, leading to consumer and partners' dissatisfaction. A summary of the main strength and weaknesses of the transactional leadership model is presented in below table 2.1.

Table 2.1 Strength and weakness of transactional leadership style

Strengths	Weaknesses
<p>Planning and controlling: useful for managers has been attributed to its association with the basic processes of management such as organising, controlling, and short-term planning</p> <p>Motivating staff: motivating and directing people primarily based on appealing to their interests</p> <p>Monitoring and goal commitment: this style of leadership believe in motivating people through rewards and punishments. Rewards are offered to the followers that behave according to the expectations of the leader while punishment is given to people who go against the expectations of the leader.</p>	<p>Direction: assume that all people are rational- as a result disregards important factors such as emotions and social values that play an important role in enhancing individual choices and performance.</p> <p>Influence staff: use their authority and power to suppress employee voices - transactional leaders are marked by limited tolerance for dissent.</p> <p>Staff Recruitment: not be applicable when the demand for workers is high and the supply is low</p>
<p>Simple and easy to administer: utilise the use of well-known, tested and proven ideas, and highly useful in situations where time is of essence.</p>	<p>Respond to external forces: workers are not empowered to make decisions which means high level of centralisation in decision-making which may take time and lead to employees' dissatisfaction.</p>

Source: Author

In the preceding sections both transformational and transactional leadership theories have been reviewed. Accordingly, it is possible to compare the value of the two approaches in relation to organisational performance. Table 2.2 provides the comparison between the two leadership styles.

Table 2.2 Comparison between transformational and transactional theories of leadership

Basis for comparison	Transactional leadership	Transformational leadership
Definition	A leadership approach that utilises rewards and punishment as a way of motivating followers	An approach where the leader utilises charisma and enthusiasm as a way of motivating followers: leads to better working relationships and consequently improved performance
Concept	Leader emphasises his or her authority to followers to avoid punishment and be rewarded	Leader puts emphasis on good relations, morals, values and needs of the followers: workers are empowered and seek to improve the organisation and their capabilities, thus leading to better performance
Nature	Reactive	Proactive
Style	Bureaucratic: slow decision making leading to inflexibility (bureaucracy)	Charismatic (almost informal): faster decision making leading to flexibility (adhocracy)
How many leaders in a group	One: relies on one person's ideas (can easily be wrong)	Several (leader is making everyone a leader) sharing of knowledge enhancing better decisions
Focus	Planning and execution: solutions must be executed in a certain way	Creativity and innovation: leads to improved way of doing things
Motivation factor	Putting the interests of the followers first: people are not always rational	Stimulating followers and setting a group's interest as a priority: leads to better performance of the organisation

Source: Author

As shown in the above Table 2.2 which provides the comparison between transactional leadership and transformational leadership style in terms of their practices and application with possible influence on the organisation performance.

2.7 Laissez-faire leadership full-range leadership theory

Laissez-faire leadership is known as delegative leadership and involves a leadership approach where leaders allow their followers to make all the decisions without necessarily having to involve the leader in the leading process (Hinkin and Schriesheim, 2008). This means that, under this style of leadership, followers receive very little or no guidance from their leaders. The followers are also given absolute freedom to make decisions. Under this form of leadership, the leaders just provide followers with the resources and tools needed to perform their tasks (Chaudhry and Javed, 2012). It is important to note that although power is in the hands of the followers, leaders are responsible for their followers' actions and decisions.

Just like other approaches to leadership, this leadership approach has several strengths. For instance, Hinkin and Schriesheim (2008) argue that a delegative approach can be highly effective in cases where all the group members are highly motivated, skilled and capable of working on their own. Since such groups are composed of experts, they have the knowledge and skills needed to accomplish tasks and they are able to work on their own as they understand what is expected of them and why they have been selected and not others (Ofori, 2009). This approach can also be effective in situations where group members are more knowledgeable than the group leader. This means that, where members are in a better position to understand the issue under consideration, giving members full autonomy to undertake responsibility may be the most effective way of getting things done efficiently and effectively (Hinkin and Schriesheim, 2008).

According to Furtner, Baldegger and Rauthmann (2013), the autonomy offered by laissez-faire leadership also helps to free members of a group, which in turn leads to the members feeling more satisfied about their work. This approach to leadership can therefore be effective in situations where group members possess high levels of intrinsic motivation and passion for their work. It is also essential to note that, while the approach implies that leaders give group members absolute freedom to make decisions, in most cases the leaders remain available and open to the group members for consultation and feedback whenever necessary (Furtner, Baldegger and Rauthmann 2013).

Despite the advantages associated with Laissez-Faire, this approach has few downsides, as well. In fact, research has shown that Laissez-Faire approach often results in the lowest productivity among group members (Chaudhry and Javed, 2012). It cannot work where the members lack the experience or the knowledge needed to complete organisational tasks. Some people are poor at managing their projects, setting their own deadlines and solving problems on their own. In such situations, deadlines can easily be missed, in which case projects can go off-track. The approach may also lead to poorly defined roles within a group. Since there is little or no guidance for group members, individuals may not clearly understand their roles and what is expected of them, leading to loss of time and subsequent loss in productivity. Research shows leaders may also use this approach as a way of avoiding personal responsibilities, which ultimately leads to poor performance (Moors, 2012).

2.8 Comparing Laissez-Faire leadership to transformational leadership

Transformational leadership has several benefits over the laissez-faire approach. For instance, while the transformational approach offers autonomy to workers, this is achieved through the leader's support to help followers become responsible leaders (Chaudhry and Javed, 2012). In the laissez-faire approach, the worker is offered absolute autonomy and can easily go wrong without the leader, especially if s/he is not familiar with the task at hand. Where laissez-faire leaders are withdrawn from their followers, transformational leaders ensure that they are always available to guide, empower and act as a role model for their followers (Moors, 2012). In summary, the relationship that exists between transformational leaders and their followers is aimed at making the followers better and more productive as they become leaders and exploit their potential. On the other hand, in laissez-faire leadership, group members can easily go off-track due to a lack of guidance, which leads to lost productivity.

An example of an organisational setting where laissez-faire leadership can be effective pertains to a chief of surgery in charge of a group of highly experienced surgeons. Since these experts have the requisite knowledge, skills and intrinsic motivation, they need minimal guidance to perform their work. The autonomy provided under laissez-faire leadership also limits interference which might

otherwise affect the medical outcomes due to inability to concentrate. The chief surgeon, while maintaining a hands-off approach, remains available for consultation and feedback. However, a similar approach to leadership may not be suitable for a commanding officer in a military context. In a situation where a battalion is actively involved in war, the followers expect the commanding officer to provide necessary directions otherwise some serious mistakes might occur (Gray, 2004). Similarly, it would be inappropriate for a supervisor of new recruits to use laissez-faire leadership. The recruits are inexperienced in carrying out the job and therefore require directions in order to master the necessary skills. In each of the three situations described above, transformational leadership, if practised, can be successful and hence has a comparatively high value relative to laissez-faire leadership.

One of the recent papers on the topic, by Kesting et al., (2015), highlights the fact that, to date, research is scattered and only offers some indications that certain leadership styles (particularly charismatic and transformational leadership) seem better suited to inspire and motivate followers and tend to trigger radical innovations. On the other hand, as also pointed out by Kesting et al. (2015), leadership styles such as directive and transformational leadership, and possibly also CEO/strategic leadership, seem better suited to structure organisational activity and to overcome resistance and lead to incremental rather than radical innovations. These aspects will be considered further in Chapter 7, and will feed into the discussion of the findings of the present research. Table 2.3 summarises previous research on organisational leadership from different perspectives.

Table 2.3 Summary of research on transactional and transformational leadership

Source	Purpose of Study	Findings
Daft (1999), DuBrin (2007), Owen et al. (2004), Western (2008), Lynch (2012), Yukl (2013)	To define and distinguish two types of leadership: transactional and transformational.	They operationalised the concepts of both transformational and transactional leadership as distinct leadership styles. Transactional leadership focused on the exchanges that happen between leaders and their followers, whereas transformational leadership represented the interaction that occurs between leaders and their followers in which each side plays a dynamic part in affecting the other's perceptions and actions.
Sadeghi and Pihie (2012)	This study was designed to look at staff perception towards leadership in transforming Wolaita Sodo University.	Attempts to transform the skill and competence of academic and supportive staff and students' learning are found to be insignificant; the top academic leaders focus on routine and administrative issues at the expense of emphasis on strategic matters, and changing the prevailed institutional culture. Moreover, there is a lack of empowerment of the middle and first line managers who are highly engaged in operationalising the transformation process. Hence, change at Wolaita Sodo University lacks transformational dimension and the change may not bring about its intended goals.
Liu et al. (2011)	The authors intended to contribute to the leadership field by introducing emotional labour and team efficiency as important factors in the existing relationship between transactional leadership and team innovativeness.	The authors predicted a significant negative relationship between transactional leadership and team innovativeness, assuming that emotional labour was a moderating factor in that relationship.
Pataaraechachai and Ussahawanitchakit (2009, Mohammad et al. (2011)	To explore the relationship between transformational leadership and work commitments.	Transformational leadership has a positive impact on work commitment in chemical and plastic export industries in Thailand.
Awamleh et al. (2005)	Examine the effects of both transformational and transactional leadership styles of bank managers/supervisors on employees' satisfaction and self-perceived performance.	A multiple regression analysis indicated that transformational leadership style and self-esteem were related to job satisfaction. On the other hand, transformational leadership, Romance of Leadership (RLS) and self-esteem were all related to self-perceived performance. Results confirmed that, to elicit higher levels of satisfaction and performance among bank employees, managers/supervisors need to demonstrate transformational leadership attributes.
Jung et al. (2003)	Relationship between transformational leadership, knowledge sharing and innovation.	Transformational leaders are able to create a supportive climate among organisational members by facilitating communication networks, team spirit, trust and knowledge sharing
Gundersen, Hellesoy and Raeder (2012)	Focusing on the relationship between TL and team performance, the mediating role of trust, the moderating role of a dynamic work environment, the relationship between TL and work adjustment, and the relationship between TL and job satisfaction.	Results revealed a positive relationship between transformational leadership and the outcomes. Trust in the team partially mediated the relationship between transformational leadership and team performance, and environmental dynamism moderated the direct effect between transformational leadership and team performance.
Den Hartog et al., (1999); Leong (2011); Rowold & Rohmann (2009); Tsai, Chen and Cheng (2009).	Difference between situational, transactional and transformational leadership. Which is most suitable and when?	Transformational leadership applies to a wide range of situations and contexts and evidence suggests that it fits a variety of diverse cultural contexts.

Source: Author

The above sections explain the various leadership theories, review of the literature and provides comparison of different leadership styles. The next section focuses on organisational innovation and theories related to organisational development and innovation process.

2.9 Innovation

Innovation constitutes a strategic tool that organisations in a wide range of sectors can use to enhance market survival as well as achieve long-term success (Kotter, 2012; Zeschky, Widenmayer and Gassmann, 2011).

Even though innovation as a topic is usually appealing to the majority of people and to organisations in general, engaging in the process and actions that lead to the required changes triggered by innovation requires an effort that not all are willing to embrace. Most innovations involve deliberate application of information, imagination and initiative in deriving greater or different values from resources (Business Dictionary, 2017) and, in the case of organisations, be they product or service providers, innovation is generally driven by a top-down, strategically driven, centralised approach (Mortara et al., 2009, p.27). Mortara et al. (2009) are referring to a specific approach to innovation, named Open Innovation (OI), which will be addressed later in this chapter and which may apply quite easily to the public service sector, which is the central target study object of this thesis.

However, according to a report of the European Commission expert group on public sector innovation, “Evidence suggests that public-sector innovation today mostly happens through uncoordinated initiatives rather than as a result of deliberate, strategic efforts (European Union, 2013, p.5). “The quest for more and better public-sector innovation is hindered by several barriers, which fall into four major categories: weak enabling factors or unfavourable framework conditions; lack of innovation leadership at all levels; limited knowledge and application of innovation processes and methods; and insufficiently precise and systematic use of measurement and data”. The same report draws attention to the fact that “efforts to better understand and promote innovation in the public-sector are hindered by an overall scarcity of quantitative evidence on innovation which points to the need for more and better data” (European Union, 2013,p.5).In line with this, Gallouj and

Zanfei (2013) highlight that, although significant efforts have been made to consider specific forms of innovation in services, public services are usually still excluded from the scope of the published research on innovation. These same authors (ibid, 2013) paraphrase the classic work by Ian Miles (Miles, 1998) who claims that this is “reflected in the vocabulary used to describe the dynamics of public services. They change, modernize, but do not innovate (or hardly at all).”

Below are some of the key points that need to be addressed to better understand and explore the field of organisational innovation, and more specifically when it applies to public service institutions.

2.9.1 Models of innovation

The concept of innovation has been defined in various ways by different authors. Zawislak et al., (2012) define it as the implementation of new or significantly improved products, processes, marketing methods and workplace and external relations. Gunday et al., (2011), on the other hand, describe innovation as an organisation’s process in equipping itself with new, improved capabilities or increased utility. While innovations are mainly distinguished by their novelty or originality, they may still involve modernising or upgrading of an existing product or process (Kotter, 2012). In addition, innovations are usually an outcome of scientific inquiries as opposed to chances (Almirall and Casadesus-Masanell, 2010; Wierzbicki, 2014).

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It is also important to concur with Davila, Epstein and Shelton (2006, p.29) when they highlight that “One of the most common misconceptions is that innovation is primarily, if not exclusively, about changing technology”. The same authors elaborate on the view that “successful organisations combine technology change and business model change to create innovation” (Davila, Epstein and Shelton, 2006, p.31). And they go on by pinpointing that, in order to successfully integrate a robust model of innovation into the business mentality, the leadership team must balance all aspects of innovation, and they suggest six levers for innovation: on the one hand, three levers to do with the business model (for example, the value proposition) and, on the other hand, the technological innovation (enabling technologies and innovative services being among the examples) (Davila, Epstein and Shelton, 2006, p.31).

The present study, however, seeks to go beyond the commercial perspective of innovation by taking into consideration how innovation can be instrumental in increasing efficiency in non-commercial organisations such as police organisations. In this regard, this research follows the definition process innovation model defined by Dodgson, and Hinze (2000, p.102) who indicate that innovation is a “*process* that combines a number of activities to create the innovation outcome”. And in this sense, it fully aligns with the concept that innovation is not confined to manufactured products. As highlighted by Tidd and Bessant (2009, p.4), there are plenty of examples of growth through innovation found in services, and the list of illustrative cases spans a wide range of industries, from banking through to insurance companies and including auction centres such as eBay and internet retailers such as Amazon. More importantly, for the case addressed in this thesis, public services such as healthcare, education and social security are also addressed. The same authors pinpoint that “the pattern is increasingly coming to favour those organisations that can mobilize knowledge and technological skills and experience to create novelty in their offerings (products/services) and the ways in which they create and deliver those offerings” (Tidd and Bessant, 2009, p.5). Also, they claim that “Bright ideas well implemented can lead to valued new services and the efficient delivery of existing ones” (ibid, p.4). These are fully in line with the core ideas leading the present research.

Table 2.4 Models of innovation

Author	Methodology/ Methods	Types of Innovation	Organisation setting
Bass (1969)	Emperical research	Product	Private
Rogers (1995)	Theory	Process	Private
Cooper and Kleinschmidt (1986)	Recent theory and practise	Industrial manufacturing product innovation	Private
Rothwell (1994)	Prior research	Product	Private
Van der Ven et al. (1999)	Large empirical study	Product, process, services	Private
Nooteboom (2001)	Theory	Product, process, services	Private and public
Mulgan and Albury (2003)	Prior research and case studies.	Services	Public
Verloop (2004)	Experience	Product, process	Private
Cormican and O Sullivan (2004)	Model based on theory, verified in practice.	Product, technology	Private
Tidd et al. (2005)	Empirical and theoretical research	Product, process, services	Private and public
Andrew and Sirkin (2006)	Experience and empirical research	Product, process, services	Private
Hansen and Birkinshaw (2007)	Based on empirical experience of the authors	Product, process, services	Private
Jacobs and Snijders (2008)	Theoretical and empirical research	Product, services	Private and public
Godin (2005) and Khurana (2013)	Theoretical	Linear model: <ul style="list-style-type: none"> • Technological push • Market pull 	Research and applied science
Rothwell (1992)	Theoretical	Coupling model	Private R & D
Chesbrough (2005)	Theory and practice	Open innovation	Private

Source: Adopted from (Eveleens, 2010)

As shown in the above table 2.4, the models of innovation differ considerably among prior research. Most of the innovation models are largely based on product innovation and designed for private sector requirements (Kickert, 2014; Eveleens, 2010; Cooper and Kleinschmidt 1986; Cormican and O’Sullivan 2004; Verloop,

2004; Andrew and Sirkin 2006). However, in modern economies in which services are getting more important, other types of innovations (process and/or services) are considered as well (Tidd, Bessant and Pavitt 2005, Jacobs and Snijder 2008), though still with less attention (Eveleens, 2010). Furthermore, innovation in the public sector is still less represented Kickert, 2014; Eveleens, 2010; Mulgan and Albury, 2003; European Union, 2013; Kattel et al., 2014).

2.9.2 Rationale for engaging in innovation

Prior literature advances several reasons why organisations need to continually engage in innovation. First, the majority of organisations face growing levels of competition in their industries. In a situation of intense competitive rivalry, failure to engage in change through innovation increases the organisation's risk of eroding the value of its existing products and services (Gunday et al., 2011). Thus, innovation in a highly competitive market environment constitutes one of the indispensable strategies that can be used to ensure the firm remains productive, performs better in the market and sustains a positive reputation among its customers. Second, innovation is recognised in extant literature as a principal capability that performs a critical role in steering growth within the organisation (Partanen, Chetty and Rajala, 2014). This means that a positive relationship exists between organisational innovation and long-term performance. Third, organisations in the present day are exposed to a dynamic environment that poses significant managerial problems (Volberda et al., 2014). As an example, the majority of organisations are required to demonstrate their commitment to societal and environmental sustainability.

Creativity and innovation improves the process of solving such problems through exploration of new ways of handling emergent issues in an organisation's operations. However, as pointed out by Davila, Epstein and Shelton (2006, p.27), on the one hand, organisations need to ensure they have systems in place that provide the proper measurement, motivation, incentives and rewards to foster innovation. And, on the other hand, in order for innovation to thrive, organisations also need to create an environment where innovations are recognised as of value to them (ibid, 2006).

The rationale for engaging in innovation, as evident from these previous studies, has narrowly been focused on competition and growth in commercial-based

organisations. This prior research might also suggest that the private commercial sector tends to recognise the importance of innovation more strongly than the public sector. It is thus important to further investigate the rationale for innovation in the public sector, such as the need to improve efficiency in public administration. Fortunately, as pointed out by Gallouj and Zanfei (2013), “after a long period of disregard, the question of innovation in services has continued to grow in importance in the economic literature and political agendas. This new field of “service innovation studies” attempts to free itself from technologist and industrialist conceptions, highlight the role of “invisible” innovation (non-technological innovation in all its forms: organisation, process, product, concept, social innovation, etc.) in post-industrial economies.” (Gallouj, and Zanfei 2013, p.1)

Organisations that are actively involved in innovation have been argued to be better placed to remain innovative over long time periods and hence achieve better performance (Roper and Hewitt-Dundas, 2008). This view has been supported from several perspectives. First, researchers adopting a resource constraints perspective underscore that the majority of firms face major financial difficulties in funding their innovation projects. Such difficulties are attributed to the fact that innovation is often capital intensive and risky. External financiers are also not always willing to finance innovations due to their uncertain and risky nature (Czarnitzki and Hottenrott, 2010). Firms with previous successful innovations are able to overcome most of these restrictions on innovations. In this case, previous innovations help in providing internal funding that can be used for further innovative activities. This view has been supported by empirical evidence indicating that the majority of innovative firms fund their using internally generated cash flows (Brown, Fazzari and Petersen, 2009; Roper and Hewitt-Dundas, 2008).

The second explanation for innovation persistence is based on the competence-based perspective. Studies adopting this perspective refer to the various mechanisms through which knowledge and capabilities are accumulated and built. Ganter and Hecker (2013), for instance, posit that the current stock of knowledge provides a foundation for future research which in turn leads to development of new innovations. Put differently, an organisation’s current innovations are usually built on previous knowledge. The new innovations consequently act as a foundation for future learning and production of knowledge. As such, the competence-based

perspective suggests that innovative firms are likely to remain innovative in the future due to knowledge that has been nurtured over the years. While some incumbent firms can engage in radical innovation that is not based on prior accumulated knowledge, it is suggested that firms with experience in managing innovations are better positioned to exploit external sources of knowledge (Hill and Rothaermel, 2003). Such external sources which include partners such as research institutions, customers and suppliers are critical in driving future innovations.

Persistence in innovation can, however, be disrupted by a number of factors. The study by Roper and Hewitt-Dundas (2008) on innovation persistence in the Republic of Ireland and Northern Ireland, for instance, found that market volatility, organisational contexts and regulatory changes were responsible for interrupting or simulating innovation persistence. While focusing on organisational contexts, previous research further indicates that an organisation's innovative processes may be interrupted by strategic drift. By definition, strategic drift occurs when an organisation's innovation strategy gradually moves away from addressing the most important forces in the external market (Sammut-Bonnici, 2015). Organisations in such a situation do not only fail to match changes in innovation to the changing customer needs but also engage in innovation that lacks clear direction. Prior literature provides several examples of such firms, including Nokia, Motorola and Kodak among others, which were at one-time innovation leaders in their respective industries but lost competitiveness due to strategic drift. According to Campbell and Armstrong (2013), strategic drift in innovation can be avoided through continuous scanning of the business environment. Some authors (Droege and Johnson, 2010; Nieves, Quintana and Osorio, 2014) also advise that organisations should not overly rely on incremental change and innovation. Bigger changes are often required when radical innovations take place in the industry.

While there is no doubt that organisations with previous innovations are better positioned to continue engaging in innovative practices, existing research tends to overlook the issue of how organisations that have been relatively dormant in the past can jump-start the innovation process. This is an important issue of concern especially among public services, given that they have traditionally lagged behind in terms of engaging in innovative practices.

2.9.3 Approaches to organisational innovation – closed and open

Traditionally, the concept of innovation has been approached from two main perspectives: closed innovation and open innovation. Closed innovation, as the pioneering form of innovation, is based on the view that for innovation to be successful it has to be controlled (Almirall and Casadesus-Masanell, 2010). The organisation must be self-reliant in generating, developing, building, marketing and supporting ideas that lead to innovation. Traditionally, the self-reliance strategy was emphasised due to the false assumption that it was the only reliable way of ensuring constant availability of high-quality ideas that lead to outcomes such as development of high-quality products (Herzog and Leker, 2010). Within this context, research shows that firms adopting a closed innovation orientation are characterised by practices such as hiring the best, most-talented employees in the market, high investments in research and development (R&D) and strict control of intellectual property. The aim is to ensure that the firm is first to innovate and therefore achieves market leadership position through protection of its innovation (Inauen and Schenker-Wicki, 2012; Herzog and Leker, 2010).

Open innovation is, on the other hand, defined as the systematic performance of knowledge exploitation inside and outside an organisation's boundaries (Dhalander and Gann, 2010). It has also been described as the use of purposive inflows and outflows of knowledge with the aim of accelerating internal innovation (Lichtenthaler, 2011).

The open innovation model presented by Chesbrough (2003) illustrates the necessity of letting ideas both flow out of the corporation to find better sites for their monetisation, and flow into the corporation as new offerings and new business models. As such, open innovation goes beyond closed innovation by incorporating an external perspective to the innovation process. According to Knudsen and Mortensen (2011), organisations pursuing open innovation stand to benefit from enrichment of their own knowledge through integration of external knowledge sources. Empirical research indicates that open innovation can provide a significant boost to an organisation's innovative practices (Pee, 2013). Some researchers (e.g.

Mortara et al. 2010; Bellantuono, Pontrandolfo and Scozzi, 2013) have, however, warned that, while open innovation helps increase access to expertise and technological competences and allows for reduction in innovation costs, it is exposed to several barriers. These include cultural conflicts with organisational outsiders, knowledge gaps, copyright issues and competitive threats.

However, some researchers such as Jonathan Hage (author of the Foreword for Mortara et al. 2009, p.1) consider that it “is a gross generalisation to label the whole company as being either an open or a closed organisation” in regard to innovation. And Hage (ibid.) notes that the greatest transformation has to be the change in the company’s mindset.

Based on these insights on closed and open innovation, it is clear that organisations seeking to ensure high levels of innovation should not limit acquisition of knowledge within their boundaries. It is thus important to further investigate the extent to which public service organisations are tapping into the knowledge and expertise of individuals outside their internal boundaries in order to innovate in an effective and efficient manner.

2.9.4 Types of innovation

The OECD Oslo Manual (2015), one of the most widely used sources on the concept of innovation addresses four different types of innovation: product innovation, process innovation, marketing innovation and organisational innovation. However, two types of innovation - namely process and organisational innovation- more directly apply to the scope of this research, and a brief overview of each of these types is provided below.

Process innovation

Process innovation involves the organisation implementing a new or significantly improved production process, distribution method or various support activities. Some of the main support activities include maintenance of systems for purchase, computing and accounting (OECD, 2015). Organisations engaging in this type of innovation are likely to invest in new technologies embodied in equipment, new software for management of the supply chain and new software for product design as well as training of employees to approach work processes from new perspectives

(Pan and Li, 2016). With regard to benefits, firms engaging in process innovations are poised to benefit from reduction in unit production costs and delivery costs, and delivery of higher-quality products (Karabulut, 2015).

Literature further suggests that process innovations tend to trigger product innovations. In other words, process innovation in an organisation are highly likely to be followed by implementation of new or significantly improved products (Tavassoli and Karlsson, 2015). While explaining this relationship, Dusana, Paul and Don, (2016) observe that in most service industries incremental process innovations are usually followed by radical process innovations and radical product innovations in terms of new services. A few studies have proven the existence of such a relationship. Kurkkio, Frishammar and Lichtenthaler (2011), for instance, found that process development practices performed a critical role in achieving high levels of product development. Similarly, Novotny and Laestadius (2014) through a study of pulp and paper industries in Sweden found that significant changes in process technologies were subsequently followed by product innovations.

These findings therefore suggest that firms engaging in product innovation such as launching of new products may have to first undertake changes in their processes in order to achieve the desired outcomes. In addition, firms willing to benefit from innovations must possess dynamic capabilities.

Organisational innovation

Organisational innovation is the last but very important type of innovation examined in the scope of the present research. Organisational innovation is described as the implementation of new organisational methods in a company's practices and procedures (Pino et al., 2016). The general aims of organisational innovations include increasing productivity, flexibility and efficiency through disembodied knowledge. In this respect, organisational innovation has been shown to allow for a range of positive organisational outcomes such as improved labour productivity, enhanced job satisfaction among employees, and reduced administrative and internal costs (Gunday et al., 2011). Other benefits include lower transactional costs with suppliers and customers and enhanced access to non-tradable assets (OECD, 2005).

The non-tradable assets include underlying technology and know-how that is difficult to transfer to outsiders. The low transferability is mainly as a result of the non-imitable and patented nature of the assets.

As mentioned previously, literature examines the relationship between innovation and performance and asserts a positive relationship between organisational learning and both performance and innovation. However, few empirical studies analyse these relationships together. For instance, Jiménez and Sanz-Valle (2011) explores those relationships using SEM with data collected from 451 Spanish firms. The findings show that both variables — organisational learning and innovation — contribute positively to business performance, and that organisational learning affects innovation. Similarly, Carmen and Jose (2008) provided evidence for the mediating effect of technological and administrative innovation on the link between market orientation and the economic and social performance of museums. Building on extensive literature, they developed and tested a model of the relationships using survey data collected from 276 museums (135 Spanish and 141 French). Data was analysed through structural equation modeling and/ or path analysis.

Organisational innovation can take various forms, such as upgrades in knowledge-management systems, which allow for improvement in searching, adopting, sharing and diffusing knowledge among employees; introduction of enhanced systems of operations management; improvements in human resource management through hiring of new personnel for key positions; and pursuit of organisational restructuring (Armbruster et al. 2008). The connection between knowledge management and innovation is that organisational improvements in knowledge management help increase efficiency in creating, capturing and sharing knowledge that is used to guide the innovation process.

Organisation innovation has further been described in extant literature as the centre of all other types of innovations, as well as a “fertile ground for innovation” (Tavassoli and Karlsson, 2015). This type of innovation therefore acts as a precursor for other types of innovation such as product, process and marketing innovations. The central role performed by organisational innovation is achieved through new work techniques, increased access to knowledge databases and development of organisational models that encourage employees to participate in the decision-making process (Volberda et al., 2014).

Unlike the other types of innovation, organisational innovations are performed relatively seldomly for three main reasons. First, it takes considerably long periods of time to generate, diffuse and adopt ideas that lead to organisational innovation. This is because both internal and external change agents must be taken into account in the innovation process (Birkinshaw, Hamel and Mol, 2008).

Organisational innovations are also highly susceptible to resistance to change due to their highly disruptive effects. Second, the reliance on external change agents such as consultants and academicians who are not always readily available reduces incentives to continually engage in organisational innovations.

Lastly, unlike product and process innovations which provide direct benefits, organisational innovations have no immediate benefits, hence the executives' reluctance to commit significant financial resources (Volberda et al., 2014). Table 2.5 summarises some previous research on the topic of organisation innovation.

Table 2.5 Summary of recent research on organisational innovation

Authors	Focus	Type	Findings
Jimenez and Vall (2011)	Innovation in Public Sector organizations. Relationships using SEM with data from 451 Spanish firms.	Empirical	The findings show that both variables -- organizational learning and innovation -- contribute positively to business performance, and that organizational learning affects innovation. Another finding of this study is that size and age of the firm, industry and environmental turbulence moderate these relations.
Carmen and Jose (2008)	Relationship between market orientation, innovation, and performance, in cultural organisations of Europe.	Empirical	Innovation plays a pivotal role between market orientation and performance.
Hartley 2005; Moore and Hartley 2008; Verhoest et al 2006; Pollitt 2011.	A comparative analysis of innovation in private and public sector organizations.	Theoretical and empirical	Extensive body of empirical, theoretically informed research has been developed on innovation in the private sector. However, there is a lack of high quality research on innovation in the public sector.
Hartley 2005; Moore and Hartley 2008; Nelson and Winter 1982, Perez 2002	Innovation in private and public sector organizations.	Theoretical	Evolutionary dynamics dominate private sector innovation literature such as the concepts of backward and forward linkages, increasing returns to scale, first mover advantage, winner-takes-all markets, imperfect competition, externalities, etc. However, such evolutionary practices and processes are simply much less evident or even lacking in the public sector. Moreover, many of these processes would be also not desirable in the context of public organizations, such as monopoly rents garnered by first movers, or undercutting the same first movers by imitation.

Source: Author

Approaches to public-sector innovations

The public sector comprises the general government sector at various levels such as national, regional and local levels. It also includes all public corporations in a given country (Lee, Hwang and Choi, 2012). Public-sector innovation has in this context been defined as a new or significantly improved public service, communication method or organisational method for the supply and introduction of public-related services (Moore and Hartley, 2008). While there are some similarities between public and private sector innovation, especially in process and organisational innovations, it has been shown that public-sector innovation tend to exhibit greater complexity (Scupola and Zanfei, 2016). Moore and Hartley (2008) also indicate that the majority of innovations in the public sector are related to governance, in areas such as new forms of financing, allocation of the correct resources and people in public projects, and networking. Allocation of the right resources and people helps ensure that public projects are managed efficiently. Networking, on the other hand, involves introduction of innovative systems that allow public-sector organisations to work together, hence bringing about a reduction in duplication of work and enhanced sharing of resources. The UK government, for instance, has a Public Services Network (PSN) which creates an environment that allows public-sector organisations to efficiently share information and services (UK Government, 2015).

Public-sector innovations can also be relatively simple, such as developing forums for supporting public decision making, or more complex, such as innovations involving public private partnerships (PPPs) and devolution of various public services from national to local levels (Gallouj and Zanfei, 2013). Another key issue highlighted in extant studies is that the focus in public-sector innovation is mainly on service innovation as opposed to product/goods innovations. Marketing innovations are also replaced by public-sector communication innovations (Scupola and Zanfei, 2016).

One of the issues affecting the level and quality of public-sector innovations pertains to the approach to initiating and supporting innovative ideas. In this respect, the traditional view is that innovation in the public sector should be initiated at the ministerial or political level through high-level policy decisions which are then implemented by senior managers in various government entities (Arundel and Huber, 2013).

Although some lower level managers in government entities can also be empowered to initiate and implement innovations the majority of cases of innovation are mainly driven through the top-down approach. In other words, the traditional approach to public innovation is largely state and producer centred in that it seeks to mainly meet the needs of the policy makers. In essence, the ideal public-sector innovation should be market and customer centred and also shaped by the civil society. As an example, innovations such as e-government should not only seek to increase government cost efficiency in performing administrative duties but also allow the public to connect more easily and conveniently with the government. The traditional approach to innovation is also characterised by the passive role of the population which is only seen as the clients of innovations (Scupola and Zanfei, 2016). Despite the dominance of the top-down approach of initiating public-sector innovations it has been criticised on the basis that it hinders high-quality and comprehensive innovation. Bloch and Bugge (2013) for instance note that in some of the countries such as the United States where public innovation is highly successful, innovative ideas also emerge from middle management, front-line staff and the general public and hence a bottom-up approach. As such, effective public-sector innovation should be based on the view that role of the population is not merely that of being clients/recipients but also co-producers who can contribute to the public innovation process.

In order to overcome issues related to innovation and organisational development, public sector generally have a tendency of adopting top-down approaches, which is appropriate because top leadership is in the best position to implement innovation (Pollitt and Bouckaert, 2011). However, many researchers believe that a bottom-up approach with active participation of all workers is important to reduce resistance and improve acceptance for new ways of doing things (Cummings and Worley, 2008; Poister, Pitts and Edwards, 2010).

Innovation in public sector is a complex task, because public organisations are influenced by strong legislative and political factors (Angel-Sveda, 2013).

Whilst organisational development and innovation process appears to be happening with increasing frequency, most of the studies related to innovation focus on the private sector and tend to adopt approaches from that sector (Coram and Burnes, 2001; Van der Voet, 2014). Similarly, Kickert (2014) argued that most literature on the management of innovation and change process refers to profit-oriented private organisations and mostly in the context of the developed world. Therefore, public organisations need to develop an approach to manage and implement innovation that matches their own needs and requirements.

Research further highlights several benefits that can be realised from adopting a broader perspective to public-sector innovation that involves initiating ideas from the two divides (top-down and bottom-up). Hughes, Moore and Kataria (2011) through a survey of the UK public health sector in 175 local governments found that frontline staff accounted for more than half of the innovations that had resulted into increased cost effectiveness and efficiency in providing health services. Another survey by APSC (2011) of employees in the Australian public-sector also found that the collaboration of senior managers and subordinates was responsible for the majority of the most significant innovations that were implemented.

Theoretically, it has been argued that involving public-sector employees and middle level managers in the innovation process allows for a broad variety of unique perspectives to be obtained as well as enhance employee engagement, which is critical in ensuring that innovations are successfully implemented (Bason, 2010; Fernandez and Moldogaziev, 2012).

The new paradigm to initiation and implementation of innovative ideas in the public-sector therefore seeks to emulate the private sector in which case market mechanisms are used to facilitate the innovation process (Moore and Hartley, 2008). The recognition of the role of other stakeholders in the new paradigm is also consistent with the innovation systems theory. The theory stresses that innovations do not occur in isolation. Rather, innovations depend on the interplay between different actors who take part in and perform a variety of roles in the innovation process (Bloch and Bugge, 2013).

The innovation systems theory also underscores that the relationships between different actors and the interaction of their respective knowledge bases initiates innovation through the process of re-combining existing knowledge (Asheim, Smith and Oughton, 2011). The following table 2.6 illustrate various definitions of the public sector innovation as it is related to the scope of the current study.

Table 2.6 Definitions and descriptions of public sector innovation

Author	Definition
Moore et al. (1997)	The researcher examined Innovation in policing context and come up with definition as follow: any reasonably significant change in the way an organisation operates, is administered, or defines its basic mission. Changes worth recognizing as innovation should be...new to the organisation, be large enough and durable enough to appreciably affect the operations or character of the organisation. The researchers differentiate between four types of police innovation: pragmatic, administrative, technological, and strategic innovation.
Newman et al. (2001)	A discontinuous or step change, as something which was completely new to a particular local authority (though which may have previously been applied elsewhere), and a change which had already been implemented rather than just an aspiration or planned initiative.
Dawson (2003)	Dawson defines organisational change/innovation as “new ways of organising and working”. He argues that its main assumption is that to identify and implement best practice means to organise the activities of workers in order to ensure that services have optimum value in marketplace and employees’ abilities are aligned to the firm’s objectives.
Mulgan and Albury (2003)	The creation and implementation of new processes, products, services and methods of delivery which result in significant improvements in outcomes efficiency, effectiveness or quality.
Hartley (2005)	A change in the relationships between service providers and their users. /.. Consequently, the public-sector innovations “consider innovations, particular radical or complex ones, to be multidimensional, specifying the dimensions (and the size of the innovation in those dimensions) in the interests of systematic comparison.
Osborne and Brown (2005; 2013)	The introduction of newness into a system usually, but not always, in a relative term and by the application (and occasionally invention) of a new idea. This produces a process of transformation that brings about a discontinuity in terms of the subject itself (such as a product or service) and/or its environment (such as an organisation, market or a community).
Osborne and Brown (2005)	Organisational change/innovation in a public service is defined as “a broad phenomenon that involves the growth and development of one or more of a number of elements of a public service including the design of the service, the structure of service, the management and the skills required to provide and manage the public service”. This definition indicates that public service needs to have a new organisational structure, appropriate management style and proper skills in order for it to be managed effectively.
Albury (2005)	Public sector innovation is the creation and implementation of new processes, products, services and methods of delivery which result in significant improvements in outcomes efficiency, effectiveness or quality.
Koch and Hauknes (2005)	Innovation is a social entity’s implementation and performance of a new specific form or repertoire of social action that is implemented deliberately by the entity in the context of the objectives and functionalities of the entity’s activities.
Mulgan (2007)	Public sector innovation is about new ideas that work at creating public value. The ideas have to be at least in part new (rather than improvements); they have to be taken up (rather than just being good ideas); and they have to be useful.

Source: Adopted from (Kattel et al. 2013)

Institutional factors - Impact of state bureaucracy

The institutional theory helps explain some of the issues that may drive or inhibit public service innovation. In general, the theory suggests that institutions can be defined from three dimensions. These include the regulative dimension, which revolves around rules and laws; the normative dimension, which is associated with values and norms; and the cultural-cognitive dimension, which entails shared conceptions within an institution (Aagaard, 2012; Walker, Damanpour and Devece, 2010). Collectively, the three dimensions influence the extent to which individuals charged with managing institutions can make assertive and strategic decisions.

While taking into consideration the regulative dimension, the majority of public-sector entities are managed through bureaucracy (Sorensen and Torfing, 2011). State bureaucracy allows for higher levels of control as well as achievement of work efficiency through standardisation of the work procedures. It however has a detrimental impact on the ability of the public-sector to remain innovative. Research in particular demonstrates that the bureaucratic nature of the public-sector organisations leads to formation of multiple levels of hierarchies. Such hierarchies often discourage employees from contributing to development of innovative ideas by separating them from decision making level (Brown and Osborne, 2012). In addition, the administrative nature of the majority of the jobs in the public sector results into employee detachment from their work hence low incentives to remain innovative (Silvia and McGuire, 2010). In the context of UAE public-sector organisations such as the police service it will therefore be important to investigate whether any measures have been put in place to ensure that employees in lower ranks contribute to the innovation process through inclusion in decision making.

Previous research further indicates that the political and public nature of the work in the public-sector constitutes a deterrent to innovation. By way of example, the increased public scrutiny exercised by independent government bodies to ensure stewardship in public spending discourages the majority of individuals from engaging in risk taking, which is one of the antecedents of innovation (Bommert, 2010). While corroborating these views, Sorensen and Torfing (2011) note that the public-sector is characterised by the presence of strict rules meant to protect the public interest and ensure accountable and ethical use of resources. They however have negative unintended impacts on the ability of public organisations to engage in

innovative processes. The strict regulation may for instance inhibit the extent to which cooperation across ministries and other sectors such as private sector can be achieved. Through a study of the Russian public sector, Suprun and Stewart (2015) also found that government ministries were under strict rules to limit costs of specific activities such as construction design. Such restrictions were shown to inhibit innovation implementation in design and engineering among public-sector firms in the construction industry. However, there have been limited efforts in extant literature in terms of proposing measures that public-sector can undertake to ensure optimal risk taking while at the same time ensuring prudent use of resources.

Organisational learning orientation

Organisational learning orientation involves the activities associated with the creation and use of knowledge for purposes of enhancing innovation (Sheng and Chien, 2016). Prior research indicates that the experience and knowledge gained by an organisation during its years of operation allows it to increase competencies in assimilating external knowledge which is a key source of innovative ideas. Organisational learning occurs when errors are detected and corrected. It also occurs when organisations can make changes that respond to dynamics in the internal and external environment (Rhee, Park and Lee, 2010). Organisations with a strong learning orientation have been found to be more proactive in encouraging exploitative and exploratory behaviours that lead to innovation (Zhou and Wu, 2010).

With regard to the public sector, it has been suggested that the low levels of innovation that characterise public organisations can be attributed to a weak learning orientation (Betts and Holden, 2003; Speklé and Verbeeten, 2014). More specifically, studies focusing on public organisations have found that there are several limitations to organisational learning. The majority of organisations encounter obstacles such as highly formalised rules and procedures and state interferences (Amayah, 2013). Furthermore, research indicates that a significant proportion of employees in the public-sector exhibit negative attitudes towards organisational learning. The protection offered by the state and minimal exposure to competition also means that there are fewer incentives to engage in organisational learning in the public-sector than in the private sector (Yousif, 2013).

Melander (2008) underscores that these factors impacting negatively on public-sector innovation can in part be overcome by promoting more novel forms of management that focus on rewarding efficiency and innovative capacity. Based on Melander's (2008) views on ways to overcome barriers to innovation, it is important in the present study to investigate whether public-sector organisations such as UAE police have any substantive motivations to enhance efficiency and the extent to which it have contributed to improvements in service delivery.

The need for value creation

Further review of extant research reveals that the need to provide additional value to public continues to put pressure on public-sector organisations to remain innovative. Three of the main areas where public organisations can create value include services, social-outcomes and trust. In the case of services, Kelly, Mulgan, and Muers (2002) posit that public-sector organisations can enhance value through provision of services that reflect increased efficiency, better quality and fairness in distribution. Value creation in social outcomes is, on the other hand, achieved when public organisations are able to achieve social cohesion, reduction in poverty levels, enhance safety of all individuals, improvements in health outcomes and general equality in the society (Cordella and Bonina, 2012). Lastly, innovation can be utilised in the public-sector to increase trust and legitimacy. High trust levels are in this context considered as vital in achieving the cooperation and satisfaction of the public with the services offered (Silvia and McGuire, 2010).

With the above context, research in developed and emerging economies indicates that governments are increasingly facing pressure to improve public-sector performance. More specifically, citizens are demanding that the public-sector demonstrate greater levels of accountability for taxpayers' money (Georghiou et al., 2014; Bason, 2010). At the same time, budgetary pressures are compelling governments to seek more effective ways of containing expenditure growth. It has in this case been argued that innovation is the only effective way to ensure improved public-sector performance while at the same time achieving the desired levels of austerity (Leslie and Canwell, 2010).

Influence on private sector innovation

One of the aspects of public-sector innovation that has often been overlooked pertains to its influence on private sector innovation. According to European Commission report (2013) suggest through empirical evidence that innovation in the public-sector contribute hugely to innovation in the private sector (European Union, 2013). Such contribution occurs in several ways. First, public-sector innovation help create an environment which promotes creativity and innovation for private stakeholders. This can be through new policies, norms and regulations that are pro-innovation. As an example, issuance of tax breaks to technological companies allows them to devote significant amount of resources to scientific research and development (Shavinina, 2003). Second, innovations in the public-sector allow private stakeholders to overcome market failures and problems of asymmetry of information which are major obstacles to private innovation. As an example, reforms in Chinese and Indian governments have been credited with the ability of private companies in the two countries to engage in non-traditional exports such as automobiles (Richet and Ruet, 2008). Public-sector innovations such as development of scientific and technological parks also provide an efficient platform for the private sector to engage in innovation.

2.10 The importance of innovation for police organisations

The police service constitutes one of the government entities that perform a vital role in law enforcement. The specific duties under this role include monitoring of potential criminal activities, responding to emergencies, investigating of crimes, patrolling and providing testimonies in courts among others (Seba and Rowley, 2010). In this section the importance of innovation in the police service as one of the main public-sector organisations is critically reviewed.

Increased capacity to deal with sophisticated policing issues

Both anecdotal and empirical research indicates that policing issues in the current information age are increasingly becoming sophisticated. Police departments for instance have to deal with cyber criminals with veiled identities as well as terror suspects operating in highly complex ways that are technology-mediated (Taylor, Fritsch and Liederbach, 2014). When faced with such challenges police need to make use of innovations in order to fulfil their duties in a more efficient manner (Custers and Vergouw, 2015). In this respect, several areas of application of innovations by police organisations that can help deal with digital crime and other sophisticated policing issues have been identified. First, police may be required to invest in virtual reality innovations which allow for simulation using computer images. The simulations can then be used to reconstruct highly complex crime scenes (Liao et al., 2015). Second, police need innovations such as biometrics in order to identify unique body characteristics (e.g. fingerprints, DNA and voice recognition) for suspects of theft, murder and terror cases (Heracleous and Wirtz, 2006).

Third, police organisation faced with increased security issues in a given area can make use of data mining for purposes of finding new patterns of crimes and their relations. The mined data in turn allows for more effective preventive strategies to be put in place (Custers and Vergouw, 2015). Lastly, technological innovations in police organisations have been shown to allow for increased citizen participation in community policing. As an example, police organisations with interactive websites can increase citizen participation in providing information on security issues. The websites can also be used to call for witnesses in a highly effective and cost efficient manner (Taylor, Fritsch and Liederbach, 2014).

Increasing job satisfaction

The nature of the police job is such that it is highly demanding and risky. Police officers are in particular exposed to the risk of injury or loss of life during law enforcement interventions (Violanti et al., 2012). Within this context, it has been argued that various strategies should be put in place to increase job satisfaction among police officers. Based on a study conducted among police officers in South

Korea it was reported that satisfied officers were more open-minded and committed to their jobs (Jo and Shim, 2015). Similar research in other countries have also found that job satisfaction impacts on the officer's level of trust, which in turn affects the level of strategic commitment, intentions to engage in community-oriented policing and the level of absenteeism and turnover (Lee and Moon, 2011). Kang and Nalla (2011) also found that job satisfaction among police officers was significantly and positively associated with their perceptions of civilian oversight.

Innovation has within this context been cited as one of the strategies that can be used to enhance job satisfaction among police officers. As an example, the use of in-car mobile computer systems means that police officers can conveniently undergo their administrative duties without the need to travel to their stations (Johnson, 2012). Computer aided dispatch systems have also been shown to allow police to respond more quickly to crimes, while crime analysis techniques have been indicated to increase accuracy of predicting crimes thus lessening the officers' patrol work (Stroshine, 2015). Technological innovations therefore have the potential to serve a useful role in increasing job satisfaction among police officers through a reduction in the amount of work load. In the UAE, there have been increasing efforts to equip police organisations with modern gadgets to assist in aspects such as emergency preparedness (Alteneiji, 2015).

Facilitating police reforms

Police organisations are allocated significant amounts of financial resources by the government. Due to changing economic times, an increasing number of governments around the world have come under pressure to push for institutional reforms that allow for the most optimal resource use in the public-sector (Sanders and Henderson, 2013). Seba and Rowley (2010) further note that there is increased attention on how police organisations can deliver better and more cost-effective services and at a high level of responsiveness to the general public. In this respect, innovations can perform an important role in facilitating the necessary reforms. More specifically, organisational innovation involving reconfiguring of police organisations can help increase efficiency in use of resources as well as effectiveness in police intelligence.

The important role of organisational innovation in facilitating reforms has been demonstrated through case studies of police organisations in Netherlands and Scotland. Prior to reforms undertaken in 2013, the two police organisations made use of a regionalised and decentralised structure. In the specific case of Scotland, the country had eight relatively autonomous regional forces (Terpstra and Fyfe, 2014). This meant that it was difficult to transfer officers to areas with greater demand for policing. The autonomy also meant that tackling cases of drugs and organised crime in a collaborative manner was problematic. In 2013, both countries implemented organisational innovations that involved establishing a single police service at the national level. The new structures were shown to provide significant benefits. These included improved governance and accountability, lower cost of policing and improved capacity to carry independent and collaborative scrutiny of security issues (Terpstra and Fyfe, 2014).

Strategic alignment

As competition for public resources among various public entities continue to increase, organisations do not have the luxury of freely expending resources in order to improve levels of services (Seba and Rowley, 2010). Innovative technologies have within this context been considered as instrumental in facilitating strategic alignment within services sectors such as police organisations. The technologies are strategic in the sense that they allow for more effective utilisation of resources as well as facilitate a market approach to provision of public services. In addition, the technological innovations are able to meet new market demands such as the need for prompt services and greater accuracy in investigating policing incidences (Sanders, 2014).

The use of biometrics has for instance been found to be highly useful in providing value and productivity enhancements for firms that are able to harness their power. More specifically, biometrics increases the speed and lowers the cost of authentication and identification which are some of the key functions performed by police officers (Heracleous and Wirtz, 2006). The internet also has the potential to facilitate strategic alignment of the police organisations with emerging marketing demands. Different members of the public expect ease of communication with police officer when seeking various services (Madichie and Hinson, 2014). Prior research

has within this context shown that the internet can moderate police-citizenry relationship beyond security issues. Police websites are for example capable of facilitating dialogic communications. The websites allow for cheap information dissemination and timely information disclosure which can allow both the police and the public to take prompt actions during emergencies. Unlike the traditional mass media channels, websites have multiple sections which allow for targeting of different audiences in an efficient manner (Biloslavo and Trnavcevic, 2009; Bossler and Holt, 2012). Other examples of innovations that can facilitate police work include the use of mobile applications to renew car licenses, pay parking tickets and fines and online immigration application (MoI, 2017).

From yet another perspective, there has been an increase in cases citizens resisting police interventions due to police brutality or other non-judicial means of enforcing the law. Such actions by the police have contributed to negative attitudes among the public members thus straining the nature of interactions (Hughes and Burton, 2014; Piquero, Jennings and Farrington (2010). As an example, the United States has in the recent times been marked by an increase in fatal police shootings of unarmed suspects in states such as Minnesota and Louisiana. Following an increased publicity of the shootings some members of the public have retaliated as evident from the killing of five police officers in the city of Dallas by a member of the public (BBC, 2016). In such cases, the use of innovations such as body wearable cameras (BWCs) can be potentially effective in ensuring that police officers conform to guidelines in enforcing law. A recent study by Jennings, Lynch and Fridell (2015) in this case found that police officers in the United States utilising BWCs were involved in fewer cases of response-to-resistance (R2R) incidences than their counterparts who did not utilise this innovation. The study also noted that there were fewer external complaints among police officers utilising the innovation.

Solving potential criminal issues in new ways is also part of the innovations that some police organisations are undertaking. This is quite evident from the Scotland Yard police organisation following the wrongful killing of a Brazilian citizen, Jean Charles de Menezes, in London on the presumption that he was a suicide bomber. After the 2005 incident, Scotland Yard police practised the use of different methods of subduing suspects such use of language and negotiation (Smith, 2009). This is in contrast to the authoritative style of policing in the United States which involves the

unpopular “21-foot rule”. Under this rule, the officer is allowed to use lethal forces whenever the distance of 21 foot is breached by the suspect (Marcus, 2016). Innovations can therefore significantly improve the ability of police organisations to solve problems amicably and hence increased public confidence and cooperation.

Implementation barriers

Despite the potential benefits of innovations in police organisations, various obstacles are likely to affect the usage level. The study by Custers and Vergouw (2015) broadly classifies such barriers as legal, organisational or technological. Legal barriers may assume several dimensions such as the lack of a clear legal basis for using various technological innovations in the police force; lack of legal clarity on innovations that are allowed or disallowed; and lack of clarity on how to deal with data obtained using the innovations. Organisational obstacles may on the other hand range from lack of financial resources to invest in the innovations, insufficient guidance and management of the innovations and failure to keep up with international developments in policing innovations (Trebicock and Daniels, 2008; Custers and Vergouw, 2015). Technological obstacles mainly involve unavailability of the innovations, budgetary constraints due to high costs and insufficient user friendliness of the innovations (Willis and Prado, 2014). The organisational obstacles are more relevant in the present study in terms of the role that leadership can perform in overcoming them.

The review of literature in this section highlights that innovations can be important to police organisations in different ways. These include improved response towards sophisticated policing issues, increasing of job satisfaction through increased efficiency, facilitating reforms that increase accountability in use of resources and better alignment with current dynamics in policing intelligence. It can however be noted that the majority of these prior studies on innovations in police have been conducted in Western nations particularly the United States and Europe. Little empirical research has been conducted with respect to Middle East countries such as the UAE where the policing context is significantly different from that of Western nations. There is therefore need to fill this gap by investigating police innovations in the Middle East and their capacity to provide tailored solutions to key policing issues in the region.

2.11 Knowledge sharing

Increased globalisation, demand for higher levels of efficiency and the gradual shift to a knowledge based economy has seen knowledge management become a critical determinant of organisational performance and effectiveness. Extant literature also supports the notion that knowledge is highly critical in enhancing the competitiveness of organisations in various sectors (Zheng, Yang and McLean 2010; Kapoor and Adner, 2012). In particular, an organisation that seeks to continuously increase its knowledge is better prepared to face the uncertainties in its environment in aspects such as economic cycles, technological advancements and social needs of its stakeholders. Knowledge sharing in this respect forms the foundation of knowledge management (Sharma and Singh 2012).

The focus on knowledge sharing in this study is in part as a result of its uniqueness as an organisational resource. While other organisational resources such as finances tend to diminish with use, knowledge resources appreciate in value through use (Usono et al., 2007). Put differently, the use of knowledge through the sharing process leads to breeding of new ideas, which in turn enriches the organisation and its members. In this section, the meaning and influences of knowledge sharing as an important factor that supports organisational learning are critically reviewed. Where relevant emphasises is placed on knowledge sharing in the public sector, which is the main focus of this study.

Before defining knowledge sharing, it is important that the term knowledge be understood. Knowledge within this context has been described as an aspect that exists in the mind of the individuals and helps perform a useful role in determining how people perceive the world around them (Chu et al., 2014). In greater detail, knowledge determines how individuals interpret and respond to external stimuli. It is acquired through the process of action and reflection such as the interaction with other individuals through the communication process (Bakker et al., 2006). The two main raw components of knowledge include data and information. Through the interpretation of information new knowledge may be acquired (Usono et al., 2007).

Knowledge sharing within the above context has been defined in various ways by different authors. For example, Galunic, Sengupta and Petriglieri (2014) describe it as the process through which knowledge is created, transferred and used between

members of the organisation. In a more comprehensive way, Liao et al., (2007) describe knowledge sharing as the process of transmission, communication, interaction and coordination of knowledge within an organisation. Wang et al., (2014) also adds that knowledge sharing is the process of communication between two or more participants that involve providing and acquiring of knowledge for purposes of improving organisational productivity, absorptive and innovation capacity as well as sustaining competitive advantage. Similarly, Cui et al., (2005) define knowledge sharing as a continuous and interactive process that allows for the transfer of employees' knowledge to business process.

In the organisational context, knowledge sharing has gained attention among many scholars (Hopkins, 2008; Doytchev and Hibberd, 2009; Wahlstrom, 2011). Fundamentally, the principal of knowledge sharing is a process meant to obtain experience from others (Razak, Faizuniah and Lazim 2016). They further explained that knowledge sharing is the practices of exchange and distributes the idea, experience, and knowledge with the others to ensure the knowledge continues, sustain and retain in the organisation. Similarly, (Rahmatullah and Mahmood, 2013) are of the opinion that knowledge held by particular employees in business must consequently be passed along to other employees for its value to be appropriated. Therefore, Knowledge sharing is the most important segment during difficult times of organisational change and innovation.

The transfer of knowledge occurs through effective communication channels that allow for acquisition of new experiences in the knowledge context, development of new views about certain organisational processes and discovery of new knowledge that can benefit the organisation (Usono et al., 2007). Besides communication channels effective knowledge sharing occurs when employees exceed the boundaries among themselves and collaborate with each other (Wang et al., 2014). From the various definition of knowledge sharing reviewed in this section, it can be construed that knowledge sharing in general involves the dissemination of knowledge from a more knowledgeable party to another less knowledgeable party, or with other equally knowledgeable parties for purposes of further synthesis or application in various organisational contexts. In general, knowledge management is distinguished into two major categories; explicit and tacit knowledge which are explained below.

2.11.1 Explicit and tacit knowledge sharing

Early researchers perceived knowledge sharing as an aspect that involves physical transfer of knowledge with the help of information systems or communication channels from owners of knowledge to the recipients (Anand et al., 2010; Hau et al., 2013). In the current time, this view that limits knowledge sharing to physical transfer has been widely criticised. Anand et al. (2010) for instance argue that approaching knowledge sharing from the perspective of physical transfer of knowledge largely overlooks the subjective aspect of knowledge. In this case, it is assumed that knowledge is not entirely objective. It can be held subjectively in the minds of individuals and communicated to other parties (Suppiah and Singh, 2011).

The debates and controversies concerning physical transfer of knowledge and subjective knowledge have given rise to the concepts of explicit and tacit knowledge sharing. Hislop (2013) defines explicit knowledge sharing as the process of sharing codified knowledge that can be captured and transmitted within an organisation. In most cases, knowledge shared explicitly exists in sources such as handbooks, documents, reports and organisational procedures and policies (Anand et al., 2010). In contrast, tacit knowledge sharing involves sharing of knowledge that individuals possess but is hard to express in written or symbolic forms. This is because tacit knowledge is usually in the form expertise, insights and experiences. Empirically, research suggests that up to 90 percent of knowledge in any organisation is usually embedded and synthesised by individual members of the organisation (Lee, 2000; Bonner, 2000). This means that tacit knowledge forms the bulk of knowledge in most organisations and can perform an instrumental role in leveraging the overall quality of knowledge.

Due to its subjective nature, tacit knowledge is not easy to convey when compared to explicit knowledge which can be learned formally from books, encyclopaedias and other sources (Suppiah and Singh, 2011). In an organisational context, difficulties in conveying tacit knowledge are a cause for concern given the important role that such knowledge plays in the innovation process and enhancing of efficiency. According to Peterson and Steelman (2015), effective sharing of tacit knowledge requires individuals to work together in a harmonised environment and also be willing to share their knowledge. It also requires the organisation to support

platforms to share tacit knowledge but in the majority of cases such knowledge has been found to be an invisible line item in corporate budgets (Smith, 2001). In other words, organisations often overlook the need to allocate resources that facilitate sharing of tacit knowledge.

Given that the focus of the present study is on police organisations, it will be necessary to investigate in greater depth the challenges that are encountered in the process of sharing tacit knowledge among members of the police organisation. This will in turn help understand the resultant impact on innovation and efficiency in undertaking policing duties and potential strategies for effective knowledge sharing.

2.11.2. Antecedents of knowledge sharing

For knowledge sharing to take place in an organisation, certain enablers or antecedents should be present. Prior literature suggests that trust constitutes one of the most important factors that determine the extent to which knowledge is shared within the organisation (Swift and Hwang, 2013). The two main dimensions of trust in a knowledge sharing context include competence-based trust and integrity based trust.

Competence or ability-based trust exists when one party believes that the other party has the knowledge and expertise that is needed in a specific domain (Connelly et al., 2015). The presence of significant differences in levels of domain specific knowledge between individuals has been considered as a potential barrier to knowledge sharing. By way of example, Pangil and Chan (2014) found that in an online environment, an individual who perceives his competence to be significantly lower than that of the associate will hesitate to publicly share his knowledge due to fear of criticism or ridicule. Integrity-based trust on the other hand refers to an individual's perception that the other party is characterised by desirable values such as honesty and reliability (Pinjani and Palvia, 2013). Value incongruence between an individual and the organisation is predicted to foster feelings of distrust and consequently lower intentions to engage in knowledge sharing.

Integrity-based trust also encompasses a range of other important aspects that are highly relevant in relation to public-sector organisations such as the policing sector. It for instance suggests that individuals are likely to consider whether an organisation

holds the acceptable moral standards and the extent to which consistent behaviour is depicted (Seba, Rowley, Lambert, 2012b; Keikha, 2015). Reliable past behaviour is considered to increase confidence in future actions (Connelly et al., 2015). Previous research has in this respect suggested that a significant proportion of the general members of the society tend to accord low levels of trust to some of the institutions dealing with public administration (Hough et al., 2010). Accordingly, it is important to investigate the extent of public institutional trust among UAE citizens and its influence on knowledge sharing in the context of the police organisation.

2.12 Theories on Knowledge Sharing

Several theories have been put forward in an attempt to explain the dynamics of knowledge sharing and knowledge transfer in organisations. In this section, each of the main theories are critically reviewed in terms of their approach to explaining knowledge transfer in an organisational context. The key theories taken into consideration include: the ‘Agency theory’, the ‘Social Exchange theory’, the ‘theory of reasoned action’, as well as ‘theory of planned behaviour’. A brief overview of each of these theories is presented in the sub-paragraphs below.

The Agency theory

The Agency theory in general suggests that due to the asymmetry between the goals of the organisation and the employees the latter may not always act in the best interests of their employers (Huang, Chiu and Lu, 2013). In the context of knowledge sharing, the theory can be used to understand how employees’ behaviour and perceptions can influence their willingness to transfer knowledge. It is for instance understood that individual behaviour has great importance in the creation and transfer of organisational knowledge. More specifically, literature underscores that individuals have the ultimate decision to share tacit knowledge (King and Marks, 2008). An agency problem may arise since an organisation cannot determine the proportion of knowledge that employees will share with their peers in the organisation. For example, employees who hold the perception that the organisation does practice adequate levels of social or procedural justice may not be willing to

share all knowledge in their possession. This means that individuals have a tendency to demonstrate self-interest when sharing knowledge.

In order to overcome the potentially negative effects that the agency problem poses in the sharing of knowledge literature suggests that outcome-based incentives and behavioural control mechanisms should be employed (Bjorkman et al., 2004). The specific incentives and behavioural control mechanisms appropriate for public sector organisations such as the police organisation have however not been clearly articulated in extant literature. As such, this is a research gap that the present study shall seek to fill in the context of knowledge sharing practices among the main stakeholders in the UAE police organisations.

The Social Exchange theory

The Social Exchange theory attempts to explain individual behaviour that takes place during the process of resource exchange. It indicates that an individual engages in the process of exchanging resources with others with the aim of receiving something in return (Chang and Chuang, 2011). Effective social relationships are therefore maintained based on the extent to which individuals in the relationship reciprocate positively. Reciprocity involves the assumption that an individual who grants benefits or valuable resources will in turn receive rewards as payment for the value received (Wu, Chuang and Hsu, 2014). The social exchange theory further suggests that individuals have a tendency to seek to maximise benefits and minimise costs while exchanging resources with others (Lin and Huang, 2010).

In the context of knowledge sharing, the social exchange theory can be used to enhance an understanding of how individuals share knowledge in social networks especially in organisational settings. It predicts that prior to sharing knowledge an individual will evaluate potential benefits such as sense of self-worth (i.e. the extent to which individuals see themselves as capable of providing value to the community through the knowledge sharing process) reputation and face concern against costs such as execution costs and cognitive cost (Ling and Huang, 2010). This self-interest appraisal of costs and benefits predicts the level of knowledge sharing that can take place. In the specific context of sense of self-worth, an individual who realises that sharing will be helpful to others will experience an increase in his or her confidence

in social status and hence greater willingness to share knowledge (Chen et al., 2012; Ling and Huang, 2010). With regard to reputation, a good reputation carries with it mental enjoyment and hence individuals seeking to enhance their reputation as part of the personal self-interest process will be highly motivated to share knowledge (Chen and Hung, 2010). With regard to face concern, prior literature considers knowledge sharing as a form of self-expression. More specifically, people are likely to consider the process of sharing knowledge as a demonstration of generosity and kindness (Zhang et al., 2014).

Accordingly, individuals who expect that they will be praised for sharing knowledge will proceed to share the specific knowledge in possession.

Given that face and reputation are highly important concepts in the Arab culture (Eid, 2007), it is necessary to investigate how police organisations in the UAE ensure the presence of an atmosphere that promotes these benefits. From a cost perspective, literature has demonstrated that the knowledge sharing process requires an individual to spend significant amount of time and energy resources. An increase in the execution cost for example the time required to access and retrieve information has a negative impact on knowledge sharing behaviour (Heiman and Nickerson, 2004). Cognitive costs are on the other hand the costs that individuals encounter when cognitively retrieving their memory of general or specific knowledge. Specific cognitive costs include depression, irritations and general uncomfortable feelings (Bock and Kim, 2001). Collectively, these cognitive costs have been indicated to diminished knowledge sharing. It is therefore important that organisations put in place measures to ensure that members can easily access and share knowledge in a manner that does not result into spending of significant amounts of time or cause unnecessary physical or emotional burden on individuals involved in the knowledge sharing process.

The Theory of Reasoned Action (TRA)

Knowledge sharing practices can also be explained from a social psychology perspective through the theory of reasoned action. TRA is widely used by scholars to determine the intentions of individual behaviour in different fields (Bock et al., 2005). In the case of knowledge sharing, the theory can be used to understand factors

that influence knowledge sharing among individuals. In this respect, TRA suggests that intentions to perform behaviour are based on attitudes and subjective norms. Attitude is the disposition to respond favourably or unfavourably to the self, others and the environment. Social norm is on the other hand the rules of behaviour that groups or society consider acceptable. Individuals who fail to follow the norms may experience negative consequences such as being shunned (Chow and Chan, 2008).

Empirically, Teh and Yong (2011) found that positive attitudes towards knowledge sharing such as the belief that sharing will be beneficial to all organisational members, as well as social norms (e.g. a culture of cooperation) that encourage sharing have a positive effect on an individual's knowledge sharing behaviour. Based on a similar study by Hassandoust et al., (2011) trust and anticipated reciprocal relationships shape an individual's attitude pertaining to knowledge sharing. Organisational culture (OC), on the other hand, is a source of subjective norms that influences intentions to share knowledge. Based on the TRA theory, it necessary to investigate the extent to which public-sector organisations in the UAE have adopted organisational cultures that promote knowledge sharing as well as having an environment that encourages trust and positive reciprocal relationships.

In this sub-section on theories of knowledge sharing it is evident that there have been efforts to understand the dynamics of knowledge sharing in organisations. Overall, there is a consensus in each of the theories that knowledge sharing is most effective in organisations which offer individuals an appropriate organisational climate characterised by the presence of motivations and opportunities. Organisations therefore need to work towards offering an environment that allows for trust based relationships, positive reciprocity and opportunities to gain reputation among others. Costs which are likely to hinder knowledge sharing should on the other hand be minimised.

Theory of Planned Behavior

The Theory of Planned Behavior is essentially an extension of the Theory of Reasoned Action (TRA) that includes measures perceived behavioral control (Pavlou, and Fygenson 2006; Ajzen, 1988). The theory of planned behaviour defines the individual's intention to perform a given behaviour (Razak, Faizuniah and Lazim

2016). According to Pavlou and Fygenon (2006), the proximal determinant of a behavior is a behavioral intention, which, in turn, is determined by attitude and subjective norm. Attitude captures a person's overall evaluation of performing the behaviour. On the other hand, subjective norm refers to the person's perception of the expectations of important others about the specific behavior.

Theory of planned behaviour defines the individual's intention to perform a given behaviour (Razak, Faizuniah and Lazim 2016). The key word intentions in general study are assumed to capture the motivational factors that derive the individual behaviour in terms of their effort, willingness to perform the behaviour. According to Ajzen's Theory of Planned Behavior, behavioral intention is predicted by attitude toward the behavior, subjective norm, and perceived behavioral control (Ajzen, 1991). The intention should be clear and precise as need to know the direction of what the individual want to get and reflects to the individual behaviour decided to perform in what ways.

2.12.1 The importance of knowledge sharing

The ability of an organisation to increase customer value and satisfaction is dependent on how well the management engages in practices that allow for obtaining of useful experiences, knowledge and skills that improves organisational performance. In the current times, the majority of organisations operate in a highly competitive environment, which demands that knowledge be applied in order to gain sustainable competitive advantage (Koriat and Gelbard, 2014; Yu et al., 2013).

Accordingly, this section critically reviews literature on the importance of knowledge sharing particularly in relation to improvement of organisational performance. It also takes into consideration the role of knowledge sharing in public-sector organisations as the main area of interest in this study.

Team task performance

Team-based work has become a prominent feature of modern organisations. In particular, an increasing number of organisations are adopting team-based structures to complete tasks effectively (Elmuti, 2013). Teams have in this respect been shown to be more effective in enhancing organisational flexibility, quality and innovation compared to individuals (Crawford and Lepine, 2013). Teams are also more adept in facilitating creativity and problem solving relative to individual members since they bring in complementary skills and experiences (Farh, Lanaj and Ilies, 2016). For teams to function effectively, high levels of team learning should be present. Accordingly, knowledge sharing is highlighted as one of the factors that can be highly effective in facilitating team learning (He, Baruch and Lin, 2014). Individuals who constitute a team can learn in various ways. For example, employees with varying skills and knowledge can work together as a team to review an information technology project in aspects such as successes and failures. The knowledge gained in the process contributes positively to not only the organisation but also the professional development of the individual members of the team. In terms of benefits to the organisation, knowledge sharing has the potential to help team members bring knowledge sources together, as well as manipulate existing knowledge into new knowledge structures which allow the organisation to be more productive (Farh, Lanaj and Ilies, 2016). By way of example, employees can use their technical knowledge to help digitise/automate a familiar manual process in the organisation. The resultant impact is improved productivity in handling work processes as well as reduction in costs.

In a policing context, teamwork plays an important role in helping police departments/agencies solve and eliminate crimes (Coleman, 2008). Other benefits of teamwork in policing include strengthened communication, boosting of morale and increase officers' safety (Metcalf and Dick, 2001).

In light of the predicted positive impact of knowledge sharing on teamwork, the UAE police organisations will be investigated with respect to the extent to which knowledge sharing has impacted positively on the innovation process.

Utilisation of complex and knowledge intensive processes

The review of extant literature reveals that knowledge sharing can have a significantly positive impact on the performance of the organisation in engaging in and utilising creativity/innovation related processes, which are complex and knowledge intensive (Kim and Lee, 2006). Such processes may for instance involve the design of new database to aid in monitoring organisational processes and ensuring customer satisfaction. For complex processes, the organisation needs to ensure systematic management of knowledge. In the absence of effective knowledge management, which include knowledge sharing, employees are unlikely to be well positioned to learn, utilise and adapt the new processes (Wang et al., 2014). This can in turn impact negatively on the ability to realise cost and time benefits associated with implementing new processes.

In a specific example, Lee, Shiue and Chen (2016) found that for firms making use of new software, formal knowledge sharing (e.g. discussions in meetings and workshops) and informal knowledge sharing such as, friendly chats in the lunch break or out of office greatly improved the implementation of activities using the software. In addition, knowledge sharing was found to reduce the organisation's dependency on a few employees who were considered as the owners of critical knowledge. It therefore seems from these previous findings that sharing of knowledge can facilitate the capacity of organisations to easily adopt and utilise new knowledge-intensive processes.

Job involvement and productivity

Job involvement is the degree to which an employee is engaged in his or her present job (Chen, and Chiu, 2009). Job involvement has been shown to be one of the antecedents of employee productivity which in turn increases organisational performance (Chughtai, 2008). In relation to knowledge sharing, prior research indicates that an efficient knowledge transfer process among employees increases job involvement among employees.

In particular, employees who receive or transfer knowledge feel more confident about their work roles. High levels of confidence are necessary in increasing productivity at the workplace (Teh and Sun, 2012; Wang and Noe, 2010).

From an organisational productivity perspective, it can be noted that the lack of knowledge sharing among organisational members poses a large financial risk to the firm. For example, if an organisation fails to offer incentives for knowledge sharing among employees it is likely that there will be limited opportunities for important activities such as brainstorming on how certain products or services could be improved in order to meet the current requirements of the customers. The long-term impact is a strategic drift and eventual failure of the organisation when it can no longer match the competitiveness of its rivals e.g. Nokia cell phone. In the commercial sector, the employee could also join a competitor thus the risk of increased exposure to competitor actions (Hancock et al., 2013). As such, it appears that knowledge sharing can help ensure that an organisation is not adversely affected when one or more knowledgeable individuals leave the organisation. For police organisations, it implies that effective platforms are required to ensure that experienced police officers transfer knowledge to younger inexperienced officers. The platforms can involve either formal or informal knowledge sharing.

Enhanced innovation capability

Innovation constitutes one of the most effective ways of achieving and sustaining superior performance and competitive advantages not only in the private sector but also in the public sector. Organisations with low innovation capacity and performance have been shown to be in most cases marked by low growth and competitiveness (Camisón and Villar-López, 2014). In addition, innovative organisations are better positioned to respond to dynamics in their environments such as unexpected challenges from technological advancements or disruptive activities from competitors (Makkonen et al., 2014). According to Bullinger, Bannert and Brunswicker (2007) the ability of an organisation to profit from innovation is dependent on the management of its innovation competencies. Within this context, knowledge sharing processes have been predicted to improve a firm's innovation capability (Lin, 2007).

Knowledge sharing in particular increases a firm's proficiency in gathering and integrating knowledge in a manner that is unique thus making it difficult for competitors to replicate.

Promoting organisational learning

Knowledge sharing also serves the important role of facilitating organisational learning. An earlier study by Spinello (2000) claims that knowledge sharing and organisational learning are intimately connected. In greater detail, knowledge sharing enables managers to keep the individual learning flowing throughout the organisation. The knowledge sharing process further allows employees to integrate the shared information for practical applications. The overall results include the enhancement of employees' capabilities, which consequently impact positively on organisational effectiveness and the bottom-line (Yang, 2007).

Organisational learning has in this respect been shown to be critical to the long-term success of organisations. More specifically, an organisation which value continuous learning is usually able to leverage the knowledge it captures to increase innovations that allow for greater competitiveness and efficiency (Yang, 2007; Lam and Lambermont-Ford, 2010). At the individual level, sharing of knowledge allows employees to reflect on the consequences of their behaviours and actions as well as obtain insights from the environment they operate in. Future organisational issues can therefore be interpreted using more accurate approaches (Jones, Herschel, and Moesel, 2003). In relation to police organisations, there has been ongoing criticism regarding how various incidences such as crimes and emergencies have been handled in the past (Rawlins and Kwon, 2015). Accordingly, it will be important to figure out whether UAE police organisations are making sufficient use of knowledge sharing such as researchs to facilitate organisational learning and improvement in efficiency in policing work.

The above sections have discussed knowledge sharing in general, type of knowledge sharing, and factors related to knowledge sharing. The following table 2.7 summarises previous research on the topic of knowledge sharing. Different theories from different time periods and contexts are included to provide a comprehensive picture.

Table 2.7 Summary of previous research on knowledge sharing

Source	Focus of Study	Findings
Saqafi-nejad, 1990; Nonaka, 1991; Spender and Grant, 1996; Teece, Pisano & Sheun, 1997; Jeffrey, 2003.	Evidence pointing at knowledge sharing as a strategic action and look this as a strategic resource	The strength of knowledge share is widely accepted as a strategic source and need to make it available to all organizational members. Knowledge transfer had cluster of variables affecting knowledge transfer.
Nonaka et al., 2006, von Krogh et al., 2012	Concept of knowledge in the context of organizations.	Knowledge, along with labour and capital, is a key success factor of organization as organizations gain the competitive advantage and survival through knowledge in a fiercely competitive global economy.
De Vries et al., 2006, Lin, 2007, Kamasak and Bulutlar, 2010, Lin et al., 2009, Sandhu et al., 2011, Kim et al., 2013, Alhady et al., 2011, Chen and Hung, 2010, Tong et al., 2013	Knowledge sharing in the context of knowledge management.	KS processes into donating and collecting knowledge as these two processes of KS assisting the flow of people's knowledge assets to be capitalised for performance development and promote mutual trust.
Davenport and Prusak, 1999, Saenz et al., 2009, Tan et al., 2010, Camelo-Ordaz et al., 2011; Sohail and Daud (2009)	The role of knowledge management in innovation.	Innovation and effectiveness is more likely to be achieved in KM when KS is taken into consideration. The outcome of KS is the generation of new knowledge and enhances organisational innovation.
Lin, 2007, Saenz et al., 2009, Chen et al., 2010a, Yang, 2011, Mehrabani and Shajari, 2012, Liao, 2006	Relationship between KS and a number of organisational outcomes	A large number of empirical studies have emphasised a positive relationship between KS and a number of organisational outcomes. They found a link with an organisation's innovation capability, organisational performance, organisational effectiveness, job satisfaction, and organisational learning.
Eskildsen et al. 2004; Connolly et al. 2005.	Knowledge sharing in public organisations Comparative analysis of the role of knowledge sharing in the private and public sector organizational performance.	Private sector has better systems of KM than the public sector and leadership is one of the factors that affects KS in the public sector.
Seba et al. (2012)	Understanding of knowledge management and sharing in the public sector in the Middle East through a case study based investigation of knowledge management initiatives and associated challenges and barriers.	The Dubai Police Force has made a strategic commitment to the development of knowledge management to enhance performance. It established a Knowledge Management Department in 2005, and more recently, in 2009, a Curriculum Department. However, the evidence from interviews suggests that the force has yet to succeed in embedding a knowledge culture. Four key factors were identified have a moderate positive impact on attitudes to knowledge sharing. These are leadership, trust, time, and information technology
Tohidinia and Mosakhani's (2010)	Relationship between knowledge sharing and organizational performance in public sector organization of Iran.	Anticipated reciprocal relationships, perceived self-efficacy, and organisational climate were all depends on KS within public organisations in Iran.
Jreisat (2001)	Knowledge management practices in Arab Countries	Most Arab countries inherited their public administrative practices from their former colonial legacies and face major challenges in making the machinery of the government effective and achieve the desired results and outcomes. Little research has been conducted on the elements that hinder the success of KM initiatives in the Arab region

Source: Author

2.12.2 Barriers to knowledge sharing

Despite the important role of knowledge sharing in public institutions several factors are likely to limit the extent to which it is practiced effectively. Lin (2008) and Abili et al. (2011) identified three factors; (1) organisational structure (including officialism, centralisation, and complexity), (2) organisational culture including (bureaucratic, creative, innovative and supportive culture) and (3) interaction among department, which can affect knowledge sharing. As discussed above, knowledge sharing is the process of transferring explicit knowledge to other members of the organisation (Bartol, and Sirvasta, 2002). However, employees often resist to share their personal knowledge (Young, 2008). Wah (2001) and Abili et al. (2011) argue that one of the important obstacles in implementing knowledge management and knowledge sharing is peoples' tendency towards holding knowledge, because they think knowledge is power. Therefore, one of the essential challenges for knowledge management process is making people share what they know (Bock and Kim, 2002; Abili et al. 2011).

Within this context, political interference from the government can be one of the main barriers to knowledge sharing. Using a case study of the National Health Service (NHS) in the UK, Currie et al. (2007) found that the government often set performance indicators which cause the activity of government organisations to diverge. This effect is further reinforced by the presence of policies that encourage efficiency through competitive pressures. League tables which are publicly available are for instance used to rate hospital performances across the UK. According to Ferlie et al. (2003) performance oriented policies have an unintended effect of discouraging public institutions from sharing information with other similar institutions, which could over the long term adversely affect public service improvement. This area of study however needs additional research. The existing studies have assessed benefits and disadvantages of performance-oriented policies from other dimensions besides knowledge sharing. A study of the Thailand government for instance found that while performance-oriented policies allowed for increased accountability they were characterised by difficulties in making resource allocation decisions as well as the lack of valid and reliable linkages between government agencies (Srithongrun, 2009).

In the recent times, there has been increased focus on improvement of performance among public institutions as part of the accountability process (Adams et al., 2014). It is thus important to further investigate how public-sector organisations are dealing with this paradox which requires balancing the need to be competitive with maintaining relationships that allow for knowledge sharing with other organisations. From another perspective, the ability to realise the benefits of knowledge sharing is hindered by bureaucratic nature of public-sector organisations. In particular, public-sector organisations are usually characterised by uneven cooperation of government agencies and services (Amayah, 2013). The bureaucracy has been shown to make it difficult for public-sector organisations to create a culture of sharing knowledge resources and information from one department to another. Such difficulty in knowledge sharing is experienced even in cases where the organisations have the same tools to share knowledge as their private sector counterparts. Research also suggests that just like private sector firms, the public organisation often struggle with assessing the returns on investments made in knowledge management (Tangaraja et al., 2015). The result is that little resources are allocated towards creating platforms and conditions that can facilitate knowledge sharing. In light of the dearth of literature on barriers to knowledge sharing in the UAE context, it will be important to fill this gap by taking into consideration the police organisation.

2.13 Conclusion

This chapter has provided a critical review of the literature engaging with the topics of this thesis. The definitions of leadership construct have been reviewed, and different research traditions discussed. The relevant literature regarding transformational leadership, Knowledge sharing and innovation has been reviewed to indicate the importance of leadership behaviour in nurturing and enhancing employees' creativity and innovative behaviour. It was found that transformational leadership is a process by which a leader can change the followers using idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration, so as to increase individual and/or organisational performance.

Knowledge management has become one of the key organisational assets that can enhance the competitiveness and performance of the organisation. In literature, knowledge sharing is highlighted as an essential factor that can be highly effective in developing collaborative environment and facilitating team learning (He, Baruch and Lin, 2014). It was noted that, when considering the application of ‘knowledge management’ initiatives, it is important to create a culture of ‘knowledge sharing’. As a result, many researchers advocate the importance of knowledge sharing which they believe has a potential to help team members bring knowledge source together, as well as employ existing knowledge into new knowledge structures which may allow organisations to be more productive (Farh et al., 2016; Kim and Lee, 2006). Moreover, knowledge sharing can have a significant positive impact on the innovation related processes within organisation, which are often complex and knowledge intensive. Whilst knowledge sharing is important for both private and public organisations, the public sector organisations appears to be lagging behind in the development of the knowledge management and knowledge sharing (Yao et al., 2007). There are a number of factors found in the literature to develop knowledge sharing culture, but the most important enabler appeared to be leadership style, which is the scope of the study.

Lastly, the chapter reviewed the concepts regarding the organisational innovation. It was found that there are several types and models of innovation available. However, most of the available innovation models are based on product innovation and derived from private sector experiences (European Union, 2013; Kattel et al., 2014). Additionally, in the context of introducing innovation in the public sector, most of the research has been carried out in developed countries with a strong tradition of routine change (Kelly et al., 2015). However, in the context of developing countries, particularly UAE, there are limited studies available. Moreover, there is no study available that focus on the innovation process within the context of the MoI. Therefore, there is a need to investigate the factors that can either facilitate or impede the innovation process in the MoI. In summary, the literature review chapter has provided a theoretical background in order to develop a conceptual framework presented in the following chapter.

Chapter 3: Conceptual Framework and hypothesis development

3.1 Introduction

Findings from the literature review in the previous chapter suggest an opportunity for further research to investigate the critical factors to develop organisational innovation particularly in the public-sector environment. As a result, there is a need to examine such relationships in police organisation. From the review of the transformational-leadership and knowledge-sharing literature, a theoretical framework has been developed which portrays the factors found to be important to develop organisational innovation in general and within the MoI in particular. The following sections discuss the development process of the research model in details. In addition, this chapter highlights the research problem to be investigated in this study and describes the conceptual model for this study. It further explains the relationship between transformational leadership (TL) and innovation; transformational leadership and knowledge sharing; and knowledge sharing and organisational innovation. Moreover, the possible mediating role of knowledge sharing in the TL- innovation relationship is discussed. Finally, previous studies focusing on the role of transformational leadership in both public and private organisations are included in this chapter before ending with the hypotheses of the study.

3.2 Transformational leadership and innovation

Literature suggested that transformational leadership (TL) affects innovation. For example, Hsiao et al. (2009) reported the importance and the influence of transformational leadership to boost up organisational innovation. Similarly, Eisenbeib and Boerner (2010) stated that transformational leadership facilitates innovation. The role of transformational leadership usually has a positive influence on innovative behaviour (Hsiao et al., 2009); thus, it is important for organisations to improve commitment among employees through effective communication to enhance product and process innovation (Lee et al., 2006). In addition, Transformational leaders can encourage followers to act on an organisation's vision in order to foster innovation (Hsiao et al., 2009; Chen et al., 2012, Si and Wei, 2012). Such leaders have an interactive vision and the ability to develop a suitable environment for organisational innovation (Choi et., 2016; Alarifi and Althonayan, 2013; Vaccaro et al., 2012).

Transformational leaders who provide intellectual stimulation are able to encourage the imagination and creativity of the workforce (Ryan and Tipu, 2013; Khan et al., 2014). As a result, transformational leaders initiate change/innovation and re-examine old ways of doing things. Such leaders encourage employees to reformulate strategies and think about old problems in new creative ways (Wang and Rode, 2010). Similarly, Western (2008) and Northouse (2013) explained that organisational leaders employing intellectual stimulation are often able to empower, stimulate and encourage the employees to be creative and innovative. Followers under this style of leadership are encouraged to express new ideas and different opinion to their leaders (Jung et al, 2003). In addition, by providing intellectual stimulation, TL encourage employees to come up with innovative ideas and to think ‘out of the box’, which can enhance organisational innovation (Sosik et al., 1998; Shalley and Gilson, 2004; Arnold and Loughlim 2013; Khalili, 2016).

Idealised Influence often referred as charisma, which means that the leader acts like a role model and is viewed like a role model and are admired and trusted (Avolio and Yammarino, 2013; Northouse 2013; Bass and Riggio 2006). According to Sharma et al. (2012), leaders with idealised influence has an ability to influence their followers by providing clear vision, a strong sense of purpose and determination to achieve the organisational goals. In addition, Transformational leaders who exhibit idealised influence are able to build trust and respect among employees (Bass, 1985; Yukl, 2010). Moreover, such leaders share the risks with followers, and emphasise the importance of having a collective sense of the organisation’s objectives (Sharma et al., 2012; Boon, 2009; Bass, 1985; Betroci, 2009, Yukl, 2010). The above mentioned characteristics help employees’ motivation and encourage them to be more innovative (Bono and Judge, 2004; Yulk, 2010; Bass and Riggio, 2012).

In literature, one of the most outstanding component of transformational leadership is the leader’s individualised consideration of their followers/subordinates (Jung et al., 2003; Antonakis et al., 2003). Using individualised consideration, transformational leaders build individual relationships with their followers, and consider their needs, skills, abilities, and aspirations in such a way that facilitates innovation (Jung et al., 2003; Yukl, 2010; Bass and Riggio, 2006).

Similarly, Nortouse (2007) stated that leaders who use individualised consideration may help their followers to realise their own competence through constant communication, encouragement, support, and feedback. Such leaders are usually good listeners and care about their employees' needs, and show them how they can achieve their goals (Saenz, 2011). Therefore, this can be seen that leaders' use of individual consideration is an essential element in employees' achievement of their full potential (Bass et al., 1987; Winkler, 2010). Finally, several empirical and theoretical studies have found that leaders who use individualised consideration acts as a mentor and provides empathy and support to followers, which help them to respond positively in difficult times of organisational change/innovation (Winkler, 2010; Al-omari and Hung, 2012, Khan et al., 2009, Gumusluoglu and Ilsev, 2009).

Inspirational motivation leaders express the importance and value of organisational goals in simple ways and display high level of expectations (Sharma et al., 2012). Leaders who use inspirational motivation behaves enthusiastically and optimistically (Bass and Riggio, 2006). Such leaders shape the vision, gain optimistic commitment to that vision, pay maximum attention to fostering effective communication and the sharing of values, and encourage an appropriate environment for innovation (Saenz, 2011, Bass and Riggio, 2006). By articulation the vision for the organisation, these leaders improve employees' understanding of the importance and values associated with desired outcomes, and increase their willingness to accept new ways of doing things (Jung et al., 2003; Bass, 1985). By practising inspirational motivation, leaders can motivate the employees to achieve the improved performance by creating a climate of collaboration and teamwork (Sadler, 2003). Therefore, it can be seen that this style of leadership improves employees' perceptions of the importance of and values associated with planned change/innovation that may improve their performance and reduce resistance to accept new ways of doing things (Sadler, 2003; Jung et al., 2003; Bass, 1985).

Previous literature has linked transformational leadership with innovation. For instance, Radzi et al. (2013) investigated the relationship between transformational leadership, organisational learning and organisational innovation within manufacturing food industry in East-Asian countries.

They found that constructs (idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration) related to transformational leadership had a significant influence on organisational innovation.

Sookaneknun and Ussahawanitchakit (2012) introduced a framework for enhanced innovation within Thai companies. Their framework had three main constructs: enablers of transformational leadership, innovation, and firm performance. The transformational leadership construct included idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration. The results of the study suggested that only idealised influence had an effect on organisational innovation. Similarly, Faraji et al. (2014) developed a framework to investigate the effect of transformational leadership on organisational innovation in banking sector of Iran. The main constructs of transformational leadership included idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration. They used three constructs (productive innovation, administrative innovation and procedural innovation) for organisational innovation. The finding suggests that there is a positive and significant relationship between the transformational leadership and its dimension (idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration) and organisational innovation.

Gumusluoglu and Ilsev (2009) demonstrated that transformational leadership has an important effect on organisational innovation. Michaelis et al. (2010) established that transformational leadership can enhance organisational innovation through promoting commitment to change. Similarly, Hsiao et al. (2009) established the impact of transformational leadership on organisational innovation using support for innovation as a mediating factor.

Scanning the literature, research on the relationship between transformational leadership and innovation within the public environment is limited. Nusair et al. (2012) examined the impact of transformational leadership style on innovation in the Jordanian public sector. Similarly, Mora and Ticlau (2012) investigated the role of transformational leaders in the public sector of Romani to improve organisations performance.

The above mentioned studies focused on the effects of leadership in enhancing innovation, but did not examine how the four components of transformational leadership specifically affect innovation, particularly among members of staff working in government sector environment (European Union, 2013; Kattel et al., 2014). In particular, very little empirical research has examined the existence of such links within developing countries (Zawislak and Marins, 2007; Ali et al., 2009; Brinkerhoff and Brinkerhoff, 2015), particularly in police organisations. Therefore, there is a need to investigate the effect of components related to transformational leadership on police innovation.

3.3 Transformational leadership and knowledge sharing

Knowledge sharing plays an important role in the competitiveness and performance of an organisation (Fullwood et al., 2013). It is believed that organisations will become more effective through creating, sharing, and reusing knowledge (Nguyen and Mohamed, 2011). Knowledge sharing is the process where individuals mutually exchange their knowledge (implicit and explicit) and jointly create new knowledge (Hooff, and Ridder, 2004). Many researchers believe that knowledge sharing process consist of both donating and collecting knowledge (Ardichvili et al., 2003; Hooff and Ridder, 2004; Weggeman, 2000; Lee et al., 2010). Literature related to knowledge sharing suggests that transformational leadership is able to create a culture that may encourage knowledge sharing (Lin, 2006; Bryant, 2003, Eisenbeib and Boerner, 2010). Therefore, it can be seen that such leaders can encourage or discourage the development of the working environment for knowledge sharing among employees (Choi et al., 2016; Northouse, 2007).

Transformational leaders when exhibit intellectual stimulation, they stimulate their employees' efforts to be innovative and creative by encouraging the imagination of employees, challenging the old ways of doing things, looking for better ways to do things, questioning assumptions, reframing problems, and seeking new solutions to problems from multiple perspectives (Bass and Riggio, 2006). Transformational leadership style solicit new ideas, promote discussions and support creative solutions which often facilitates knowledge sharing activities (Bass and Riggio, 2006; Carmeli et al., 2011).

As a result, when transformational leaders facilitate the search for new opportunities and the establishment of a common vision among employees, they show positive attitude towards knowledge sharing process (Senge et al., 1994, Chen and Barnes, 2006).

Transformational leaders with idealised influence instil admiration, respect, pride, and faith, and tend to emphasise the importance of having a collective sense of the organisation's mission (Bass and Riggio, 2012). Within organisations, such leaders are the role models who often influence and inspire employees and provide them with clear vision (Bass, 1985). Therefore, the process of knowledge sharing can be achieved through leaders' idealised influence behaviour (Bradshaw et al., 2015). Leaders with idealised influence can encourage their followers to accomplish their work based on a collective sense of beliefs, values and purposes (Avolio and Bass, 2002, Northouse, 2012; Betroci, 2009). As a result, this style of leadership can inspire among followers and leaders trust and loyalty, which are the core components of knowledge sharing (Bradshaw et al., 2015; Hsu et al., 2007; Hock et al., 2009; Shih et al., 2012). In addition, Tse and Mitchell (2010) and Lee et al., (2010) explained that workers under leaders who show trust and involve them in decision making are more willing to share their knowledge and expertise.

Inspirational motivation describes the degree in which the leader states a vision that is attractive and encouraging to followers (Judge and Piccolo, 2004). Employees working under leaders practicing inspirational motivation are encouraged to achieve the organisational vision because of the individual and team spirit that is created and are inspired to lead task-oriented commitment through sharing that vision (Antonakis et al, 2003; Saenz, 2011). Such leaders can encourage knowledge sharing through communication, dialogue, and negotiation (Northouse, 2013). In addition, trust is an important factor that supports the knowledge sharing process among employees (Davenport & Prusak, 1998). Inspirational leaders gain absolute trust from their followers (Rawung et al, 2015); thus, such leaders can positively impact knowledge sharing (ibid, 2015). Finally, inspirational motivators are more likely to create a good working environment which also encourages knowledge sharing (Politis, 2004).

Individual Consideration behaviours consist of coaching, mentoring and dealing with followers individually to meet their requests and needs (Dubinsky et al. 1995; DuBrin, 2007).

In general, transformational leaders behave as mentors, aiming to foster social interaction and help the employees to develop job-related competencies by showing them empathy and consideration (Dubinsky et al. 1995; Bass and Riggio, 2012). Transformational leaders enhance self-efficacy and self-confidence, thereby providing them with opportunities to share their unique job-related knowledge, which they acquire over the years. Such leaders can provide support and recognise the value of the contributions and ideas of their followers (Yukl, 2013); they thus are able to promote and direct employees to share knowledge (Boateng et al., 2016). In organisation, people often face job insecurity, climate of mistrust and fear of the unknown (Kotter, 2010), which often discourage them to share knowledge. Therefore, leaders who acknowledge the unique knowledge of the employees and give importance to their views are more likely to motivate them to share their knowledge with others (Srivastava et al., 2006).

Previous literature has studied the impact of transformational leadership on knowledge sharing from different contexts. For instance, Boateng et al. (2016) introduced a model and tested it within Ghana profit industries. Their model has three main constructs: transformational leadership, organisational culture and knowledge sharing. The transformational leadership construct included idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration. The main purpose of their study was to examine the impact of transformational leadership and organisational culture on knowledge sharing.

Akpotu and Jasmine (2013) investigated the relationship between transformational leadership and knowledge sharing in ICT based organisation in Nigeria. The study found strong relationship between the four components (idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration) of transformational leadership and knowledge sharing. Similarly, Baytokl et al. (2014) examined the effects of transformational leaders on knowledge sharing practices. The transformational leadership construct included six main constructs: idealised influence, inspirational motivation, intellectual stimulation, individualised consideration, high performance expectation and fostering acceptance of group goals. They found that most constructs related to transformational leadership were significantly correlated to knowledge sharing. Although, the above mentioned

studies have examined the relation between transformational leadership and knowledge sharing, research on transformational leadership has not fully examined the mechanisms through which transformational leaders improves employees' contribution, performance and behaviour (Yukl, 2010).

In addition, most research has been done in the private sector compared to public sector. Therefore, there is a need for research into how transformational leadership affects knowledge sharing in public sector organisations (Seba et al., 2012; Yao et al., 2007; Leidner and Alavi, 2006), particularly within the developing world (Jahani et al., 2011).

3.4 Knowledge sharing and innovation

In the era of the knowledge-based economy and society, intangible resources and skills are crucial to the survival and growth of organisations in dynamic business environments (Nodari et al. 2016; Wang et al., 2014). Knowledge sharing among employees is considered one of the most important economic drivers, and is continuously providing a source of sustainable competitive advantage, particularly in a vibrant and competitive business environment (Wang and Noe, 2010; Nodari et al., 2016). Moreover, the innovation is also critical to sustain business competitiveness, improve productivity and enhance organisational performance (Sarros, Cooper and Santora, 2008; Miron et al., 2004; Petrakis et al., 2015; Dampour and Schneider, 2006). Recently, there has been a wide spread acceptance among scholars and practitioners that innovation is essential for organisations to survive and grow in the current competitive environment (Iqbal, 2011; Yu et al., 2013; Kamasak and Bulutlar, 2009; Petrakis et al., 2015). In the literature, one of the two factors considered essential for long-term success of the organisation involves the related concepts of innovation and knowledge (Kamasak and Bulutlar, 2009; Kianto, 2011; Abdi and Senin, 2015). In addition, many studies have provided an evidence that knowledge is a key factor for the innovation process (Kamasak and Bulutlar, 2009; Abdi and Senin, 2015). Similarly, Yu et al. (2013) argue that organisation can build new values to enhance its performance and growth through knowledge sharing. Hislop (2013) thus suggests, when considering the application of change/innovation initiatives, it is important to create a knowledge sharing culture.

Through effective knowledge sharing, organisations can create opportunities to generate new ideas and develop innovation (Kianto, 2011; Abdi and Senin, 2015; Lin and Lee, 2005, Willem and Buelens, 2007).

Therefore, it can be seen that access to knowledge may help organisational members to come up with new ways to solve problems and engage in further innovative activities. Previous studies have reported that knowledge sharing is an antecedent of organisational innovation. For instance, Yu et al. (2013) reported a positive association between knowledge sharing and innovative behaviour in Taiwanese finance and insurance industries. Similarly, Abdi and Senin (2015) revealed that there is an influence of knowledge management on organisational innovation in Iranian automotive industry. The study further explained that organisational learning has an important character as a mediator on the association between knowledge management and organisational innovation (Abdi, and Senin, 2015).

By studying several empirical and conceptual studies, Akram et al. (2011) found that different component of knowledge management as knowledge activities, knowledge types, transformation of knowledge and technology have a significant positive effect in bringing innovation through transformation of knowledge into knowledge assets in organisations. Instead, Jantunen (2005) found that knowledge-acquisition and knowledge-dissemination capabilities do not have a significant relationship with innovation, while knowledge application plays an important role in supporting innovation.

Yang (2011) tested the interrelationships among internal knowledge sharing, the external acquisition of knowledge, and organisational innovation within software companies in China. The findings suggest that external knowledge-acquisition can improve organisational innovation more than internal knowledge sharing. Additionally, Kamasak and Bulutlar (2010) developed and tested a model to measure the relationship between knowledge sharing and innovation in various Turkish industries. 246 survey participants formed the population of the sample. Their model has three constructs for measuring knowledge sharing.

These constructs are knowledge collecting, knowledge donating outside and knowledge donating inside. They found that knowledge collecting and knowledge donating inside has a significant effect on innovation strategies. However, knowledge donating outside showed insignificant relationship with organisational innovation strategies.

Wang and Wang, (2012) investigated the quantitative relationship between knowledge sharing innovation and performance. They collected the data from 89 various high technology organisations from China. They used the model with three main constructs: knowledge sharing, innovation and firm performance. The study established the influence of knowledge sharing practices on organisational innovation and performance.

In context of Brazilian companies, Nodari et al. (2016) investigated the relationship between inter-organisational knowledge sharing, absorptive capacity and organisational performance, and proposes that inter-organisational knowledge sharing is composed of two processes: knowledge donating and collection. In literature, many researchers (for example, Kamasak and Bulutlar, 2010; Nodari et al., 2016; Akhavan and Hosseini, 2016; DEVries et al., 2006; Hooff and Ridder, 2004) have argued that knowledge sharing is composed of two processes: (1) donation, which is the communication, requested or not, of knowledge; and (2) collection, defined as the act of consulting other units and causing them to share their knowledge. On the other hand, many researchers (see for example, Song et al., 2008; Wang and Wang, 2012) have used knowledge sharing as single construct to investigate the impact on organisational innovation.

Although previous studies have looked at the relationship between knowledge sharing and organisational innovation, only limited studies focus on knowledge processes and their impact on the innovation in the public organisations (Kickert, 2014). In context of police organisations, (Pendleton and Chavez, 2004) argue that police is an ever changing environment requiring a constant commitment to innovation. Therefore, there is a need for research addressing the factors affecting organisational innovation in police force. However, there is a lack of research that focuses on police organisations, particularly in the context of UAE.

3.5 The mediating effect of KS in the TL-innovation relationship

The linkages between transformational leadership and knowledge sharing discussed in earlier sections, and those between knowledge sharing and innovation discussed in sections (3.3 and 3.4 respectively), implicitly suggest that transformational leadership affects organisational innovation via its effects on knowledge sharing. Knowledge sharing has been known to facilitate creation of new ideas and processes so that it can improve the performance of the organisations (Zheng et al. 2017). Enhancing product and process innovation requires leaders to cultivate respect, admiration and commitment among organisational members (Bass and Riggio, 2006).

Although transformational leadership may affect organisational innovation directly, previous research has suggested that the direct effects may be too complex to isolate (Birasnav, 2014; Srivastava et al., 2006). Moreover, Birasnav (2014) suggested that knowledge management plays a mediating role in the relationship between transformational leadership and organisational performance, when controlling the impact of transactional leadership.

Zheng et al. (2017) investigated the mediating effect of knowledge sharing on organisational innovation performance. They found that transformational leadership have some positively significant effects on knowledge sharing and innovation performance. Meanwhile, knowledge sharing partially mediates the relationship between transformational leadership and innovation performance. Similarly, in the context of the Bahrain private organisations, Birasnav (2014) found that knowledge management process partially mediates the relationship between transformational leadership and organisational performance.

An important element of literature concluded that knowledge management or knowledge sharing contribute significantly to innovation efforts and help to improve organisational performance (Zheng et al., 2017; Noruzy et al., 2013). However, this type of studies in public organisations particularly within police force are limited. In addition, literature review suggests that insufficient attention has been given to the mechanisms that may explain mediating role of knowledge sharing in the TL-innovation relationship (Birasnav, 2014; Srivastava et al., 2006).

Therefore, there is a need to address and understand the processes through which TL influences work related condition that may affect the innovation. This study thus aims to fill the gap in the literature by examining the direct effects of the four components of TL on innovation process and knowledge sharing and the indirect mediating role of KS, as shown in Figure 3.1.

While a considerable amount of literature has been published examining relationship between, transformational leadership (TL), knowledge sharing (KS) and innovation, as discussed in earlier sections, there is a lack of empirical studies that shows the impact of TL on KS and innovation and the impact of KS on innovation. To the best of the author’s knowledge, there is no study investigating the impact of TL and KS on innovation in UAE particularly within the MoI. Based on the aforementioned previous studies, this study thus develops a framework to fill the gap in the literature and to address unknown issues concerning TL, KS, and innovation in the MoI. However, the adopted framework (Figure 3.1) is closer to the work of Choi et al. (2016) and Zheng et al. (2017) who investigated the impact of TL and KS on organisational innovation.

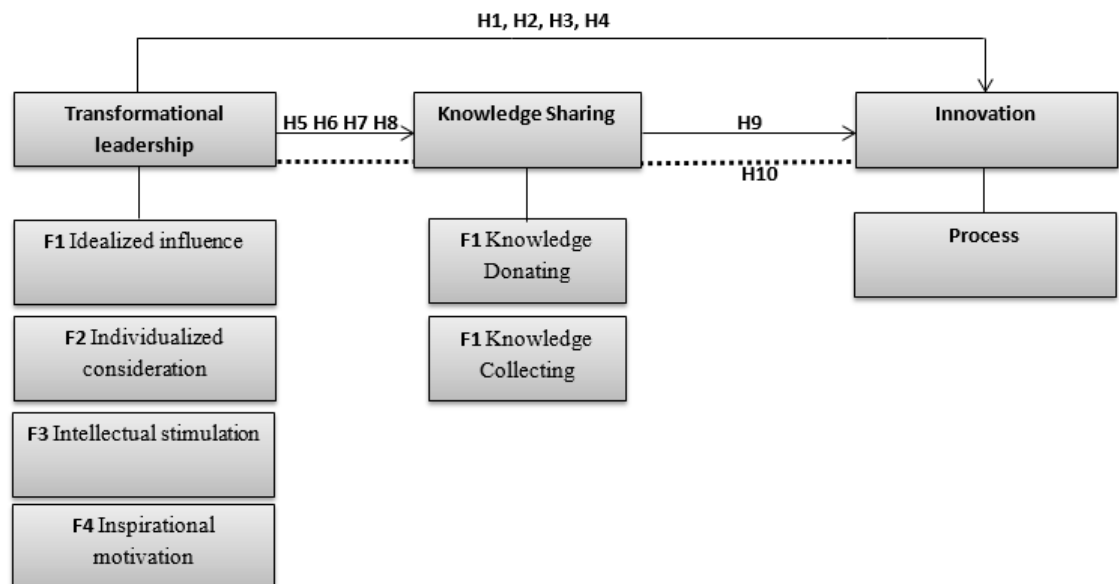


Figure 3.1 Research Framework

Figure 3.1 shows that there are four aspects of the model: 1) the direct relationship between TL and innovation; 2) the direct relationship between TL and KS; 3) the direct relationship between KS and innovation; 4) the indirect relationship between

TL and innovation through the mediating effect of KS. Based on these relationships, the study examines the hypotheses proposed in the following section.

3.6 Hypothesis of the study

The above framework leads to the following hypothesis which are summarised in the table 3.1.

Table 3.1 List of research hypothesis

Hypothesis	Description
Transformational Leadership (TL) will have significant influence on the innovation process in the MoI	
H1	Idealised influence has a significant influence on innovation process in the MoI
H2	Inspirational motivation has a significant influence on innovation process in the MoI
H3	Intellectual stimulation has a significant influence on innovation process in the MoI
H4	Individualised consideration has a significant influence on innovation process in the MoI
Transformational Leadership (TL) will have significant influence on Knowledge Sharing (KS) in the MoI	
H5	Idealised influence has a significant influence on Knowledge Sharing in the MoI
H6	Inspirational motivation has a significant influence on Knowledge Sharing in the MoI
H7	Intellectual stimulation has a significant influence on Knowledge Sharing in the MoI
H8	Individualised consideration has a significant influence on Knowledge Sharing in the MoI
Knowledge Sharing (KS) has a significant influence on innovation process in the MOI	
H9	KS has a significant influence on innovation process in the MoI
H10	KS will mediate the effect of TL-INN relationship in the MoI

3.7 Conclusion

This chapter has identified many factors in relation to the transformational leadership and knowledge sharing perspective. The factors extracted from the literature are believed to be of high significance for organisational innovation process, especially from a governmental perspective. A critical evaluation of the previous studies has clarified that there is a lack of empirical studies about the role of knowledge sharing as a mediating variable between transformational leadership and innovation process within public sector environments in developing countries particularly in the UAE.

The chapter has achieved its aim by proposing an initial conceptual framework that consists of three constructs: transformational leadership (idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration), knowledge sharing (donating and collecting), and innovation process. The framework development followed a multi-dimensional approach, offering a practical framework to be used for further investigation. Therefore, the proposed framework (Figure 3.1) is carried on to the next phase of the research, as a guideline for examining the impact of transformational leadership on innovation through the mediating effect of knowledge sharing in the MoI. The following chapter discusses the local context and the current strategy and practices of the UAE government related to innovation, and especial attention were giving to the MoI innovation route.

Chapter 4: Local Context: Government innovation practice in the UAE

4.1 Introduction

This chapter aims at offering some background information about the research context (UAE). It provides information about the characteristics, history, political system, economy, resources, and culture of the UAE. It also focuses on the UAE's growth and prosperity over the past decades and provides a brief overview of the strategic plan in action to trigger the innovation within public sector to manage the transition to the post-oil future. The public sector in the UAE has already taken advantage of the 'National Innovation Strategy' programme and began to recognise knowledgeable leadership as an asset to its reform and development. Therefore, the last subsection discusses the scope of the transformational leadership styles to develop innovation within the MoI. This will help to better contextualise the local context and the selected public organisation (MoI) that informs the primary research.

4.2. The United Arab Emirates (UAE) a socio-economic and political profile

The United Arab Emirates, commonly referred to as the 'UAE', is a federation of monarchies in the Middle East. Geographically, the UAE is limited at the southeast end by the Arabian Peninsula on the Arabic Gulf; it borders Oman to the east and Saudi Arabia to the south, and shares maritime borders with Qatar to the west and Iran to the north (BBC, 2016).

The development of the UAE is fairly recent. In 1971, six small states – Abu Dhabi, Dubai, Sharjah, Ajman, Umm al Qaywayn and Al Fujayrah – merged, and they were joined in 1972 by Ra's al Khaymah to form the United Arab Emirates (UAE), as we know them nowadays (CIA, 2017). The UAE is a member of the Gulf Cooperation Council (GCC), and all the Emirates have relatively stable political systems, of an authoritarian nature (BBC, 2016). From an international relations political perspective, the UAE in recent years has played a vital role in regional affairs. In addition to donating billions of dollars in economic aid to help stabilise Egypt, the UAE is a member of a US-led global coalition to defeat the Islamic State in Iraq and the Levant (ISIS) and a coalition partner in a Saudi-led military campaign to restore the elected government of Yemen (CIA, 2017).

According to the IMF (2017), "The UAE is adjusting well to the new oil market realities". It is apparent that the large financial buffers, diversified economy and the

robust policy responses by the governmental authorities are major contributions to ensuring the necessary adjustments are continuously made, while safeguarding the economy and the financial system.

In addition, the UAE has diversified and has become a regional trading and tourism hub, and, on the other hand, many UAE firms have invested heavily abroad (BBC, 2016). Also, in the last two decades, quality has become a paradigm change in the UAE, especially noticeable by a shift from an inward, production-led philosophy to an outward, customer-focused approach.

In the last decade, quality and innovation have become key concerns to both the government and to individual organisations in the UAE, as they strive for competitive advantage in an atmosphere characterised by liberalisation, globalisation and knowledgeable customers. The UAE President, His Highness Sheikh Khalifa bin Zayed Al Nahyan, declared 2015 the Year of Innovation and Mohammed bin Rashid Centre for Government Innovation (MBRCGI) launched various initiatives to promote the innovation strategy. Among these initiatives was the National Innovation Strategy, focusing on seven core sectors: renewable energy, water, transport, health, education, technology and space.

The MBRCGI issued a government innovation framework. This government innovation framework is meant to provide government employees with guidance on the meaning of government innovation and how entities can embark on their innovation journey to help achieve the UAE's Vision 2021 which, as stated in the Government Innovation Framework (2015) informative brochure, aims to reach a strong and safe union, where knowledgeable and innovative Emiratis will confidently and ambitiously build a competitive and resilient economy.

The aim is that a cohesive society will thrive, loyal to its identity, and will enjoy the highest standards of living within a nurturing and sustainable environment (UAE Vision 2021). In addition Mohammed Bin Rashid Centre for Government Innovation has signed an agreement with the Massachusetts Institute of Technology (MIT) to hold workshops on the culture of innovation for UAE government officials. As part of the deal, an initial workshop for 70 government leaders from federal government entities has been held under the theme of 'Radical Innovation' (Sutton, 2016).

4.3 MoI strategic route map (2017-2021) to innovation

According to the 2014 strategic plan for the period 2014-2016 (Ministry of Interior, 2014), the strategic route of the UAE Ministry of Interior consists of vision, mission values and strategic objectives as follows:

Vision: *“To have the UAE as one of the most secure and safest countries in the world”*

Mission: To work effectively and efficiently towards enhancing the quality of life in the UAE community by providing security, traffic, reform and services, and ensuring safety of lives and properties.

Strategic Objectives:

1. Promote safety and security.
2. Control road security.
3. Deliver the highest levels of safety for civil defence.
4. Ensure readiness at crisis and disasters.
5. Promote public confidence in the efficiency of services provided.
6. Optimal use of intelligence.
7. Ensure all administrative services are provided based on quality, efficiency and transparency standards.

(Source MoI, 2014).

4.4 Overview of the Ministry of Interior (MoI)

The Ministry of Interior is primarily responsible for enforcing criminal law, enhancing public safety, maintaining order and keeping the peace throughout the Emirate. Consequently, it has achieved the flexibility and adaptability required to be widely regarded as one of the world's leading law enforcement agencies.

However, this achievement has only been identified in recent years by the UAE's Ministry of Interior. As a result, H.H. Sheikh Saif bin Zayed Al Nahyan (Deputy Prime Minister and Minister of Interior) determined that creativity and innovation were to be adopted as core organisational values for the ministry.

To attain this objective, these goals were stated in the strategic objectives in 2008. In 2012, H.H. announced a decree to establish a regulatory unit for creative leadership, named the “Creativity and Leadership Development Centre”, which came to underpin H.H.’s concern for leadership and creativity, which led to the centre being assigned the task to develop policies for promoting and driving creative and innovative thinking of MoI staff and prepare second-line leaders to take over responsibility in the future (MoI, 2014).

Among its many proactive actions for improvement, the Ministry of Interior (MoI) has been trying to develop its employees’ skills and knowledge by diverse means. Through better alignment of the effect of a strong and cohesive leadership style, management would be able to develop a better vision and mission for the ministry. This in turn, would improve their management and leadership skills, decision making, and ability to define and fulfil the most relevant key performance indicators and to fully achieve MoI innovation targets. It is in line with this that H.H. Sheikh Saif bin Zayed Al Nahyan is personally leading a change movement in the MoI, creating a kind of connection between change and creativity to achieve excellence and free enterprise as one of the ministry’s most important goals (MoI, 2014).

The MoI is an important governmental body, and one of the most awarded public organisation in the fourth league of the Mohammed bin Rashid Government Excellence Award (MoI, 2017). With a population size estimated at 3000 employees , it seemed like an ideal case on which to develop and test the proposed model, which might later be adapted and applied to similar (governmental) public sector organisations, as a predictive model that can serve as guidance for considerable improvements in performance, and quality overall.

4.5 Organisational Structure and Organisational Culture in the MoI

H.H. Deputy Prime Minister and Minister of Interior Sheikh Saif bin Zayed Al Nahyan (MoI, 2015) stated that developing the skills of the ministry's staff members, boosting their awareness and enhancing their abilities is a vital task and a key priority for the ministry's leaders, due to its significant effect on promoting the overall performance, and its paramount role in implementing modern policies that are proportionate with the changes of the times.

The Executive Board of the MoI has been established as a distinct element of the police department through developing a headquarters' organisational structure and job description to cope with the current requirements. H.H. has issued directives for forming a new organisational structure emanating from the general strategy that must be applied by the MoI (2014- 2016), and by creating a new vision (MoI, 2014). This strategy should meet the present and future requirements through the new organisational structure which encourages initiative and creative spirit in order to assimilate and handle the tools that govern police work (Elbanna, 2010). To achieve this, techno-structural interventions are used to focus on aspects of organisational technology such as task methods, job design and organisational structure, thus helping the MoI to move from traditional structural forms to more flexible structures adapt to changes in the external environment. As Hughes (2006) emphasised, it is important to understand how changes in organisational structure are directly linked to other factors of change such as strategy, culture, technology and power relations within the organisation.

The issue with organisational culture and studies on organisations within developing countries is that there has been little or no systematic application for the conceptual studies of organisations in developing or Middle Eastern countries (Elbanna, 2008 & 2010). In the UAE environment, according to (Jones and Seraphim, 2008), an organisation undertaking change is likely to encounter a cultural and contextual environment which is described as an "unfavourable environment". Some of the key characteristics of the culture in an unfavourable environment are high masculinity and a gap in the hierarchical level, and these factors can be observed in the MoI. The implementation of any transformation or change in this unfavourable environment will require greater shift in the management style that aim to address the environmental context.

The same authors (Jones and Seraphim, 2008) advise that the current cultural status of an organisation should be measured so that any planning and control of the culture will support the development of sound performance metrics suitable for the organisation's working environment.

Policing is increasingly an information-rich practice where effective knowledge sharing within police organisation is arguably becoming essential for improved performance (Beto and Lambert, 2013; Sanders & Henderson, 2013). Understanding the challenges and complexities of police knowledge sharing has consequently driven research within a variety of disciplinary fields but this has resulted in a fragmented literature (Griffiths et al., 2016). Traditionally, Knowledge sharing in a police context considers handling of crime reporting or criminal intelligence in an effort to reduce criminal activities. However, other potentially important types of information include aspects such as informing employees of new policies, procedures and strategies, changes in legislation, and adoption of new technologies (Abrahamson and Goodman-Delahunty, 2013). Griffiths et al. (2016) argue that the literature does not differentiate between the terms information and knowledge in a consistent manner. They further highlighted a number of barriers and facilitators which may impact upon knowledge sharing they grouped them into four main themes; knowledge management strategy and legislation; technology; culture; and loss of knowledge (ibid, 2016).

From the brief overview of the existing structure and organisational culture, it emerges that one possible way for the leaders of the MoI to enable changes in the internal culture of the organisation is by means of supporting innovation, namely by aligning the leadership style with a view to supporting knowledge sharing. This might not only bring about innovation, but also sustain a culture of continuous improvement within the MoI. These perspectives are briefly presented below and explored throughout the research.

4.6 The route to innovation

This section presents a documentary review of the key steps that have been taken so far and are strategically planned to improve the innovation in the public service sector in the UAE, namely the Ministry of Interior (MoI), and the means to ensure the country's security. The MoI took a step forward to support innovation and the launch of its strategy (2017-2021) shows a slight change by adding 'Excellence and innovation' as one of its seven values. In addition, the MoI's strategic objective number seven was formulated as follows: "To foster a culture of innovation in the institutional work environment" (MoI, 2017).

Figure 4.1 presents the basic eight principles for excellence at MoI, which include leading through vision, inspiration and integrity, and through creativity and innovation. The principles also include adding value to clients, to institutionalise capacity development, to focus on efficient and agile management, to drive success based on talents and abilities of workers, to sustain excellent results and pursue a sustainable future.



Figure 4.1 Basic principles for excellence at MoI

Source: UAE Ministry of Interior Excellence Award System (2016)

From yet another perspective, the MoI Excellence Award System for creativity and innovation has been put forward by the ministry. As part of the basic principles for excellence, the document indicates that the MoI seeks to “Lead through vision, inspiration and integrity, as well as build a sustainable future” (as seen in Figure 4.1) (Ministry of Interior Excellence Award, 2016, p1). Each of these principles is to be achieved through reward for creativity and innovation.

The recognition of the need to lead through vision is consistent with the inspiration motivation dimension of transformational leadership which emphasises the need to create and communicate a vision as well as spark enthusiasm among followers (Schweitzer, 2014). Innovation is thus enhanced by increasing intrinsic motivation behaviour among employees and consequently the urge to overcome challenges.

4.7. Public Documents related to Transformation leadership, Knowledge Sharing and Innovation at the MoI

From yet another perspective, the MoI Excellence Award System for creativity and innovation has been put forward by the ministry. As part of the basic principles for excellence, the document indicates that the MoI seeks to “Lead through vision, inspiration and integrity, as well as build a sustainable future” (as seen in Figure 4.1) (Ministry of Interior Excellence Award, 2016, p1). Each of these principles is to be achieved through reward for creativity and innovation.

The recognition of the need to lead through vision is consistent with the inspiration motivation dimension of transformational leadership which emphasises the need to create and communicate a vision as well as spark enthusiasm among followers (Schweitzer, 2014). Innovation is thus enhanced by increasing intrinsic motivation behaviour among employees and consequently the urge to overcome challenges.

As mentioned at the beginning of this chapter that the local context specifically the selected organisation the MoI will be reviewed in terms of the main constructs of this research through public documents collected by the researcher. These documents are outlined in table 4.1.

Table 4.1 Brief description of the documents related to MoI

Type of Document	Source	Date	Brief Contents/Description
Innovation Centre	MoI	2015	Role, responsibilities, speciality and organisational chart of Innovation Centre
Ministry of Interior Excellence Award	MoI	2016	Creativity and innovation awards fourth league criteria and basic principles
Job Description – Strategic Departments	MoI	2015	Role and responsibilities of Strategic Department
Mechanism and plan to spread innovation and creativity culture	MoI	2014	Responsibilities and detailed plan for implementation and targeted groups and the objective of which acquisition of human resources creative capabilities is needed to ensure the achievement of the strategic orientation in the field of creativity.
Achievements of the 2011-2013 strategy	MoI	2014	Strategic initiatives, services provided, challenges.
Job description of the MOI Knowledge Centre	Management of organisational excellence	2015	Role and responsibilities of the knowledge centre, tasks and specialties, probable productivity index.
Operational plan model: Knowledge strategy	Department of organisational excellence	2016	Strategic objectives, activities, initiative programmes, responsible departments.
MoI Strategic Plan 2011-2013	MoI Strategic Directorate	2008	Strategic plan, vision, mission and values of MoI 2011 – 2013.
MoI Strategic Plan 2014-2016	MoI Strategic Directorate	2012	Strategic plan, vision, mission and values of MoI 2014 – 2016.
The Knowledge Department	Ministry of Interior	2016	Basic information, tasks and functions of the MoI Knowledge Centre.
MoI Strategy 2014-2016	Ministry of Interior	2016	An evaluation of achievement of strategic initiatives for 2011-2013 and launch of the 2014-2016 MoI strategy.

Source: (UAE MoI, 2016)

Inspirational motivation at the MoI

As part of the efforts to encourage innovation at the MoI, H.H. Sheikh Saif bin Zayed in September 2015 through a ministerial decree established the MoI Innovation Centre. In line with the decree, a document outlining the centre's purpose was established and published by leaders at the ministry. A review of this document indicates that some of the main functions of the innovation centre are:

“(1) Overseeing the policy and strategy for the provision of innovation and creative ideas in line with the requirements of the Ministry’s strategy preparation and “(4) preparation of studies on innovation that are advertised locally and globally and converted to take advantage of them and develop them in line with the Ministry’s various activities” (Innovation Center Purpose, 2015, p.1)

The department for innovation also articulates its objectives as: (1) to establish incubators and laboratories in the field of innovation and (2) to broadcast ideas and innovations at the federal level (MoI Innovation Centre Implementation Department, 2015: PPT). In addition, one of the general principles for the UAE Strategy 2011-2013 is to pursue a culture of excellence through strategic thinking, continuous performance improvement and superior results (UAE Strategy 2011-2013: 2012).

From these functions and objectives, it is evident that the leaders are creating a vision for innovation at the MoI in which case innovative and creative ideas are to be used to realise the ministry's long-term strategy/vision. The MoI's vision, mission, values and strategic goals are summarised in Figure 4.2 Strategic goal number seven is directly related to innovation as it involves encouraging creativity, which is a prerequisite of the innovation process (Anderson et al., 2014).



Figure 4.2 Vision, mission, value and strategic goals of MoI

Source: UAE MoI Strategy 2014-2016

Outlining the innovation centre's goals as the need to use innovation to achieve the ministry's strategy and take advantage of local and international innovative ideas helps establish possible service quality improvement in the future. Within this perspective, the inspirational motivation dimension of transformational leadership suggests that effective leadership facilitates innovation by shaping a vision and gaining optimistic commitment towards that vision (Nusair, Abadneh and Kyung, 2012). Inspirational motivation also involves inspiring the followers to be innovative by communicating a convincing vision of the future (Jyoti and Dev, 2015). Such communication is evident from outlining all key responsibilities of the departments that constitute the innovation centre and the responsibilities of the leader that are to head the departments.

Individualised consideration at the MoI

Further examination of documents at the MoI reveals the presence of concerted efforts to meet the needs of individuals/stakeholders involved in the innovation process at the ministry. As an example, Figure 4.3 below shows that the organisational structure at the MoI Innovation Centre has the provision for an ‘Innovators Care Department’. Among the key functions of this department are the following: “*creating a stimulating environment for the development of talent and creative ability; giving innovators access to global best practices; and creating a specific data based for innovators*” (Innovation Centre Purpose, 2015, p.4).

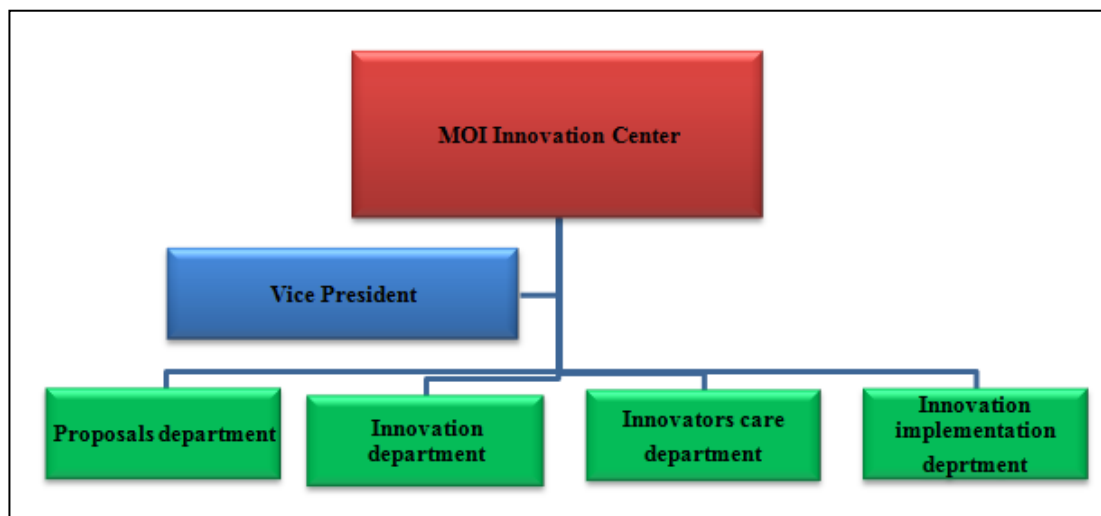


Figure 4.3 Organisational structure of the UAE MoI Innovation Centre

Source: Innovation Centre MoI (2015)

From a transformational leadership theory perspective, such goals at the Innovators Care Department reveal the presence of individualised consideration. Under this dimension of transformational leadership, the leader depicts a caring attitude and awareness of the followers’ needs and develops their potential (García-Morales et al., 2012). In relation to the MoI, the individual concerns among the innovators pertain to the need to benchmark their innovations with other innovators around the globe. This has been achieved by providing access to global best practices in innovation. The outcome is a supportive environment which has been shown to be instrumental in facilitating innovation (Hu et al., 2013).

Intellectual stimulation at the MoI

There is also evidence in existing documents indicating the use of leadership at the MoI to stimulate individuals to engage in innovative and creative activities. As an example, the ministry has put in place the Innovative Idea Award. While describing the purpose of the award, the ministry explains that:

“The award is granted to show the creative idea and a wonderful discovery in the quest to achieve the excellence institution performance and to offer solutions to the problem in a new and contemporary way to achieve success in the improvement and development of the ministry’s performance in the following areas: security, administrative, technical, traffic, financial and public service” (Minister of Interior Excellence Award, 2016, p.2).

One of the notable aspects in the description of the award pertains to offering solutions to the problem in a new and contemporary way. This view is largely consistent with the intellectual stimulation dimension in transformational leadership. Hu et al. (2013), for instance, explain that in order to steer innovation among employees/followers the leader must encourage them to be creative and innovative often by challenging their beliefs and values and questioning the status quo. The leader also influences followers to reframe new problems and approach old situations in new and novel ways (Gumusluoğlu & Ilsev, 2009). The MoI’s award can thus be considered as an effective way of encouraging imagination and creativity among organisational members.

Idealised influence at the MoI

Attempts to stimulate innovation in an organisation in part require the leaders to provide the necessary incentives to the employees. The incentives should act as a catalyst for creating short-term excitement among the employees and in the long run allow for sustained commitment to an innovation culture. A review of documents from the MoI indicates that this aspect has been put into consideration. For example, one of the responsibilities of the proposal department in the innovation centre at the MoI is to:

“Participate in the development of an incentive system that will encourage internal and external customers to provide the Ministry with the proposals in coordination with the concerned authorities” (Innovation Centre Purpose, 2015, p.4)

To further ensure that employees are committed towards achieving the set goals, the MoI has put in place measures and indicators of strategic results. Some of the measures that are relevant to the innovation process include

“the number of proposals submitted by every 100 employees, the percentage of executable proposals and the percentage of main partners’ satisfaction of the ministry” (MoI Strategy 2014-2016: 2014)

The above initiatives to offer incentives for internal innovation and measure progress in achieving strategic goals at the MoI reflect the application of the idealised influence dimension of transformational leadership at the ministry. Through idealised influence, leaders emphasise accomplishments that benefit the organisation, its members and society in general. They also depict charisma through conjuring up enthusiasm among followers with the aim of achieving a stated vision. Such a vision at the MoI is to make the UAE an innovative world leader as well as to use innovation to achieve the mission of enhancing the quality of life for all who live in the UAE community by proving security, traffic, reform and residency services, and ensuring the safety of lives and properties (MoI Strategy 2014-2016: 2014). Examples of specific incentives offered to employees include funding options for their creative ideas, access of technological infrastructure, opportunities to participate in innovation and entrepreneurship incubators, and offering individual awards to employees who excel in innovation.

Leaders who offer incentives to their followers help in nurturing an environment for innovation by expressing confidence in the followers' ability to achieve the set vision and showing a sense of purpose, determination and persistence (Sarros, Cooper and Santora, 2008). By contrast, non-transformational leaders are likely to advance their own self-interested agendas. Rather than offer incentives, these leaders tend to dominate and control their followers (Vecchio et al., 2008). Over the course of time, such leadership behaviours result in failure to earn deep-seated respect from followers and desensitise employees from engaging in practices that are likely to lead to innovation.

From yet another perspective, there is evidence to indicate that the MoI is committed to assisting both customers and employees to contribute to innovation through a platform that shows appreciation and trust in other people, as well as a willingness to assist them in improving their innovative work and ideas. For example, the innovation department indicates that some of its responsibilities include:

“(1) Organising workshops with the various formations of the MoI who provide services for clients ideas to be converted into innovative ideas; (2) coordinating with the different formations of the MoI to identify the ideas submitted by the clients and try to identify opportunities for improvement” (Innovation Centre Purpose, 2015, pp.4-5)

The commitment to respect, trust and courtesy to a large extent reflects the practice of idealised influence among the leaders. Transformational leaders in this context possess idealised attributes such as trust and respect in other stakeholders. Rather than act in self-interested ways, the leaders act on strong ethical values and moral standards (Barling, Christier and Turner, 2008). They also seek to be altruistic role models who engender respect in their followers (Nusair et al., 2012).

4.8 The Knowledge Centre at the MoI

Various documents from the MoI were analysed in order to identify measures that have been put in place to facilitate knowledge sharing and their impact on innovation process. One of the notable efforts made towards enabling knowledge sharing at the MoI pertains to the creation of a knowledge centre for the ministry. The focus towards knowledge sharing in the centre is evident from the tasks and functions that it seeks to accomplish (see Table 4.2).

Table 4.2 The tasks and functions of the Knowledge Centre at the MoI

Tasks and functions	
1	Set up a mechanism to identify and classify information and knowledge required to support the policies and strategies of the ministry and its activities
2	The establishment of an integrated database of information and knowledge base for use in the development of the ministry's activities in coordination with the concerned authorities
3	Coordination and cooperation with all ministry department in the field of information and knowledge management

Source: UAE MoI Knowledge Centre (2015)

Based on the above functions, the presence of an integrated database of information and knowledge can be considered as highly effective in facilitating intra-organisational knowledge sharing. Such sharing of knowledge occurs between the organisation's different actors, such as within and between hierarchical levels (e.g. managers and subordinates) and departments. In the presence of a central database, all organisational members can access existing knowledge and share it among themselves.

Innovation may within the above context be supported in a range of different ways. For instance, the presence of an information database increases the organisation's ability to respond quickly to changes by sharing ideas to solve an emergent problem (Andreeva and Kianto, 2011).

In addition, literature has shown that a platform for efficient exchange of ideas leads to innovation through knowledge creation. More specifically, a platform for knowledge sharing allows the various members of the organisation to exchange and combine existing information, knowledge and ideas in way that leads to creation of innovations (Fang et al., 2013).

From Table 4.2, it can also be noted that one of the functions of the MoI Knowledge Centre pertains to achieving coordination and cooperation in the field of information and knowledge management for all departments in the ministry. Prior research has shown that, to contribute positively to enhanced innovation performance, knowledge in the organisation should be made collective (Tamiau et al., 2009). Put differently, innovation is achieved when knowledge is shared among the various members of the organisation.

4.8.1 Management support for knowledge sharing in the MoI

Efficiency in knowledge sharing is dependent on various factors such as the employee dimension, which includes willingness to share based on aspects such as experience, beliefs and motivation; the organisational dimension, which involves creating an organisational climate that is supportive; and the technological dimension, which encompasses use of ICT to facilitate codification, integration and dissemination of knowledge (Currie et al., 2007). While taking into consideration the organisational dimension, the MoI has shown high support for knowledge sharing in the ministry. This is quite evident from the formulation of a knowledge-management methodology. The ministry indicates the purpose of methodology as: “(1) *Promoting the knowledge culture of all organisational units in the ministry of interior; (2) managing knowledge assets efficiently and effectively; (3) and increasing the effective development and investment of knowledge of our human resources*” (Knowledge Management Methodology, 2016, p.3)

Furthermore, the management at the MoI has made significant efforts to link knowledge with strategic goals in the ministry. For example, the knowledge required for the traffic sector pertains to road control mechanisms and control of traffic. This has been linked to the strategic goal of achieving control of road security.

Similarly, the civil defence sector has been found to require knowledge that is associated with prevention and safety civil defence works to preserve lives and property. This knowledge requirement has been linked to the strategic goal of achieving the highest levels of safety for civil defence (Knowledge Management Methodology, 2016, p.3-4). The above efforts by the MoI are a reliable indicator of the management's interest in providing support for knowledge management in the organisation. Top management support has been recognised in extant literature as a critical driver of knowledge sharing in an organisation in various ways. First, the presence of top management support facilitates knowledge sharing by making it possible to allocate necessary resources (Lin, 2007). Second, in the presence of top management support employees feel more confident to share knowledge through a positive knowledge- sharing attitude. Third, management support helps in stimulating a knowledge- sharing culture by ensuring employees and departments are receptive to new knowledge (Xue et al., 2011; Štemberger et al., 2011). The knowledge management methodology at the MoI provides a framework to achieve these benefits.

4.8.2 Sharing of explicit and tacit knowledge at the MoI

It can also be observed from the available documents that the MoI has a significant understanding of the fact that knowledge exists in different forms and hence there is a need for different platforms to facilitate its sharing. Within this perspective, the MoI has put in place a comprehensive plan to help in spreading innovation and creativity culture. The MoI specifically notes that:

“There has been a comprehensive plan to publish and promote a culture of creativity and innovation in MoI to ensure the deployment of strategy and policy and operations for creativity and promote creative thinking among employees of MoI. This will contribute to the plan to increase the proportion of the proposals submitted by internal and external stakeholders” (Mechanisms to Spread Innovation Culture, 2016, p.1).

The ministry has also established several channels to facilitate the knowledge-sharing processes. These include the use of training courses, text messages (SMS), journals, creativity website, e-club, brochures, screen displays during public relations, workshops and social media (Mechanisms to Spread Innovation Culture, 2016, p.1). From this list of publishing channels, it can be argued that the MoI recognises that explicit and tacit knowledge are spread in different ways. Explicit knowledge, as highlighted in the literature review, is codified and formalised in various documents, thus making it easier to communicate and share (Anand et al., 2010). Accordingly, use of SMS, journals, newsletters and brochures by the MoI makes it possible to transfer such knowledge. The use of journals and newsletters also provides a source through which knowledge can be integrated and build on a collective platform, thus making it easier to share during the innovation process.

Tactic knowledge is, on the other hand, unstructured and exists semi-consciously or unconsciously in people's heads (Peterson and Steelman, 2015). Sharing of tacit knowledge can only be effectively achieved through providing interactive platforms for both internal and external stakeholders. At the MoI, the use of channels such as a creative website, e-club and social media provides the necessary interactive platform to facilitate the sharing of tacit knowledge for both employees and external stakeholders through formal and informal dialogues. Through dialogues, employees can share practices that can have a positive impact on innovation.

4.9. Innovation process at the MoI

4.9.1 Types of innovation pursued by the MoI

Based on the review of the documents from the MoI, it can be noted that the innovation processes at the ministry are targeted towards all key sectors of the UAE's economy. Based on previous studies, innovation can assume various dimensions such as product, process, marketing and organisational innovation (OECD Oslo Manual, 2015). Table 4.3 further provides a summary of the strategic goals that the MoI seeks to achieve through innovation in some of the sectors. From the sectors listed in Table 4.3, it appears that most of the innovative processes taking place in the MoI are in the form of organisational innovations.

Table 4.3 Strategic goals to be achieved through knowledge and innovation in various sectors of the MoI

Concerned sector	Strategic goal
Crime	Enhance safety and security
Traffic	Control of road security
Civil defence	Achieve the highest levels of safety for civil defence
Emergencies	Ensure readiness and preparedness for disasters and crises
Security operations	Optimal use of security information

Source: MoI (2015)

Such innovation revolves around the implementation of new organisational methods in the practices and procedures of the organisation (Pino et al., 2016). The MoI stands to achieve significant benefits from organisational innovation through enhanced productivity, flexibility and efficiency through reduction in administrative work. Furthermore, organisational innovation has been shown to be a precursor for other types of innovation, e.g. product, process and marketing innovations (Tavassoli & Karlson, 2015).

The MoI has also been involved in the formulation and publishing of a comprehensive plan for cultivating a culture of creativity and innovation in the UAE. Among the various purposes of the plan is to:

“.... increase the proportion of proposals submitted by internal and external stakeholders and development to the concepts; put creative ideas to a workable plan and also identify the deployment of multiple channels” (Mechanisms to Spread Innovation Culture, 2016, p.1).

By focusing on internal and external stakeholders to generate innovative ideas, the MoI shows their acknowledgement of the fact that effective innovation requires an organisation to rely on both internal and external sources of knowledge. Consistent with this, prior research has underscored that, in order to achieve high levels of innovation, an organisation should not only rely on internal competencies (O’Connell, 2016). External sources of knowledge are equally important in that they provide a wide range of unique know-how and capabilities that may not be found inside the organisation (West and Bogers, 2014). At the MoI, such realisation is evident from the creation of external linkages for knowledge acquisition and sharing. It also means that the MoI makes use of an open model of innovation. The additional perspectives provided by the external stakeholders help in the enrichment of the company’s own knowledge, which is developed internally (Knudsen & Mortensen, 2011).

4.9.2 Drivers of innovation at the MoI

Various factors influence an organisation’s incentives and ability to innovate. At the MoI, it can be noted that both internal and external factors have had an influence on innovative initiatives such as the development of an innovation centre, the MoI Excellence Award System, industrial property department and knowledge centre. From an internal perspective, one of the incentives to innovation has been the need to increase efficiency and productivity with the various ministries in the UAE. For example, one of the purposes of the Innovation Centre has been described as *“work to develop and raise the efficiency and effectiveness of performance”* (Innovation Centre Purpose, 2016: p.3).

In addition, one of the responsibilities of the Head of Strategic Analysis at the MoI is:

“Disseminate the culture of internal and external analysis and encourage employees to participate to ensure continuous development and improvement in coordination with concerned authorities” (Strategic Analysis, 2016, p.1).

From an external perspective, one of the main drivers of innovation at the MoI pertains to the need to be competitive at the global level in all key aspects such as use of renewable energy, transportation, education and health. Innovation is, for instance, seen as an effective way of ensuring the economy operates through the use of clean technology. In the transport sector, it is anticipated that innovation will help increase competitiveness by making logistics procedures more effective. Furthermore, one of the roles of the head of strategic analysis at the MoI has been described as:

“Identify, understand and anticipate developments in the ministry’s external environment and its impact in the ministry and on all concerned and how to benefit from them; (2) collecting, analysing and understanding external phenomena (PESTLE) and knowing the circumstances surrounding the ministry (Strategic Analysis: Job Description, 2016, p. 2)

In order to achieve competitiveness at the global level through innovations, the MoI benchmarks its strategic initiatives to practices in other leading countries. For example, the MoI compares its success in reducing crimes based on statistics from other countries such as Singapore and Australia in aspects such as crime rates (as seen in Figure 4.4).

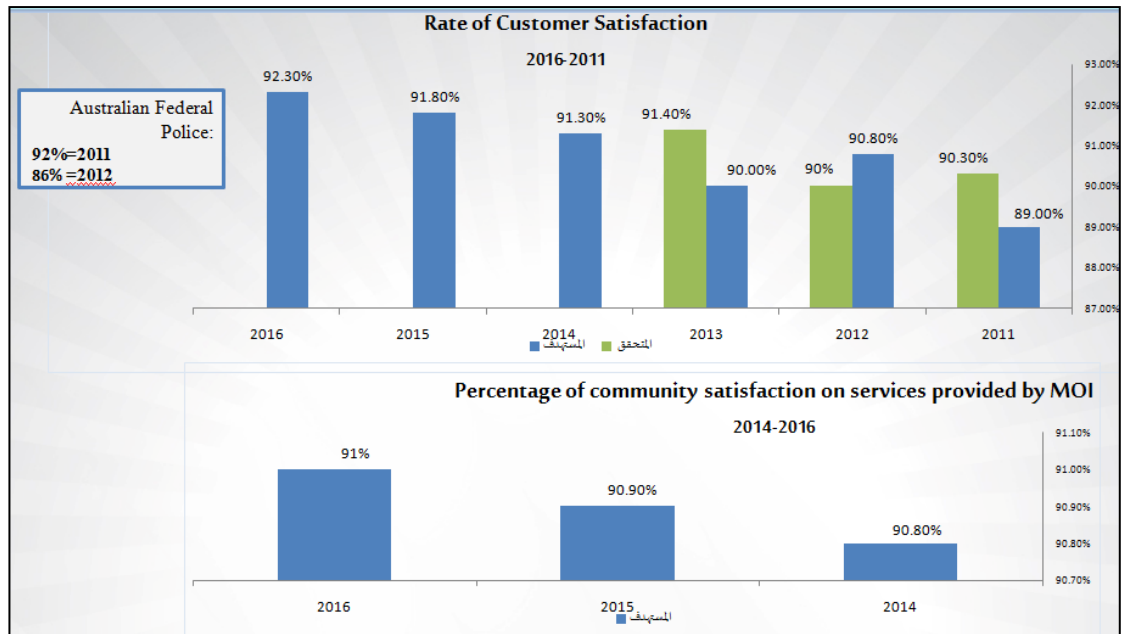


Figure 4.4 The MoI benchmarks to assess accomplishments of strategic goals

Source: MoI Strategy 2014-2016

Consistent with the MoI's efforts to increase efficiency and productivity through innovation, past studies have shown that innovation can perform a critical role in steering organisational growth and improve ways of handling internal operations (Partanen, Chetty and Rajala, 2014). In addition, failure to take into consideration forces in the external environment is considered as a major cause of strategic drift within organisations (Sammut-Bonnici, 2015).

4.10. Summary

This Chapter provides a brief overview of the UAE and briefly addresses the contents of a selection of documents from the Ministry of Interior (MoI), which is the main focus of the study. It highlights where the MoI stands in terms of engagement in novel attitudes and procedures and its potential for further innovation. The chapter also helps understanding the current practices of supporting knowledge sharing in the MoI. Further investigation of the MoI innovation process and the impact of various transformational leadership styles and knowledge sharing is conducted in this study and presented in Chapter Six. The following chapter discusses the methodology and methods employed in the study in order to achieve the research aim and objectives.

Chapter 5: Methodology and Research Methods

5.1. Introduction

This chapter describes the choice of research philosophy, methodologies and methods employed in this study, and explains the research design and instruments adopted to collect data so as to answer the study questions. Also, it presents the research paradigm and research approach including the processes that were undertaken to maintain the ethical considerations while ensuring validity, reliability and replicability. It gives details about the quantitative method used in this study and the reasons for selecting it. Specifically, it describes the questionnaire used as primary data collection method, and the issues concerning sampling procedures. Finally, data analysis procedures and ethical consideration are discussed.

5.2 Research Philosophy

According to Saunders et al. (2012), a philosophy means the use of argument and reason in seeking truth and knowledge, and is a framework that guides us regarding how scientific research should be conducted. Smith et al. (2008) noted that the study of philosophical issues has several advantages: it can help the researchers to clarify research designs; it guides researchers in identifying and creating designs that may be outside their previous experience, and it helps them to recognise which designs will work and which will not. Moreover, Saunders et al. (2009) argue that researchers in social sciences must start their research design by acknowledging the theoretical and philosophical assumptions underpinning their investigations.

Research philosophy is connected with the way a researcher thinks about the development of knowledge. This section is concerned with the philosophical stance of the researcher, in which the method to be adopted for the research is decided. The following sub-sections focus on the available research paradigms, Ontology, Epistemology and the philosophical stance of the research.

5.2.1 Ontology and Epistemology

All research is instructed and managed by fundamental opinions and suppositions (Guba, and Lincoln 2005; Mertens 2007; Orlikowski, and Baroudi 1991). According to Kassahun (2012), these sets of opinions are associated with the nature of reality (ontology); the discerned association with the object being studied, which is considered real (epistemology); and the process and means of understanding something real (methodology).

It has been stated by Kaufmann and Clément, (2015) that in the social sciences, ontology refers to those primary principles that individuals hold about the nature of the issue in question. They consider ontology as relating to the belief of the researcher about whether social behaviour can be predicted to operate in a similar way to behaviour in the natural world, and argue that this stems from whether they believe society is something that is living or not. That is to say, whether individual behaviour is personally-determined, or whether it is shaped by social structure. Therefore, as noted by Vlăduțescu, (2014), whichever belief the researcher holds will underpin the approach s/he adopts when making a study of the social world.

The term ‘epistemology’ is viewed by MacKay (2014) as the type and level of proof required for something to be accepted as true. A high level of evidence is necessary if this is to occur, with proof possibly relating to logic, trust, personal experience, empirical evidence, and faith. Steup et al. (2013) indicate that epistemology refers to the area of philosophy that uncovers the answer to the question ‘What does it mean to know?’ or ‘How does a researcher acquire the sought after knowledge?’ According to Powell (2003), there are four types of knowledge source. Tashakkori and Creswell (2007) state that, within an epistemological argument, intuitive knowledge is founded more on the feelings of the individual, such as faith and belief, rather than on facts. A second type of knowledge is authoritative knowledge, the strengths or weaknesses of which depend on the quality of its sources. A third type, logical knowledge, is founded on the idea that new knowledge is constituted from a connection between two points; as Pickens (2008) highlights, reasoning from point A can be generally accepted as progressing to point B. Fiegen (2010) presents a fourth type, empirical knowledge, which has its basis in the demonstration of facts

by different methods, such as experimentation and observation. Methodology for sociological endeavours is concerned with the methods by which reasonable knowledge of the social world is acquired through the defining of valid and reliable knowledge that is consistent, replicable, and representative of the sample of the population within the quantitative, positivist world (Pencina et al., 2014). Fiegen (2010) points out that validity relates to the extent of measurement and its degree of accuracy, in other words, whether the measurement tool actually does measure what it is supposed to measure. So, for a sociological methodology to be reasonable, it has to be both valid and reliable.

Generally, the epistemology is established by the ontology and, in its turn, the sociological methodology is determined by the epistemology; the research methods or methods for collecting data are then determined by the sociological methodology. So, as Ritchie et al. (2013) state, different concepts of sociology are often in relationship to each other in ways that offer different ideas of how social science can be studied. In summary, it is found that two basic philosophical pillars, ontology and epistemology, have been central in philosophical debates over many years (Guba and Lincoln, 1994; Easterby-Smith et al., 2012; Saunders et al., 2012). These two philosophical principals provide the bases for the researcher's beliefs and assumptions, and determine what research paradigm will guide the research.

5.2.2 Philosophical Paradigms

A research paradigm can be defined as the framework that provides guidance on conducting a research study based on how people perceive the reality and their assumptions about the nature of knowledge (Collins and Hussey, 2009). Researchers distinguish between two philosophical assumptions in designing research: positivism and interpretivism. The advocates of positivism believe that reality is independent of the research, and the goal is the discovery of theories based on empirical research such as observation and experiment (Saunders et al., 2012). In contrast, interpretivism philosophy assume that access to reality can only be achieved through social construction (Creswell, 2009, Berg, 2009). Collis and Hussey (2009) distinguish these two philosophies in terms of theoretical differences and explain that

the ontological assumption refers to the nature of reality. They describe the following elements:

1. The positivism philosophy is cardinal in nature as it is objective, singular, and independent of the researcher. The interpretivism philosophy, in contrast, is ordinal and believes reality to be subjective and multiple.
2. Positivism theorists assume that the researcher is independent of the topic being researched and generally create new theories. The interpretivism school of thought believe that the researcher interacts with what is being researched and refers to the validity of the knowledge.
3. The advocates of positivism philosophy consider research is value-free and unbiased. In contrast, interpretivism assumes that the researcher acknowledges the value of the research in the presence of biases.
4. Positivism theorists look research in terms of quantitative approach that defines causal relationships in the questions or hypotheses and is written in a formal style using the passive voice. Interpretivism hinges on the qualitative approach and is written in an informal style using the personal voice.
5. The general static design of deductive processes of positivism is based on cause and effect leading to prediction, explanation and understanding results which are tested for accuracy and reliability. Generally, the research following this approach use large samples. On the other hand, interpretivism studies are based on inductive processes and theories are developed to provide understanding where reliability is achieved through verification. In interpretivism studies, factors are shaped along with the emerging design; the context is bound where researcher depends on a small sample and uses a number of methods to obtain different perceptions of the phenomena.
6. Smith et al., 2008 describe positivism paradigm as covering wide observation to make it easy for researchers to give justifications of policies. However, the paradigm is inflexible and artificial, unsuitable for process generation, and does not provide clear implications for action. On the other hand, though interpretivism paradigm have the advantages of flexibility and ease of theory generation, yet the interpretations are difficult and results may not have credibility with policy makers (Bryman, 2008).

Table 5.1 Comparison between positivist and interpretivist

	Positivist	Interpretivist
The output	Quantitative data	Qualitative data
The sample	Large	small
Approach	Hypotheses and deductions	Theory generation
The researcher	Objective	Subjective
Reliability	High	Low
Validity	Low	High
Generalisability	From sample to the population	From one setting to another

Adapted from Guba and Lincoln (1994), Collis and Hussey (2009), Creswell (2014), Easterby-Smith et al. (2012), and Saunders et al (2012).

Table 5.2 Continuation Comparison between positivist and interpretivist

Orientation	Positivist	Interpretivist
Ontology	- Single reality exists and is driven by natural laws.	- Multiple realities are constructed by humans through their actions and interactions.
Epistemology	- The researcher is independent and objective. - Verification of hypotheses through scientific testing.	- The researcher is part of the real world being researched. - Understanding the world from the social actors' perspective. - The researcher's values and beliefs affect his/her investigation.
Methodology	- Hypothetical-deductive; moving from theory to data. - Hypothesis testing. - Establish causal relationships. - Measure quantitative data.	- Inductive, moving from data to theory. - Generating new theories. - Collect qualitative data about why and how things are happening.
Methods	- Questionnaires, Interviews, Observations, Documentation.	- Interviews, Focus groups, Observation, Case study, and Archival interaction.

Adapted from Collis and Hussey (2009), Creswell (2014), Easterby-Smith et al. (2012), and Saunders et al (2012).

The above tables 5.1 and 5.2 outline the main features and differences between the two paradigms. Clearly, these two paradigms present different perspectives and methodological choices, and it is the questions being asked which determine the suitability of the paradigm chosen (Ryan, 2006; Creswell, 2014).

The choice between positivism and interpretivism is not to be based on which approach is considered superior in the literature debate. According to Orlikowski and Baroudi (1991), a researcher must understand the implications of his or her research and use methods that reflect that knowledge, because all research philosophies can offer insights to the phenomenon of interest. Creswell (2014) also indicates that the research design for any study is determined largely, by the nature of the problem being explored, the researcher's resources and personal experience, and the people involved in the study. In line with the advice from Orlikowski and Baroudi (1991) and Creswell (2014), the research questions and objectives of this study are the driving force behind the choice of the philosophical paradigm.

With this in mind, this thesis was informed by positivist ontological for numerous reasons. Firstly, main purpose of the research is to develop a research framework including examinable hypotheses to test the direct and indirect influence of transformational leadership behaviour on innovation process, together with the mediating role of knowledge sharing, in the context of police force in the UAE. Therefore, this thesis follows a deductive method of reasoning to validate the hypotheses; this is a fundamental characteristic of the positivist paradigm.

Secondly, the positivist believes that a social phenomenon is measurable, thus, it is linked with quantitative methods of analysis based on the statistical analysis of quantitative research data (Collis and Hussey, 2014). This study used a questionnaire to quantify the constructs, and used statistical techniques to evaluate the hypotheses concerning the research variables. Confirmation of the reliability and validity of the model at measurement and structural levels was undertaken by using SEM methods and tools. The researcher's function is to explain the outcomes of an analysis against prior assumptions, with minor interference to the collected data. These features of the study are in line with both the ontological and epistemological elements of the positivist paradigm.

Thirdly, according to Creswell (2009), the positivist paradigm is applicable when the researcher and the reality are not connected; and the findings should be replicable without regard to who conducts the study.

A way of designing such a paradigm was pursued to develop the survey instrument, and the confirmation procedure was designed to establish measurement reliability and validity. Finally, the researcher had prior experience with quantitative methods, particularly structural equation modelling, which align with the positivist paradigm.

5.3 Research approach

There are two main approaches that can be taken to research: deduction and induction (Saunders et al., 2012). However, several scholars refer to the two approaches as quantitative and qualitative research approaches (Denzin and Lincoln, 1994; Collins and Hussey, 2009; Creswell, 2014).

The inductive approach allows the research findings to emerge from significant themes inherent in qualitative raw data and uses several methods to collect these data. Researchers deal with a small sample of subjects and theory is developed as a result of the data analysis. Hence, this approach is exploratory, unlike the explanatory nature of deductive research. It works well under the interpretivist paradigm (Creswell, 2009). Collins and Hussey (2009) indicate that inductive reasoning enables the researcher to provide explanations about a certain phenomenon by developing a general proposition (theory) based on observable facts; therefore, this approach is considered as proceeding from what is particular to what is general. The inductive approach is suitable where the topic is relatively new and there is no clear theory governing it, it is more appropriate to follow inductive reasoning in order to develop more understanding of the topic and arrive at new theory by collecting and analysing more contextual data.

On the other hand, the deductive approach is considered as the rational process of reaching an assumption from something that is previously known to be true. Deductive research tends to explain the causal relationships between variables by using quantitative data (Berg, 2012). Similarly, Collis and Hussey (2014) explained that quantitative research incorporates a deductive approach whereby the theory guides the research. In a deductive approach, the researcher starts with the theory leading to research hypothesis (Bryman and Bell, 2007).

According to this approach, a set of hypotheses are developed and then tested through data collection and analysis with the view of accepting or rejecting the given hypotheses. Thus, deductive research is referred to as moving from the broad to the narrow (Collins and Hussey, 2009). Moreover, quantitative data is normally obtained for testing objective theories by examining the relationship among variables (Creswell, 2009). In other words, the deductive approach relies mainly on measuring and analysing numerical data in order to find the nature of relationships among various sets of data (Eldabi et al., 2002).

Saunders et al. (2012) assert that the deductive research approach is considered important for three reasons; firstly, it involves the analysis of causal relationships among the research variables; secondly, through operationalising the research concepts, it offers better understanding of the research problems by reducing them into simple elements; and finally, if its findings are based on a sufficient and representative sample, they are generalizable to the whole research population.

Researchers have claimed that the behaviour of people can be measured objectively (Hussey & Hussey 1997), and this thesis aims to examine the extent to which components of transformational leadership behaviour is connected to innovation process. It also aims to evaluate the mediating role of knowledge sharing to improve the innovation. Main research purpose is to examine the relationships between defined constructs, using a survey questionnaire, an effective and suitable tool for quantitative research because it enables the gathering of a large amount of data to determine the factors that may or may not influence the innovation process in the MoI. The quantitative approach was chosen to answer the following research questions, which were presented in Chapter 1 on page 8:

1. What are the effects of the four main components of transformational leadership on innovation process in the MoI?
2. What are the effects of the four main components of transformational leadership on knowledge sharing in the MoI?
3. What are the effects of knowledge sharing on innovation process in the MoI?
4. How is the innovation process within the MoI influenced by demographic variables?

5.4 Research Methods for Data Collection

Creswell and Clark (2011) asserted that there are three methods that can be used by researchers in conducting their research: quantitative, qualitative, and mixed methods. Quantitative research seeks to test theories by examining the causal relationships among variables (Bryman, 2012, Saunders et al., 2012). The main characteristics of this approach are as follows: the deductive approach that is attached to the positivism paradigm, it is confirmative, it uses theory/hypothesis testing, it is explorative, and predictive, and it uses data collection techniques such as questionnaires and statistical analysis (Creswell and Clark, 2011). The choice of data collection methods is influenced by four issues, these being: researcher's skills, ensuring credibility, time and cost constraints (Frechtling and Sharp, 1997). As mentioned above, main purpose of the study is to establish relationship among variables related to transformational leadership, knowledge sharing and innovation process. Punch (2005) argues that quantitative research allows the researcher to establish relationships amongst variables. In line with the advice from Punch (2005), the researcher used the quantitative approach using a Questionnaire-Based Survey. In addition, the researcher's knowledge and expertise related to quantitative analysis encouraged to use the quantitative data (questionnaire).

The survey is probably the most commonly used research design in organisational research and the social sciences (Mathers et al., 2009). Surveys are commonly used because they allow researchers to collect a considerable amount of data by investigating a large number of subjects in a highly effective manner, thereby facilitating the generalisability of research findings to the whole research population (Sekaran, 2003; Saunders et al., 2012).

Moreover, in order to offer generalisations, it was necessary to conduct a survey to determine if the generalisations about the constructs related to transformational leadership, knowledge sharing and innovation can indeed be accepted.

Hence, in this study, quantitative data from at least 350 participants were the target on the basis that this number would provide the researcher with sufficient data to be able to generalise the research findings to the whole research population (see sample size calculations on page 139). Thus, the researcher chose to utilise a survey questionnaire to collect the needed quantitative data for the current study.

5.4.1 Questionnaire design and instruments

Measurement is one of the most fundamental parts of research. Saunders et al. (2012) reported that there are two types of questions: open and closed. Open questions, sometimes called open-ended questions, are useful when a researcher is seeking more detailed answers that may require the writing of words or numbers. Although, this type of questions allows respondents to give their answers in their own way, it can become off-putting if the researcher leaves too much space. On the other hand, closed questions or closed-ended questions provide a number of alternative answers from which the respondents is instructed to choose. The answers can be a range represented by three, five, seven, or more answers ranging from positive to negative, or a yes/no choice. This type of question is easier and quicker for the respondent to answer.

The survey questionnaire was designed to be easy and quick for participants to complete. The layout of the questionnaire encompasses four parts besides the introduction. Bryman (2008) indicated that an introductory paragraph giving information about the research and assuring confidentiality is an important aspect in encouraging participants to complete a questionnaire. In this regard, this study used a cover page, which explained the purpose of the study, and contacts of the researcher, supervisor, and the institution which the researcher belong to in case the participants should have any further inquiries.

The questionnaire asked MoI staff to rate their leaders with statements regarding Transformational leadership, Innovation process, and Knowledge sharing using a five-point Likert scale ranging from 5= strongly disagree to 1= strongly agree. This scale approximates an interval scale that is commonly used to assess psychometric attributes in social research (Saunders et al., 2009).

The measurements for the independent variables (TL) and the dependent variable (INN), and (KS) which also might act as a mediating variable were developed from previous studies.

For the independent variable (transformational leadership), 21 items were adopted from (Bass and Avolio, 2000; Avolio and Bass, 2002) to measure the four components of the transformational leadership: Idealised Influence, Inspirational motivation, Intellectual stimulation, and Individualised consideration (see table 5.3). In addition, for measuring the dependent variable innovation process, 9 items were adopted from the following sources (such as Anderson, and West, 1998; Perri 6, 1993; OECD, 2005; Skerlavaja et al., 2010; McGrath, 2001; Ibarra, 1993; Scott, and Bruce, 1994; and Daft, 1978) The measurement of innovation was developed from these previous studies and modified to be suitable for the UAE MoI context (see table 5.4). Finally, 16 items were used to measure the knowledge sharing. These items in table 5.5 were borrowed from (Hooff et al., 2003, Hooff and Weenen 2004, Hooff and Ridder, 2004, De Vries et al., 2006, Bock et al., 2005) and modified in according to the needs of the research context. The reason for choosing these measurement tool is that it has been widely used before and because they were under empirical testing from previous researchers. Moreover, the items have high internal consistency and (reliability) and validity.

Table 5.3 Transformational leadership items

Key factors/Items		Reference/Researcher
Idealized Influence		(Bass and Avolio, 2000, Avolio and Bass, 2002); (Bass and Riggio 2006);
1	Acts in ways that build my respect	
2	Instils pride in being associated with him/ her	
3	Talks about his/ her important values and beliefs	
4	Goes beyond self-interest for the good of the group	
5	Considers the moral and ethical consequences of decisions	
6	Emphasizes the importance of having a collective sense of mission	
7	Displays a sense of power and confidence	
Inspirational Motivation		(Kotter & Cohen 2002; Senge 2003); (McCull-Kennedy and Anderson (2002)
8	Talks optimistically about the future	
9	Talks enthusiastically about what needs to be accomplished	
10	Articulates a compelling vision of the future	
11	Expresses confidence that goals will be achieved	
12	Develops a team attitude and spirit among members of staff	
Intellectual Stimulation		(Birasnav et al., 2011; Yukl, 1998)
13	Re-examine critical assumptions to question whether they are appropriate	
14	Gets me to look at problems from many different angles	
15	Suggests new ways of looking at how to complete assignments	
16	Seeks different perspectives when solving problems	
17	Encourages me to rethink ideas that have never been questioned before	
Individualised Consideration		
18	Spends time teaching and coaching	
19	Treats me as an individual rather than just as a member of a group	
20	Considers me as having different needs, abilities and aspirations to others	
21	Helps me to develop my strengths	

Table 5.4 Innovation process items

Innovation item	Reference
Our organisation encourages teamwork and relationships between staff members	(Anderson, and West, 1998; Damanpour, 1991; Perri 6, 1993)
My department implements an incentive system (i.e. higher salaries, bonuses, --) to staff to encourage them to come up with innovative ideas	(Scott, and Bruce, 1994, Skerlavaja et al., 2010, Jaskyte, 2011)
Our organisation is trying to bring in new equipment (i.e. computers) to facilitate the performance and work procedures	(McGrath, 2001, Ibarra, 1993)
New multimedia software is implemented by this organisation for performance improvement purposes and administrative operations	(Daft, 1978; Morris, 2008)
Our organisation often uses new technologies to improve its services	(Dodgson, and Hinze, 2000; Skerlavaja et al., 2010)
My department often develops new technologies (internet, databases, --) to improve the working process	(Daft, 1978; Morris, 2008)
My department develops new training programs for staff members.	(OECD, 2005; Skerlavaja et al., 2010; Carayannis, and Provance, 2008)
Our organisation is trying to bring in new equipment (i.e. computers) to facilitate learning operations and work procedures	(McGrath, 2001, Ibarra, 1993)
This organization publicly recognizes those who are innovative	(Scott, and Bruce, 1994)

Table 5.5 Knowledge sharing items

Key factors/Items		Reference/Researcher
Knowledge Donating		
1	Knowledge sharing with colleagues is considered normal outside of my department	(Hooff et al., 2003, Hooff and Weenen 2004, Hooff and Ridder, 2004, De Vries et al., 2006)
2	Knowledge sharing among colleagues is considered normal in my department	
3	When I have learned something new, I tell colleagues outside of my department about it	
4	When they have learned something new, my colleagues within my department tell me about it	
5	When I have learned something new regarding teaching profession, I tell my colleagues in my department about it	
6	When they have learned something new, colleagues outside of my department tell me about it	
7	I intend to share my knowledge with more departmental members	(Bock et al.,2005)
8	I intend to share my knowledge with other department members more frequently in the future	
Knowledge collecting		
9	I share information I have with colleagues within my department when they ask for it	(Hooff et al., 2003, Hooff and Weenen 2004, Hooff and Ridder, 2004, De Vries et al., 2006)
10	Colleagues in my department share information about profession with me	
11	Colleagues within my department share knowledge with me, when I ask them about it	
12	Colleagues within my department tell me what their skills are, when I ask them about it	
13	I share my skills with colleagues outside of my department, when they ask me to	
14	I share my skills with colleagues within my department, when they ask for it.	
15	My practice is relation to knowledge sharing is appropriate and effective	(Bock et al.,2005)
16	My knowledge sharing with other department members is an enjoyable experience	

5.4.2 Pilot Testing

Conducting a pilot test is advantageous as instrument weaknesses can be identified before the administration of the instrument to the actual population intended. Validity and likely reliability can also be assessed through a pre-survey pilot study, which Saunders *et al.*, (2007:606) define as:

“a small-scale study to test a questionnaire or interview checklist or observation schedule, to minimise the likelihood of respondents having problems in answering the questions and of data recording problems as well as to allow some assessment of questions’ validity and the reliability of the data that will be collected”.

According to Yin (2009:79): *“the pilot case study helps investigators to refine their data collection plans with respect to both the content of the data and the procedures to be followed”.* According to Herbert *et al.*, (2015), the pilot study functions to ensure the instrument is capable of collecting the data required to answer the research questions, and this implies testing the usefulness and efficiency of the questions formulated, and the administrative procedures. A pilot sample ought to understand the questions and be representative of the participants who are eventually chosen (Sekaran, 2003). In this study, the researcher followed the advice of Cooper and Schindler (2008) and conducted the pilot himself as a means of checking and refining the research methods. A focus group of PhD students in Management from Brunel University, and who had Arabic as their mother tongue was undertaken. As they had sufficient knowledge of the business environment and leadership styles in the UAE, they were able to comment on the effectiveness and appropriateness of the instrument.

Once finalised, the questionnaire was piloted with different, randomly selected departments in the MoI, the researcher distributing questionnaires to the General Directorate for Finance and Services, General Directorate for Human Resource, General Directorate for Guards and Establishments Pro, General Directorate Policing Operations, General Directorate for Central Operations and General Directorate for Security Affairs and Ports. Participants were asked the suitability and simplicity of the questions.

Only slight clarification of the terminology used was needed. Most participants took between fifteen and twenty-five minutes to complete the questionnaire. The researcher gained a preliminary understanding of the subject through the pilot testing.

According to Saunders et al. (2009), it is vital to test the questionnaire before implementing full scale data collection. The main purpose of the pilot study is to make sure that respondents do not face any difficulties in answering questions and obtain early indications of reliability for the instruments to be used. Pilot testing the questionnaire helps in confirming that the research instrument's validity and reliability are at an acceptable level, which in turn promises that this instrument will work well in the full scale data collection phase (Saunders et al., 2009; Bryman and Bell, 2011). The following section explains how the researcher ensured the validity and reliability of the questionnaire.

5.4.3 Validity and Reliability of the Questionnaire

It is important that consideration is given to the reliability and validity of the survey instruments. Generally, survey instrument validation demonstrates that accumulated information obtains evidence of appropriate inferences in relation to the population based on the statistical analysis used (Creswell, 2009). The validity of the survey tool can be assessed by the researcher checking its content, construct, and criteria. Assessment can be undertaken by referring to existing literature in regard to the validation of the instrument or through face validity with instrument validity determined by an appropriate expert panel (Creswell, 2005). Reliability has the basis of identifying the consistency of the assessment score results. Reliability can easily be shown by re-testing a participant group to check for changes in answers (test-retest criteria). Participants can be assumed to have the same scores if the test is reliable. So, for the reliability test, first test scores ought to have a high correlation with each other (closer to 1). Also, internal consistency measurements such as Cronbach's alpha, can be used to show instrument reliability. The instrument can be considered reliable if the Cronbach's alpha score above the recommended level of 0.7 as suggested by (Nunnally, 1978; Sekaran, 2003; Field, 2009; Hair et al., 2010).

Generally, reliability and validity should be easily demonstrated if the instrument has been used before for data collection, with references available that establish content, construct, face validity, and reliability. It is preferable to use an instrument with proven validity and reliability (Creswell, 2009).

To ensure the current research instrument's validity and reliability, the following steps were taken:

1. The development of the research instrument was based on the related literature review and previously validated questionnaires (see tables 5.3-5.5 page 144).
2. A panel of three experienced individuals (two research experts from Brunel University and one senior MoI official from the UAE) reviewed the questionnaire. Suggestions and recommendations provided by the experts were used to improve the quality and minimise the ambiguousness.
3. A back-translation method was employed in order to translate the questionnaire into Arabic without any significant variations from the original English version. Professional translators were hired for this job.
4. A pilot study was conducted to find possible difficulties and problems respondents might face while answering the questions. Comments about clarity of wording, question order, instruction and time were taken into consideration in preparation of the final version of the questionnaire.
5. In order to assess the internal consistency of the measured items in the questionnaire (all scale measures), a Cronbach's alpha test was carried out by running the data using IBM SPSS version 23. Table 5.6 below shows the summary of these results.

Table 5.6 Cronbach's alpha (α) for questionnaire instrument

Constructs	No. of Items	Cronbach Alpha	Comments
INN	8	0.777	(Acceptable > 0.7)
KC	8	0.898	(Acceptable > 0.7)
KD	8	0.867	(Acceptable > 0.7)
IF	7	0.792	(Acceptable > 0.7)
IS	5	0.803	(Acceptable > 0.7)
IC	4	0.864	(Acceptable > 0.7)
IM	5	0.743	(Acceptable > 0.7)

5.5 Sampling Strategies

The concept of sampling is referred to as taking a portion of the population, creating observations on this chosen smaller group and then generalising the findings to the large population (Burns, 2000). A sample is defined as any part of the population regardless of whether it is representative or not. Population is defined as the full set of cases from which a sample is taken (Saunders et al., 2012). The rationale for using samples is summarised in the following points (Sekaran, 2003; Zikmund, 2010; Blumberg et al., 2011; Saunders et al., 2012):

- 1- Economic efficiency: studying a smaller group of people, organisations, events, or things is more suitable for any research budget since less financial resources are required than if every member of a population were easy to approach.
- 2- Time and effort savings: when a researcher wishes to collect data with limited time and human resources, collecting data from a sample is the most appropriate technique.
- 3- Accuracy and reliability of results: the probability of obtaining more accurate and reliable data from sample subjects is reported to be more than when trying to cover the entire population.

The probability sampling means that each case in the population has the chance to be selected or the probability of each case is usually equal. The type of probability sample includes simple, systematic, stratified, and cluster sampling (Saunders et al., 2012). On the other hand, non-probability sampling means that the probability of each case being selected from the total population is not known (Saunders et al., 2012). The types of Non-probability include the convenience sampling, quota sample and snowball sample (Bryman and Bell, 2011).

The current study is considered as a nationwide survey as its population is defined by all public employees working in the ministry of Interior. Therefore, it is clear that the assessment of all members of the research population is impossible, especially given the limited availability of finance, time, and effort to the researcher. Consequently, the study uses a sample. To improve external validity, probability sampling was used. According to Tashakkori and Teddlie (2010), external validity relates to the generalisability of findings from a quantitative study of population, research settings, and time horizon and so on. Patton (2002) noted that the aim of probability sampling is to choose a large number of cases that are representative of the population under study, which leads to breadth of information. As mentioned above, all public employees working for the MoI were the target population of the study; therefore, the sampling strategy for this thesis involved simple random sampling, which is the most widely, used probability sampling technique. The next section explains the sample size used for the study.

5.5.1 Sample Size

Before collecting and estimating the characteristics of a large population, it is necessary to determine an appropriate sample size. According to Saunders et al. (2012), decisions regarding the sampling method or minimum sample size are influenced mainly by the availability of resources, among which is the sampling frame. When statistics are applied to a sample, the researcher is estimating the value for the whole population. Thus, there will be some error and this error is dependent on the size of the sample (Saunders et al. (2012). They thus suggested that the larger is the sample size, the lower is the error.

This study used a population of approximately 3000 public employees who work for the ministry of interior.

Based on the Yamane's formula (Yamane, 1973; Israel, 1992; Glenn, 2003), the size of the current research sample was initially calculated to be 352.94 as illustrated below:

$$n = \frac{N}{1+N(e)^2}$$

where:

n = the required size of the sample.

N = the size of the population, and,

e = the level of precision or sampling error, normally e = 0.05

Nevertheless, other considerations were taken into the account. As this study, uses SEM to analyse the proposed conceptual model, hence it would require a larger sample. Sampling in SEM can be categorised as; 100 being poor, 200 being fair, 300 being good, 500 being very good (Comrey and Lee 1992, Tabachnick and Fidell, 2001). Based on this argument the sample size (228) of this study is good.

Tabachnick and Fidell (2013) suggest a sample size when using multivariate statistics that is greater than $50 + 8m$, where m is the number of predictor variables (up to 7 in this study, i.e., $50 + (7 \times 8) = 106$). More specifically, they state that "as a general rule of thumb, it is comforting to have at least 200 cases for factor analysis" (Tabachnick and Fidell, 2013, p. 588). Similarly, Hair et al. (2010) suggest that a sample of 100 to 400 observations is adequate for FA and SEM. Therefore, the sample size (n=228) of this research seems appropriate to represent the research population and undertake sophisticated statistical analysis.

5.6 Statistical Analysis Techniques Used for the Study

A major part of a research project is the preparation made for analysing the data, which depends upon whether the data are qualitative or quantitative (Collis and Hussey, 2003). In this current study, data collected from the questionnaires were used for performing quantitative data analysis. Following the collection of the responses, the next step was their coding. Once coding was completed, data were fed into the SPSS. The data (hard copies) were entered by the researcher with the process being completed within a month. Watling and Dietz (2007) consider there to be four essential steps for the successful analysis of results: (i) statistical tool availability; (ii) using conditions for each tool; (iii) acquiring the statistical result meaning; and (iv) knowledge of how to perform the statistical calculations. Both parametric and non-parametric statistical tests were considered. Field (2005) stated a number of conditions for the use of parametric tests as follows:

- Data should be obtained from one or more populations that are normally distributed.
- The same variance should be apparent throughout the data, meaning that there should be stability in the variance of a variable at all other levels as well.
- There should be interval level measurement of the data i.e. equal distance between the attitude scale points.
- The data of the different participants ought to be kept independent from each other, so that one response does not influence another.

Although parametric statistical tests require normally distributed data, it is suggested by the Central Limit theorem that in the case of large samples, even when raw scores are not normal, the sampling distributions are normal (Tabachnick and Fidell, 2007). Therefore, parametric tests were used for this study and, consequently, analytical and descriptive methods of statistical analysis were used, with the former being given priority. A more detailed description of data analysis procedures used in the study are explained in chapter 6.

5.7 Ethical Consideration

Ethics refer to the moral values and principles that form the basis of a code of conduct and research ethics refers to the manner in which the research is conducted and how the results are reported (Collis and Hussey, 2014). According to Zikmund (2010), and Saunders et al. (2012), it is important to pay attention to ethical issues in all research since this establishes trust between researchers and research participants, and enhances the overall reliability and credibility of the findings. Hence, this study has considered all ethical requirements through all phases of the research. The participants were informed about the aim and importance of the study and why their participation is required for the research. The participants were also assured that participation is voluntary and can withdraw at any stage of survey completion. Additionally, the participants were assured their confidentiality and anonymity is protected. Prior to the data collection (Questionnaire distribution), the research design application was prepared and submitted to the university for approval by the University Ethics Committee in June 2015. The research was conducted according to the prescribed guidelines, including observing confidentiality of information observed and accessed during the conduction of the research. The consent form and letter of information for research participants can be found in Appendix 5A, page 384.

5.8 Summary

This chapter has provided details of the methodology adopted in order to achieve the objectives of the study. The first section covered the philosophical approach and background which highlights the theoretical issues followed by justification of selecting the approach by the researcher to investigate the research problem. The second section was related to the methods available, and selected to enable the researcher to collect the quantitative data. Details of the statistical analysis of the internal reliability have been included along with the need for reliability, validity and replicability. Finally, the ethical considerations used to gather the data in the research process have been highlighted, and through the implementation of the entire methodology as presented in this chapter, it is envisaged that the researcher will be able to understand the impact of leadership styles on employee KS and innovation at MoI. The next chapter presents the findings and data analysis of the study.

Chapter 6: Results

6.1 Introduction

The previous chapter provided the details about the research methodology and a significant portion was dedicated to methods used in the study. Since the study adopted quantitative methods in which a survey questionnaire was applied to obtain the data, this chapter presents results relating to the questionnaire that forms the basis of the investigation. Various statistical techniques based on the Statistical Package for Social Sciences (SPSS 23) and structural equation modelling (SEM) based on AMOS 23 software are used to analyse the quantitative data. This chapter comprises three main sections. The first section reports the results of the descriptive data analysis which include discussing demographic profiles of the respondents, and a preliminary reliability check of the questionnaire's main constructs is made. The second section considers the data reduction / factor extraction achieved through EFA, reports the findings of CFA and lastly the third section discusses the procedures relating to the measurement model validation and the structural model, and the relationships among the proposed model variables.

6.2 Preliminary Data Consideration

As mentioned above (see section 5.4 on page), the primary data for the study was gathered through large scale survey. Questionnaires were circulated among public employees of the UAE MoI via post, electronically and in person. Of 350 distributed questionnaires, 240 questionnaires were returned and considered valid for subsequent quantitative analysis. Table 6.6 on page 152 details the response rates for all participants from various backgrounds included in the study, which represent the whole research sample. Although 240 questionnaires were returned, 12 of these were unusable for the following reasons: respondents had put the same answers on all the Likert scale items (04 cases), missing demographic data (2 cases), and too many missing responses (6 cases). Accordingly, only 228 questionnaires were considered valid for further data analysis, thereby giving a high response rate of 65.14% of the original sample size.

As the current research employed several sophisticated multivariate statistical techniques such as Exploratory Factor Analysis (EFA), Multiple Regression and Structural Equation Modelling (SEM), the researcher ensured that the sample size was appropriate. Tabachnick and Fidell (2013) suggest a sample size when using multivariate statistics that is greater than $50 + 8m$, where m is the number of predictor variables (up to 6 in this study, i.e., $50 + (7 \times 8) = 106$). In addition, Hair et al. (2010) suggest that a sample of 100 to 400 observations is adequate for EFA and SEM. Therefore, the sample size ($n=228$) of this research seems appropriate to represent the research population and undertake sophisticated statistical analysis.

As mentioned previously, this study is primarily based on statistical package for social sciences (SPSS) version 23 for Windows to assess the descriptive statistics and inferential analysis. Before entering the data into the SPSS spreadsheet, columns and rows were developed by coding of questions (items/variables). Therefore, any information about the case can be identified across the data editor. In the name column of SPSS, questionnaire items were coded with numbers along with an abbreviation of the variable. Similarly, in the label column question items were written in abbreviated format. The value section of the column was developed from '99', showing information not provided, and then '1' for 'Strongly Disagree' to '5' 'Strongly Agree' on a five-point Likert scale. Finally, data was screened and cleaned by descriptive statistics tests to gauge the responses to each question according to column section entry to confirm that the correct figures had been entered.

6.2.1 Data Screening

To ensure the accuracy of the statistical techniques used in the study, it was necessary to screen and clean the raw quantitative data collected. According to Hair et al. (2010), data screening and cleaning is considered an important concern when the intention is to use multivariate analysis. Whilst, it might be time-consuming and exhaustive, the decision not to follow this process can result in wrong model estimations and poor fit. Therefore, when the data were entered in the SPSS 23 spreadsheet, they were screened to ensure that there were no errors during data entry. This was done by identifying data located outside the range specified by using descriptive and frequency commands in SPSS (see table 6.7 on page155).

The results of descriptive analysis showed that the means and standard deviation for continuous variables were in the appropriate range, which indicates that the variable data were clean (Meyers et al., 2006). For the purposes of data cleaning, initially two types of analysis were applied. These are missing data and outliers. This study further confirmed the data by screening the normality, linearity and reliability before inferring results from the data.

6.2.2 Missing Data

Missing data refers to the valid values of variables which are not available for the analysis (Hair et al., 2010). Missing data have effects on data analysis, in terms of the results of analysis, sample size, generalisation, and bias when data are not random and the application of the remedies is inappropriate. Hence, to avoid missing data, an immediate approach was taken such as checking the answers of respondents at the time of survey collection to ensure respondents answered all questions. If there were any questions unanswered, the respondents were either asked at the end of the briefing session, met in person during the survey collection or asked by telephone for clarification. However, several parts of the questionnaire were still not answered by some respondents. Thus, data obtained from 6 cases were excluded due to several missing data per case. In line with the recommendations from Hair et al. (2010), questionnaires that had missing data were then no longer considered for further analysis, which related to less than 5% of the total responses (N=309), and Malhotra (1999) describes this procedure for removing missing data as case-wise deletion. Therefore, only completed questionnaires with no missing data were considered to be usable for further analysis.

6.2.3 Outliers

After treating the missing values, the next logical step was to consider outliers (univariate and multivariate), representing those cases with odd and/or extreme scores from other dataset observations. Errors in data entry, erroneous sampling techniques, missing values in calculation, and extreme responses on multi-point scales are among the many causes of outliers.

Univariate outliers were identified from the value of z-scores from the data set of the questionnaire. Tabachnick and Fidell (2007) suggest that if the value of z-score is more than ± 3.29 , the data is considered as univariate outliers, and will be eliminated for further analysis. They further suggest that extremeness of a standardized score depends on the size of the sample; with a very large N, a few standardized scores in excess of 3.29 are expected.

For the purposes of multivariate analysis, Mahalanobis distances (D^2) test was used across all sets of variables. In this test if D^2/df (degree of freedom) value exceeds 2.5 in small samples and 3 or 4 in large samples it can be nominated as a possible outlier (Hair, et al., 2006, p.75).

Based on the z-score and Mahalanobis distances test, only one item (INN 9) was identified as having multivariate outliers ($D^2 > \pm 2.5$) and no item was found to have univariate outliers (z-score $> \pm 3.29$). This one item was removed from further analysis.

6.2.4 Normality

In statistics, normality refers to the data distribution which is a fundamental assumption in measuring the variation of variables. Moreover, an assessment of the normality of data is a prerequisite for many statistical tests because normal data is an underlying assumption in parametric testing (Hair et al., 2010). For analysing the data, it is not always required but is found better if the variables are normally distributed (Tabachnick and Fidell, 2007).

Skewness and Kurtosis are two ways of considering data that will indicate the normality of a given dataset distribution (Doornik and Hansen, 2008; Thulin, 2014). Skewness demonstrates the symmetry of distribution, while kurtosis refers to how much the distribution is peaked or flat compared with the normal distribution (Hair et al., 2010). The outcomes of Skewness and Kurtosis are presented in following Tables 6.1, 6.2 and 6.3. Hair et al. (2010) suggest that any skewness and kurtosis values falling outside the range of -2 to +2 represent a potential normality problem. The results show the data generally presented as normal, with a significant value of data set.

Table 6.1 Normality assessment for Transformational Leadership

Construct(s)	Dimension(s)	Item(s)	Skewness	Kurtosis
Transformational Leadership	Idealised Influence	IF1	-0.003	-0.095
		IF2	0.001	-0.170
		IF3	-0.040	-0.108
		IF4	-0.019	-0.165
		IF5	-0.235	-0.898
		IF6	-0.581	-0.055
		IF7	-0.42	-0.377
	Inspirational Motivation	IM1	-0.529	-0.582
		IM2	-0.158	-0.699
		IM3	-0.175	-0.143
		IM4	-0.417	-0.532
		IM5	-0.518	-0.965
	Intellectual Stimulation	IS1	-0.504	-0.311
		IS2	-0.612	-0.158
		IS3	-0.539	0.347
		IS4	-0.653	-0.390
		IS5	-0.551	-0.191
	Individualised Consideration	IC1	-0.67	-0.035
		IC2	-0.780	0.841
IC3		-0.534	-0.702	
IC5		-0.683	-0.236	

Table 6.2 Normality assessment for Knowledge Sharing

Construct(s)	Dimension(s)	Item(s)	Skewness	Kurtosis
Knowledge Sharing	Knowledge Donating	KD1	-0.352	0.068
		KD2	-0.347	-0.510
		KD3	-0.402	-0.913
		KD4	-0.159	-0.889
		KD5	-0.363	-0.915
		KD6	-0.258	-0.765
		KD7	-0.266	-0.838
		KD8	-0.300	-0.614
	Knowledge Collecting	KC1	-0.302	-0.532
		KC2	-0.307	-0.945
		KC3	-0.232	-0.904
		KC4	-0.033	-0.843
		KC5	-0.262	-0.502
		KC6	-0.388	-0.905
		KC7	-0.267	-0.923
		KC8	-0.350	-0.808

Table 6.3 Normality assessment for Innovation Process

Construct(s)	Item(s)	Skewness	Kurtosis
Innovation Process	INN1	-0.617	0.653
	INN2	-0.789	1.750
	INN3	-0.500	0.395
	INN4	-0.854	1.579
	INN5	-0.408	-1.059
	INN6	-0.132	-1.111
	INN7	-0.351	-0.910
	INN8	-0.391	0.152

6.2.5 Reliability and validity

In order to assess the internal consistency of all measurement items in the survey (all scale measures), Cronbach's alpha test was performed by running the data using SPSS 23. The results shown in Table 6.4 below indicate that Cronbach's alpha scores for all individual constructs are in the range of 0.705 to 0.967, the overall score being 0.910. Hence, all were above the recommended level of 0.7 (Nunnally, 1978; Sekaran, 2003; Field, 2009; Hair et al., 2010). Consequently, it could be said that no internal consistency problem was revealed up to this stage of data analysis.

Table 6.4 Preliminary Reliability Test Results

Constructs	No. Of Variables	Cornbach's Alpha	Comments
IM	5	0.720	Acceptable Reliability
IC	4	0.865	High Reliability
IS	5	0.907	Excellent Reliability
IF	7	0.792	Acceptable Reliability
KD	8	0.958	Excellent Reliability
KC	8	0.967	Excellent Reliability
INN	8	0.705	Acceptable Reliability
Overall Reliability	45	0.910	Excellent Reliability

6.2.6 Linearity

Linearity means the correlation between variables which is represented by a straight line. In data analysis, it is important to know the level of relationship of variables. An implicit assumption of all multivariate techniques based on co-relational measures of association, including multiple regression, logistic regression, factor analysis, and structural equation modelling, is linearity (Hair et al., 2006, p.85). Thus, examining the relationships of variables is important to identify any departures that may affect the correlation. In statistics, linearity can be measured by Pearson's correlations or a scatter plot (Field, 2006; Tabachnick and Fidell, 2007; Hair et al., 2006). This study applied Pearson's correlations using collapsed data of the major constructs such as transformational leadership, knowledge sharing and Innovation process. The results suggest that innovation process is positively correlated ($p=0.00$) with knowledge sharing and transformational leadership. However, no significant relation was found between knowledge sharing and transformational leadership (see Table 6.5 below). In order to further investigate the influence of independent variables on dependent variables, this study presents inferential analysis in the next sections.

Table 6.5 Pearson's Correlations Matrix

Correlations				
		Innovation Process	Transformational Leadership	Knowledge Sharing
Innovation Process	Pearson Correlation	1	.304**	.450**
	Sig. (2-tailed)		.000	.000
	N	228	228	228
Transformational Leadership	Pearson Correlation	.304**	1	.082
	Sig. (2-tailed)	.000		.157
	N	228	228	228
Knowledge Sharing	Pearson Correlation	.450**	.082	1
	Sig. (2-tailed)	.000	.157	
	N	228	228	228

** . Correlation is significant at the 0.01 level (2-tailed).

6.3 Background and Demographic Profile of the Study Sample

The demographic characteristics of the respondents such as age, gender, position, qualification and experience were sought in the questionnaire. The descriptive analysis of these categories data is shown in Table 6.6 below which illustrates participants' profile.

Table 6.6 Demographic Data of Questionnaire Respondents

Category		Frequency	Percentage
Gender	Male	210	91.3
	Female	18	8.7
Age (years)	Under 25	13	5.7
	Between 25 - 40	196	85.4
	Over 40	19	8.3
Position	Senior manager	26	11.7
	Middle manager	116	50.4
	Police employee	86	37.4
Qualification	High School certificate	20	8.7
	Bachelor Degree	123	48.7
	Master	61	26.5
	PhD	24	10.4
Experience on the same department	Less than 3	3	6.48
	3-5	68	30
	6-10	80	34.8
	More than 10	77	33.4
Department size	Less than 10	12	5.2
	11-30 member	38	16.6
	More than 30	178	77

Gender

A total of 228 MoI personnel participated in the study. Gender analysis of participants shows that 210 (91.3%) of respondents were male and only 18 (8.7%) female. This is generally expected given the fact that MoI and indeed most of the disciplined forces in the UAE are largely dominated by males. At the same time, women are generally underrepresented in police service. This can be explained by the Arab culture, where ratio of working women is low compare to male workforce (Al-Wazir, 2015), which is dominated by masculinity (Hofstede, 1980). In this regard, the chosen sample largely reflected the actual population.

Age

In terms of age, a significant majority of respondents were between the age 25 and 40 years. This age group accounted for 85.5% of all participants. The age of participants is also strongly linked with their rank. This is mainly because rank is attained based on experience and number of years in the department. In terms of rank, 116 (50.4%) participants were middle managers, 27 (11.7%) were police senior managers and 86 (37.4%) were police employee. This disproportionate representation of management relative to police employee is deliberate since this study principally focused on leadership and how leadership styles influence innovation and knowledge sharing at the departments of the MoI.

Education Level

Regarding qualifications, almost half of the study participants 123 (48.7%) indicated that they held a bachelor degree, whereas only 61 (26.4%) held a master's degree and 24 (10.4%) held a PhD degree. This serves to show that educational level is very high in the MoI. Only 20 employees (participants) had a high school degree. The high level of education amongst the chosen participant also serves to enhance the quality of the findings of this study since most participants are able to understand the questionnaire.

Work Experience

In terms of work experience, only 3 of employees (6.84%) had less than 3 years of work experience. 68 (30%) respondents had 3 to 5 years of experience. 80 (35%) of participants had between 6 and 10 years of experience. Finally, 77 (33.4%) participants with experience of (10 years or more) were included in the research sample. This indicates that employees from various level of experience were included to get a comprehensive picture of the research phenomena under investigation.

6.4 Descriptive Analysis of Respondents' Responses

This section presents a descriptive analysis of the data obtained from the sample. Table 6.7- 6.9 shows the detailed responses of survey participants. As shown in the table, the questionnaire consists of 7 major constructs which were measured by 45 different items (statements) using a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree'. Respondents were asked about their relative agreement or disagreement with each statement. Responses were coded as follows: 5 indicated that they strongly agreed with the statement, 4 indicated they agreed with the statement, 3 indicated that they neither agreed nor disagreed with the statement and were therefore neutral, 2 (etc) disagreed, and number 1 strongly disagree with the statement. Moreover, 3 was chosen as the midpoint on the scale in order to make a distinction between the respondent's agreement and disagreement.

SD= Strongly disagree	DA= Disagree	N= Neutral	SA= Strongly Agree	SD= Standard deviation
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Table 6.7 Participants views towards transformational leadership

Items	SD	DA	N	Agree	SA	Mean	SD	Mode
Transformational Leadership								
Idealised Influence								
Acts in ways that build my respect	10	46	101	54	17	3.09	0.95	3.00
Instils pride in being associated with him/ her	10	49	98	55	16	3.07	0.95	3.00
Talks about his/ her important values and beliefs	10	48	96	58	16	3.09	0.95	3.00
Goes beyond self-interest for the good of the group	10	48	97	57	16	3.09	0.95	3.00
Considers the moral and ethical consequences of decisions	-	45	73	98	12	3.33	0.85	4.00
Emphasizes the importance of having a collective sense of mission	9	29	65	99	26	3.45	0.98	4.00
Displays a sense of power and confidence	-	28	64	114	22	3.57	0.82	4.00
Inspirational motivation								
Talks optimistically about the future	2	28	52	80	66	3.78	1.02	4.00
Talks enthusiastically about what needs to be accomplished	20	62	70	45	25	2.96	1.12	3.00
Articulates a compelling vision of the future	-	45	53	106	24	3.47	0.92	4.00
Expresses confidence that goals will be achieved	-	20	68	54	86	3.90	1.01	5.00
Develops a team attitude and spirit among members of staff	2	21	67	42	96	3.91	1.07	5.00
Intellectual Stimulation								
Re-examine critical assumptions to question whether they are appropriate	-	28	47	118	35	3.70	0.87	4.00
Gets me to look at problems from many different angles	-	28	39	123	38	3.75	0.87	4.00
Suggests new ways of looking at how to complete assignments	2	16	61	123	26	3.67	0.80	4.00
Seeks different perspectives when solving problems	-	43	26	127	32	3.64	0.94	4.00
Encourages me to rethink ideas that have never been questioned before	-	29	53	127	19	3.59	0.81	4.00
Individualised Consideration								
Spends time teaching and coaching	4	36	50	122	16	3.48	0.90	4.00
Treats me as an individual rather than just as a member of a group	3	17	60	127	21	3.64	0.80	4.00
Considers me as having different needs, abilities and aspirations to others	-	41	50	123	14	3.48	0.85	4.00
Helps me to develop my strengths	-	33	37	132	26	3.66	0.86	4.00

Table 6.8 Participants views towards innovation process

Items	SD	DA	N	Agree	SA	Mean	SD	Mode
Innovation Process								
Our organisation encourages teamwork and relationships between staff members	-	11	55	142	20	3.75	0.67	4.00
My department implements an incentive system (i.e. higher salaries, bonuses,--) to staff to encourage them to come up with innovative ideas	-	8	37	159	24	3.87	0.62	4.00
Our organisation is trying to bring in new equipment (i.e. computers) to facilitate the performance and work procedures	-	11	60	136	21	3.73	0.69	4.00
New multimedia software is implemented by this organisation for performance improvement purposes and administrative operations	-	10	39	157	22	3.83	0.64	4.00
Our organisation is often develops new services and new training programs for staff members.	31	38	31	91	37	3.28	1.29	4.00
My department often develops new technologies (internet, databases,--) to improve the working process	5	42	52	82	47	3.54	1.07	4.00
My department develops new training programs for staff members.	19	34	53	95	26	3.32	1.11	4.00
Our organisation is trying to bring in new equipment (i.e. computers) to facilitate learning operations and work procedures	5	16	66	104	37	3.66	0.90	4.00

Table 6.9 Participants views towards knowledge sharing

Items	SD	DA	N	Agree	SA	Mean	SD	Mode
Knowledge sharing								
Knowledge Donating								
Knowledge sharing with colleagues is considered normal outside of my department	12	29	84	84	19	3.30	0.97	3.00
Knowledge sharing among colleagues is considered normal in my department	-	32	66	112	18	3.50	0.83	4.00
When I have learned something new, I tell colleagues outside of my department about it	7	60	29	102	30	3.38	1.10	4.00
When they have learned something new, my colleagues within my department tell me about it	-	39	66	90	33	3.51	0.94	4.00
When I have learned something new regarding my profession, I tell my colleagues in my department about it	6	59	34	101	28	3.37	1.07	4.00
When they have learned something new, colleagues outside of my department tell me about it	1	38	61	94	34	3.53	0.95	4.00
I intend to share my knowledge with more departmental members	1	42	64	92	29	3.46	0.94	4.00
I intend to share my knowledge with other department members more frequently in the future	1	34	71	95	27	3.49	0.90	4.00

Continuation Participants views towards knowledge sharing

Knowledge Collecting								
I share information I have with colleagues within my department when they ask for it	-	32	70	109	17	3.48	0.80	4.00
Colleagues in my department share information about profession with me	6	59	32	101	30	3.39	1.08	4.00
Colleagues within my department share knowledge with me , when I ask them about it	-	42	59	97	30	3.50	0.94	4.00
Colleagues within my department tell me what their skills are, when I ask them about it	-	38	79	83	28	3.44	0.91	4.00
I share my skills with colleagues outside of my department, when they ask me to	-	29	74	107	18	3.50	0.81	4.00
I share my skills with colleagues within my department, when they ask for it.	6	57	33	102	30	3.40	1.08	4.00
My practice is relation to knowledge sharing is appropriate and effective	-	42	55	97	34	3.53	0.95	4.00
My knowledge sharing with other department members is an enjoyable experience	6	49	47	98	28	3.40	1.03	4.00

As shown in the above table, each participant was asked to rate aspects of his/her leaders (managers) behaviour related to each of the four transformational leadership (TL) components: 1) idealised influence, under which style leaders encourage their members of staff to have pride, faith, and respect in themselves and their colleague. 2) Inspirational motivation, through which leaders attempt to stimulate their members of staff by motivating them to get involved in a shared vision for the organisation, using emotional appeals to group members to focus their efforts so as to gain more than they would if they operated according to their own self-interest. 3)

intellectual stimulation, by which leaders promote learning and creativity among staff, and 4) individualised consideration, through which leaders provide satisfaction to members of staff by advising, supporting, and coaching them and listening to their individual needs, thus allowing them to develop and self-actualise. The mean result (greater than midpoint 3) suggests that most participants agreed with the presence of all four TL components among their leaders.

The findings revealed that the mean scores for eight items related to the 'innovation process' were between 3.28 and 3.75, thereby indicating that a significant number of respondents believe that there is an adequate level of innovation process in place within the MoI.

Similarly, using a five-point Likert scale and eight items, the 'Knowledge Donating' construct was measured. As shown in above table 6.9, the observed mean ratings ranged above 3, which is the midpoint of the scale. These statistics suggest high agreement among respondents regarding the motivation of MoI staff to pass on their own intellectual capital to others. Finally, eight items were used to measure the 'Knowledge Collecting' construct in this study. The mean scores were range from 3.39 to 3.53 i.e. above the midpoint of three on the five-point Likert scale. The average mean score was 2.43, which indicated the participants' agreement on the scale measures. Specifically, these results mean that the majority of the respondents believe that their leaders ask others for advice in order to obtain intellectual capital.

6.5 Demographic Characteristics of Respondents and Dependent Variable

The dependent variable (DV) in this study is the 'innovation process. The researcher included eight statements aimed at measuring the responses for DV. Respondents were asked to indicate on a five-point scale to agree or disagree with the presence of adequate level of innovation process within MoI.

The demographic variables including gender, age, position, qualification years of service were then analysed using T-test and ANOVA. No statistical significant difference ($P < 0.05$) was found between groups based on gender, age and experience. However, significant statistical difference was found using ANOVA between groups based on position and qualification. The detailed ANOVA results using collapsed data for DV (Innovation Process) are presented in the next section.

6.5.1 Analysis of Variance (ANOVA)

The dependent variable was significant in failing to accept the null hypotheses (indicating at least one difference in means) as a function of the respondents' level of education, $F(4,228) = 32.290$, $p < .000$. The descriptive are shown in the following tables (6.10 – 6.11). Similarly, DV differed significantly when factored by the respondents' rank groups, $F(3,228) = 7.358$, $p < 0.05$. This supported the view that less educated and junior employees were less likely to view innovation process emplace within the MoI.

Table 6.10 ANOVA Results for level of Employees' Education

Descriptive					
Innovation Process					
	N	Mean	Std. Deviation		
High School	20	2.4500	.88704		
Bachelor's	123	3.7480	.59497		
Masters	61	3.9344	.65495		
PhD	24	4.5000	.53452		
Total	228	3.7075	.77235		
ANOVA					
Innovation Process					
	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	39.993	3	13.331	32.290	.000
Within Groups	85.875	208	.413		
Total	125.868	211			
Innovation Process					
Duncan					
Qualification	N	Subset for alpha = 0.05			
		1	2	3	
High School	20	2.4500			
Bachelor's	123		3.7480		
Masters	61		3.9344		
PhD	8			4.5000	
Sig.		1.000	.359	1.000	

Table 6.11 ANOVA Results for Position of Employees

Descriptive					
Innovation Process					
	N	Mean	Std. Deviation		
Employees	86	3.5233	.89083		
Middle Manager	116	3.7500	.60927		
Senior Manager	26	4.1538	.73170		
Total	228	3.7075	.77235		
ANOVA					
Innovation Process					
	Sum of Squares	DF	Mean Square	F	Sig.
Between Groups	8.280	2	4.140	7.358	.001
Within Groups	117.588	209	.563		
Total	125.868	211			
Innovation Process					
Duncan ^{a,b}					
Position/Rank	N	Subset for alpha = 0.05			
		1	2		
Employee	86	3.5233			
Middle Manager	116	3.7500			
Senior Manager	26		4.1538		
Sig.		.132	1.000		

6.6 Exploratory Factor Analysis

Exploratory factor analysis (EFA) is a method of factor loading into groups to extract primary latent factors. It is a technique used ‘to take what the data gives you’ and involves grouping variables together on a factor or a precise number of factors (Hair et al., 2006). Therefore, in line with the advice from Hair et al. (2006), exploratory factor analysis was conducted to estimate the validity of scales and to reduce the large number of items into a smaller, more controllable set of dimensions. In addition, EFA is essential to understand whether a theoretical construct is a single or multidimensional factor, which gives a clear estimation of the factor structure of the measures (Russell, 2002).

Two main concerns exist when deciding the suitability of a particular data set for EFA; sample size, and the pattern of relationships among the variables (Hair et al., 2010). The two statistical tests used were the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, and Bartlett’s test of Sphericity. According to Hair et al. (2010), data is factorable when the KMO is between 0.5 and 1 and Bartlett’s test of sphericity is significant (< 0.05). Tabachnick and Fidell (2007) and Coakes (2012) suggested data is factorable if the KMO is above 0.70.

As shown in the following table 6.12, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.884, above the recommended value of 0.70. Moreover, Bartlett's test of Sphericity confirmed the significance value as ($p = 0.000$), thus leading to a rejection of the null hypothesis and to the conclusion that an acceptable level of correlation amongst the variables in the data set exists, thus making the data appropriate for subsequent EFA. Therefore, the quantitative data collected from the study sample supported the use of EFA.

Table 6.12 KMO and Bartlett’s Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.884
Bartlett's Test of Sphericity	Approx. Chi-Square	13120.094
	df	990
	Sig.	.000

6.6.1 Factor Extraction, Retention and Rotation

Once the suitability of the data for factor analysis is determined, the EFA generally follows three major steps; factor extraction, retention and factor rotation (Pallant, 2011). Factor extraction and retention aims to find out factors, while factor rotation aims to improve the explanation of a given factor solution (Field 2009; Tabachnick & Fidell 2007).

Firstly, the precise factor extraction method was chosen, so that the minimum number of factors that could represent the associations among the set of variables in the best way could be established (Hair et al. 2010; Pallant, 2013). According to Roberson et al. (2014), there is no universal extraction method in the social sciences; the best method being that allows the purpose of using factor analysis to be achieved. Principal Component Analysis (PCA), for instance, would be the best method to use when required to reduce a large set of items to a more manageable number (Pallant, 2013). Alternatively, if the intention were a scale development, other extracting methods including Unweighted Least Squares, Principal Factors, Generalised Least Squares Image Factoring, Maximum Likelihood Factoring, and Alpha Factoring would be more appropriate.

Since the primary reason for performing EFA in this study is items reduction, PCA was used as the primary method of factor extraction to define the factors required to represent the structure of the items. Secondly, with regard to factor retention criteria, there are several approaches to the determination of the number of factors which best describe the underlying relationships among the study variables, including Kaiser's criterion and the Cattell's scree test. Kaiser's criterion - also known as the 'eigenvalue-greater than-one' rule - is found to be the most commonly used. According to Pallant (2013) and Field (2006), since eigenvalues refer to as the amount of total variance explained by a factor, an eigenvalue of one or more denotes a significant amount of variation. On the other hand, the Cattell's scree test plots the eigenvalues and then checks where the plot curve changes to become horizontal. According to (Hair et al., 2006), the Scree test is derived by plotting the latent roots against the number of factors in their order of extraction, and the shape of the resulting curve is used to evaluate the cut-off point (Hair et al., 2006).

In this study, Kaiser's criterion and Cattell's scree plot test were both employed to establish the number of retained factors for further analysis.

Finally, as researchers have found that the output resulting from factor analysis are not easy to interpret, they recommend rotating the resulting factors in order to produce results in a simpler form (Hair et al., 2006; Tabachnick and Fidell, 2007). Moreover, rotation is important to select for improving the interpretability and scientific utility of the solution. It is used to maximise high correlations between factors and variables and minimise low ones (Hair et al., 2006). Rotation methods generally fall into two broad categories: orthogonal methods which include (Varimax, Quartimax, and Equamax), and oblique methods which include (Promax and Direct Oblimin). This study applies a varimax of orthogonal techniques which is most commonly used in rotation for maximising variance. According to Tabachnick and Fidell (2007) the goal of varimax rotation is to maximise the variance of factor loading by making high loadings higher and low ones lower for each factor. In line with the advice from (Hair et al., 2006), the factor loadings above +/- 0.50 were considered practically significant.

As discussed above, this study carefully adopted and followed the procedures that are available for factor analysis in SPSS. The next section discusses the process (factor extraction, retention and rotation) and results of factor analysis conducted for all 45 items that measured the Transformational Leadership, Innovation Process and Knowledge Sharing in the UAE MoI.

6.6.2 EFA Results (Factor Extraction, Retention and Rotation)

The EFA employed for the purpose of data reduction involved the elimination of any unrelated items and ensured the hypothesised grouping of the study variables. Since the measurement scales in the study were comprised mainly of individual items that were previously used and validated in different studies in transformational leadership context, the role of EFA was to confirm the groupings made by the researcher, of the 45 measurement items into 6 variables, and to find solutions to cases where such confirmation was not possible.

(A) Factor Extraction

Of the techniques available, principal component analysis and principal factor analysis are the two most widely used extraction methods in EFA (Hair et al., 2006). Although some researchers have argued that the difference between these extraction methods is negligible, other researchers have contended that the difference is substantial enough to warrant careful consideration (Kieffer, 2004). In social sciences, principal component analysis (PCA) is the most common strategy used for factor extraction (Henson et al., 2004; Alexander and Colgate, 2000). Moreover, a similar study carried by Gumusluoglu and Ilsev (2009) has successfully used PCA strategy to investigate the impact of transformational leadership on organisational innovation. This study thus applied principal component analysis (PCA) for factor extraction.

The first step was to check communalities between measured items in order to identify any problematic ones before proceeding to further analysis. According to Field (2009), communalities represent the multiple correlation between each variable and the factors extracted. Communality thus indicates how much variance of each original variable is explained by the extracted factors. Communality values usually range from zero to one, but higher communalities are more desirable as variables with high values are well represented in the extracted factors, whereas variables with low values are not. Moreover, in samples of more than 200, communalities greater than or equal to 0.6 are considered good enough to ensure accurate results from Kaiser's criterion test for the number of retained factors (Field, 2009). Detail output results of communalities can be found in Appendix 6A.

As shown in Appendix 6A, communalities values varied from 0.592 for IM2 variable to 0.973 for KD2. Since the extraction value of IM2 (0.592) was below the recommended cut-off value of 0.6, it was dropped in order to enhance the efficiency and effectiveness of any further analysis. After running PCA without IM2, a ten-factor solution was achieved based on eigenvalues greater than one (see Appendix 6B). However, there were some cross loadings and single items loaded on various factors. Hence, in line with the advice from Hair et al. (2010), these problematic items were excluded from further analysis.

Table 6.13 shows these results together with the total percentage of explained variance. It can be seen from table 6.13 that a six-factor solution emerged from PCA when applying Kaiser’s criterion ‘eigenvalue-greater-than-one’ rule. It is also clear that these final six factors explained a total of 80.55% of the variance in the dataset, with factor one contributing 35.70% alone and the remaining five factors varying in contribution from 14.10% for factor two to only 4.50% for factor six. Since different retention methods can often generate conflicting results, it is generally important to examine more than one factor retention method (Kieffer, 2004). Therefore, Cattell’s scree test plot shown in Figure 6.1 was drawn in order to confirm the Kaiser’s criterion result. The scree plot makes it clear that six factors were above the curve of the plot line, proving that the six-factor solution resulting from the ‘eigenvalue-greater-than one’ rule earlier was accurate.

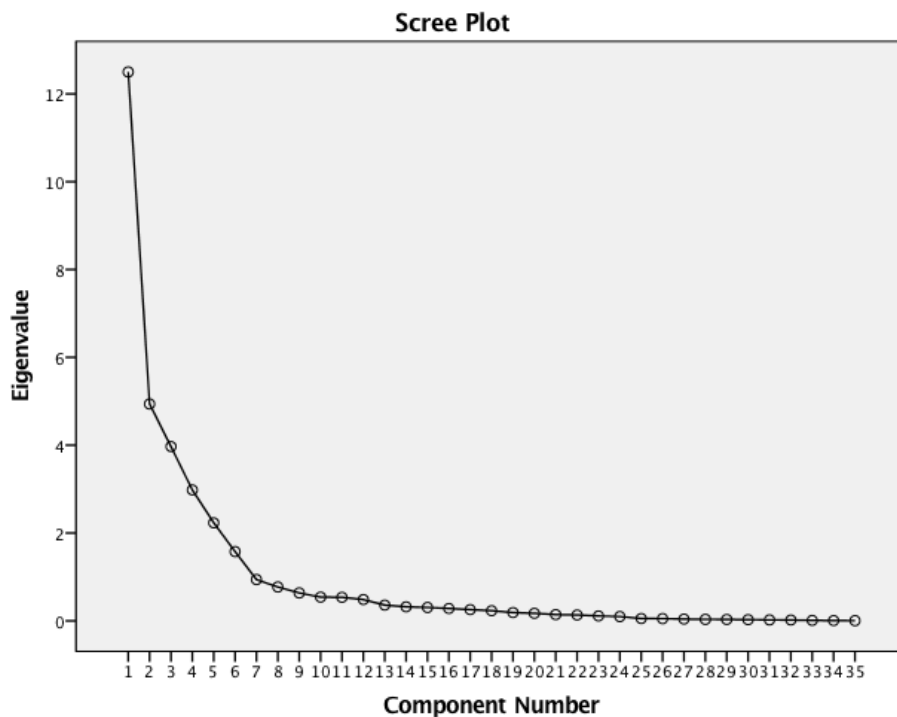


Figure 6.1 Scree Plot

Table 6.13 Total Variance Explained

Total Variance Explained									
No.	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.498	35.709	35.709	12.498	35.709	35.709	10.947	31.276	31.276
2	4.937	14.105	49.814	4.937	14.105	49.814	3.982	11.379	42.655
3	3.969	11.341	61.155	3.969	11.341	61.155	3.834	10.955	53.609
4	2.980	8.515	69.670	2.980	8.515	69.670	3.617	10.336	63.945
5	2.233	6.379	76.049	2.233	6.379	76.049	2.978	8.507	72.452
6	1.577	4.505	80.554	1.577	4.505	80.554	2.835	8.101	80.554
7	.941	2.688	83.242						
8	.771	2.202	85.444						
9	.636	1.817	87.260						
10	.541	1.544	88.805						
11	.536	1.531	90.336						
12	.485	1.387	91.723						
13	.359	1.024	92.747						
14	.320	.913	93.661						
15	.305	.871	94.531						
16	.281	.804	95.335						
17	.255	.730	96.065						
18	.230	.658	96.723						
19	.190	.542	97.265						
20	.171	.487	97.752						
21	.143	.408	98.161						
22	.132	.378	98.539						
23	.112	.320	98.860						
24	.098	.279	99.139						
25	.053	.153	99.291						
26	.050	.144	99.435						
27	.041	.117	99.552						
28	.034	.096	99.648						
29	.032	.092	99.740						
30	.027	.078	99.818						
31	.022	.062	99.881						
32	.020	.057	99.938						
33	.010	.030	99.968						
34	.007	.020	99.988						
35	.004	.012	100.000						

Extraction Method: Principal Component Analysis.

B) Interpretation of Extracted Factors

Rotating the eleven-factor solution resulting from the PCA makes it easier to interpret EFA results. Similarly, Kieffer (2004) explains that it is usually necessary to rotate the factors to formulate a better solution that is more interpretable. There are two major rotation strategies available for researchers: orthogonal and oblique rotation (Kieffer, 2004; Field, 2006; Hair et al., 2006). However, the method most commonly used is Varimax rotation of orthogonal techniques. There are several advantages to employing orthogonal rotation strategies, particularly Varimax. First, the factors remain perfectly uncorrelated with one another and are inherently easier to interpret. Secondly, the factor pattern matrix and the factor structure matrix are equivalent and thus, only one matrix of association is to be estimated (Kieffer, 2004). Hence, in order to discriminate between the extracted factors and to determine which of the thirty-three retained variables would load on which of those final six factors, the Varimax rotation method was employed. A similar study carried by Gumusluoglu and Ilsev (2009) also used this method to investigate the impact of transformational leadership on organisational innovation in Turkish software companies. Therefore, the researcher decided to use the Varimax rotation technique for this study.

Hair et al. (2010) suggest that if the factor loadings are +0.50 or greater, they are considered to be very significant, and can be used for further analysis. In this study, minimum cut off point of 0.70 was used for the factor loadings. The results are shown in table 6.8 below along with % of variance explained for each factor.

Table 6.14 Final Factor Loadings

Rotated Component Matrix ^a						
Items/ Variables	Component					
	F1 KS	F2 IF	F3 IS	F4 IN	F5 IM	F6 IC
KD3	.960					
KC2	.957					
KC6	.956					
KC7	.943					
KD5	.939					
KC8	.936					
KD7	.932					
KD6	.930					
KD4	.917					
KC3	.915					
KC4	.862					
KD8	.831					
IF2		.972				
IF1		.967				
IF4		.956				
IF3		.954				
IS2			.898			
IS1			.890			
IS3			.771			
IS5			.758			
IS4			.731			
IN1				.893		
IN4				.829		
IN3				.821		
IN2				.764		
IM5					.901	
IM1					.876	
IM4					.832	
IM3					.732	
IC3						.866
IC1						.806
IC2						.790
IC4						.727
% of Variance	35.7	14.1	11.3	8.1	6.3	4.5
Extraction Method: Principal Component Analysis.						
Rotation Method: Varimax with Kaiser Normalization.						

Based on the items that have been grouped into 6 final constructs, each of them were named and labelled as below:

1. Factor 1: Knowledge Sharing [**F1 KS**]
2. Factor 2: Idealised Influence [**F2 IF**]
3. Factor 3: Intellectual Stimulation [**F3 IS**]
4. Factor 4: Innovation Process [**F4 INN**]
5. Factor 5: Inspirational Motivation [**F5 IM**]
6. Factor 6: Individualised Consideration [**F6 IC**]

As shown in the above table 6.14, items related to ‘knowledge collecting’ and ‘knowledge donating’ loaded on factor 1. After careful examination of items loaded on this factor, researchers named the factor as ‘knowledge sharing’. Previous researchers who examined the knowledge sharing within **public sector** they have used one dimension factor of knowledge sharing (see for example; Khalil, and Shea, 2012; Taylor, and Wright, 2004; Amayah, 2013; Kim, and Lee, 2006). More specifically past studies which investigate the knowledge sharing within **police** organisation, treated the construct as one variable (see for example Glomseth et al., 2007; Lindsay et al., 2009; Berg et al., 2008)

Reliability and factor analysis are complementary procedures in scale construction and definition (Coakes and Steed, 2007). Therefore, after defining the name and label for each of the extracted components, the final step in the factor analysis was to determine Cronbach’s alpha for each component for the reliability measurement (see Table 6.15 below).

Table 6.15 Cronbach's Alpha for Final Components

Components (Factors) Extracted	No. of Variables	Cronbach's Alpha	Comments
IM	4	0.864	Acceptable Reliability
IC	4	0.865	High Reliability
IS	4	0.901	Excellent Reliability
IF	4	0.989	Acceptable Reliability
KS	12	0.985	Excellent Reliability
INN	4	0.923	Acceptable Reliability
Overall Reliability	32	0.987	Excellent Reliability

6.7 The Measurement Model: Confirmatory Factor Analysis

The EFA conducted in the previous section found a number of factors (dimensions) and confirmed the reliability of the measurement scales that supported the constructs. However, this technique does not provide an extensive estimation of construct validity and unidimensionality (Gerbing & Anderson 1988; Hair et al. 2010). Therefore, in line with the advice from Hair et al. (2010) and Klein (2007), CFA was used to estimate construct validity and unidimensionality appropriately. Moreover, CFA allows researchers to assess the structure of factors and whether its particular pattern of loadings matches the data (Hair et al. 2010).

According to Hair et al. (2010), SEM analysis usually involves testing two types of theoretical models - measurement and structural. The measurement model represents the theoretical knowledge of the underlying structure of a latent variable through specifying the nature of the relationships among the observed variables that construct a particular latent variable. The major interest here is to examine the regression structure paths between the latent variable and its observed variables. On the other hand, the structural model examines the theorised direct and indirect relationships among the latent variables and it is usual for this to be employed for hypothesis testing purposes.

Following confirmation of the study hypothesised latent variables by the PCA Varimax-rotated six-factor solution, CFA was employed in order to validate the underlying structure of the main constructs in the study, examine the reliability of the measurement scales, and assess the factorial validity of the theoretical constructs. AMOS 23 software was utilised to create the measurement model shown in Figure 6.2 below based on the EFA findings.

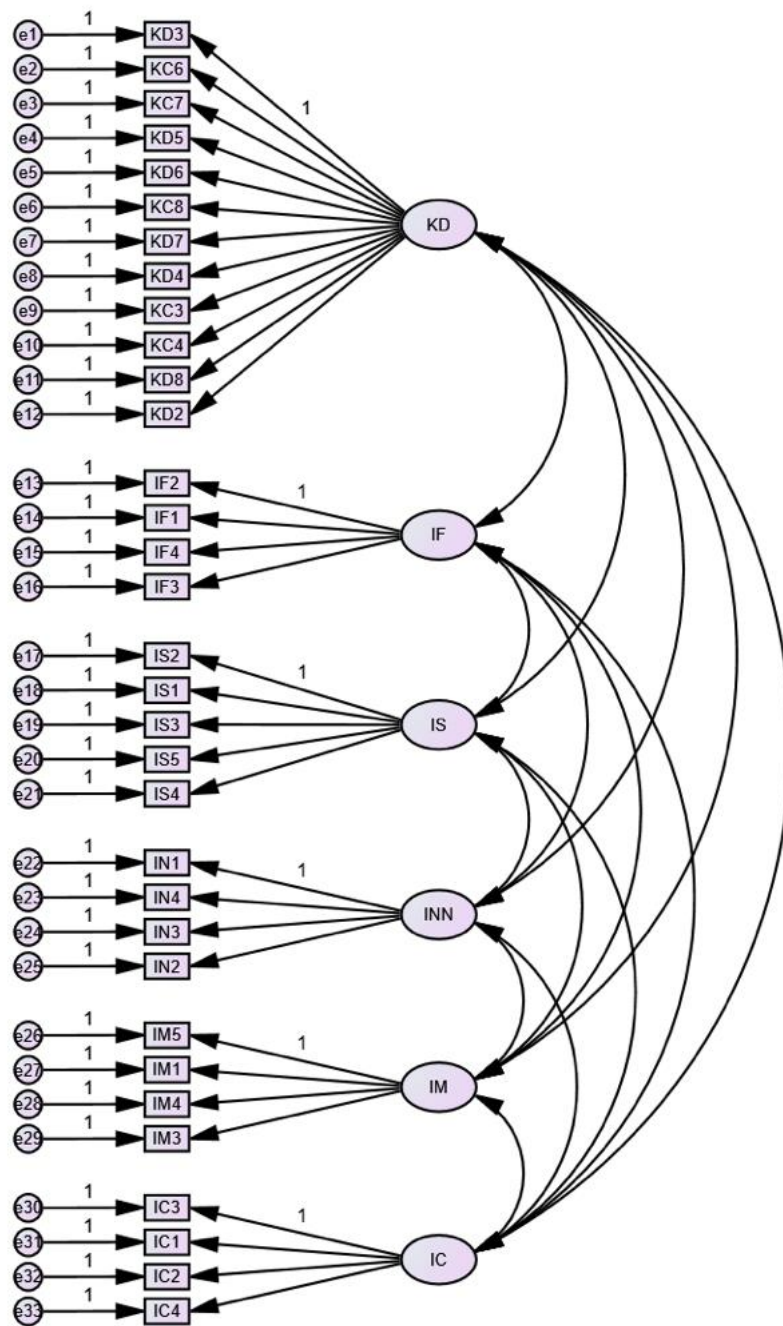


Figure 6.2 The Original Measurement Model Based on EFA Results

6.7.1 The Measurement Model Evaluation: Goodness-of-Fit

According to Perry et al. (2015), the most important part in conducting CFA is to learn the extent to which the measurement model fits the empirical data. Statistically, a measurement model is said to fit the observed data when its estimated covariance matrix is equivalent to the covariance matrix of the sample data (Cheung and Rensvold, 2002; Schermelleh-Engel et al., 2003). Schermelleh-Engel et al. (2003) indicate that since there are no clear guidelines in the literature for assessing structural equation models, a multiple criteria approach should be adopted instead of depending on a single straight forward indicator.

The Chi-square (χ^2) test is the most widely used measure of structural equation model appropriateness (Cheung and Rensvold, 2002; Hair et al., 2010; Byrne, 2013). Usually, a good model fit is established if the p-value associated with (χ^2) is higher than 0.05, which leads to accepting the null hypothesis stating that the estimated covariance matrix is equivalent to the observed covariance matrix (no difference exists between the two matrices) (Hair et al., 2010; Kenny, 2011; Markus, 2012). However, studies with larger samples may not rely on the Chi-square as a sole indicator of model fit (Hair et al., 2006). The other popular model fit indices include root mean square residual (RMR), root mean square error of approximation (RMSEA) and comparative fit index (CFI).

Root mean square residual (RMR) measures the average of the residuals between individual observed and estimated covariance and variance terms. Lower RMR and standardised root mean square residual (SRMR) values represent better fit and higher values represent worse fit (Hair et al., 2006). A value less than 0.05 is widely considered good fit and below 0.08 adequate fit (Kline, 2010).

Root mean square error of approximation (RMSEA) takes into account the error of approximation in the population (Hair et al., 2010). Values less than 0.05 indicate good fit and values as high as 0.08 represent reasonable errors of approximation in the population (Byrne, 2001).

Comparative fit index (CFI) is also a commonly used measurement model fit index, where ranges between 5-1 with higher values indicate better fit. Values less than 0.90 are not usually associated with a model that fits well (Byrne, 2001; Hair et al., 2006; Kline, 2010).

AMOS generates 25 different goodness-of-fit measures and the choice of which to report is a matter of dispute among methodologists. According to Hair et al. (2010), besides chi-square (X^2) value and degree of freedom (df), at least one incremental index (CFI or TLI) and one absolute index (RMSEA or SRMR) must be reported. Following the suggestions of Hair et al. (2010), Byrne (2010) and Kline (2010), this study evaluated model fit based on chosen fit measures as summarised in Table 6.16.

Table 6.16 Criteria for Measurement and Structural Models Fit Indices

Model fit indices	Recommended criteria	References
X^2/df	≤ 3	Hair, et al., 2010
GFI	> 0.8	Etezadi-Amoli and Farhoomand, 1996
AGFI	>0.8	Etezadi-Amoli and Farhoomand, 1996
CFI	>0.8	Lau, 2011; Kline, 2010
RMR	<0.05	Hair, et al., 2001; Kline, 2010
NFI	>0.9	Wang and Wang, 2012
TLI	>0.9	Hair, et al., 2010
RMSEA	<0.10	Devaraj, et al., 2002; Byrne, 2001

Subsequently, to test the measurement model, CFA through AMOS 23 was conducted using the Maximum Likelihood (ML) method, which is the built in and most widely used method for parameters estimation in SEM (Schermelleh-Engel et al., 2003). Figure 6.3 below shows the output path diagram of the CFA first-run, and is followed by the overall goodness-of-fit statistics in table 6.17. The full model-fit summary for the first-run of CFA appears in Appendix 6C.

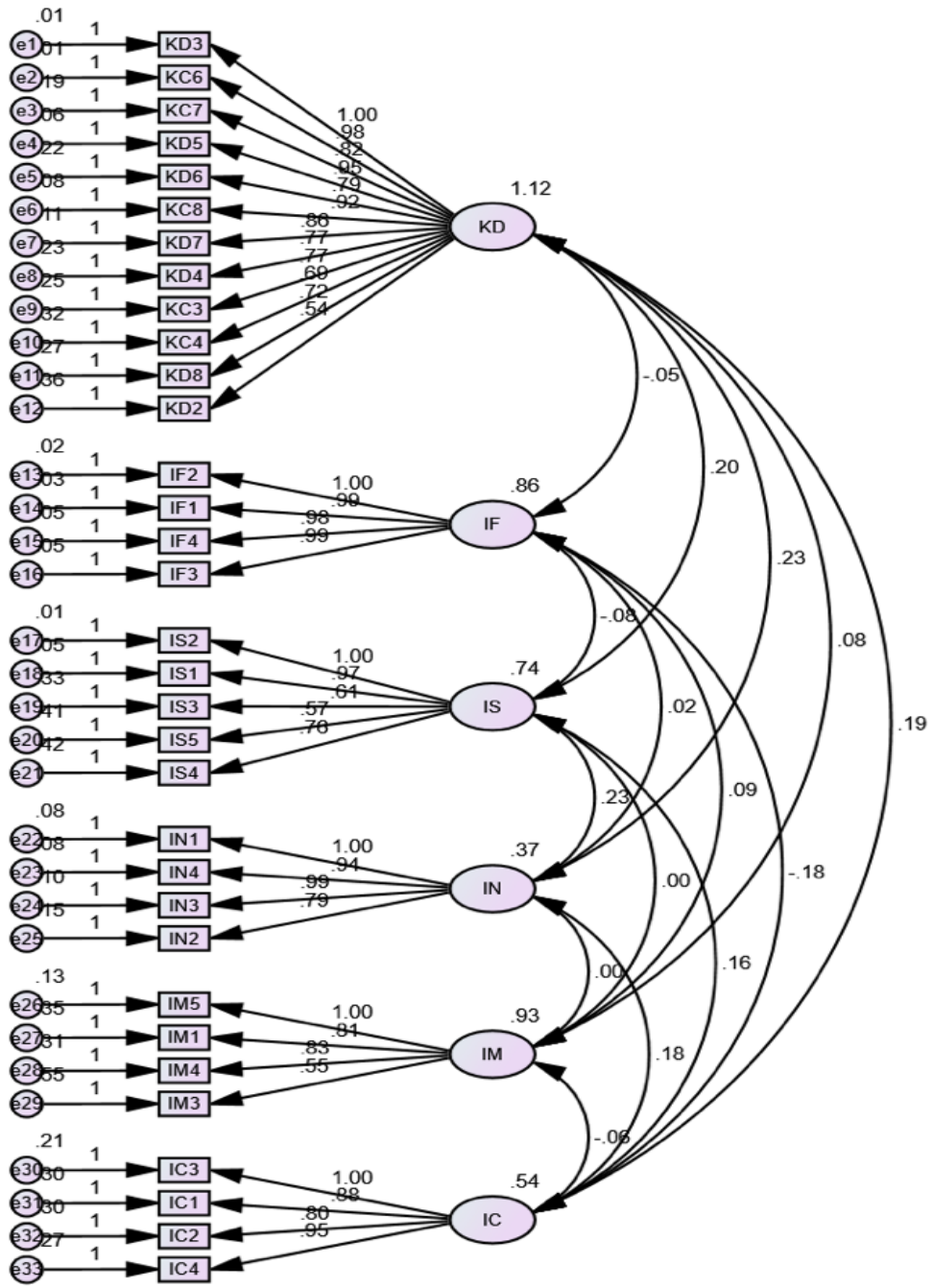


Figure 6.3 The Original Measurement Model Based on EFA Results

Table 6.17 Measurement Model Goodness-of-Fit Indices (CFA First Run)

Goodness of fit measure	Conceptual Model First Run	Recommended Criteria	Acceptable/Unsatisfactory	References
χ^2/df	4.85	≤ 3	Unsatisfactory	Hair et al., 2010
GFI	0.681	> 0.8	Unsatisfactory	Etezadi-Amoli and Farhoomand, 1996
AGFI	0.611	> 0.8	Unsatisfactory	Etezadi-Amoli and Farhoomand, 1996
CFI	0.905	> 0.8	Acceptable	Lau, 2011; Kline, 2010
RMR	0.057	< 0.05	Acceptable	Hair et al., 2001; Kline 2010
NFI	0.986	> 0.9	Acceptable	Wang and Wang, 2012
TLI	0.816	> 0.9	Unsatisfactory	Hair et al., 2010
RMSEA	0.135	< 0.10	Unsatisfactory	Devaraj et al., 2002; Byrne, 2001

It can be seen from Table 6.17 that while most fit indices indicated a satisfactory level of model adequacy, four showed the opposite, these being the Chi-square (χ^2) test, AGFI, TLI and RMSEA. Therefore, there was a need to improve the model to gain a better fit.

6.7.2 The Measurement Model Enhancement

To improve the measurement model goodness-of-fit, several modifications were introduced to the first-run model shown in Figure 6.3.

The modifications/adjustments were based on the following guidelines provided by Hooper et al. (2008), Hair et al. (2010) and Byrne (2013).

- Standardised Regression Weights (SRW): known as factor loadings in EFA, these regression weights represent the correlation between the observed and latent variables. These weights are recommended to be above 0.5, but higher values (close to 1) are much better. Any measurement variables less than 0.5 would be considered for elimination due to the weak correlation with their latent variable.
- Modification Indices (MI): these indices indicate the effect of freeing pre-fixed parameters on Chi-square (χ^2). Therefore, checking these values would help the researcher to determine which path should be added to the model in order to decrease the Chi-square (χ^2) statistic, which in turn improves the model fit. Large modification indices (usually more than 6.63) determine which parameters should be set free in order to achieve better model suitability. A common practice in this regard is to correlate parameter errors that are part of the same factor. Moreover, parameters that show high covariance between their errors and at the same time have high regression weights, are candidates for deletion.

Accordingly, the SEM output results were examined carefully in order to identify any room for further improvements. The following modifications were made in order to enhance the measurement model goodness-of-fit:

1. Deletion of items/variables based on SRW and MI analysis: according to Byrne (2001), only those items that demonstrate high covariance plus high regression weight in the modification indexes should be candidates for deletion. As for the other criteria, if an item proves to be problematic on most of the levels mentioned above, then it is also a candidate for deletion. Based on that, the problematic items were deleted. This resulted in deletion of six items (KD7, KD4, KC3, KC4, KD8 and KD2).
2. Covariance of error terms such as: (e1 with e6), (e4 with e5), (e15 with e16), (e27 with e29), and (e31 with e33) based on the Modification Indices displayed in Table 6.18 below.

Table 6.18 Modification Indices

Covariance		M.I.	Covariance		M.I.
e30 <-->	e31	10.561	e7 <-->	e21	13.040
e27 <-->	e29	15.205	e7 <-->	e12	53.985
e23 <-->	e25	19.843	e7 <-->	e10	11.300
e23 <-->	e24	13.417	e7 <-->	e9	7.229
e22 <-->	e28	7.788	e7 <-->	e8	13.273
e22 <-->	e25	13.386	e6 <-->	e31	7.338
e22 <-->	e24	16.630	e6 <-->	e16	36.877
e20 <-->	e24	19.493	e6 <-->	e13	12.564
e20 <-->	e21	11.112	e5 <-->	e16	43.827
e19 <-->	e24	17.974	e5 <-->	e13	27.989
e19 <-->	e20	65.316	e5 <-->	e8	8.482
e17 <-->	e33	10.820	e5 <-->	e7	7.444
e16 <-->	e29	7.340	e5 <-->	e6	126.426
e15 <-->	e16	9.488	e4 <-->	e30	13.037
e13 <-->	e29	10.274	e4 <-->	e19	7.785
e11 <-->	e12	9.118	e4 <-->	e11	95.897
e10 <-->	e30	7.445	e4 <-->	e10	141.085
e10 <-->	e12	7.256	e4 <-->	e9	130.950
e10 <-->	e11	143.566	e4 <-->	e8	150.858
e9 <-->	e30	9.402	e4 <-->	e7	16.743
e9 <-->	e11	63.208	e2 <-->	e12	12.544
e9 <-->	e10	85.150	e1 <-->	e11	10.228
e8 <-->	e30	11.826	e1 <-->	e10	13.779
e8 <-->	e11	73.659	e1 <-->	e9	17.428
e8 <-->	e10	106.864	e1 <-->	e8	7.325
e8 <-->	e9	136.865	e1 <-->	e6	11.610
e7 <-->	e31	16.577	e1 <-->	e4	24.099

After introducing the above model modifications, a second CFA run was made. Table 6.19 shows the overall goodness-of-fit statistics that resulted from the second run of CFA and the following Figure, 6.4, shows the related output path diagram. The full model-fit summary for the second-run of CFA can be found in Appendix 6D.

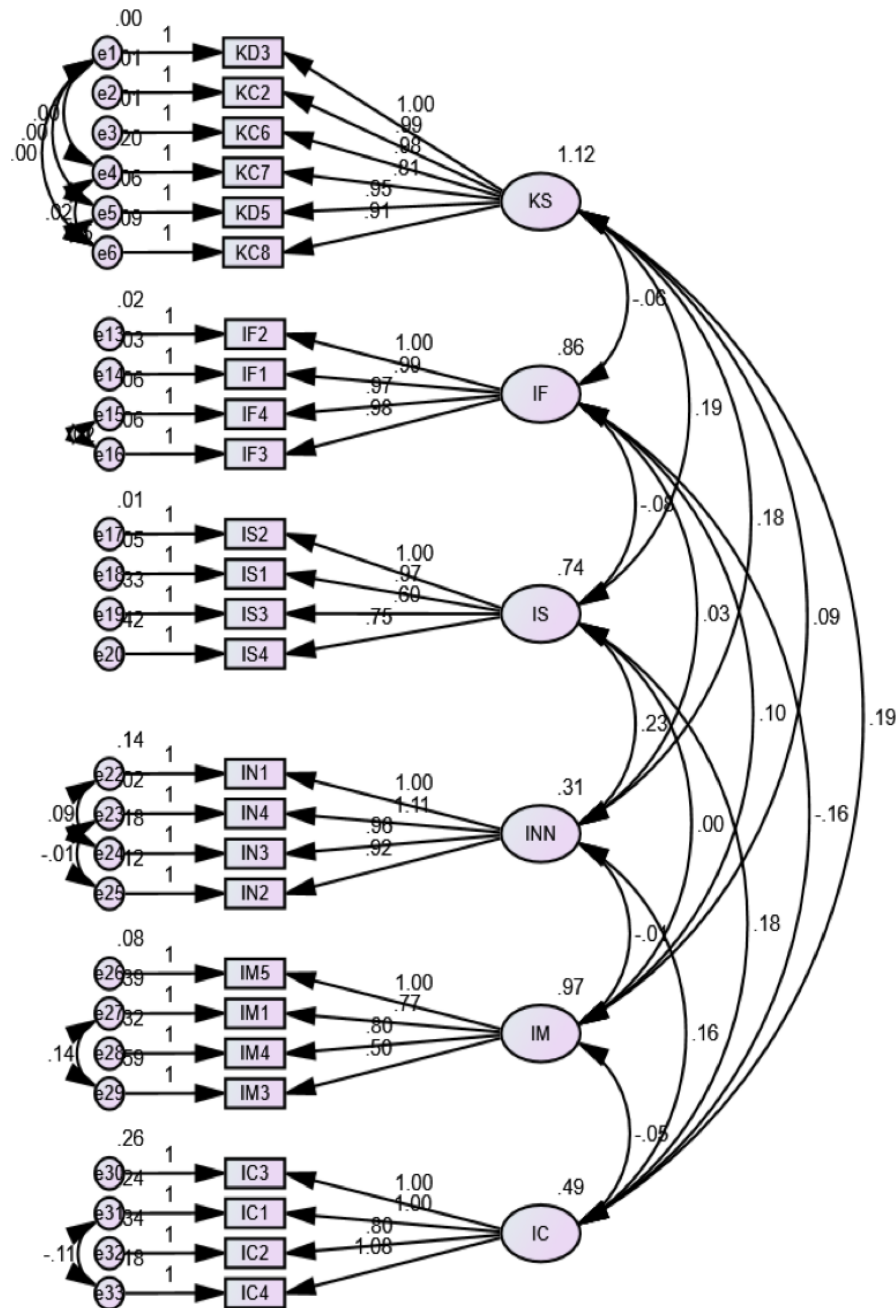


Figure 6.4 Output Path Diagram (Second Run)

Table 6.19 Measurement Model Goodness-of-Fit Indices (CFA second-run)

Goodness of fit measure	Conceptual Model First Run	Recommended criteria	Acceptable/Unsatisfactory	References
X ² /df	1.988	≤ 3	Acceptable	Hair, et al., 2010
GFI	0.850	> 0.8	Acceptable	Etezadi-Amoli and Farhoomand, 1996
AGFI	0.804	>0.8	Acceptable	Etezadi-Amoli and Farhoomand, 1996
CFI	0.977	>0.8	Acceptable	Lau, 2011; Kline, 2010
RMR	0.045	<0.05	Acceptable	Hair, et al., 2001; Kline, 2010
NFI	0.934	>0.9	Acceptable	Wang and Wang, 2012
TLI	0.960	>0.9	Acceptable	Hair, et al., 2010
RMSEA	0.058	<0.10	Acceptable	Devaraj, et al., 2002; Byrne, 2001

It can be seen from Table 6.19 that introduction of the above-mentioned modifications improved the overall goodness-of-fit of the model to an acceptable level. Therefore, since the revised model was confirmed to fit the empirical data adequately, it was decided that no further modification was necessary.

6.7.3 The Measurement Model Evaluation: Reliability Assessment

Construct Reliability

After establishing the goodness-of-fit for the measurement model, the next step was to assess the composite reliabilities of the model constructs. Composite Reliability (CR) resulting from using SEM is considered to provide better reliability estimation than that by using Cronbach's alpha coefficient (Peterson and Kim, 2013). Therefore, introducing CR in this study was a means of providing another reliability test to judge the accuracy of the results obtained from the Cronbach's alpha coefficient test. The following formula proposed by Fornell and Larcker (1981), was applied to calculate the CR for all model constructs:

$$CR = \frac{\left(\sum_{i=1}^n \lambda_i \right)^2}{\left(\sum_{i=1}^n \lambda_i \right)^2 + \left(\sum_{i=1}^n \delta_i \right)}$$

Table 6.20 presents the results of CR for all study constructs, indicating that all constructs showed high CR coefficients that were all above the cut-off point of 0.7, thereby indicating adequate internal consistency. It can be seen from Table 6.20 that the reliability estimations acknowledged high coefficient values ranging from 0.815 for the IF construct to 0.981 for the KS construct.

Table 6.20 Composite Reliability Results

Construct	CR	Comments
IM	0.974	Accepted (>0.7)
KS	0.981	Accepted (>0.7)
IF	0.815	Accepted (>0.7)
INN	0.902	Accepted (>0.7)
IS	0.832	Accepted (>0.7)
IC	0.894	Accepted (>0.7)

Construct Validity

The next logical step at this point was to determine the extent to which the observed variables were actually measuring those associated latent variables that they were supposed to measure, which is known as construct validity. According to Hair et al. (2010), construct validity can be assessed through convergent and discriminant, validity.

Convergent validity is the extent to which the observed variables comprising a particular scale correlate with one another. In order to establish convergent validity, the inter-correlations for all items comprising a given construct should be high enough to show that these items are really related to the same construct (Hair et al., 2010).

In SEM, convergent validity is estimated by average variance extracted (AVE). In order to report convergent validity, the recommended values for AVE >0.5 (Hair et al., 2010). The following formula proposed by Fornell and Larcker (1981) was applied to calculate the AVE for each construct:

$$AVE = \frac{\sum_{i=1}^n L_i^2}{n}$$

Table 6.21 AVE Results

Construct	AVE	Comments
IM	0.926	Accepted (>0.5)
KS	0.946	Accepted (>0.5)
IF	0.606	Accepted (>0.5)
INN	0.754	Accepted (>0.5)
IS	0.629	Accepted (>0.5)
IC	0.737	Accepted (>0.5)

Table 6.21 displays the calculated AVE for all constructs. The lowest AVE value was 0.606 for IF construct, which is higher than cut-off point of 0.5. These results suggest a high level of convergent validity for all constructs in the study's measurement model.

To further confirm the construct validity, a discriminant validity test suggested by Hair et al. (2010) was conducted. Discriminant validity is the extent to which a construct is truly distinct from other constructs (Hair et al., 2006), and it can be measured by using AVE (Fornell and Larcker, 1981; Hair et al., 2006).

The results of average variance extracted (AVE) should be greater than the squared correlation estimates (Fornell and Larcker, 1981; Hair et al., 2006). The results showed in following Table 6.22 suggest that the values of all average variance extracted are greater than the relevant squared correlation estimates, thereby confirming discriminant validity.

Table 6.22 Discriminant Validity Output

	IM	KS	IF	INN	IS	IC
IM	0.962					
KS	0.458	0.972				
IF	0.125	0.067	0.779			
INN	0.207	0.203	0.431	0.868		
IS	0.018	0.050	0.137	0.117	0.793	
IC	0.154	0.154	0.389	0.490	0.054	0.859

In summary, the overall results of construct validity using convergent and discriminant validity assessment of the measurement model provided statistically and theoretically valid constructs. Thus, the underlying latent variables for the structural equation model testing stage were robustly established.

6.8 The Structural Model: Structural Equation Modelling (SEM)

Having established the measurement model goodness-of-fit and confirmed the validity of all relevant constructs, the next logical step for the analysis was to assess the underlying relationships among these constructs as proposed in the conceptual framework in Chapter 3 (Conceptual framework and hypothesis development).

Based on the revised measurement model's latent and observed variables shown in Figure 6.4 on page 179 and their hypothesised theoretical relationships, a structural model was constructed as shown in the following Figure 6.5 for further SEM analysis. It can be seen that the structural model consists of two endogenous variables (INN and KS), and four exogenous variables (IF, IS, IM and IC) related to the transformational leadership.

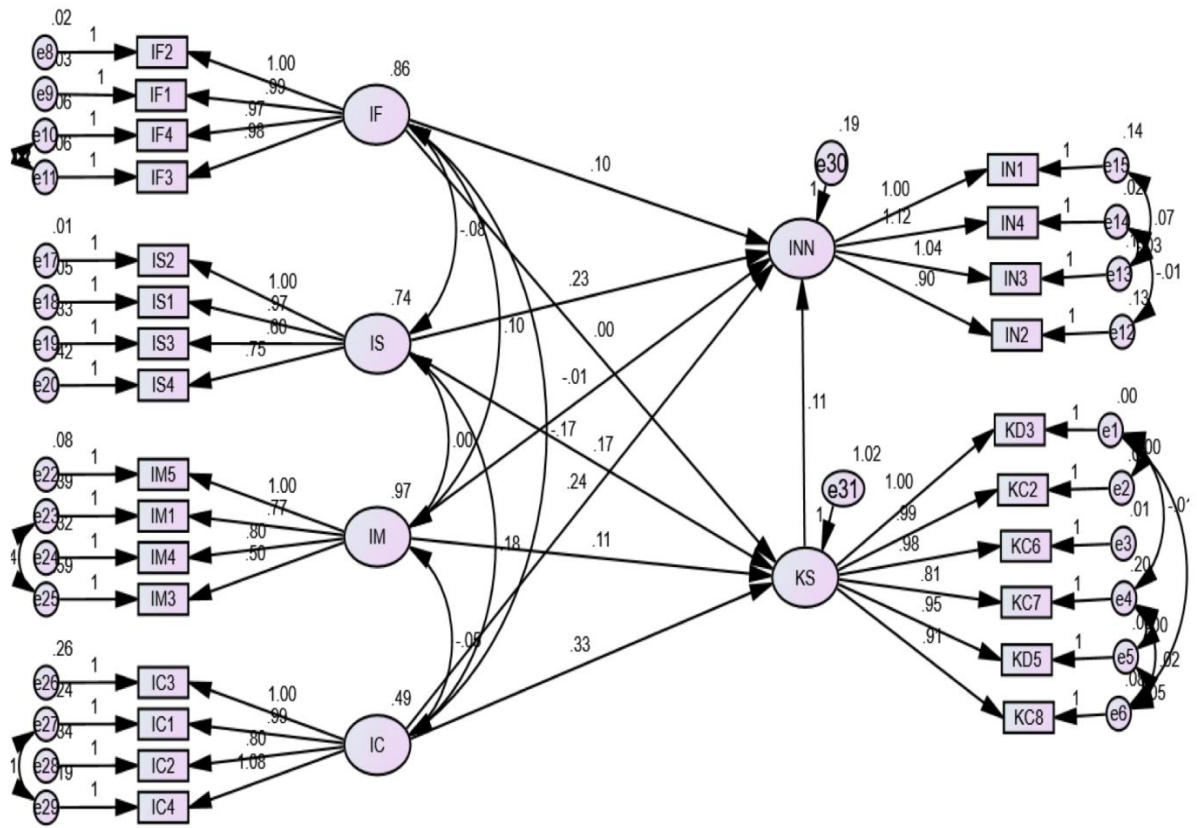


Figure 6.5 The Structural Model

Afterwards, SEM using AMOS 23 was performed in order to assess the goodness of-fit between the structural model output and the empirical data. The results indicated that the structural model provides a good overall fit with the data as displayed in Table 6.23 The full model-fit summary for the first-run of SEM can be found in Appendix 6E.

Table 6.23 Structural Model Goodness-of-Fit Indices (SEM first-run)

Goodness of fit measure	Conceptual Model First Run	Recommended criteria	Acceptable/Unsatisfactory	References
X ² /df	1.965	≤ 3	Acceptable	Hair, et al., 2010
GFI	0.853	> 0.8	Acceptable	Etezadi-Amoli and Farhoomand, 1996
AGFI	0.808	>0.8	Acceptable	Etezadi-Amoli and Farhoomand, 1996
CFI	0.967	>0.8	Acceptable	Lau, 2011; Kline, 2010
RMR	0.047	<0.05	Acceptable	Hair, et al., 2001; Kline, 2010
NFI	0.936	>0.9	Acceptable	Wang and Wang, 2012
TLI	0.961	>0.9	Acceptable	Hair, et al., 2010
RMSEA	0.058	<0.10	Acceptable	Devaraj, et al., 2002; Byrne, 2001

6.9 Testing Research Hypotheses

Having successfully validated the structural model’s goodness-of-fit to the data, the next step was to examine the research hypotheses using path measurement coefficients (regression weight estimates and critical ratios) from the SEM analysis performed with AMOS 23. Table 6.24 summarise these results, from which it is seen that six of the ten hypothesised paths in the structural model were significant at the 0.05 level.

Table 6.24 Path Coefficient Weights for the Structural Model

Dependent Variables	Path	Independent variables	Estimate	S.E.	C.R.	P	Comments
KS	<---	IM	.107	.074	1.440	.150	Non-Significant (P>0.05)
KS	<---	IC	.331	.113	2.933	.003	Significant (P<0.05)
KS	<---	IS	.174	.086	2.033	.042	Significant (P<0.05)
KS	<---	IF	.004	.079	.050	.960	Non-Significant (P>0.05)
INN	<---	IF	.098	.035	2.775	.006	Significant (P<0.05)
INN	<---	IS	.230	.040	5.697	***	Significant (P<0.05)
INN	<---	IC	.238	.058	4.125	***	Significant (P<0.05)
INN	<---	IM	-.007	.033	-.200	.841	Non-Significant (P>0.05)
INN	<---	KS	.106	.035	3.001	.003	Significant (P<0.05)

Significant at level of p<0.05

Hypothesis H1

This hypothesis tested the impact of IF on INN within the UAE MoI. The estimate path between the two constructs revealed a significant positive influence at a level of $p < 0.05$. Therefore, the hypothesis is accepted (IF positively influences INN). That is, any increase in **idealised influence** would positively influence **innovation process** within the UAE MoI.

Hypothesis H2

This hypothesis tested the impact of IM on INN in the UAE MoI. As presented in Table 6.24, the path coefficient and critical ratio estimates for the path between IM and INN were 0.107 and 1.440, respectively. The p value was 0.150 ($p > 0.05$) showing lack of support for hypothesis, which infers that **inspirational motivation** has no positive influence on **innovation process** in the MoI of the UAE.

Hypothesis H3

This hypothesis tested the impact of IS on INN within the UAE MoI. Results of regression weight and critical ratio estimates for the path of IS to INN were 0.230 and 5.697, respectively with $p < 0.05$. These results indicated support for the hypothesis and therefore accept the hypothesis H3, which indicates that **intellectual stimulation** has a significant positive effect on the **innovation process**.

Hypothesis H4

This hypothesis tested the impact of IC on INN within the UAE MoI. The estimate path between the two constructs revealed a significant positive influence at a level of $p < 0.05$. Therefore, the hypothesis is accepted **individualised consideration** positively influences **innovation process**. That is, any increase in IC would positively influence process innovation within the UAE MoI.

Hypothesis H5

This hypothesis tested the impact of IF on KS within the UAE MoI. As presented in Table 6.24, the p value for path between IF and KS was 0.150 ($p > 0.05$) showing lack of support for hypothesis H5, which infers that **Idealised influence** has no positive influence on the **knowledge sharing** (KS) within the MoI.

Hypothesis H6

This hypothesis tested the influence of IM on KS. As presented in Table 6.24, the p value for the path between IM and KS was 0.150 ($p > 0.05$) showing lack of support for hypothesis H6, which infers that **inspirational motivation** has no positive influence on the **knowledge sharing** within the MoI.

Hypothesis H7

This hypothesis tested the influence of IS on KS. As shown in Table 6.24, the p value for path between the two constructs revealed a significant influence the p-value was 0.01 a significant at level of $p < 0.05$ hence supporting the hypothesis H7, which suggests that **intellectual stimulation** positively influences **Knowledge Sharing** in the UAE MoI.

Hypothesis H8

This hypothesis tested the impact of IC on KS. The estimate path between the two constructs produced regression weight of 0.331 and critical ratio of 2.931 indicating a significant influence at $p < 0.05$. These results, therefore, provided a strong support for the hypothesis which means that **individualised consideration** positively influences the **knowledge sharing** within the UAE MoI.

Hypothesis H9

This hypothesis tested the impact of KS on INN within the UAE MoI. Results of regression weight and critical ratio estimates for the estimate path of KS to INN were 0.106 and 3.001, respectively with $p < 0.05$. These results indicated support for the hypothesis and therefore accept the hypothesis H9, which indicates that **knowledge sharing** has a significant influence **innovation process**.

Hypothesis H10

Results of regression weight and critical ratio indicate that IM was insignificantly associated with INN $p = 0.841$ $p > 0.05$, and IF and IM were insignificantly associated with KS $p = 0.960$, 0.150 respectively $p > 0.05$. Therefore, it was not possible to establish a mediating effect of the KS for the relationship between TL-INN.

6.10 The Final Research Model

Subsequently, in an attempt to secure a parsimonious model that would better fit the empirical data, all insignificant regression paths were excluded from the model. The final structural model is shown in Figure 6.6 below.

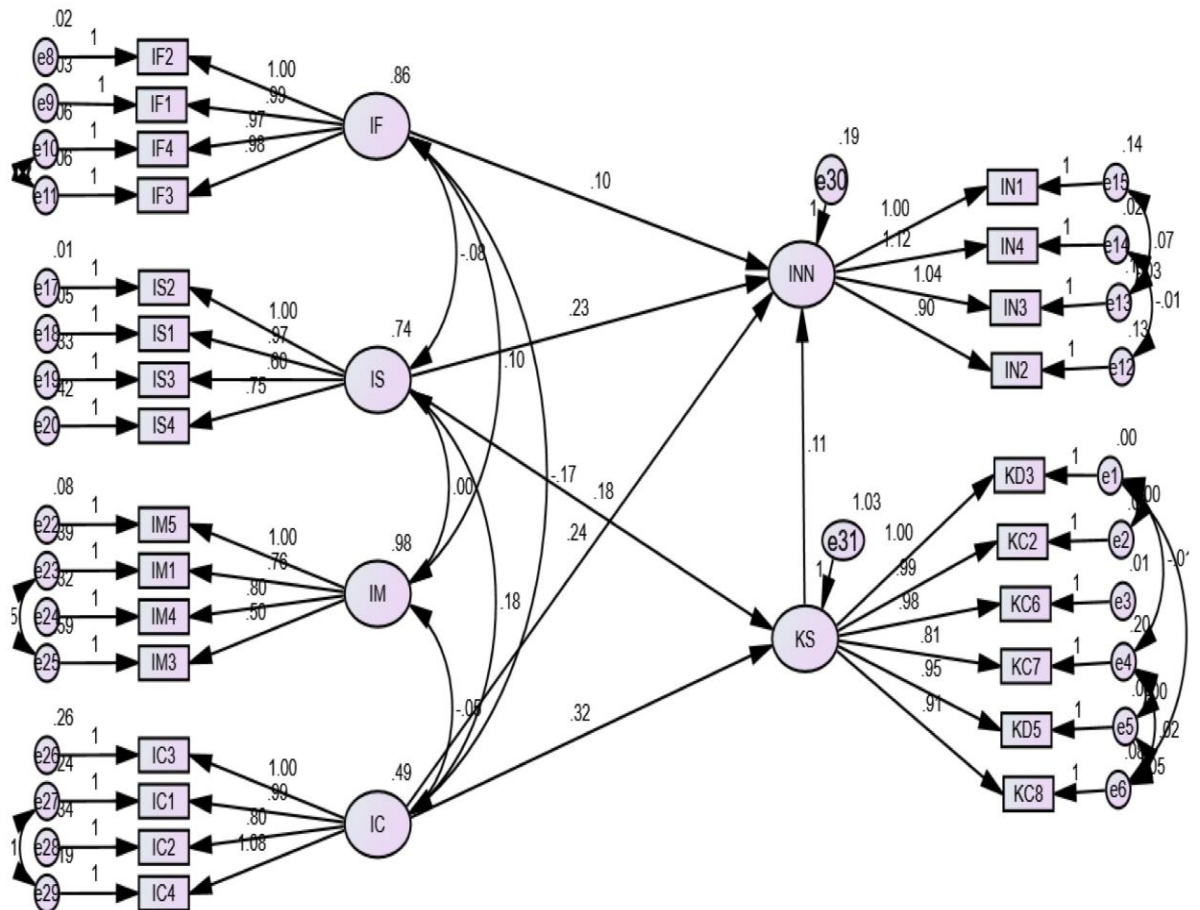


Figure 6.6 The Revised Structural Model

Moreover, Table 6.25 below shows that the overall goodness-of-fit for the revised structural model was slightly improved because of excluding the non-significant regression paths. The full model-fit summary for the second-run of SEM can be found in Appendix 6F.

Table 6.25 Structural Model Goodness-of-Fit Indices (SEM second-run)

Goodness of fit measure	Conceptual Model First Run	Recommended criteria	Acceptable/ Unsatisfactory	References
X ² /df	1.951	≤ 3	Acceptable	Hair, et al., 2010
GFI	0.854	> 0.8	Acceptable	Etezadi-Amoli and Farhoomand, 1996
AGFI	0.809	>0.8	Acceptable	Etezadi-Amoli and Farhoomand, 1996
CFI	0.969	>0.8	Acceptable	Lau, 2011; Kline, 2010
RMR	0.046	<0.05	Acceptable	Hair, et al., 2001; Kline, 2010
NFI	0.938	>0.9	Acceptable	Wang and Wang, 2012
TLI	0.963	>0.9	Acceptable	Hair, et al., 2010
RMSEA	0.058	<0.10	Acceptable	Devaraj, et al., 2002; Byrne, 2001

Overall, after removing insignificant paths from the original model, a more parsimonious revised model was obtained, indicating a better fit with the collected empirical data. Figure 6.7 below displays the final research model based on the empirical data collected within UAE context.

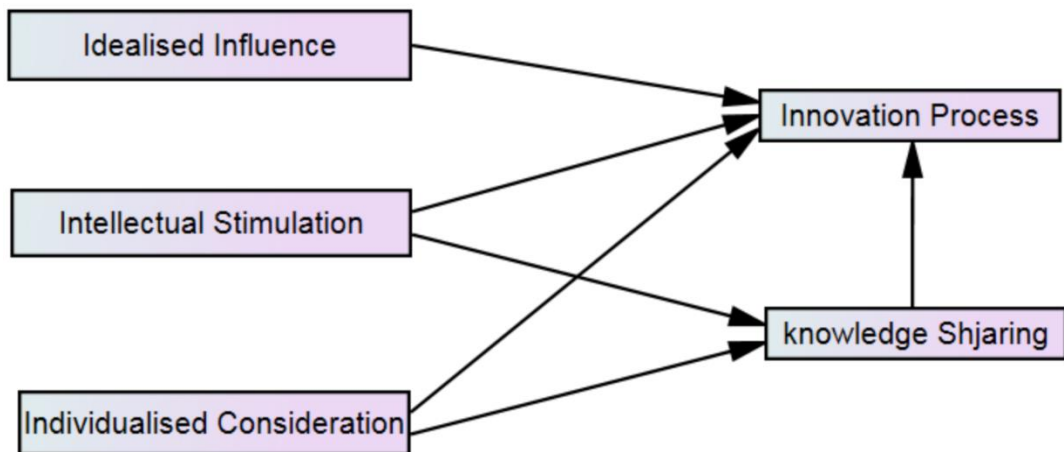


Figure 6.7 The Final Research Model

6.10.1 Further Assessment of the Revised Structural Model

In order to assess the explanatory power of the final research model shown in Figure 6.7 on page 189 and to shed more light on the nature of the relationships among the model constructs, Squared Multiple Correlations (SMC) estimates along with total (direct and indirect) effects for the final model variables were analysed (Tables 6.26 direct, indirect, and total effect).

Table 6.26 results of Direct, indirect, and total effect

Factor	Effect	IC	IM	IS	IF
KS	Direct	0.188	0.142	0.128	-0.083
	Indirect	0.000	0.000	0.000	0.000
	Total	0.188	0.142	0.128	-0.083
IN	Direct	0.258	-0.073	0.283	0.198
	Indirect	0.039	0.030	0.027	-0.017
	Total	0.297	-0.044	0.309	0.180

Table 6.26 shows the standardised total effects of one construct on another, which is the sum of both direct and indirect effects. In the direct effect case, there are no intervening variables and the effect represents only the path coefficient between the two constructs. The indirect effect, on the other hand, represents the effect of one construct on another through one or more intervening variables. The effect here represents the product of path coefficients between intervening variables and the endogenous variables.

For example, considering the effect of IC on KS and INN; on one hand, it is clear that the total effect of IC on KS is only the direct effect (0.188), which is the path coefficient between the two constructs (Figure 6.7 on page 189). On the other hand, the total effect of IC on INN (0.297) represents both direct and indirect effects of IC on INN.

In addition, by reviewing the total effects of the research construct on the main research dependent variable INN, it can be seen that the largest impact is of IS (0.309) from which 0.283 represents the direct effect and 0.027 the indirect effect through KS, followed by IC (0.297) and IF (0.180). The smallest total effect is the direct and indirect influence of IM on INN (-0.044).

6.11 Conclusion

In conclusion, this chapter presents the findings from final purified scales and hypotheses testing. Initially, data was screened through pointing out missing data and data outliers in order to prepare for further analysis. Accuracy of data was assessed through linearity, normality and reliability tests to infer accurate results that data portray. This section was followed by the explanation of factor loading to identify the groups or clusters of variables. An exploratory factor analysis technique was used to show the relationship of variables to factors. In this section factors were extracted with the help of eigenvalues and the scree plot. Applying Varimax of orthogonal technique in principal component, factors were rotated which showed maximum variance of factor loading. The finding showed significant results in which six factors were extracted. The measurement scale for this research was subjected to confirmatory factor analysis (CFA) after the exploratory factor analysis. The measurement model and structural model was assessed through AMOS 23 version software on the basis of 228 cases. Before inferring results, reliability and construct validity tests were also conducted in which all measurement scales were found satisfactory. As for hypotheses testing, standardised estimates and t-values were applied from the structural model. The findings showed statistically significant positive relationships between most constructs. However, no significant positive relation was found between IM and KS, IF and KS and IM and INN. Most of the results of significant relationships between constructs were as theoretically expected. However, there were few surprising results thus, more detailed discussion of the findings will be provided in the next chapter.

Chapter 7: Discussion summary of findings

7.1 Introduction

This study examined the evolution of the innovation within the public sector in the UAE. This new orientation towards “government innovation” attempts to achieve public well-being in post-industrial economies by providing high quality government service delivery through digitise government services as evident by the prime minister of the UAE when he announced his desired for government service to be delivered to public through mobile phones (mgov-award, 2017). Delivering innovative digital public services requires new government capabilities including:” 1) service architectures—such as those needed to deliver context-aware and context-smart services; 2) processes — e.g. enabling to define, design and deliver co-created services; 3) policies — ensuring privacy, personal data protection, and the equity principle for service delivery; and 4) reference models able to consider specificities of the local context—e.g. measurement models for digital public service innovation” (Janowski et al, 2016, p.220).

From the literature review key issue highlighted in extant studies is that focus in public-sector innovation is mainly on service innovation as opposed to product/marketing innovations (Scupola and Zanfei, 2016). This study aimed to identify key determinants and barriers for implementing innovation process within the public sector in the UAE specifically in the MoI. A conceptual model was developed based on (Bass and Avolio 2000) transformational leadership model giving that inconsistent effects of previous studies of the influence of this style on innovation, and the complexity nature of knowledge sharing process (Hooff and Ridder, 2004) within police organisation. The study argued that the four components of transformational leadership will differ in terms of their effect on the innovation process. Lastly, the current study seeks the effect of demographic variables within the MoI on innovation process, and on the knowledge sharing. This chapter provides an interpretation of the research findings presented in Chapter 6. The discussion links these findings to those from prior literature, and concentrates on how these findings provide answers to the research questions, and in turn, meet the objectives of the study. Each section in this chapter deals with one of the main research questions presented in Chapter 1. Having presented the findings in respect of all the objectives, the chapter concludes with a short summary.

7.2 Measurement scale refinement

At the beginning, it is important to state that the original measurement scale of the questionnaire was made up of 46 items and they were adopted from previous literature. Thus, the first issue to be discussed is the operationalisation and validation of the concepts in this study. Previously validated tool/items were used to investigate the effect of independent variables on Innovation process. For the independent variable (transformational leadership), 21 items were adopted from (Bass and Avolio, 2000; Avolio and Bass, 2002) to measure the four components of the transformational leadership: Idealised Influence, Inspirational motivation, Intellectual stimulation, and Individualised consideration. In addition, for measuring the dependent variable innovation process, 9 items were adopted from previous literature (see for example: Perri 6, 1993; Skerlavaja et al., 2010; McGrath, 2001; Ibarra, 1993; and Daft, 1978). Finally, 16 items were used to measure the knowledge sharing. These items were borrowed from (Hooff et al., 2003, Hooff and Weenen 2004, Hooff and Ridder, 2004, De Vries et al., 2006, Bock et al.,2005).

Initially, the Cronbach alpha and exploratory factor analysis (EFA) was used to ensure the internal consistency and reliability of the tool. However, EFA results exhibited that some items such as (IF5, IF6, IF7, IM2, KD1, KD2, KC1, KC5, IN5, IN6, IN7, IN8 had low factor loadings (i.e. less than 0.05). Therefore, these items were removed from further analysis (see table 6.14 page 169). Moreover, items related to Knowledge Donating and Knowledge Collecting loaded on the same factor. After careful examination of items and using theoretical explanation provided by (Han et al., 2016), the researcher thus named the new factor as knowledge sharing. The survey instrument was further enhanced through confirmatory factor analysis (see figure 6.4 on page 179). Finally, several statistical tests like convergent validity (CV), discriminant validity (DV) and average variance extracted (AVE) were performed. As a result, theoretically valid and reliable scales developed and hypothesis testing was performed with the modified scale. The final 6 constructs including 33 items accredited by EFA and CFA are listed below table 7.1.

Table 7.1 the modified scale of the questionnaire

Factors		No of Items
Transformational leadership	• Idealised influence (IF)	4
	• Inspirational motivation (IM)	4
	• Intellectual stimulation (IS)	5
	• Individualised consideration (IC)	4
Innovation Process	• Innovation process (INN)	4
Knowledge Sharing	• Knowledge sharing (KS)	12
Total items		33

7.3 Research Objective 1

As outlined in Chapter 1, the first research objective aimed to identify the effects of Transformational Leadership namely (idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration) on innovation processes in the MoI. In order to achieve this objective, following research question was formulated.

Research question 1:

What are the effects of the four main components of Transformational Leadership on innovation process in the MoI?

In order to answer the above research question and as a result of reviewing the literature related to leadership and innovation process, four hypotheses (H1, H2, H3, and H4) were constructed for testing using **Structural Equation Modelling** (see chapter 3 page94). These hypotheses were aimed to test the influence of independent variables (TL) on the research dependent variable (INN). Moreover, with a view to accept/reject the hypotheses, the final four significant factors derived from exploratory and confirmatory factor analyses for the transformational leadership in the MoI are discussed below. They are idealised influence (IF), inspirational motivation (IM), intellectual stimulation (IS), and individualised consideration (IC).

7.3.1 Impact of Idealised Influence (IF) on innovation

The first factor found to influence innovation process is the idealised influence – discussed earlier on page 21. Idealised Influence (IF) builds trust, and respect among employees. Leaders exhibiting IF behaviour share the risks with employees, instil commitment in them, and show confidence in the organisational vision. These aspects encourage employees to work hard and be more innovative (Bass and Riggio, 2012).

The mode of collapsed items related to IF is (3.00), which suggests that employee within the MoI tend to agree that their leaders exhibit the idealised influence behaviour in the MoI because only (21.49% of sample) survey participants disagreed or strongly disagreed that their leaders possess idealised influence because they hold the respect, trust, and faith of their staff.

The EFA table (see Table 6.14 on page169) exhibited that only four variables related to the IF construct were loaded onto factor two (i.e. IF) and were highly correlated with each other. Moreover, factor two (IF) alone explains 14.2% of the total variance in the data and reliability ($\alpha=0.989$) is adequate (Table 6.15 page171). Additionally, CFA results confirmed that the IF construct has a high composite reliability coefficient and a high level of construct validity (convergent and discriminant).

IF was hypothesised to have a significant influence on the innovation process (INN) in MoI (hypothesis H1). The relationship between idealised influence and innovation process is significant with a path estimate of 0.006, t-value of 2.775 and a significant p-value of ≤ 0.05 ; hence, the null hypothesis was not supported which infers the support for the alternate hypothesis H1 (IF has a significant influence on INN), therefore, the null hypothesis was rejected and the alternate hypothesis was accepted. The results of path measurement coefficients (Table 6.24 on page185) revealed that the path coefficient between the IF construct and INN was significant at a level of $p < 0.05$. As the Beta value was positive, these results infer that IF positively influences INN process in the MoI. However, as can be (seen in table 6.24 page185). IF did not have a significant relationship with KS ($p=0.960$).

Therefore, according to the norms set by Baron and Kenny (1986), it is not possible to establish the mediating roles of knowledge sharing in the relationship between IF and INN. The results of the current study indicate that the employees of MoI recognise that their leaders possess idealised influence because they hold the respect, trust, and faith of their workforce.

These results are consistent with findings from prior studies. For example, research by Nusair et al. (2011) found that IF is the most influential factor that effect innovation process in the Jordanian public sector. Moreover, in context of banking sector of the Iran, Faraji et al., (2014) discovered that there is a significant relationship between idealised influence and the components of the organisational innovation, and this relationship is positive and direct. The current study result is also in line with a study conducted by Vaccaro et al. (2012), which confirmed the positive influence of IF on organisational innovation process. They further explained that leaders with idealised influence enable a change in cultural values, leading to success and process innovation.

Leaders with idealised influence behaviour can inspire the followers around them to achieve the organisational goals by providing them a vision and creating an innovative culture (Sadler, 2003). Transformational leaders use tools such as idealised influence to encourage their followers mentally, and to stimulate their innovative ideas in the whole organisation (Faraji et al., 2014). Leaders with idealised influence are generally most respectful, trustworthy, and admirable, particularly in the Arab world (Gupta & van Wart, 2015; Billingsley, 2009; Mellahi & Wood, as cited in Al-Hamadi et al., 2007, p. 111). Much of the empirical research on Arab management indicates that organisations in Arab countries face many organisational and managerial problems, stemming from their bureaucratic design and prevailing power culture (Sabri, 2007). In context of UAE public sector, this study found that leaders who exhibit idealised influence positively influence the innovation process in public service organisation such as the MoI. A possible explanation of this result may be as Klein et al., (2009) found that the UAE cultural profile according to the sample of their research indicates that leaders in the UAE prefer a culture where the members strive to achieve positive goals and where a sense of accomplishment is the dominant theme.

Members are expected to be creative and enjoy their work. Therefore, a constructive culture which help to grow employee instead of using them as a tool are expected to be found in the police organisation such as the MoI. To further ensure that employees are committed towards achieving the set goals, MoI has put in place measures and indicators of strategic results. Some of the measures that are relevant to the innovation process include ‘the number of proposals submitted by every 100 employees, the percentage of executable proposals and the percentage of main partners’ satisfaction of the ministry’ (MoI Strategy 2014-2016: 2014). The above initiatives to offer incentives for internal innovation and measure progress in achieving strategic goals at MoI is reflective of the application idealised influence dimension of TL at the Ministry.

7.3.2 Impact of Inspirational motivation (IM) on innovation

Inspirational motivation is about a leaders’ ability to develop and articulate a vision that is not just acceptable to the followers but also appealing and inspiring (Gumusluoglu& Ilsev, 2009). Also, as noted by Gooty et al. (2009), leaders employing inspirational motivation manage to transform their followers by motivating them through setting high standards, communicating optimism in regard to future goals and underscoring the importance of current tasks. In this study, the mode of collabased items used to measure the IM construct was 4.00 (greater than the scale midpoint of 3), reflecting agreement among respondents on this factor’s variables (57.0% of sample) considered that their leaders express inspirational motivation because they hold the respect, trust, and faith of their staff. The EFA table (Table 6.14 page169) showed that only four variables related to the IM construct were loaded on factor five and correlated with each other. Moreover, factor five (IM) alone explains 6.3% of the total variance in the data and reliability ($\alpha=0.864$) is acceptable (Table 6.15 page171).

Additionally, CFA results confirmed that the IM construct has a high composite reliability and a high level of construct validity. Returning to the hypothesis posed at the beginning of this study, it was stated that inspirational motivation will have a significant influence on the innovation process (INN) in MoI (hypothesis H2).

It is somewhat surprising that the results of path measurement coefficients (Table 6.24 on page 185) evident from the relationship between inspirational motivation and innovation process is non-significant with a path estimate of 0.0841, t-value of -0.200 and a non-significant p-value $p > 0.05$. These results infer that IM has no significant influence on innovation process in the MoI.

According to Kenny et al., (1998) and Baron and Kenny (1986), examining the indirect effect of IM on INN via KS requires a significant relationship between inspirational motivation and innovation process and a significant relationship between inspirational motivation and knowledge sharing. Therefore, in line with advice from these scholars, it is not possible to establish the mediating roles of knowledge sharing in the relationship between inspirational motivation and innovation process. The results of the current study indicate that the employees of MoI acknowledge that their leaders' attempt to motivate and inspire them. However, the inspirational motivation does not affect overall innovation process. The findings of the current study are different compare to the previous studies in different contexts (see for example, Chang, 2012; Sarrors et al., 2008; Bass and Riggio, 2006 and DuBrin, 2007). Nevertheless, this result is consistent with those of McMurray et al., (2013). According to their results, Inspirational Motivation was found to have insignificant effect on workplace innovation. One possible explanation for this result is the limited working hours of the public sector. Although, leaders of MoI provide inspirational motivation to employees; lack of time acts as a barrier to improve public services and implement innovation. For instance, new training programs introduced by leaders to support the innovation process did not get ample support and response from employees because they often have limited amount of time on their hands. Moreover, in the holy month of Ramadan, working hours of the MoI as a part of public sector are further reduced. According to Article 65 of UAE Labour Law "During the month of Ramadan, normal working hours are reduced by 2 hours" (emiratesdiary, 2017). Despite various calls from the leadership, only 87 MoI employees either offered new innovative ideas or registered patents of invention (MoI, 2016). This suggests the lack of innovative culture is a barrier to the innovation process within MoI. Therefore, there is a need for leaders within the MoI to build an innovation-friendly culture to spread innovative activity through effective communication.

7.3.3 Impact of Intellectual stimulation (IS) on innovation

Intellectual stimulation (IS) involves the extent to which a leader is able to challenge pre-set assumptions, take risks and solicit ideas from his or her followers (Sarros, Cooper and Santora (2008). Leaders employing this style of leadership empower, stimulate and encourage their followers to be highly creative and innovative as well as reframe problem and develop novel ways of approaching old situations (Wang and Rode, 2010).

In this study, the mode of all five observable items used to measure the IS construct was 4.00 (greater than the scale midpoint of 3), reflecting agreement among respondents on this factor's variables. This result shows that most survey participants (more than 67% of sample) considered that their leaders possess intellectual stimulation because they can think freely in daily work struggle and problem, in other words open-to-experiences.

The EFA table (Table 6.14 page169) exhibited that all five items/variables (IS1, IS2, IS3, IS4 and IS5) related to the IS construct were loaded on factor three and were highly correlated with each other. Moreover, factor three (IS) alone explains 11.3% of the total variance in the data and reliability ($\alpha=0.901$) is excellent (see Table 6.15 page171). Additionally, CFA results confirmed that the IS construct has a high composite reliability (CR= 0.832) and a high level of construct validity (AVE=0.629).

IS was hypothesised to have a significant influence on the innovation process (INN) in MoI (hypothesis H3). The results of path measurement coefficient revealed that the the relationship between **intellectual stimulation** and **innovation process** is significant with a path estimate of 0.001, t-value of 5.697 and a significant p-value of $\leq .05$ between the IS and INN constructs were significant at a level of $p < 0.001$. Hence, the hypothesis (H3) was accepted.

The results of the current study indicate that the employees of MoI recognise that their leaders possess intellectual stimulation which can be portrayed in different practises such as support the non-traditional thinking to solve the old problems, suggesting new ways in dealing with assignments, to name few. The finding of this study is aligned with previous studies that proposed a positive link between intellectual stimulation and innovation (see for example: Al-Husseini & Elbeltagi, 2012; Hu, Gu & Chen, 2013; Ryan & Tipu, 2013; Noruzy et al. 2013, Khan et al., 2014). Similarly, Khalili (2016) and Choi et al. (2016) found that leaders with transformational behaviours encourage employees innovation by motivating them intellectually to create solutions to problems which invigorate their innovation. Therefore, when employees feel that their work environment supports for innovation; transformational leadership will be more effective in the relation to increase overall organisational innovation.

On the other hand, Sarros, Cooper and Santora, (2008) found lack of support for the relation between IS and INN. Similarly, Podsakoff et al., (1990) reported that intellectual stimulation has a negative impact on employees. They found that intellectual stimulation was negatively associated with a number of employee attitudes including trust in the leader and satisfaction. The authors further explained their findings by suggesting that intellectual stimulation is associated with higher levels of role ambiguity, stress and conflict in the workplace.

This can thus be concluded that while intellectual stimulation may enhance ambiguity and conflict in the workplace, employees may also feel valued when they are encouraged to actively participate in an organisation. In greater detail, intellectual stimulation causes employees to come up with divergent ideas and positions. The differences may be a cause of ambiguity or conflict especially when employees cannot agree on which ideas to adopt (Doucet et al., 2009). In such a case, transformational leaders are required to emphasize on mutual respect and collaboration in solving problems.

In the context of UAE, leaders in the MoI recognise the importance of intellectual stimulation and innovative environment to improve services. As a result, one of the main strategic objective for plan 2017-2021 is to instill a culture of innovation in institutional work environment (MoI, 2014). This may encourage workforce to take various perspectives on tasks and to rethink the way the job is done. Meanwhile, the indirect effect of intellectual stimulation on innovation process via knowledge sharing was statistically significant (0.027 non- zero). According to Kenny (2016) and Lyytinen, and Gaskin (2017) the mediation effect is considered to be significant when β value for indirect effect is non-zero. Table 6.26 page190 establish the indirect effect (0.027, non-zero) of IS on INN. This result is consistent with the findings of Zheng et al (2017). They found that the indirect effect of transformational leadership on project-based organisational innovation performance via knowledge sharing was statistically significant ($\beta = 0.179$, 95% CI [0.116; 0.264], not containing zero). Therefore, it can be seen that KS has both direct and indirect effect on innovation process. In addition, the total effect 0.039 (Table, 6.26 page190) showed the largest impact of IS on innovation process within MoI.

7.3.4 Impact of Individualised consideration (IC) on innovation

Individualised consideration constitutes one of the four aspects of transformational leadership that the present study considered to have a significant influence on process innovation in the MoI.

In this study, the mode of collapsed items used to measure the IC construct was 4.00 (greater than the scale midpoint of 3), reflecting agreement among respondents on this factor's variables. This result shows that most survey participants (more than 64% of sample) considered that their leaders take into consideration the staff special needs an ability as individual and spends time teaching and coaching.

The EFA table (Table 6.14 page169) exhibited that all five items/variables (IC1, IC2, IC3, and IC4) related to the IC construct were loaded on factor six and were highly correlated with each other. Moreover, factor three (IC) alone explains 4.5% of the

total variance in the data and reliability ($\alpha=0.865$) which indicate high reliability (see Table 6.15 page171). Additionally, CFA results confirmed that the IC construct has a high composite reliability (CR= 0.894) and a high level of construct validity (AVE=0.737).

IC was hypothesised to have a significant influence on the innovation process (INN) in MoI (hypothesis H4). The relationship between **individualised consideration** and **innovation process** is significant with a path estimate of 0.001, t-value of 4.125 and a significant p-value of ≤ 0.05 between the IC and INN constructs were significant at a level of $p < 0.001$. Hence, the hypothesis (H4) was accepted.

The findings of the study indeed reveal that individualised consideration has a significant influence on process innovation within the MoI. Put differently, leadership characteristics at the MoI that are characterized by interest in the employee's wellbeing, assigning of projects individually and paying attention to individuals who might seem less involved in the workplace groups have significant impacts on organisational innovation. Consistent with this finding, previous studies have also reported that innovative behaviour is high among subordinates when their individual needs are taken into consideration through supportive, non-controlling leadership (Oldham & Cummings, 1996; Tierney et al., 1999; Jung et al., 2003).

Further examination of the findings indicates that several leadership practices in the MoI have contributed to the positive influence of individualised consideration on process innovation. To begin with, the study finds that the majority of employees in the MoI are satisfied that their leaders spend time on teaching and coaching. From prior literature, teaching and coaching have been associated with greater levels of employee commitment to their jobs and the organisation (Weer et al., 2016). Committed employees are in turn better motivated to engage in practices such as knowledge sharing, backing-up and citizenship behaviours which collectively have a positive impact on process innovation.

Existing literature also indicates that employees provided with facilitative coaching have clearer expectations and are empowered to reach both individual and organisational goals (Chen et al., 2011). Therefore, continued coaching of employees in the MoI performs an important role in communicating innovation expectations and empowering of employees to reach the innovation related goals.

The vast majority of employees in the MoI are also confident that their leaders treat them as individuals rather than just as members of specific groups. The relatively high score in this aspect reflects the adoption of interpersonal leadership style in which leader-member relations in the MoI are more personalized. In consistent with the study finding, prior research has demonstrated that the use of an interpersonal approach during leader-employee relations has a positive influence on innovation. For example, the leader could act as a change agent thus convincing the employee to overcome resistance to adoption or engagement in innovation (García-Morales et al., 2012). This is especially the case where the leader is considered to be competent, credible and trustworthy. From another perspective, it can also be argued based on the study findings that considering employees as individuals makes it possible to provide a platform for employee involvement in the innovation process. As emphasised in past research, different employees have different creative skills and problem-solving abilities (Kesting & Parm, 2010). Therefore, the individual consideration and involvement such as the case of the MoI helps exploit the unique abilities to further enhance the innovation process.

In consistent with the study results, Yang and Konrad (2011) further found that the association between employee involvement and organisational innovation was significantly more positive when the level of involvement was high. The finding that employees are treated as individuals in the MoI further indicates that there are efforts to ensure positive affective attitudes. Current research indicates that affective attitudes such as job satisfaction and commitment significantly predict organisational innovation (Shadur et al., 1999; Wallace et al., 2016). The organisational climate developed by the leaders in the MoI is therefore such that it encourages innovation.

The third factor that explains the positive influence of individualised consideration and innovation process in the MoI pertains to leaders considering their followers as having different needs, abilities and aspiration to others. In essence, the view that leaders taken into consideration individual needs indicates an inclination towards ensuring that followers in the MoI are able to engage in innovation through removal of unnecessary roadblocks or challenges. For example, employees may be willing to engage in innovation but a lack of time due to other engagements in the organisation

becomes a hindrance. Transformational leaders who are aware of such an individual need are able to identify ways which an employee can have time to participate in innovative activities. In consistence, prior research has suggested that some of the threats to innovation from the employee perspective include the lack of time, lack of necessary skills and uncertainty about the innovation (Kesting & Parm, 2010). Addressing each of these challenges at the employee level has a positive impact on the innovation processes. Furthermore, current research has also demonstrated that addressing employee needs and abilities can influence the perception of a climate that is supportive of innovation (Gumusluoglu & Ilsev, 2009). In the presence of positive perceptions of support, it is expected that employees in the MoI are more receptive to innovative work processes. This should be the case since offering individualised support makes the employee challenged and energized to seek innovative approaches to handling of current tasks.

Lastly, the significant influence of individualised consideration on process innovation in the MoI can be attributed to leaders helping the followers to develop their strengths. This aspect had the highest mean in the individualised consideration dimension thus implying that leaders in the MoI consider it imperative to develop the strengths of employees in order to enhance innovation. Provision of assistance to employees to develop their strengths also corresponds with the view among the majority of employees that leaderships in the MoI support a collaborative culture which encourages staff to identify and develop new innovations and solutions. In consistence, existing literature indicates that the transformational leader acts as a catalyst, a trainer, a mentor and facilitator in the learning process which in turn influences innovation (García-Morales et al., 2012). Training and mentoring are instrumental in the development of the employees' strengths which are required in fostering innovation.

The development of strengths of employees also assist them in overcoming internal scepticism or resistance to innovation that can be attributed to lack of confidence in current abilities and skills needed in innovation. However, it can be noted that a relatively lower score was obtained for the statement 'our organisation often develops new services and new training programs for staff members'. It is through training programs that employee strengths can be developed and hence the need for the MoI to give greater attention to this area. Overall, the study findings confirm the

hypothesis (H4) that individualised consideration will positively influence process innovation in the MoI. H.H. Sheikh Saif bin Zayed the Minister of interior during the graduation ceremony for the first innovation diploma on April 2016 said “*We rely very much on the innovative projects presented by the Ministry of the Interior, which are smart projects, in enhancing the police and security work. “The talent, creativity and innovation do not continue without development and care, complemented by providing the appropriate environment”* (emaratalyoum, 2016).

As mentioned above, the mediation effect is considered to be significant when β value for indirect effect is non-zero (Kenny, 2016; and Lyytinen, and Gaskin, 2017). The results shown in Table 6.26 on page190 establish the indirect effect of individualised consideration on innovation process (0.039; non-zero). This result is consistent with the findings of Zheng et al (2017). They found that the indirect effect of transformational leadership on project-based organisational innovation performance via knowledge sharing was statistically significant ($\beta = 0.179$, 95% CI [0.116; 0.264], not containing zero).

7.4 Research Objective 2

As outlined in Chapter 1, the second research objective aimed to identify the effects of Transformational Leadership namely (idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration) on knowledge sharing in the MoI. In order to achieve this objective, following research question was formulated.

Research question 2:

What are the effects of the four main components of Transformational Leadership on knowledge sharing in the MoI?

In order to answer the above research question and as a result of reviewing the literature related to leadership and knowledge sharing, five hypotheses (H5, H6, H7, and H8) were constructed for testing using SEM (see Chapter 3 page 94). These hypotheses were aimed to test the influence of independent variable (TL) on the research mediating variable (KS).

Moreover, with a view to accept/reject the hypotheses, the final four significant factors (imitative from EFA) for transformational leadership and their relation with Knowledge sharing within the MoI are discussed below.

Impact of transformational leadership on knowledge sharing

The result of this study provide evidence that transformational leadership has a significant positive influence on the knowledge sharing within the MoI. The sample shows two out of four transformational leadership components has a positive significant influence on knowledge sharing. The nature of the sample brings a unique value to the findings. As the military services, often do not encourage the sharing of knowledge as career requirements. Police knowledge and information are always classified as secret. However, the cooperation is required for new employee in order to learn police operations and administration procedures.

7.4.1 Impact of idealised influence on knowledge sharing

IF as mentioned earlier creates an organisational climate characterized by trust, respect and admiration of the leaders by the followers. As stated in section 7.3.1 page 196 the mode of collapsed seven observable variables used to measure the IF construct was 3.00, reflecting agreement among the MoI employee that their leaders show the idealised influence attributes and behaviour because only (21.49% of sample) survey participants disagreed that their leaders possess idealised influence.

IF was hypothesised to have a significant influence on Knowledge Sharing (KS) in the MoI (hypothesis H5), However, the relationship between **idealised influence** and **knowledge sharing** is insignificant with a path estimate of 0.960, t-value of 0.050. As the Beta value was insignificant, this means that efforts to engage in IF do not have a major impact on the organisation's members attitude and intentions to share knowledge. From the parameter estimate results, there is no significant influence and hence the support for the null hypothesis and rejection of the alternate hypothesis (IF has a significant influence on KS).

The results of the study on IF and knowledge sharing mainly contradict findings reported in earlier research. Lee et al. (2010) for example found that transformational leaders who engage in IF tend to instil admiration, respect and pride among other members of the organisation. When the members feel that their leaders have confidence in them and also trust in their capabilities, they are more willing to give their opinions and share the knowledge.

In a study of knowledge sharing in ICT organisations in Nigeria, IF was also found to significantly influence knowledge sharing among employees (Akpotu & Jasmine, 2013). However, IC was found to be the most important predictor of knowledge sharing (ibid, 2013).

Similarly, Al-Husseini (2014) in a study of knowledge sharing in Iraqi higher education found that IF was positively related to KS. This positive impact was attributed to the ability of IF to build a trust-based culture where members feel that they are encouraged to share knowledge.

In yet another study, Ladan and Nordin (2017) found that through IF, transformational leaders discourage followers from engaging in dysfunctional behaviour that might be detrimental to the progress of the organisation. The study cited knowledge hiding as one of the dysfunctional behaviours that is discouraged by aspects of transformational leadership such as trust and faith in followers. Lastly, Chen and Barnes (2006) reported that through loyalty, trust and respect for followers, transformational leaders ensure that followers are confident and willing to share knowledge.

A number of aspects could explain the absence of a statistically significant relationship between IF and knowledge sharing in the MoI. First, it is likely that while organisational members have intentions to share knowledge, they are concerned about the security of information that is shared. Police tend to engage in activities that are confidential or sensitive in nature. Therefore, some may worry that sharing may lead to unauthorised access or loss of information, which may have negative security implications. In general, police organisations tend to be fragmented and bureaucratic (Seba et al., 2012).

These aspects can stifle the flow of information within the organisation. The occupational culture of police organisations is also such that there are distinct sub-groups such as frontline patrol officers and detectives (Griffiths et al., 2016). If adequate measures are not undertaken to ensure these sub-groups work harmoniously, the members may be disinclined to share knowledge. In busy police organisations, information overload may also affect the ability of members of the police force to share knowledge (Allen & Shoard, 2005; Luen & Al-Hawamdeh, 2001; Hughes, and Jackson, 2004). Significant amounts of time have to be spent sorting out and acting to various pieces of information. Collectively, these issues and barriers reduce the positive impact that IF may have on knowledge sharing.

Several aspects of the local context in the UAE public sector and in particular the police department may further explain the absence of a statistically significant impact of IF on knowledge sharing. First, the MoI regularly offers individual awards to members of the police force who excel in their work. Second, evaluation of the police for such awards is mainly based on how well they handled and disposed specific events such as security incidents and crimes.

Establishing awards and promotions on individual efforts means that officers are incentivised to hold information closely so that they can use it for purposes of enhancing their own productivity. Transformational leadership is therefore required to motivate officers to engage in greater levels of team work and free flow of information while undertaking their activities. Previously, knowledge management has also been identified as one of the areas where excellence in government performance in Abu Dhabi is yet to be adequately achieved (Ahmad, 2013). Knowledge sharing constitutes a key aspect of knowledge management thus suggesting that greater leadership efforts are still required in order to reach the expected standards of excellence in the MoI.

Although the results of the study indicate that IF has had a limited impact on knowledge sharing at the MoI, there are indications that a number of measures are being undertaken to facilitate knowledge sharing. To begin with, the MoI has a knowledge center/department that is primarily responsible for ensuring the

development of a culture of knowledge sharing within the organisation (The Knowledge Department, 2016). Second, the MoI has been engaging in a range of practices meant to highlight the importance of knowledge sharing in the public sector. For example, the MoI sponsored the ‘Knowledge Management Middle East 2014’ conference. The main goal of the conference was to ensure that policing organisations are able to engage in knowledge sharing and other knowledge management activities in order to offer the best services possible.

During the conference, the representative of the MoI stated that: “Our interest at the Ministry of Interior in paying attention to knowledge management comes from its important role in policing and security, as well as from collecting, analysing, and quickly sharing accurate information and achieving realistic and precise goals” (MoI, 2014). From this statement, it is evident that the MoI leaders’ recognise the important role that knowledge sharing can play in ensuring effective performance.

7.4.2 Impact of inspirational motivation on knowledge sharing

A transformational leader seeks to provide followers with meaning to their work as opposed to just offering rewards. This can be achieved through inspirational motivation (IM) practices such as effective articulation of a vision for the future that has an appeal to followers, being optimistic about the future and encouraging team spirit (Paarlberg & Lavigna, 2010).

the mode for the five observable items used to measure the IM construct was 4.00 (greater than the scale midpoint of 3), reflecting agreement among respondents on this factors’ variables. The result shows that most survey participants (57.0% of sample) considered that their leaders express inspirational motivation because they articulate a compelling vision for future with their staff. The EFA table (Table 6.14 page169) showed that only four variables related to the IM construct were loaded on factor five and correlated with each other. Moreover, factor five (IM) alone explains 6.3% of the total variance in the data and reliability ($\alpha=0.864$) is acceptable (Table 6.15 page171).

Additionally, confirmatory factor analysis (CFA) results confirmed that the IM construct has a high composite reliability and a high level of construct validity. Returning to the hypothesis posed at the beginning of this study chapter3, it was stated that inspirational motivation will have a significant influence on the Knowledge Sharing (KS) in MoI (hypothesis H6). Contrary to expectations, this study did not find a significant influence between IM and KS in the MoI.

The results of path measurement coefficients (Table 6.24 on page185) infer that the relationship between **inspirational motivation** and **knowledge sharing** is non-significant with a path estimate of 0.150, t-value of -1.440 p-value $p > 0.05$ Therefore, H6 was rejected ($p = 0.150$ $p > 0.05$).

The results of the current study support some earlier findings while contradicting others. For example, the findings contradict earlier research from a Nigerian study which found that IM was related significantly with knowledge sharing in ICT based organisations (Akpotu & Jasmine, 2013).

The study by Davenport and Prusak (1998) also found that inspirational leaders tend to gain absolute trust from their subordinates. These leaders are also able to communicate in a motivational way their insights. The inspiration and motivation positively influence the subordinates' willingness to share knowledge much more easily and frequently. On the other hand, in a study that focused on knowledge sharing in Indonesian small and medium enterprises (SMEs), IM was not found to have a significant influence. In other words, the presence of inspirational motivation from the leaders did not serve a significant role in terms of encouraging employees to engage in knowledge sharing practices (Rawung et al., 2015). In addition, Boateng et al., (2016) found in their study within industries sector in Ghana that **IM** was **insignificant** with **KS**. It can however be noted that most studies have generalised the influence of transformational leadership on knowledge sharing without considering specific dimensions. Bryant (2003) for example indicates that the encouragement provided to followers through transformational leadership creates high expectations and ensures that members are able to rise above their own self-interest that would otherwise hinder knowledge sharing.

A number of plausible reasons could explain why IM does not have a significant influence over knowledge sharing practices in the MoI. First, although the leaders may have put efforts to inspire and motivate followers; the mechanisms that are required in facilitating knowledge sharing may not have been put in place. For example, prior research (see for example: Seonghee & Boryung, 2008; Yang & Chen, 2008) has indicated that motivation for knowledge sharing is often high in organisations that allow for collaboration for instance through intensive group interactions.

Second, it may be that the organisation does not effectively identify mutual goals that organisational members could achieve as part of the MoI vision through voluntary knowledge sharing. Current research indicates that followers in most cases need to have a strong sense of purpose in order to engage in actions such as knowledge sharing (Sullivan, 2008). Therefore, it is important that the MoI vision be clearly articulated in a compelling manner. This can be achieved by keeping the message of the vision simple, describing the ideal situation to the followers in order to help visualize the vision and constantly reminding the followers about strategic priorities.

While taking into consideration the local context it can be noted that the Arab culture that dominates the UAE society is such that it is characterised by one way top-down communication previous studies (Zaharna, 1995; Feghali, 1997; Sabri, 2007; Yasin and Saba, 2008; Harris et al., 2003) found that Arab culture characters as high power distance and strong uncertainly avoidance, which underpin an authoritarian culture in the context of Middle East. In other words, communication is mainly initiated by the top leaders with minimal opportunities for lower level organisational members to initiate communication or respond to communication from top of the organisational pyramid. In instances where communication is restricted to top-down communication there is a risk that knowledge flows from employees are constrained (Remenyi, 2001). Through bottom-top communication, employees are accorded a chance to share ideas and knowledge. Mechanisms that allow for multi-directional flow of information are also crucial in ensuring effective knowledge sharing. The potential problems that the communication barriers can create when implementing change can impact on human resource management, quality and frontline performance (Ibrahim, 2002; Wahid and Corner, 2009; Cagnazzo et al, 2010).

Although the results of the study indicate that IM does not significantly influence KS in the MoI there is evidence to show that the organisation is engaging in practices that can in future enhance a positive association. In a bid to inspire local police officers the MoI has recently began honouring officers who engage in valuable research.

Such honouring indirectly encourages knowledge sharing by rewarding officers who collaborate to come up with research that has beneficial impacts on the operations of the ministry. One of the notable innovations that have been realised from the researches include the development of Advanced Passenger Information System (APIS) for use in UAE borders as well as stopping human trafficking and use of fake travel documents (Kader, 2017). Previously, the ministry of interior had been spending significant financial resources for instance to send illegal immigrants after arrival into the country.

From another perspective, the MoI has over the years been keen on developing team spirit and attitudes among the organisational members. For example, a recent world summit hosted by MoI found that team work was vital in ensuring that local and international police were able to deal with the problem of increasing cybercrime (MoI, 2017). The summit further emphasised the need to provide motivations for inter-agency knowledge sharing as an effective way of dealing with pervasive cybercrime problem.

7.4.3 Impact of intellectual stimulation on knowledge sharing

Intellectual stimulation (IS) is apparent among transformational leaders when they guide their followers in questioning assumptions, encourage them to follow intuition, create imaginative visions and rework problems using different perspectives (Avolio & Bass, 2001).

In this study, the mode of all five observable items used to measure the IS construct was 4.00 (greater than the scale midpoint of 3), reflecting agreement among respondents on this factor's variables.

This result shows that most survey participants (more than 67% of sample) considered that their leaders possess intellectual stimulation because they are encouraged to think freely when solving daily work problems, in other words open-to-experiences.

The EFA table (Table 6.14 page169) exhibited that all five items/variables (IS1, IS2, IS3, IS4 and IS5) related to the IS construct were loaded on factor three and were highly correlated with each other. Moreover, factor three (IS) alone explains 11.3% of the total variance in the data and reliability ($\alpha=0.901$) is excellent (see Table 6.15 page171). Additionally, CFA results confirmed that the IS construct has a high composite reliability (CR= 0.832) and a high level of construct validity (AVE=0.629). IS was hypothesised to have a significant influence on KS in the MoI (hypothesis H7).

The results of path measurement coefficient revealed that the relationship between **intellectual stimulation** and **knowledge sharing** is significant with a path estimate of 0.042, t-value of 2.033. Hence, the hypothesis (H3) was accepted. Therefore, the respondents are in agreement that the leaders at the MoI depict high levels of IS. The presence of a significant relationship between IS and KS at the MoI leads to the rejection of the null hypothesis and the acceptance of the alternate hypothesis which suggests that IC significantly influences KS; Hence, the hypothesis (H7) was accepted. The above findings are mainly consistent with prior studies (Farrell et al., 2005; Han et al, 2016; Bryant, 2003; Crawford, 2005), that have investigated the impact that transformational leadership has on knowledge sharing. Farrell et al. (2005) found that transformational leaders frequently make use of intellectual stimulation for purposes of enhancing the capability of followers to develop new ideas and also question operating rules and process.

These scholars further found out that the IS process helps in developing investigative thinking which encourages team members to share new ideas without fear of criticism. Han et al. (2016) report similar findings which indicate that IS in transformational leaders perform an important role in ensuring that followers can make novel interpretations of existing information.

This in turn strengthens the process of debating different ideas and consequently the knowledge sharing process. Ribiere and Worasinchai (2011) argue that through intellectual stimulation transformational leaders create an environment that encourages a healthy form of conflict through questioning of assumptions and the invention of new uses for old processes. When employees seek differing perspectives, and make suggestions for new ways of looking at problems they engage in knowledge creation and sharing.

The findings of the present study on the positive influence of IS on KS are however inconsistent with a few studies. For example, Jain and Mnjama (2010) found that IS had no impact on knowledge sharing among highly skilled employees. These employees tend to be disinclined to share knowledge especially in work contexts where rewards are based on sole individual performance. As such, group incentives may be necessary in helping to create a knowledge sharing culture within the organisation.

The presence of a positive influence of IS on KS in the MoI could be explained from several perspectives. In policing organisations, new challenges are always encountered which require novel approaches to problem solving (Weisburd et al., 2003; Wood et al., 2008; Tombul, 2011). The transformational leader in such a context encourages police officers to think creatively as a way of exploring new ways of doing things or solving an underlying problem (Tombul, 2011). During the creative thinking process the officers are likely to seek feedback from both the leader and colleagues (Borins, 2002; Silvestri, 2007).

This process helps in creating of new knowledge and ideas which are shared in order to evaluate their effectiveness. While on the same context, it can be argued that police organisations are constantly looking for more efficient ways of doing things. The transformational leader who has high levels of IS contributes towards this process by emphasizing intellectual curiosity, promoting intelligence and careful problem solving (Leung et al., 2014). Police officers and other employees in the police organisation such as the MoI are in such a context likely to seek the opinions and ideas of their colleagues.

This leads to an expanded source of knowledge and information for all members of the organisation that can be attributed to the transformational leader.

While taking into consideration the local context it can be noted that in the past few decades the UAE have sought to position itself as a leading country in terms of coming up with new and novel products and solutions for public sector problems. The gradual attainment of this position can be linked to the presence of transformational leaders who value intellectual stimulation. The UAE is for example known for supporting novel ideas such as internet and media zones, technology laboratories and unconventional methods for solving transportation problems such as the experimentation with flying taxis.

Recently in 2013, H.H. Sheikh Mohamed bin Rashid Al Maktoum who is the vice president and prime minister of the UAE started an initiative in which all key government services were to be offered through the mobile technology platform (Buhmaid et al., 2016). The implementation of the innovation was achieved through crowdsourcing of ideas and hence the support for knowledge sharing. Therefore, the top leadership of the country has always been at the forefront of challenging government and private organisations to look at existing public problems from different perspectives. This aspect of intellectual stimulation has been emulated across government departments such as the MoI.

Lastly, a documentary analysis of the MoI reveals various ways in which IS has positively influenced KS. To begin with, the Abu Dhabi police organisation which operates under the MoI has a wide range of operations which include command and control, traffic management and responses to emergency events. Previously the minister of interior, Sheikh Saif Bin Zayed Al Nahyan, has challenged the members of the police department to identify new ways through which operations could be integrated and operate more efficiently (Ersi, 2011).

Through the knowledge sharing process, it was identified that implementing an enterprise Geographic Information System (GIS) could help bring together information for ease of analysis and quick access. Second, the leaders at Abu Dhabi police have been keen on challenging members to identifying ways of enhancing the

interactions between various organisational units that are involved in the implementation of security duties. Through brainstorming sessions, the members agreed that a Knowledge Charter should be launched (MoI, 2015). The new knowledge charter has encouraged the sharing of knowledge and expertise across all work positions. Taken together, these aspects demonstrate that leaders at the MoI have been keen on intellectually stimulating their followers with the resultant benefits impacting positively on KS.

7.4.4 Impact of individualised consideration on knowledge sharing

A transformational leader who practices individualised consideration (IC) is keen on attending to followers' needs, acts as their mentor or coach and also listens to any concerns that may be affecting their ability to undertake roles and responsibilities (Bass et al., 2003).

In this study, the presence of adequate levels of IC in the MoI was also evident from the mode for the four observable items used to measure the IC construct was 4.00 (greater than the scale midpoint of 3), reflecting agreement among respondents on this factor's variables. This result shows that most survey participants (approximately 64% of sample) considered that their leaders take into consideration the staff special needs ability as individual and spends time teaching and coaching.

The EFA table (Table 6.14 page 169) exhibited that all four items/variables (IC1, IC2, IC3, and IC4) related to the IC construct were loaded on factor six and were highly correlated with each other. Moreover, factor three (IC) alone explains 4.5% of the total variance in the data and reliability ($\alpha=0.865$) which indicate high reliability (see Table 6.15 page 171). Additionally, CFA results confirmed that the IC construct has a high composite reliability (CR= 0.894) and a high level of construct validity (AVE=0.737).

IC was hypothesised to have a significant influence on the knowledge sharing (KS) in the MoI (hypothesis H8). The result of the path estimate was significant of ($p=0.003$ $p<0.05$), t-value of 2.933 between the IC and KS constructs. Hence, the hypothesis (H4) was accepted.

The study's results lead to the rejection of the null hypothesis and acceptance of the alternative hypothesis hence, the hypothesis (H8) **individualised consideration** is significantly associated with **knowledge sharing** in the MoI was accepted.

While taking previous studies into consideration, the finding that IC has a significant influence on KS is largely consistent with other studies. In a survey of employees in the steel manufacturing industry, Stona (2011) found that employees who received formal or informal mentoring enjoyed helping others through knowledge sharing and were also characterised by knowledge self-efficacy (Stona, 2011). Mentoring in this context constitutes one of the key aspects of individualised consideration. Al-Husseine and Elbeltagi (2014) in their study of KS in the Iraqi higher education also found that IC is significantly and positively associated with KS. Similar findings have also been made by Xue et al. (2011) who in particular observed that the coaching behaviour of transformational leaders teaches organisational members to become effective communicators and encourages collaborative problem solving. Collectively, these aspects provide opportunities for organisational members to engage in knowledge sharing.

The results on the positive influence also support other studies (Bryant, 2005; Srivastava et al., 2006; Gagne, 2009) which indicate that empowering leadership, coaching behaviours and mentoring positively enhance individual perceptions of knowledge sharing. A few studies have however suggested that IC could in fact act as an obstacle to KS. For example, the study by Politis (2001) asserted that leaders who practice IC are negatively associated with knowledge acquisition which is a necessary factor during knowledge sharing.

The positive influence that IC has on KS in the MoI can be explained from various perspectives. First, it should be noted that knowledge sharing in any organisation needs continual support mainly from the leaders. Transformational leaders who practice IC provide such support through identifying the best practices in knowledge sharing and educating employees on such practices through coaching and mentoring. Second, the one-to-one relationship that transformational leaders build with their followers provides an opportunity to facilitate effective communication.

In the presence of unconstrained communication organisational members feel free to express their ideas to other members. Besides providing necessary support to followers, IC also leads to the development of employees from a career perspective. In this case, the mentoring and coaching that is offered leads to the development of skills and abilities that are necessary in the knowledge sharing process. Lastly, listening and attending to the followers' concerns could develop a feeling of empowerment in the workplace. When individuals have perceptions of empowerment they seek adequate information in order to ensure that they can make better decisions in their workplace. This aspect over time helps in stimulating and nurturing knowledge sharing.

In terms of local context, the UAE federal government are undergoing an economic transformation which entails diversifying the economy (Mezher et al., 2010). Knowledge has within this context been seen as an important enabler of diversification (Hvidt, 2013). Leaders at various public and private organisations are thus embracing knowledge management practices for instance by accepting coaching as one of the approaches in which employees can become more informed and encouraged to share ideas. The UAE is also among the pioneering countries in the Middle East which are gradually shifting from authoritarian to transformational and participative leadership. In an effort to break away from exclusive use of top-down communication, subordinates are being given opportunities to freely express themselves and in some instances even challenge the opinions of their seniors. The creation of such a climate shows that leaders are willing to listen to individual issues and help them develop their strengths. The implication is that employees are more willing to share their views, ideas, experience, and knowledge freely. President of UAE His Highness Sheikh Khalifa bin Zayed speech in the federal national council FNC, He said: "*We are going forward firmly to bring our political experience to its desired ends so as to achieve development and expand participation. We are also looking forward to the pivotal role of the FNC, as a supportive and control authority to further strengthen the government with its visions and innovative ideas*" (Wam, 2014).

He also noted that "*Empowerment of the citizen is our project for the next ten years of the Union - a project through which we will lay the ground for a more confident and strong national personality and whose driving force and cornerstone will be an active Emirati who is proud of his stable and coherent family and of his well-founded, dynamic community where security and justice prevail , where the values of voluntary work and of initiative are highly recognised, with a forward-thinking, modern learning system, advanced, high quality health services, a knowledge-based sustainable and diversified economy, an integrated infrastructure, a sustainable environment, well-conserved natural resources and, finally, an eminent status on the international stage*" (Wam, 2014).

Lastly, the analysis of various documents related to the MoI provides evidence for the positive influence that IC has had on KS. The leadership at the MoI for example depicts IC through the Khalifa empowerment program. The program aims to help individual members from both UAE and other regional countries to enhance skills and abilities that are required in knowledge sharing (MoI, 2016). The expertise developed by various members is then used to support the innovation strategy of the UAE. As such, IC is demonstrated through programs that take into account individual needs that should be addressed in order to facilitate knowledge sharing. The presence of a police knowledge management center also provides evidence that the MoI is committed towards IC and knowledge sharing. The center caters to the interests and needs of the police through training courses and external conferences (MoI, 2017). In addition, the center facilitates the learning of best practices in knowledge sharing among the police force. The overall goal is to ensure the police department is able to create on major police areas and transfer such knowledge in order to help in finding innovative ideas for implementation in police work and related services.

7.5 Research Objective 3

As outlined in Chapter 1, the third research objective aimed to identify the effects of knowledge sharing on the innovation process in the MoI. In order to achieve this objective, following research question was formulated:

Research question 3:

What are the effects of the knowledge sharing practices on the innovation process in the MoI?

7.5.1 The impact of knowledge sharing on innovation process

The present research also investigated the impact that knowledge sharing has on innovation process in the MoI. The result of the path estimate was significant of ($p=0.003$ $p<0.05$), t-value of 3.001 between the KS and INN constructs (see table 6.24 page 185). Therefore, the hypothesis (H49) was accepted.

The finding that **knowledge sharing** significantly associated with the **innovation process** at the MoI is largely consistent with previous findings. Chiang and Huang (2010) found that innovation initiatives depended heavily on employees' knowledge, experience and skills during a firm's value creation process. Based on this finding, the study further indicated that it is only in instances where employees were willing to share their knowledge that firms were able to achieve high levels of success in innovation. KS was thus considered to be a valuable input of the innovation process. Wang and Wang (2012) in a study of Chinese hi-tech firms also found out that in order to fulfill innovative tasks, employees had to borrow tacit knowledge from their colleagues as well as search for explicit knowledge from the company's archives. Therefore, KS practices were associated with the ability to generate new ideas and identification of opportunities that form the basis of innovative activities. From another perspective, Olaisen and Revang (2017) found that knowledge sharing had a positive influence on innovations in the form of intellectual property rights (IPRs). It was however noted that willingness to share knowledge depended on the employees' evaluation of the benefit of involvement. In situations where knowledge sharing was not expected to provide benefits such as innovation, the employees were less willing to engage in knowledge sharing.

This implies that in order to encourage knowledge sharing the organisation needs to provide an assurance that such sharing will be beneficial. Estrada et al. (2016) also indicate that knowledge sharing mechanisms and practices in an organisation help in reducing the gap between potential absorptive capacity and realized absorptive capability. Absorptive capacity is the ability to access and acquire knowledge while realized absorptive capacity entails the transformation and exploitation of knowledge to realize outcomes such as innovations.

While taking into consideration the MoI there are a number of possible explanations for the presence of a positive impact of KS and innovation. First, it can be noted that innovations that arise from knowledge sharing among members of police organisation are beneficial to both the individuals and the organisation. Abrahamson (2014) for example found that police innovations are highly useful in crime prevention.

Lower crime numbers reduce exposure of safety risks to the police officers and also contribute to the achievement of the organisational goals. Second, the nature of police organisations is such that they are knowledge intensive. In particular, these organisations often depend on a deep and broad information for purposes of supporting their operational and strategic initiatives (Abrahamson, and Goodman-Delahunty, 2014). Whenever members engage in the sharing of such knowledge it is likely that innovations which seek to enhance efficiency and effectiveness will arise.

From the local context, it can be noted that UAE is highly supportive of innovations in public sector. The government in particular identifies innovation as one of pillars through which Vision 2021 will be achieved. The vision focuses on the ability to innovative Emiratis to build a competitive economy (UAE Government, 2015). As such, the development of a culture of innovation in the country helps ensure that knowledge sharing practices in the various units that constitute the public sector lead to innovative processes and activities. It can also be noted that the UAE has been proactive in creating mechanisms (e.g. the Annual Innovation Week) that allow for knowledge sharing initiatives that can lead to innovation. From a cultural perspective, UAE's Arab culture is such that it values collectivism and development of social networks. This aspect is referred to as 'wasta' and is central to the knowledge sharing process locally (Al-Esia & Skok, 2014).

Documentary analysis of the MoI also reveals efforts to ensure that knowledge sharing contributes towards the innovation process. The director of Peripheral Areas Directorate of Abu Dhabi Police, Colonel Sheikh Mohammed bin Tahnoon Al Nahyan, has previously emphasized the need for enhancing and spreading knowledge as a way of stimulating creativity and innovation (MoI, 2014). The police college under the MoI has also been involved in organising scientific forums on knowledge sharing and dissemination (MoI, 2015). An integral aspect of such forums has been the need to use knowledge management as a means for producing new knowledge that can be used to facilitate innovations. Collectively, these practices within the MoI have enabled it to link knowledge sharing to the innovation process.

7.6 Research Objective 4

To investigate the effect of demographic variables on the innovation process. In order to achieve this objective, following research question was formulated:

Research question 4: How is the innovation process within the MoI influenced by demographic variables?

7.6.1 The impact of the demographic variables on the innovation process

This study has six demographic variables these are, Age, Gender, Qualification level, position, experience, and department size. ANOVA (one way) test were carried out to in order to investigate the difference between variance groups. Only two demographic variables (Education level, and Position) were found to have a significant deference ($p < 0.05$). The difference in these groups is discussed below.

Education level

This research found a significant difference in terms of the respondents' education level, and their views towards the innovation process within the MoI. Participants with low education levels appeared to be less agreed that the innovation process are adopted and supported in the organisation (MoI). In contrary, the higher educated employees the more acknowledgement of the adoption of innovation process within the MoI.

Despite belonging to the same institution (MoI), inferential analysis revealed that the high educated staff (N=85) had a mean score range from 3.93 to 4.50 (i.e agreeing that innovation process is being implemented effectively) on DV (innovation Process). However, less educated employees (n=143) had a mean score ranging from 2.45 to 3.74 which shows the general disagreement with the adequacy of innovation process implementation (see table 6.10 page 161). A possible explanation for this might be that the higher educated employee might have better envisioning of the complex phenomena and the associated activities which can lead to the improvement of innovation process in the work place. Organisations with more educated and knowledgeable employees increase the possibilities for overall innovation adoption (Ostergaard et al., 2011). Similarly, Wenger (2000) is of the opinion that organisations hiring workers with a high education are more likely to be innovative. In organisational development and innovation process literature, only a few studies look at the relationship between education diversity and innovation performance (Ostergaard et al., 2011). For example, Lee et al. (2005) found that education has a significant impact ($p < 0.05$) on innovation process and organisational product/process improvements. Similarly, Murray (1989) found a positive relation between education diversity and organisation's performance.

Furthermore, in context of the Omani public sector, Sharma (2015) discovered that Education is positively correlated with reliability and willingness to adopt change and innovation processes ($p = 0.01$), which suggests that highly educated respondents perceive innovation process and introduction of new services as more reliable and, hence, have a higher order of the willingness to implement new services. The education background is an important part of the employees' knowledge base and it also influences the working methods (Ostergaard et al., 2011). Therefore, level of employees education affects the employee's' decision making and views on how to identify and solve issues (Joshi and Jackson, 2003).

Position

Typical of police organisation, MoI is dominated by a bureaucratic culture. Key attributes of bureaucratic cultures include hierarchy which was reflected in the demographic variable of employees' position (table 6.11 page 161). Different pay role groups were found to embrace different views about DV (Innovation Process).

It has been found in this study that employee with higher ranking position tend to agree that the MoI provide support of developing innovation process, while less ranking employee tend to disagree about the development of innovation process within the MoI, $F(3,228) = 7.358, p < .05$.

As Proctor and Doukakis (2003) argue, resistance to change/innovation is usually raised with people who have more to lose because of the envisaged change. In times of change and innovation, senior employees are more concerned about their position, power and status. However, this study found that senior employees of MoI are more supportive and positive about innovation process compared with junior employees. These findings however support the findings of Martin et al. (2006), who investigated differences among status groups during organisation development and change implementation.

Their study concluded that senior staff reported more positive attitudes during change. This is very important because most reform failure are due to human factors (Kotter, 2010).

Based on these findings leaders trying to implement change/innovation should not treat all employees as a single group. Senior employees such as managers are more involved in the innovation process; and thus, drive the changes. In addition, they have more access to information and better understanding of the advantages associated with the innovation process. Leaders of the innovation process thus need to take a more proactive approach to bring low status employees on board.

7.7 Research Objective 5

To specify a model that conceptualises the fundamental relationships between Transformational Leadership, Knowledge Sharing, and Innovation Process in the MoI. The following sub-section discusses how the study's findings have answered these questions related to the contextual model of innovation process for the UAE public sector (MoI).

7.7.1 The Revised (Final) Model

As explained above, this study utilised empirical data, exploratory factor analysis and SEM to enhance the understanding of innovation process, by specifying a context-based model that fits the reality in the Arab world. The main purpose of building the model is to identify the factors (Transformational Leadership Style and Knowledge Sharing) that can affect the innovation process. Causal models can help us to understand and indicate how different components of TL can affect innovation process through knowledge sharing being a mediating factor. The SEM examined in this study produced a set of acceptable fit indices indicating that the model is a good fit with the empirical data and DV (innovation process) is influenced significantly by several latent variables.

According to the final model as presented below, IF, IS and IC showed a significant influence on INN. However, no significant influence was found between IM and INN. With regards to KS, only IC and IS showed a significant relation. IF and IM did not show any significant impact on KS. Finally, KS showed significant influence on innovation process.

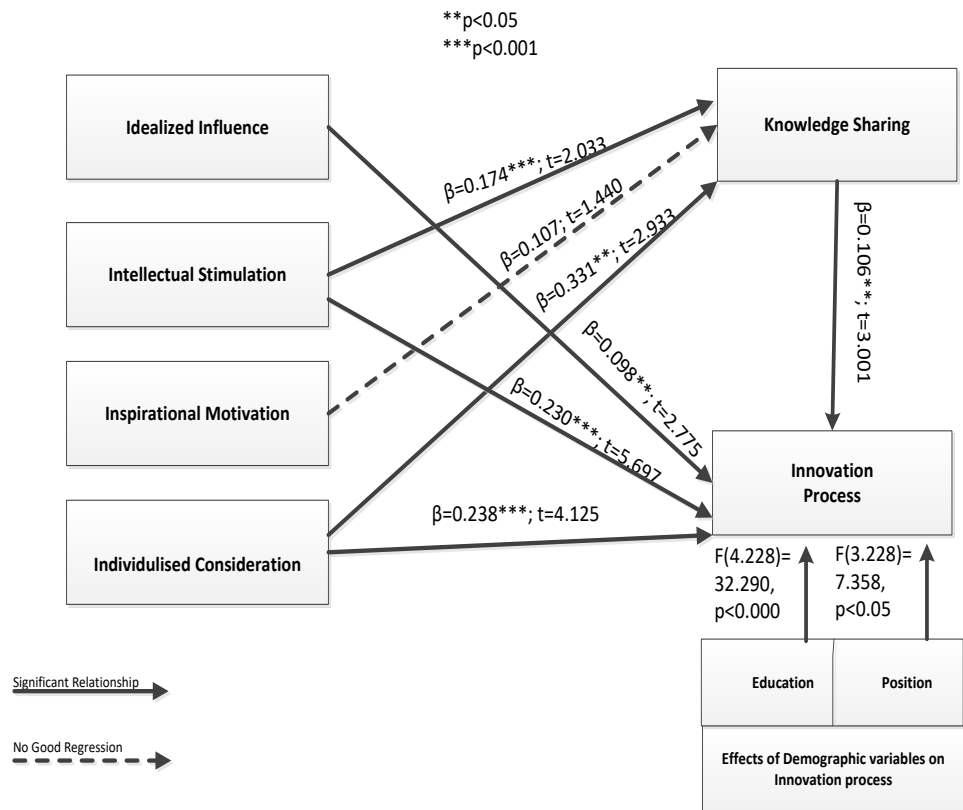


Figure 7.1 The Final (revised) Research Model

Overall, this can be concluded that the model proposed in the current study provide a good understanding of factors influence innovation process within MoI. This new insight into innovation process implementation in the Arab world, particularly UAE will serve as a compass for those trying to implement innovation. In addition, the final model can guide leaders where to focus on when planning and formulating strategic objectives.

7.8 Summary

This chapter has presented a discussion of the quantitative data analysis results gathered via large scale survey within the MoI. It has considered the key findings related to each research question in the light of the literature.

Overall, four of the six constructs tested in the preliminary research framework were found to have a significant influence on the Innovation Process (INN). As a result, these final constructs were incorporated in the final model (figure 7.1). IM however had no significant influence on INN. Similarly, IM and IF showed insignificant effect on Knowledge Sharing (KS). In addition, the results of comparison between demographic groups revealed that two groups (level of education and level of position) significantly differ from each other, in terms of views towards Innovation Process (See final model page 237).

The final model proposed in this study was validated, confirmed, and proved to be effective in explaining employees' views/attitudes towards innovation process. This model is one of the first attempts to explore and understand the effect of transformational leadership and knowledge sharing on the innovation process within the MoI. As a result, the proposed model holds theoretical and practical implication by acting as a recommendation instrument for policy makers and leaders of change (innovation).

In the following chapter, the thesis is drawn to a final conclusion, the contributions made by the study are highlighted, recommendations based on the findings are made, and the limitations of the study are presented. Some future research directions are also provided.

Chapter 8: Conclusions

8.1 Introduction

This research was designed to evaluate the effects of the four components of transformational leadership on innovation process and knowledge sharing and the possible mediating effect of knowledge sharing in the relationship between TL-INN. The research was undertaken in the context of the MoI in the UAE. Having addressed each of the research questions in the preceding chapters this final chapter seeks to draw relevant conclusions on the nature of the relationship between transformational leadership in the MoI, innovation process and knowledge sharing. The chapter also discusses the study's contribution to knowledge and practical implications for public sector organisations such as the MoI. Towards the end of the chapter, the limitations encountered during the research process are highlighted and directions for future research is suggested.

8.2 Summary of the Major Findings and Conclusions

8.2.1 The impact of transformational leadership on the innovation process

Idealised influence

As part of the first research question, this study sought to establish the perceived effect of the four main components of transformational leadership (as explained by Bass and Avolio, 2000, Avolio and Bass, 2002) on innovation process in the MoI. While taking into consideration idealised influence as one of the main components of transformational leadership, the study found that there is a high level of consensus among the study participants that MoI leaders exhibit this leadership dimension. In specific, the majority of the respondents held positive attitudes regarding the ability of the organisation's leaders to display a sense of power and confidence, efforts to emphasise the importance of a collective sense of mission and consideration of moral and ethical consequences of decisions among others.

It can also be noted that the majority of respondents were convinced that the MoI is a pro-innovation organisation. This was quite evident from the relatively high scores for items measuring innovation process. For example, the respondents indicated that their department have an incentive system meant to encourage staff to come up with innovative ideas; there are efforts to bring in new equipment, multimedia software and technologies emplaced to facilitate effective and efficient operations in the organisation.

In terms of the nature of the relationship, the study finds that idealised influence has a significant influence on the innovation process in the MoI. As the Beta value was positive (see figure 7.1 page226), the result infers that IF positively influence innovation process. Therefore, it can be concluded that the leaders' efforts to engage in idealised influence behaviours such as building a sense of respect and identification can increase the innovation process in the MoI. From this finding, it can further be concluded that idealised influence helps create a climate for innovative behaviours. The findings largely confirm prior studies which have demonstrated that through idealised influence transformational leaders are able to transform their followers to alter their values, ideas and interests thereby motivating them to achieve performance that is beyond expectations (Bass & Avolio, 1994; Nijstad et al., 2012; Nusair et al., 2011; Vaccaro et al., 2012). Overall, the leaders in the MoI ought to continue engaging in charismatic role modelling in order to develop respect, trust and emulation from their followers.

Inspirational motivation

With regard to inspirational motivation, the study finds that the leadership in the MoI scores well in this component of transformational leadership. The majority of the respondents acknowledged that their leaders have articulated a compelling vision of the future, are confident that goals will be achieved and are also keen on developing a team attitude and spirit. Furthermore, the review of the MoI document indicates that the relevant vision of the MoI pertains to working effectively to have the UAE as one of the world's most secure and safe country. The ministry is aiming to achieve this vision through provision of security and safety, encouraging creativity and efficient use of technological resources among others.

Despite the efforts to enhance inspirational motivation, the study finds that this component of transformational leadership has no significant impact on the innovation process in the MoI. In other words, current efforts to motivate employees through practices such as outlining of the goals of the innovation centre and putting in place the MoI Excellence Award System for creativity and innovation have not had a meaningful impact on enhancing the organisation's innovation process.

To a large extent this finding contradicts other previous studies which found the presence of a significant relationship between the two variables (Chang, 2012; Sarrors et al., 2008; DuBrin, 2007). Only a few earlier studies (e.g. McMurray et al., 2013) had reported the absence of a significant relationship between IM and innovation processes. One explanation for the inconsistent may be that the relationship between inspiration motivation and innovation process in the MoI is contingent on moderating variables that were not taken into consideration in the present research. One way of improving inspirational motivation is to talk optimistically and enthusiastically about the future goals associated with the innovation through several workshops and meeting sessions. However, lack of communication and correspondence among public employees is a barrier to articulate the vision (OECD, 2014). Therefore, MoI policy makers need to introduce an effective communication system to motivate employees and to make them feel positive about innovation.

Intellectual stimulation

Intellectual stimulation was also investigated in relation to its influence on innovation process in the MoI. At a starting point, the study finds high levels of agreement among the study respondents that their leaders have been effective in enhancing intellectual stimulation. High scores were particularly obtained in relevant aspects of intellectual stimulation such as leaders guiding the followers to look at problems from different angles, the need to re-examine critical assumptions and suggesting new ways of looking at how to complete assignments. Evidence of intellectual stimulation in the MoI was further evident from the MoI document review (see chapter 4 page104). For example, the study finds that MoI has put in place an Innovation Idea Award that seeks to reward organisations members who offer novel solutions to existing problems in areas such as security, administration and traffic (see appendix 3A).

Within the above context, the study further finds the presence of a significant relationship between intellectual stimulation and innovation process in the MoI. Therefore, current leadership efforts which encourage followers to adopt new or different approaches to solving existing problems have been effective in encouraging organisational innovation.

Previous studies have also shown the presence of a positive relationship between the two variables (Al-Husseine & Elbeltagi, 2014; Xue et al., 2011). It can therefore be concluded that the presence of intellectual stimulation in the public sector organisations such as the MoI helps in enhancing exploratory thinking and active intellectual exchange which have positive impacts on the innovation process. According to Derry (2009) it is important to successfully adopt innovation framework which allow screening and prioritizing innovative ideas for organisation to avoid overloading with poor ideas. To do so he proposed the V-SAFE screening system based on five categories: (1) value, (2) suitable, (3) acceptable, (4) feasible, and (5) enduring. Therefore, the MoI senior managers can apply such a process to effectively improve the functionality of the innovation implementation department. Furthermore, it is worth mentioning that for such innovative programmes to succeed, senior management of the MoI should build on clear long-term strategies and development plans aiming to increase MoI managers' leadership skills and develop their abilities to improve performance. Senior management should also introduce the fair reward system, to reduce possible resistance and improve managers' participation to achieve goals associated with innovation plan.

Individualised consideration

Individualised consideration is evident when leaders in the organisation are keen on paying attention to the needs of their followers. In the case of the MoI, the present study finds that most of the respondents are satisfied that the organisation accords them individualised consideration. Such consideration is particularly evident in areas such as helping of employees to develop strengths and treating employees as individuals. An investigation as to whether these leadership practices have an influence on innovation process in the MoI yielded significant relationship. Precisely, the study finds that an increase in individualised consideration significantly associated with innovation process in the MoI. Previous studies have also linked individualised consideration with enhanced innovation levels (Weer et al., 2016; Chen et al., 2011). The rationale is that individualised consideration practices such as coaching enhances employee commitment and consequently the motivation to engage in innovation facilitating behaviours such as knowledge sharing.

One of the notable individualised consideration measures at the MoI that has contributed towards enhanced innovation pertains to the presence of innovators care department in the MoI Innovation Centre. The Innovation Centre puts in place mechanisms meant to allow members of the department to benchmark their innovations and hence the ability to develop innovative strengths. In addition, individual talent and creative ability is identified and developed in order to meet global best practices (see figure 4.4 page119). Notwithstanding the positive relationship, lower scores were obtained for the time that leaders spend on teaching and coaching employees and consideration of individual employees as having different needs, abilities and aspiration (see table 6.7 page155). As such, the organisational leaders in the MoI may need to improve human resource capacity in order to achieve higher levels of employees' readiness to implement innovation.

8.2.2 The impact of transformational leadership on knowledge sharing

As part of the second research question, this study sought to establish the impact that transformational leadership has on knowledge sharing practices within the MoI. Overall, the study finds the presence of considerable efforts to ensure a knowledge sharing culture in the MoI. Through exploratory factor analysis the two dimensions of knowledge sharing which include knowledge collecting and knowledge donating were combined into one dimensional factor which is knowledge sharing. A considerable amount of studies have treated knowledge collecting and donating as a single construct (see for example, Song et al., 2008; Wang and Wang, 2012). From analysis, it emerged that the majority of the organisational members in the MoI contribute to enhance knowledge sharing through eagerness to learn, making knowledge sharing part of the daily routines and ensuring that knowledge is shared with colleagues upon request. It can however be noted that relatively lower scores were obtained for cross-departmental knowledge sharing (see table 6.9 on page157). The respondents from the MoI shows a lack of sharing knowledge with colleagues from different departments. This constitutes an area that current leaders should seek to improve. The following sub-sections explains the impact of the components of transformational leadership such as IF, IM, IC, and IS on knowledge sharing.

Idealised influence

While focusing on idealised influence, interestingly, this study finds that this component of transformational leadership has no significant influence on knowledge sharing in the MoI. Although leaders within the MoI exhibited charismatic characteristic, however, they did not influence employees' knowledge sharing practises. Majority of the previous studies have found the presence of a positive relationship between the two variables. The main idea has been that the charisma associated with idealised influence performs an important role in the followers' willingness to rely on and disclose information with other employees (Lee et al, 2010; Akpotu, 2013; Ladan & Nordin, 2017; Al-Husseini, 2014).

The study concludes that several factors could be limiting the ability of the idealised influence to contribute towards knowledge sharing in the MoI. These include the confidential and security sensitive nature of information that members of the police organisation have to deal with; fragmentation within the police department in which case members of the police service tend to operate in distinct sub-groups; and information overload that characteristics the police department of the MoI. Therefore, in order to enhance the process of knowledge sharing through leaders' idealised behaviour, MoI leaders need to inspire followers and provide them with energizing and clear sense of purpose, being a role model for ethical conduct, building identification with the leader and his vision.

Inspirational motivation

The study further evaluated the influence of the inspiration motivation of transformational leaders has on knowledge sharing. Surprisingly, the study found that inspirational motivation of leaders in the MoI do not have any significant influence on knowledge sharing. The study findings contradict some earlier findings (e.g. Akpotu & Jasmine, 2013; Davenport & Prusak, 1998) while supporting others (e.g. Rawung et al., 2015; Bryant, 2003; Boateng et al., 2016). The study links the lack of a significant influence of inspirational motivation on knowledge sharing to both internal and external factors.

Internally, the study suggests that the MoI could seek measures to enhance higher levels of employee acceptance of the organisation's vision and identify mutual goals that could ensure that employees are willing to share information. Externally, the key issue that is likely to pose obstacles to knowledge sharing is the Arab culture which is characterised by top-down communication as it was found by scholars such as (Sabri, 2007; Yasin and Saba, 2008; Harris et al., 2003) that Middle Eastern culture is characterised by high power distance and strong uncertainty avoidance, which underpin an authoritarian culture in the context of Middle East. Managers need to allocate time for knowledge sharing, including time for formal meetings, for social interaction, and to encourage reflection on the effectiveness of meetings and other interactions (Seba et al., 2012). However, there is often a lack of time to share knowledge with colleagues due to pressure of work in the police organisation (Allen & Shoard, 2005; Luen & Al-Hawamdeh, 2001; Hughes, and Jackson, 2004). In addition, sensitive nature of data within police organisation discourages employees to share knowledge and information. Therefore, leaders within the MoI need to introduce effective communication systems, learning workshops and brainstorming sessions and most importantly a vetting system that help to classify security information to be excluded from daily knowledge sharing practises among employee. MoI policy makers are aware of this issue; they thus have introduced 'Operational Plan Model' to promote a knowledge sharing culture (MoI, 2016).

Individualised consideration

The current study finds that individualised consideration component of transformational leadership has a significant influence on the knowledge sharing process in the MoI. One of the notable ways that the leaders in the MoI have enhanced individualised consideration of employees in relation to knowledge sharing pertains to the development of a knowledge management methodology (see Appendix 3B). This knowledge management methodology can perform an important role in promoting a knowledge creation and sharing culture in the ministry. Other key initiatives include the Khalifa empowerment program and the police knowledge management centre. Ideally, employees who are equipped with the right knowledge are better placed to engage in knowledge sharing process.

The significant relationship between the two variables is largely consistent with previous findings indicating that provision of employees with mentoring and coaching allows employees to become effective communicators and participate in collaborative problem solving which are pre-conditions for knowledge sharing (Al-Husseine & Elbeltagi, 2014; Xue et al., 2011; Gagne, 2009).

Intellectual stimulation

Intellectual stimulation also constitutes another component of transformational leadership that the present study found to have a significant influence on knowledge sharing in the MoI. The study to a large extent attributes the high levels of intellectual stimulation in the MoI to the many challenges that policing organisations encounter in the daily basis. In a bid to overcome these challenges transformational leaders motivate their followers to seek novel/creative solutions that allow for improved efficiency in conducting relevant operations. The study also finds that local leaders have been at the forefront of encouraging officers to come up with conventional and unconventional solutions to existing problems. Overall, the finding that intellectual stimulation is significantly correlated with knowledge sharing provides support for other studies (e.g. Ribiere & Worasinchai, 2011; Jain & Mnjama, 2010; Han et al., 2016). The general conclusion in these studies is that intellectual stimulation helps trigger investigative and exploratory thinking which is the basis for finding and sharing new ideas and solutions to existing problems.

8.2.3 The impact of knowledge sharing on the innovation process

The study's third research question was based on need to establish the perceived effects of knowledge sharing on innovation process in the MoI. The key finding is that knowledge sharing has a significant influence on innovation process. Put differently, efforts to enhance knowledge sharing practices in the MoI have had a significant influence in terms of creating of new innovations and enhancement of existing ones.

In future, some of benefits that the MoI might achieve as a result of the significant relationship between the two variables include enhanced safety and security in the country, better control of traffic, higher levels of safety for civil defence, enhanced readiness and preparedness for emergencies and efficient use of security information to enhance security operations in the country.

In the absence of knowledge sharing the innovations which have led to the achievement of the above benefits would have to a large extent been diminished. The presence of a knowledge centre in the MoI has further allowed for a more organised approach to the management of knowledge in the organisation. Different members can access the central database and use the archived information for purposes of creating innovations. While reflecting on prior studies, it can be noted that the finding that knowledge sharing significantly influence the innovation process are highly consistent with the literature (see for example: Chiang & Huang, 2010; Wang & Wang, 2012; Olaisen & Revang, 2017). The general consensus which is supported by the present study is that innovative activities by employees are dependent on explicit and tacit knowledge that is shared within the organisation.

8.2.4 Impact of demographic variables on innovation process in the MoI

In the fourth research question the study was interested in establishing whether demographic variables such as work experience, educational qualification level, and position in the organisation have an influence on the innovation process. With regard to education, the study finds that higher educated participants unlike their lower educated counterparts were characterised by a higher level of acknowledgement of the innovation process within the MoI. Therefore, higher education levels contribute to a better envisioning of the complex phenomena and activities that are instrumental in the improvement of innovations (Ostergaard et al, 2011; Lee et al, 2005). As such, the MoI human resource directorate and specifically hiring and recruitment department better increase the education scholarships for the MoI staff who has low education level to ensure that all employees meet the required education qualification standards that help to achieve the ministry strategy (2017-2021) particularly the strategic objective 7 “Instil the culture of innovation in the corporate performance environment” (MoI, 2017).

In relation to employee position it can be noted that the MoI is dominated by a bureaucratic culture that is characteristic of the typical police organisation. The study within this context finds that employees in higher ranking positions are characterised by higher support for the view that the MoI is committed towards supporting innovation process compared to lower ranking employees.

This difference in views is attributed to the fact that higher ranking employees have better access to information associated with implementing innovation (e.g. budget) and are also highly involved in driving innovative changes. Prior research as reviewed in the study indicates that lack of adequate involvement of the lower ranking employees may cause resistance to innovation implementation. The MoI therefore needs to ensure that all employees are involved in the innovation process. This can be done through constant communication at all levels using appropriate mediums.

8.3 Contribution to Knowledge

The conceptual framework used in the study was developed from the review of existing studies on transformational leadership, knowledge sharing and innovation. Using this framework, the structural model development indicated that each of the four exogenous variables (idealised influence, inspirational motivation, intellectual stimulation and individualised consideration) related to transformational leadership have an influence on the two endogenous variables (innovation process and knowledge sharing). Subsequent analysis based on empirical data indicated that some regressions paths were insignificant and hence the exclusion from the model. Therefore, one of the major contributions of this study to existing theory is the validation of the research model with empirical data collected from the employees.

Prior studies as reviewed in the literature review section emphasised the need for further investigation into the factors that directly and indirectly affect innovation in public sector (Hughes et al., 2011; European union, 2013; Kattel et al., 2014; Lewandowski, 2017). By examining the role of transformational leadership styles, this study contributed to knowledge by filling this gap.

While on the same context it can be observed that previous study (e.g. Jung et al., 2003) which have examined the relationship between transformational leadership and organisational innovation did not take into consideration the specific components of this leadership style. The current study builds on this gap and advanced the specific relation between each components of transformational leadership and how it influences independently the innovation process within the MoI.

Another contribution lies in the setting that has been chosen for this research. The majority of the innovation studies has been done in private firms and manufacture and or/ technology organisation (Arundel et al., 2016). However, this research involved in much complicated context which is the police and this setting is controversial compared to the private sector due to strict procedures and constraints in sharing experience and knowledge. By investigating the MoI in the UAE, the study also helps fill the gap on the limited research on innovation in public sector. Prior research has expressed concerns over the limited innovations in the public sector yet it is well documented that public sector innovations help trigger private sector innovations (European Commission, 2013).

Countries also differ significantly in terms of contextual factors that influence innovation processes (Kuipers et al., 2014). Therefore, one size does not fit all in terms of innovation model in which case every country needs to have a unique model. This study addresses the issue by providing a model that is based on specific needs of the UAE. Along the same lines, the current study contributes to theory by providing new insights into the factors that influence innovation process in the MoI. The study identifies five factors that directly or indirectly affect innovation process. These factors based on their degree of importance include KS, IC, IS, IF and IM.

Finally, one major contribution of this study is the development of a 33-items instrument (see table 7.1 page 195), involving one dependent, one mediator and four independent variables designed to measure the innovation process within the MoI. Most importantly, the final instrument is derived from a rigorous process which includes theoretical framework development, EFA, CFA, and SEM.

The constructs of the final proposed instrument also demonstrated high convergent and discriminant validity (see table 6.21 page 182 and table 6.22 page 183). Therefore, it is believed that this instrument can be used with conviction by innovation implementation researchers in the UAE other regions or government institution that have a similar culture and share the same contextual issues.

8.4 Practical implication of this research

The results of the present study have important implications for leaders in the MoI and the general public sector in the UAE and other similar contexts. The public sector is particularly relevant since research has shown that it continues to lag behind the private sector in innovations (Mulgan, and Albury, 2003; Kattel et al., 2014). To begin with, the results encourage public sector leaders to make use of specific components of transformational leadership style as a mean of enhancing innovation. Rather than use a blanket approach that is very broad, it is important that the leaders engage in specific leadership practices that have been proven to have significant effects on innovation behaviours among followers. Examples of such practices as discussed extensively in this study include displaying a sense of power and confidence among followers, stimulating employees to look at existing problems from many different angles, questioning assumptions and developing employee innovative strengths through teaching and coaching among others.

Second, the results strongly suggest that public sector leaders should engage in transformational leadership behaviours that help boost the employees' ability and willingness to engage in knowledge sharing process. As clearly established in the present study, knowledge sharing is an important factor influencing the development of innovative processes in the organisation. Therefore, leaders should be encouraged to depict behaviours that facilitate knowledge sharing. Such behaviours are mainly related to intellectual stimulation and individualised consideration. Third, the findings of the study suggest that the selection of leaders of public organisations should be based on the organisation's specific objectives. For example, an organisation that needs to put in place or enhance knowledge sharing mechanisms should focus on selecting leaders that possess intellectual stimulation and individualised consideration behaviours.

On the other hand, organisations that seek to achieve progress in innovation processes need to select leaders that demonstrate high capabilities in relation to the idealised influence, intellectual stimulation and individualised consideration. This could be done during the obligatory leadership promotion course which conducted annually for the MoI officers. The MLQ-5X multi factor leadership questionnaire developed by (Bass, and Avolio, 2004) can be used as a tool to measure the different characteristics of TL among officers.

Fourth, this research encourages practitioners to constantly examine their own leadership styles. As evident from the investigation of the MoI organisations are constantly experiencing new challenges that need new approaches in leadership and management. It is therefore important that the leaders be flexible in exercising their different leadership style in order to fit well into the organisation's context. Furthermore, the leaders should attend self-improvement programs to help overcome their deficient areas.

Lastly and in consistence with the sixth objective on recommendations for policy makers the study proposes that leaders should engage in organised workshops where stakeholders should be involved in determining the various approaches to improve innovation through knowledge sharing. Among the key policies that should be taken into consideration include improving knowledge infrastructure; policies to facilitate cooperation between divisions; and platforms to ensure that employees are well involved about innovative activities undergoing in the organisation and how they can participate.

8.5 Limitation of this research

Only one organisation was used in public sector as a source of data collection which is the MoI. Although it is a very huge organisation which supervise all seven emirates General Police Headquarters GHQs in the federal government that accounted for more than 30,000 employees, however, a comparison with different government bodies in the public sector such as the newly formed Ministry of Advanced Science, or Ministry of Artificial Intelligence as part of the new UAE government (Alarabiya, 2017) will add a value to the research findings. It was somewhat difficult to conduct an interview for this research, even though researcher was given access to the staff list of emails in order to help distribute the questionnaire; however, a difficulty was faced when attempt to conduct semi-structure interview. This could be understandable due to the nature of the organisation and the politics of holding the position.

Finally, since the current study model was developed and validated to predict and explain the variance in employees' attitude to adopt/implement innovation in a mandatory setting, care should be taken when applying it to examine the individuals' acceptance/rejection of innovation programme in voluntary settings where adopting new ways of doing things is not part of an individual's job.

8.6 Direction for future research

The present study effectively establishes that transformational leadership has a significant influence on knowledge sharing and innovation process. Future research can further extend research in this area by measuring the actual levels of innovation performance that arise from transformational leadership. This can then be linked to different levels of public sector performance such as operational performance, ability to cut on administrative costs and level of organisational effectiveness. The operations of public organisations are greatly influenced by the political, institutional and regulatory changes taking place in the country (Sorensen and Torfing, 2011). As such, it is important for future researchers to take a closer look at both internal and external perspectives when investigating public sector innovations.

While on the same, it is important that future researchers extend the scope of the study to examine various moderating variables between transformational leadership, knowledge sharing and innovation process. For example, it might be important to establish whether national or organisational culture has any influence on the nature and direction of relationship between the primary variables. Future research could therefore seek to expand this area of research by investigating for example the difference of views between manager and employee in regards of implementing innovation process and the critical factors to successful implementation of such a process from these two different group perspective and to make a comparison between the different-group findings. Since the data in this study was collected at a single point of time through survey, in-depth longitudinal research would be useful in order to determine whether employees' attitudes and behaviours toward innovation process change over time.

This could be achieved by applying the research model to examine employees' attitude regarding innovation process in the MoI at different points of time and comparing the findings for different data collection periods.

As this study has developed and validated a measurement instrument to predict innovation process through transformational leadership; further validation studies in different contexts would be useful in order to improve the external validity of this instrument. Moreover, this research examined supply-side stakeholders' (public employees) attitudes of innovation development. Hence, a remarkable expansion of this study would be to examine the demand-side stakeholders (citizens) views and perceptions about recent innovation programme. Addressing the perceptions of both supply-side and demand-side stakeholders would lead to a more successful and effective implementation of the innovation initiatives.

Finally, the data collection for the study was limited to quantitative (survey), future researchers can gather qualitative data (interviews) to enhance the understanding of the complex phenomena of transformational leadership and how this effects on the innovation process with paying attention to the trust and time factor in sharing the knowledge among employee in the MoI.

8.7 Summary

Unlike previous studies, the present study helped conceptualise how each of the four components of transformational leadership separately influences knowledge sharing and innovation process in the public sector. Through empirical tests this study demonstrates that transformational leadership is a core driver for innovation in the MoI. Specific components that have a significant influence on innovation include intellectual stimulation, individualised consideration and idealised influence. Further, the current study indicates that intellectual stimulation and individualised consideration are the only two main components of transformational leadership that significantly impact on the knowledge sharing. While prior research indicates that knowledge sharing has a major impact on innovation the present study indicates that the impact is relatively weaker but still significant in policing organisations such as the MoI. This limited impact is attributed to knowledge sharing constraints that characterise such police organisations.

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Appendices

Appendix 3A

Minister Award

Leader Award:

Financial Field:

- ✦ To what extent it links to the strategic plan Reduce waste in resources available
- ✦ The shift from traditional systems to electronic systems or smart
- ✦ Innovative new idea or the development of the current work
- ✦ It saves expenditure and income and the rationalization of consumption
- ✦ Saving time and effort (time / number of hours, minutes, seconds) and attach evidence
- ✦ Find innovative mechanisms to preserve state assets and optimal utilization
- ✦ The possibility of participating in the proposal, local, regional and international awards

Traffic Field:

- ✦ To what extent it links to the strategic plan Reduce traffic accidents and achieve traffic goals
- ✦ Increase the effectiveness of traffic control
- ✦ Improving roads and traffic engineering
- ✦ Innovative new idea or the development of the current work
- ✦ Spreading traffic awareness
- ✦ Saving time and effort (time / number of hours, minutes, seconds) and attach evidence
- ✦ The possibility of participating in the proposal, local, regional and international awards

Security Field:

- ✦ To what extent it links to the strategic plan
- ✦ New methods for the prevention of crimes
- ✦ Innovative new idea or the development of the current work
- ✦ The optimal use of information in crime detection and early warning of crises
- ✦ Preventing the rumors and to raise awareness
- ✦ Deployment of security awareness to limit crimes
- ✦ Saving time and effort (time / number of hours, minutes, seconds) and attach evidence

- ✦ The possibility of participating in the proposal, local, regional and international awards

Administrative Field:

- ✦ To what extent it links to the strategic plan
- ✦ Saving time and effort (time / number of hours, minutes, seconds) and attach evidence
- ✦ Improvement in work and happiness working environment
- ✦ Innovative new idea or the development of the current work
- ✦ Improvement in processes and services
- ✦ Adding a new service
- ✦ Raising quality in the design, construction and maintenance of buildings and facilities to ensure its independence
- ✦ The possibility of participating in the proposal, local, regional and international awards

Social Field:

- ✦ To what extent it links to the strategic plan
- ✦ Influence in raising the confidence level of the police and increase the sense of safety and improve the image of the police in the community
- ✦ Establish and promote the concepts of the Secretariat and the morals and integrity of the police and the community
- ✦ Improving the roads leading to the activation of community policing and public cooperation with the police and the community
- ✦ Mechanism to communicate with the public and raise awareness of the community
- ✦ To what extent it links to the CSR standard.
- ✦ Saving time and effort (time / number of hours, minutes, seconds) and attach evidence
- ✦ The possibility of participating in the proposal, local, regional and international awards

Environmental Field:

- ✦ To what extent it links to the strategic plan
- ✦ The link to safeguarding the environment and ensuring environmental sustainability
- ✦ To what extent it contribute to reducing the depletion of natural resources
- ✦ To what extent it links to using the techniques and programs that enhance environmental performance
- ✦ The effectiveness of the application from the technical side
- ✦ The feasibility of the application from the financial side
- ✦ Saving time and effort (time / number of hours, minutes, seconds) and attach evidence
- ✦ The possibility of participating in the proposal, local, regional and international awards

Technical Field:

- ✦ To what extent it links to the strategic plan
- ✦ Innovative new idea or the development of the current work
- ✦ Facilitate and the development of hardware and accessories maintenance procedures
- ✦ The development of new ways to protect information security and how they relate to quality standards related
- ✦ Developing ways of improving and developing the data bank and data retrieval
- ✦ It provides in expenses and revenues and rationalize consumption
- ✦ Saving time and effort (time / number of hours, minutes, seconds) and attach evidence
- ✦ The possibility of participating in the proposal, local, regional and international awards

Appendix 3B

The process of enclose and collecting the knowledge

Responsibility	Procedure
Knowledge Center	Design forms for explicit and implicit knowledge in all organizational units
Knowledge Center	Distribute forms to knowledge teams in all organizational units
Knowledge Teamwork	Fill out forms, document them and send copies to the Ministry's Knowledge Center
Knowledge Teamwork and Knowledge Center	Compilation and inventory of knowledge contained in both: <ul style="list-style-type: none"> Index of Partnerships Report of external visits Methodology of Benchmarking Complaints and suggestions system Project Department High Commissions Administration Human Resources System (HOBAS) E- club and electronic systems and any other mechanism

Process of organising knowledge

Responsibility	Procedure
Knowledge Teamwork, and Knowledge Center	Store knowledge collected and harvested across all organisational units
Knowledge Teamwork, and Knowledge Center	Classify and categorize knowledge stored in the knowledge center for all knowledge across the MoI
Knowledge Teamwork, and Knowledge Center	Continuously review, evaluate, and update knowledge, and avoid cognitive risks

Process of knowledge dissemination, sharing, and use of business development

Responsibility	Procedure
Knowledge Center and Knowledge Teamwork	Distribution and dissemination of knowledge of all kinds to all concerned according to the systems used (electronic and physical)
Knowledge Center and Knowledge Teamwork	To provide specialized knowledge to its users in appropriate time for use and benefit in solving problems, making appropriate decisions and improving performance
Knowledge Center and Knowledge Teamwork	Ensure knowledge sharing and knowledge exchange through the creation of new knowledge

Process of knowledge development and growth

Responsibility	Procedure
Knowledge Center and Knowledge Teamwork	Development of the strategic plan for knowledge management
Knowledge Center and Knowledge Teamwork	Designing operational plan for the strategic plan for knowledge management
Knowledge Center and Knowledge Teamwork	Follow-up the implementation of the operational plan and achieve performance targets
Knowledge Center and Knowledge Teamwork	Seek and share best practices in the development and growth of knowledge
Knowledge Center and Knowledge Teamwork	Collect, organise, disseminate, share, and use of new knowledge in order to develop performance

Process of knowledge development and growth

Usage/Application Process:

The knowledge centre follows up the implementation of the above processes and submits periodic reports in regard to the progress of the work to the supreme committee for knowledge within the Ministry of Interior.

Risk Assessment

Identify the knowledge risk map that includes the most important types of dangerous work critical and the important level of each risk identified and the probability of delivery and ways to avoid them.

Ways to avoid the risk	Risk area	Probability and repetition	Level of cognitive risk			Type of cognitive risk
			H	M	L	

Appendix 5A



Dear Respondent,

This questionnaire seeks your views about the Factors affect Innovation process in the Ministry of Interior specifically Transformational leadership style, and knowledge sharing processes. There are no right or wrong answers. The survey is voluntary all your answers will be treated with complete confidentiality and results will be put together so no individual responses can be identified. The questionnaire is in four sections; the first section seeks demographic information, while the second section is about transformational leadership, the third section asking about innovation process, while the final section asking about knowledge sharing processes. The questionnaire should take no longer than 20 minutes to complete. All questionnaires will be coded to ensure anonymity. Any personal information collected as part of the study will be stored securely on password computers or in a locked cabinet and access to the information will be limited to myself and my supervisor. Personal information collected as part of the study will be retained for a period of 5 years following completion of the study after which it will be destroyed. If you have any questions regarding your participation in the study or the study itself please feel free to contact either myself or my supervisor using the details below.

The Researcher: Khaled Al Darmaki

Date: 6/01/2016

Email: kh.aldarmaki@gmail.com

Mobile: +971 503303334

Supervisor: Mr. Fintan Clear fintan.clear@brunel.ac.uk, and Dr. Tariq Khan Lecturer and Director of Postgraduate Studies at Brunel University Email:

Tariq.Khan@brunel.ac.uk Office phone: +44 (0)1895 265249

Thank you for taking the time to support this project



Brunel Business School
Research Ethics
Participant Consent Form

Many thanks for agreeing to participate in my research project. The project has to be completed in part fulfilment of my degree programme and so your assistance is much appreciated.

Consent:

I have read the Participation Information Sheet and hereby indicate my agreement to participate in the study and for the data to be used as specified.

Name of participant or informed third party: [Khaled Aldarmaki]

Signature: [*Khaled Aldarmaki*]

Date: [10/06/2015]

Section 1 Personal Information

Please enter your personal information!

1. Position

- 1. Senior manager
- 2. Middle management
- 3. Employee

2. Age

- 1. Under 25
- 2. Between 25-40
- 3. Over 40

3. Gender

- 1. Male
- 2. Female

4. Nationality

- 1. UAE National
- 2. Other

5. What is your highest academic qualification?

- High School Certificate
- Bachelor's Degree or equivalent
- Masters Degree or equivalent
- PhD. or equivalent
- Other (please specify)

6. How long have you been in your current department

- 1. Less than three years
- 2. Between 3 and 5
- 3. Between 6 and 10
- 4. More than ten

7. How many members of the department you work within

- 1. Less than 10
- 2. Between 11 and 30
- 3. More than 30

Section 2 Transformational leadership

How much do you agree/disagree with the following statements?

No.	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Transformational leadership						
Idealised Influence						
1	Acts in ways that build my respect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Instils pride in being associated with him/her	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Talks about his/ her important values and beliefs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	Goes beyond self-interest for the good of the group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	Considers the moral and ethical consequences of decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	Emphasizes the importance of having a collective sense of mission	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	Displays a sense of power and confidence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Inspirational Motivation						
1	Talks optimistically about the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Talks enthusiastically about what needs to be accomplished	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Articulates a compelling vision of the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	Expresses confidence that goals will be achieved	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	Develops a team attitude and spirit among members of staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Intellectual Stimulation						
1	Re-examine critical assumptions to question whether they are appropriate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Gets me to look at problems from many different angles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Suggests new ways of looking at how to complete assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	Seeks different perspectives when solving problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	Encourages me to rethink ideas that have never been questioned before	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Individualised Consideration						
1	Spends time teaching and coaching	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Treats me as an individual rather than just as a member of a group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Considers me as having different needs, abilities and aspirations to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	Helps me to develop my strengths	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 3 Innovation process

Innovation Process						
1	Our organisation encourages teamwork and relationships between staff members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	My department implements an incentive system (i.e. higher salaries, bonuses, --) to staff to encourage them to come up with innovative ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Our organisation is trying to bring in new equipment (i.e. computers) to facilitate the performance and work procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	New multimedia software is implemented by this organisation for performance improvement purposes and administrative operations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	Our organisation often uses new technologies to improve its services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	My department often develops new technologies (internet, databases, --) to improve the working process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	My department develops new training programs for staff members.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	Our organisation is trying to bring in new equipment (i.e. computers) to facilitate learning operations and work procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	This organization publicly recognizes those who are innovative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 4 Knowledge Sharing

How much do you agree/disagree with the following statements?

Knowledge Sharing						
Knowledge Donating						
1	Knowledge sharing with colleagues is considered normal outside of my department	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Knowledge sharing among colleagues is considered normal in my department	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	When I have learned something new, I tell colleagues outside of my department about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	When they have learned something new, my colleagues within my department tell me about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	When I have learned something new regarding teaching profession, I tell my colleagues in my department about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	When they have learned something new, colleagues outside of my department tell me about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	I intend to share my knowledge with more departmental members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	I intend to share my knowledge with other department members more frequently in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Knowledge Collecting						
1	I share information I have with colleagues within my department when they ask for it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Colleagues in my department share information about profession with me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Colleagues within my department share knowledge with me, when I ask them about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	Colleagues within my department tell me what their skills are, when I ask them about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	I share my skills with colleagues outside of my department, when they ask me to	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	I share my skills with colleagues within my department, when they ask for it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	My practice is relation to knowledge sharing is appropriate and effective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	My knowledge sharing with other department members is an enjoyable experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE

Appendix 6A

Communalities

Variables	Initial	Extraction	Variables	Initial	Extraction
IF1	1.000	.966	INN1	1.000	.867
IF2	1.000	.974	INN2	1.000	.720
IF3	1.000	.955	INN3	1.000	.823
IF4	1.000	.956	INN4	1.000	.841
IF5	1.000	.856	INN5	1.000	.696
IF6	1.000	.690	INN6	1.000	.600
IF7	1.000	.818	INN7	1.000	.677
IM1	1.000	.795	INN8	1.000	.677
IM2	1.000	.592	KD1	1.000	.652
IM3	1.000	.694	KD2	1.000	.973
IM4	1.000	.767	KD3	1.000	.953
IM5	1.000	.832	KD4	1.000	.874
IS1	1.000	.863	KD5	1.000	.924
IS2	1.000	.883	KD6	1.000	.892
IS3	1.000	.706	KD7	1.000	.902
IS4	1.000	.700	KD8	1.000	.755
IS5	1.000	.684	KD1	1.000	.552
IC1	1.000	.741	KC1	1.000	.954
IC2	1.000	.716	KC2	1.000	.949

IC3	1.000	.823	KC3	1.000	.881
IC4	1.000	.794	KC4	1.000	.803
KC7	1.000	.923	KC5	1.000	.951
KC8	1.000	.910	KC6	1.000	.950

Extraction Method: Principal Component Analysis.

Appendix 6B: The Rotated Component Matrix for Ten-Factor Solution

	Component									
	1	2	3	4	5	6	7	8	9	10
KD3	.960									
KC2	.958									
KC6	.958									
KC7	.940									
KD5	.938									
KD7	.934									
KC8	.934									
KD6	.927									
KC3	.915									
KD4	.914									
KC4	.863									
KD8	.828									
IF2		.974								
IF1		.970								
IF4		.964								
IF3		.960								
IS2			.900							
IS1			.892							

IS3		.767							
IS5		.751							
IS4		.739							
INN1			.886						
INN4			.819						
INN3			.798						
INN2			.746						
IF6									
IM5				.897					
IM1				.878					
IM4				.830					
IM3				.738					
IC3					.879				
IC1					.797				
IC2					.780				
IC4					.742				
KC1						.711	.742		
KD2						.708			
KC5						.702		.742	
IN8							.753		
INN6									
IF5								.907	
IF7								.764	
INN7									.733
INN5									

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.^a

a. Rotation converged in 7 iterations.

Appendix 6C: Model Fit Summary for CFA (First Run)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	81	2344.357	480	.000	4.854
Saturated model	561	.000	0		
Independence model	33	10815.550	528	.000	20.484

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.057	.681	.611	.490
Saturated model	.000	1.000		
Independence model	.329	.170	.118	.160

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.986	.762	.820	.816	.905
Saturated model	1.000		1.000		1.000

Model	NFI	RFI	IFI	TLI	CFI
	Delta1	rho1	Delta2	rho2	
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.909	.712	.744
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	1864.357	1717.137	2019.049
Saturated model	.000	.000	.000
Independence model	10287.550	9952.830	10628.655

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	11.111	8.836	8.138	9.569
Saturated model	.000	.000	.000	.000
Independence model	51.259	48.756	47.170	50.373

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.136	.130	.141	.000
Independence model	.304	.299	.309	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	2506.357	2537.476	2778.241	2859.241
Saturated model	1122.000	1337.525	3005.045	3566.045
Independence model	10881.550	10894.228	10992.317	11025.317

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	11.878	11.181	12.612	12.026
Saturated model	5.318	5.318	5.318	6.339
Independence model	51.571	49.985	53.188	51.631

HOELTER

Model	HOELTER	HOELTER
	.05	.01
Default model	48	50
Independence model	12	12

Appendix 6D: Model Fit Summary for CFA (Second Run)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	77	544.619	274	.000	1.988
Saturated model	351	.000	0		
Independence model	26	8312.977	325	.000	25.578

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.048	.847	.804	.661
Saturated model	.000	1.000		
Independence model	.295	.241	.181	.223

Baseline Comparisons

Model	NFI	RFI	IFI	TLI	CFI
	Delta1	rho1	Delta2	rho2	
Default model	.934	.922	.966	.960	.966
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.843	.788	.815
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	270.619	208.057	340.964
Saturated model	.000	.000	.000
Independence model	7987.977	7694.173	8288.143

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	2.581	1.283	.986	1.616
Saturated model	.000	.000	.000	.000
Independence model	39.398	37.858	36.465	39.280

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.068	.060	.077	.000
Independence model	.341	.335	.348	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	698.619	721.217	957.076	1034.076
Saturated model	702.000	805.011	1880.162	2231.162
Independence model	8364.977	8372.607	8452.248	8478.248

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	3.311	3.014	3.644	3.418
Saturated model	3.327	3.327	3.327	3.815
Independence model	39.644	38.252	41.067	39.681

HOELTER

Model	HOELTER	HOELTER
	.05	.01
Default model	122	129
Independence model	10	10

Appendix 6E: Model Fit Summary for SEM (First Run)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	79	534.355	272	.000	1.965
Saturated model	351	.000	0		
Independence model	26	8312.977	325	.000	25.578

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.047	.849	.806	.658
Saturated model	.000	1.000		
Independence model	.295	.241	.181	.223

Baseline Comparisons

Model	NFI	RFI	IFI	TLI	CFI
	Delta1	rho1	Delta2	rho2	
Default model	.936	.923	.967	.961	.967
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.837	.783	.809
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	262.355	200.554	331.945
Saturated model	.000	.000	.000
Independence model	7987.977	7694.173	8288.143

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	2.532	1.243	.950	1.573
Saturated model	.000	.000	.000	.000
Independence model	39.398	37.858	36.465	39.280

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.068	.059	.076	.000
Independence model	.341	.335	.348	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	692.355	715.539	957.525	1036.525
Saturated model	702.000	805.011	1880.162	2231.162
Independence model	8364.977	8372.607	8452.248	8478.248

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	3.281	2.988	3.611	3.391
Saturated model	3.327	3.327	3.327	3.815

Model	ECVI	LO 90	HI 90	MECVI
Independence model	39.644	38.252	41.067	39.681

HOELTER

Model	HOELTER	HOELTER
	.05	.01
Default model	123	130
Independence model	10	10

Appendix 6F: Model Fit Summary for SEM (Second Run)

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	76	536.518	275	.000	1.951
Saturated model	351	.000	0		
Independence model	26	8312.977	325	.000	25.578

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.052	.849	.807	.665
Saturated model	.000	1.000		
Independence model	.295	.241	.181	.223

Baseline Comparisons

Model	NFI	RFI	IFI	TLI	CFI
	Delta1	rho1	Delta2	rho2	
Default model	.935	.924	.967	.961	.967
Saturated model	1.000		1.000		1.000

Model	NFI	RFI	IFI	TLI	CFI
	Delta1	rho1	Delta2	rho2	
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.846	.792	.818
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	261.518	199.666	331.164
Saturated model	.000	.000	.000
Independence model	7987.977	7694.173	8288.143

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	2.543	1.239	.946	1.569
Saturated model	.000	.000	.000	.000
Independence model	39.398	37.858	36.465	39.280

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.067	.059	.076	.001
Independence model	.341	.335	.348	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	688.518	710.822	943.618	1019.618
Saturated model	702.000	805.011	1880.162	2231.162
Independence model	8364.977	8372.607	8452.248	8478.248

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	3.263	2.970	3.593	3.369
Saturated model	3.327	3.327	3.327	3.815
Independence model	39.644	38.252	41.067	39.681

HOELTER

Model	HOELTER	HOELTER
	.05	.01
Default model	124	131
Independence model	10	10



مقدمة

شكراً لك على اختيارك تعبئة هذا الاستبيان. إن هذا الاستبيان يهدف إلى استطلاع وجهات نظركم وآرائكم حول مدى تأثير القيادة التحويلية ومشاركة المعرفة على الابتكار لدى الموظفين المشاركة في الاستبيان تطوعية، ولكن إذا اخترت عدم المشاركة في وزارة الداخلية، تعتبر تكون قد تخلت عن فرصتك في أن يسمع صوتك والذي قد يساهم كثيراً في هذه الدراسة ونتائجها.

سيتم معاملة جميع الإجابات بسرية تامة، وستجمع النتائج معاً حتى لا يتم التعرف على أية استجابات فردية، كما سيتم تحليل البيانات بطريقة سرية في جامعة برونييل في المملكة المتحدة، ولن يتم الإطلاع عليها من قبل أي شخص غير الباحث.

يتكون هذا الاستبيان من أربعة أقسام؛ القسم الأول يسعى لجمع المعلومات الديموغرافية للمشاركين ولكنها ليست شخصية كالإسم وتاريخ الميلاد، في حين أن القسم الثاني يتعلق بجمع البيانات حول عن نمط القيادة التحويلية في مختلف الأقسام داخل الوزارة، أما القسم الثالث والرابع فيتعلقان بعملية الابتكار و مشاركة المعرفة على التوالي. لن يستغرق هذا الاستبيان أكثر من 20 دقيقة لتعبئته.

ومع ذلك ، إذا كان لديك أي سؤال حول الاستبيان أو الأسئلة التي وردت فيه أو حول سلامة معلوماتك أو الخصوصية، أو إذا كنت ترغب في التواصل مع الجامعة أو بالمشراف على الدراسة، يمكنك ذلك عن طريق مراسلتي أو مراسلة المشرف على العناوين الموضحة أدناه.
- الباحث/ خالد الدرمني

هاتف المحمول: 00971503303334 - kh.aldarmaki@gmail.com: بريد إلكتروني

دكتور/ طارق خان - جامعة برونييل - المملكة المتحدة -

بريد إلكتروني: Tareq.Khan@brunel.ac.uk

معلوماتك الشخصية

الرجاء اختيار الخيارات التي تصف معلوماتك الشخصية

1. الوظيفة

1. مدير

2. مدير فرع -رئيس قسم

3. موظف

2. العمر

1. أقل من 25 سنة

2. بين 25-40 سنة

3. أكثر من 40 سنة

3. الجنس

1. ذكر

2. أنثى

4. الجنسية

1. مواطن إماراتي

2. جنسية أخرى

5. ما هو أعلى مؤهل علمي حصلت عليه

شهادة الثانوية العامة أو ما يعادلها

درجة البكالوريوس أو ما يعادلها

درجة الماجستير أو ما يعادلها

درجة الدكتوراة أو ما يعادلها

(أخرى) يرجى التحديد

6. منذ متى وأنت تعمل في القطاع العام

1. أقل من ثلاثة سنوات

2. ما بين 3 إلى 5 سنوات

3. ما بين 6 إلى 10 سنوات

4. أكثر من عشر سنوات

7. ما هي الإدارة التي تعمل بها حالياً

1. القائد العام لشرطة أبوظبي

2. نائب القائد العام لشرطة أبوظبي

3. الإدارة العامة للشؤون المالية والخدمات

4. الإدارة العامة للموارد البشرية

5. الإدارة العامة للحراسات والمهام الخاصة

6. الإدارة العامة للعمليات الشرطية

- 7. الإدارة العامة للعمليات المركزية
- 8. الإدارة العامة لشؤون الأمن والمنافذ
- إدارة أخرى، يرجى التحديد

8. منذ متى وأنت تعمل في الإدارة التي تعمل بها حالياً

- 1. أقل من ثلاثة سنوات
- 2. ما بين 3 إلى 5 سنوات
- 3. ما بين 6 إلى 10 سنوات
- 4. أكثر من عشر سنوات

9. كم عدد الموظفين في الإدارة التي تعمل بها أو تقودها

- 1. أقل من 10 موظفين
- 2. بين 11 - 30 موظف
- 3. أكثر من 30 موظف

القسم الأول: نمط القيادة التحويلية

العبارات التالية تصف الخصائص المختلفة لنمط القيادة التحويلية ، إجابتك عبارة عن رأيك الشخصي في نفسك إذا كنت مديراً، أو رأيك في سلوك مديرك (أو قائدك) تصف نمط القيادة الخاص بالإدارة التي تعمل بها

التسلسل	العبارة	أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة
التأثير المتالي						
1	أُتصرف بأسلوب أحظى من خلاله بتقّة واحترام وتقدير العاملين	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	أُعرض في العاملين الفخر في الارتباط معهم	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	أتحدث مع العاملين عن قيمهم ومعتقداتهم	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	أتجاوز مصالحى الذاتية بهدف تحقيق المصلحة العامة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	أهتم للنتائج الأخلاقية والمخوية للقرارات	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	أركز على أهمية أن يكون لدى العاملين فهم مشترك لأهداف ورسالة المؤسسة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	أعرض الشعور بالقوة والتقّة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

التسلسل	العبارة	أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة
التحفيز الملهم						
8	أُحدث بتقائل بشأن المستقبل	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	أُحدث بحماسة عن ما يجب إنجازه	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	أهتم بتحفيز العاملين لتحقيق أهداف ورؤية المؤسسة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	أظهر الثقة في أن الأهداف ستتحقق	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	أوجه العاملين للعمل بروح الفريق	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

التسلسل	العجارة	أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة
الاستشارة الفكرية						
13	أتيح الفرصة للعاملين لإعادة النظر في الافتراضات والتساؤلات	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	أشارك العاملين أفكارهم وأستمع لوجهات نظرهم عندما أحاول حل مشاكل العمل	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15	أقترح طرقاً جديدة لإنجاز مهمات العمل	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16	البحث عن وجهات نظر مختلفة عند حل المشكلات	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17	أتيح الفرصة للعاملين للتفكير في المشاكل القديمة بطرق جديدة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

التسلسل	العبارة	أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة
الاعتبارات الفردية						
18	مديري يقضي وقت للتعليم والتدريب	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19	بعضهم كثير وليس عضو في المجموعة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20	بهمم بوجود احتياجات و قدرات وتطلعات مختلفة عن الآخرين	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21	يساعدني على تطوير نقاط القوة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

القسم الثاني: عملية الابتكار

العبارات التالية تصف عملية الابتكار، والأنشطة المترابطة مع بعضها البعض التي تحقق

الابتكار يرجى الإجابة حسب وجهة نظرك

التسلسل	العبارة	أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة
عملية الابتكار						
1	تشجع منظمنا العمل الجماعي والعلاقات بين الموظفين	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	تطبيق إدارتي نظاما للحوافز (أي رواتب أعلى، ومكافآت، -) للموظفين لتشجيعهم على التوصل إلى أفكار مبتكرة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	تحاول منظمنا جلب معدات جديدة (أي أجهزة الكمبيوتر) لتسهيل الأداء وإجراءات العمل	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	يتم تنفيذ برامج الوسائط المتعددة الجديدة من قبل هذه المنظمة لأغراض تحسين الأداء والعمليات الإدارية	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	غالبًا ما تقوم منظمنا بتطوير خدمات جديدة وبرامج تدريبية جديدة للموظفين.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	غالبًا ما تقوم منظمنا بتطوير تكنولوجيا جديدة (الإنترنت، وقواعد البيانات، -) لتحسين إجراءات العمل	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	تقوم إدارتي بتطوير برامج تدريبية جديدة للموظفين	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	تحاول منظمنا جلب معدات جديدة (أي أجهزة الكمبيوتر) لتسهيل العمليات الإدارية وإجراءات العمل	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	هذه المنظمة تعترف علنا بالأشخاص المبتكرين	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

القسم الثالث: مشاركة المعرفة

العبارات التالية تصف عملية مشاركة المعرفة، و الرغبة أو السلوك المصاحب لمشاركة المعرفة .. يرجى قراءة العبارات التالية وتقييمها حسب وجهة نظرك:

التسلسل	العبارة	أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة
التبرع بالمعرفة						
1	يعتبر تقاسم المعرفة مع الزملاء أمر طبيعي خارج إدارتي	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	يعتبر تقاسم المعرفة بين الزملاء أمر طبيعي في إدارتي	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	عندما أتعلم شيء جديد، أخبر الزملاء خارج إدارتي حول هذا الموضوع	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	عندما يتعلموا شيئاً جديداً، يقوم زملائي داخل إدارتي بإبلاغي عنه	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	عندما أتعلم شيئاً جديداً فيما يتعلق باختصاصي، أخبر زملائي في إدارتي عن ذلك	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	عندما يتعلموا شيئاً جديداً، زملائي خارج إدارتي يخبروني عن ذلك	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	أنوي مشاركة معرفتي مع المزيد من أعضاء الإدارات المختلفة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	أحترم مشاركة معرفتي مع أعضاء الإدارة الأخرى بشكل أكثر تواتراً في المستقبل	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

التسلسل	العبارة	أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة
جمع المعرفة						
9	أشارك ما لدي من معلومات مع الزملاء داخل إدارتي عندما يطلبون ذلك	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	الزملاء في إدارتي يقومون بتبادل المعلومات عن المهنة معي	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	الزملاء داخل إدارتي يقومون بتبادل المعرفة معي، عندما أسألهم عن ذلك	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	الزملاء داخل إدارتي يخبروني ما هي مهاراتهم، عندما أسألهم عن ذلك	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13	أشارك مهاراتي مع زملائي خارج إدارتي عندما يطلبون مني ذلك	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	أشارك مهاراتي مع الزملاء داخل إدارتي عندما يطلبون ذلك	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15	ممارستي بما يتعلق بتبادل المعرفة مناسبة وفعالة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16	تقاسم المعرفة مع أعضاء الإدارات الأخرى هي تجربة ممتعة	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>