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The impact of servant leadership on innovation in small and medium enterprises in Egypt: the mediating role of knowledge sharing

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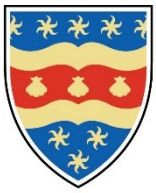

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The impact of servant leadership on innovation in small and medium enterprises in Egypt: the mediating role of knowledge sharing

By

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Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Doctoral College Quality Sub-Committee.

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Abstract

There are many types of leadership styles which can affect innovation. However, this study focused on servant leadership, where the purpose of this study was to examine the role of servant leadership on innovation through the mediating role of knowledge sharing in small and medium enterprises in Gamsah and New Dameitta in Egypt.

Servant leaders are the leaders who aim mainly to serve their followers and their organisations. Knowledge sharing is essential to any organisation and it has two constructs; knowledge donating and knowledge collecting. Knowledge sharing is vital for leaders to achieve their organisations' goals. Innovation is important for organisations to compete and gain stability in the markets. The study focused on examining the role of servant leadership on innovation and its two dimensions which are product innovation and process innovation.

The study adopted the positivism philosophy and deductive approach and quantitative methods were used: a questionnaire was used to collect data from managers and leaders in small and medium enterprises in the region of the study. Structural Equation Modelling (SEM) by Analysis of moment structures (AMOS 25) was used to examine the research hypotheses.

The study examined the effect of servant leadership and its dimensions which are: character orientation, people orientation and task orientation on product innovation and process innovation. It also examined the relationship between servant leadership and its dimensions with knowledge sharing and its dimensions knowledge donating and knowledge collecting. The results of the study indicate that SL and KS are associated with innovation (INN) in SMEs. It is found that servant leadership and knowledge sharing have direct and positive impacts on both product innovation and process innovation. The study has contributed a model that conceptualises the relationship between servant leadership, knowledge sharing and innovation.

The study also introduced many recommendations for the owners, managers and leaders of small and medium enterprises in Egypt about the servant leadership style, knowledge sharing and innovation. The study also highlighted some recommendations for future research.

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List of Abbreviations

Full term	Abbreviation
Average variance extracted	AVE
Analysis of moment structures	AMOS
Comparative fit index	CFI
Composite reliability	CR
Cronbach alpha	α
Confirmatory factor analysis	CFA
Character orientation	CO
Customer relationship management	CRM
Exploratory factor analysis	EAF
Egyptian pounds	EGP
Gross domestic product	GDP
Human resources	HR
Information technology	IT
Innovation	INN
Knowledge collecting	KC
Knowledge donating	KD
Knowledge management	KM
Knowledge sharing	KS
Maximum likelihood	ML
Normed fi index	NFI
People orientation	PO
Process innovation	PCI
Product innovation	PDI
Servant leadership	SL
Small and medium enterprises	SMEs
Statistical Package for the Social Sciences	SPSS

Structured equation modelling	SEM
Socialization, Externalization, Combination, Internalization Model	SECI
Research & Development	R&D
Task orientation	TO
The root mean square error of approximation	RMSEA
Tucker-Lewis index	TLI

Chapter 1 Introduction

This chapter discusses the background of the study, the main aim and objectives of the study, research question, a brief outline of the research methodology and the structure of the thesis.

2.1 Research background

The study is concerned with the role of servant leadership style (SL) on innovation (INN) through knowledge sharing (KS), as a mediating role, in small and medium enterprises (SMEs) in Gamsah and New Dameitta region in Egypt. The study researched the manufacturing of SMEs in this region in Egypt, as it plays an important role in the national economy. It represents 75% of the labour force in the country (OBG, 2020). This chapter looks at the background of the study and explains the reasons for choosing manufacturing small and medium-sized enterprises (SMEs) in Egypt. It also explains the independent variables (SL and KS) and dependent variable (INN) in this study. This chapter also highlights the research problem, the objectives, research question, research methodology and outlines the structure of the thesis.

2.1.1 Servant leadership (SL)

Leadership is an important factor of management research. It considers the fundamental domain affecting any organisation's processes and outcomes. Effective leadership can make a beneficial difference in the lives of the employees and the organisations. Success or failure of an organisation depends on leadership decisions (Lussier & Achua, 2015). The importance of the leadership is due to the skills that the leaders have which can affect the followers, shape their goals and help to achieve the organisations' goals (Senge, 2006). Therefore, it is fundamental for an organisation to choose an appropriate leader. This leads to two questions that were covered by many researchers and scholars in leadership books and articles such as Lussier and Achua. These questions include: are leaders born or made? Is leadership an art or science? Lussier and Achua stated that leaders are born with leadership skills and learn other skills of leadership through studying, training and experience at work (Lussier & Achua, 2015). They added that the leaders must have three management skills; technical, interpersonal, and decision-making skills (Lussier & Achua, 2015). Axelrod explained that leadership is an art of affecting others to achieve what the leader wants them to do and they also want to achieve it (Axelrod, 2006). Popa mentioned that leaders must have vision,

integrity, flexibility to change, open to adopt new approaches, creativity, and taking responsibility (Popa, 2012). DuBrin mentioned these leaders' skills include self-confidence, humility, core self-evaluations, sense of humour, trustworthiness, enthusiasm, optimism, warmth, authenticity, assertiveness and extraversion (DuBrin, 2015).

Researchers agreed that leaders must have certain skills to help them lead and affect the followers and support them to achieve the organisations' goals. However, researchers have classified the leadership as styles, the common styles are transformational leadership, transactional leadership, authentic leadership, laissez-faire leadership, ethical leadership and servant leadership. Transformational leaders have the ability to motivate, inspire and create a vision for the future (Dvir *et al.*, 2002; Rowold & Schlotz, 2009). The transactional leadership refers to order and control, therefore the leaders are more cautious and take the right action to prevent mistakes (Deichmann & Stam, 2015; Hariri *et al.*, 2016). The authentic leaders have self-confidence, are helpful, optimistic and treat the follower with high moral character (Avolio *et al.*, 2004). The laissez-faire leadership is whereby leaders give freedom to the followers, avoid making decisions and avoid the responsibility (Bass, 1985). The ethical leadership focuses on making fair decisions, displaying ethical behaviour, listening and having the best interest of employees in their mind (Brown *et al.*, 2005). Servant leaders have the willingness to serve the followers, the ability to apply change in their organisation and encourage and support followers to maximise their potential, professionally and personally going beyond their own self-interest (Greenleaf, 2002; Greenleaf, 2011; Lussier & Achua, 2014). SL is a style of leadership that the leader is a servant first. Servant leaders consider everyone as part of the team. Servant leaders believe that the followers must be engaged to create a shared vision to encourage them to achieve the organisation's goals. They focus on the workers' needs to achieve what they must achieve (Greenleaf, 2011).

Researchers and writers gave attention to servant leadership (SL), the concept of it and the measurements of SL and the effects of it on an organisations' successes in any industry (Mahembe & Engelbrecht, 2013). Van Dierendonck and Nuijten highlighted that SL is a moving of management theory that looks at the followers as trustworthy and self-actualising. They also mentioned that SL has a positive relationship with satisfaction of the followers' needs, promotion, empowerment, commitment and creative behaviours (Van Dierendonck & Nuijten, 2011). Servant leader behaviour usually focuses on supporting and serving followers (Yukl, 2010), and serving the followers' needs (Winston & Fields, 2015). There is limited research that has been conducted on servant

leadership. Further research is needed to provide evidence about how a leader who wants to serve first is able to affect followers and supports them to achieve their potential (Northouse, 2012; Sikorski, 2017). In addition, Sokoll mentioned that there is a need for research and studies of the causal relationship of SL and the success of organisations (Sokoll, 2014).

Gandolfi & Stone highlighted that there are authenticated and completed research about leadership styles such as democratic, transactional and transformational leadership but in comparison there is very little research on SL (Gandolfi & Stone, 2018).

Therefore, this study highlights the causal relationship between SL, KS and INN. It focuses on the role of SL and its dimensions: character orientation being (CO), people orientation relating (PO) and task orientation (TO) on INN using the KS as a mediator.

2.1.2 Knowledge sharing (KS)

Interest in has knowledge increased rapidly over recent years. It has become an important topic for the researchers to study. There are many studies about the relationship of knowledge with many variables in social and business studies. For example, Emadzade et al. mentioned that knowledge is considered to be a source of innovation and generating competitive advantages (Emadzade *et al.*, 2012). Hartono and Halim also highlighted that knowledge can be an excellent agent for innovation, creating a unique position of an organisation in the market if the organisation invests and manages knowledge effectively and efficiently. It is also important for leaders to be able to encourage their followers and improve their performances. This can be done through knowledge management (KM) (Hartono & Halim, 2014). Mahdi et al. stated that knowledge is not data or information (Mahdi *et al.*, 2011). They explained that knowledge has a life cycle which starts with data, which is then transferred to information, information turns to knowledge and this as a result turns to wisdom (Mahdi *et al.*, 2011).

Researchers have divided knowledge to different types; social and individual knowledge (Nonaka, 1994), formal and informal knowledge (Conklin, 1996), declarative (peoples' beliefs and opinions) and procedural (peoples' skills and abilities) knowledge (Fernandez *et al.*, 2004), factual, situational and social knowledge (Mathew, 2010), tacit (intangible) and explicit (tangible) knowledge (Dalkir, 2005; Nonaka & Takeuchi, 1995), internal and external knowledge (Chugh, 2013). Managing knowledge has become an important process for any organisation to maximise the use of knowledge. Knowledge management (KM) is a concept that appeared in the 1990s (Koenig, 2012). Koenig defines KM as

a process of identifying, capturing, evaluating, retrieving and sharing knowledge inside and outside the organisation. This knowledge may include databases, documents, policies, procedures, and previous experiences (Koenig, 2012).

Sarkheyli et al. also defined KM as a comprehensive process which includes collecting, organising, sharing, analysing knowledge and assessing the resources, skills and documents of the knowledge. They added that KS is an important process of KM (Sarkheyli *et al.*, 2013).

KS has been mentioned by researchers and scholars as one of the essential elements in an organisation (Anwar *et al.*, 2019; Asrar-ul-Haq & Anwar, 2016; Witherspoon *et al.*, 2013). Sarkheyli et al. defined KS as a process of transferring information, skills and experiences between people on a personal base or an organisational base. They added that KS is management of both tacit and explicit knowledge (Sarkheyli *et al.*, 2013). Therefore, this study explored KS and its dimensions: knowledge collecting (KC) and knowledge donating (KD) and using KS as a mediator in studying the relationship between SL and INN.

2.1.3 Innovation (INN)

Innovation has become an important factor for any organisation to survive and succeed. Innovation does not only include new products, but includes many new factors such as new ideas, new organisational structures and new methods of introducing the products into the markets. In other words, innovation is a broad concept and it can be done all over the organisation such as new ideas, new customer services, new products etc. they added that the definition of innovation cannot be done without mentioning the relationship of innovation with the organisation (Sadeghi & Rad, 2018). Pitt defined innovation as an idea or an action that is necessary for the organisation to survive and succeed (Pitt, 2007).

Dobni mentioned that if an organisation invests in innovation effectively and efficiently, this will strengthen the organisations' position in the markets, increasing their profits and therefore they may gain success in the long term (Dobni, 2010).

Researchers have divided innovation to different types: front-end innovation and back-end innovation (Deschamps, 2005), radical and incremental innovation (Dewar & Dutton, 1986; Schuhmacher *et al.*, 2018), product innovation, process innovation, marketing innovation and organisational innovation (Oecd Oslo, 2005), product innovation, process innovation, organisational innovation, management innovation, production innovation, commercial/marketing innovation and service innovation (Pitt, 2007).

Leadership literature shows that the leadership style has an impact on innovation. Deschamps mentioned that the leaders must take into consideration the four strategic dimensions of innovation which are: why innovate, where to innovate, who to innovate to and how much to innovate (Deschamps, 2005). It is a great challenge for the leaders to encourage people to be creative and improve their innovative and technical skills (Paulsen *et al.*, 2013; Paulsen *et al.*, 2009). Therefore, this study studied the role of SL on INN through the mediating role of KS.

2.1.4 Why SMEs?

This study examined the causal relationship between the three variables: SL, KS and INN, in SMEs in Gamsah and New Demaitta in Egypt. The current study focuses on SMEs in Gamsah and New Demaitta in Egypt because SMEs play an important role in the national economy in job creation, sales growth and employment growth and for the wealth of the person or the company who owns it, and in turn to the developed or developing countries. Egypt has approximately 2.5m SMEs. They represent 75% of the labour force and many of them are in manufacturing (Mahmoud Mourad, 2020). SMEs in Egypt represent the biggest share of the Egyptian economy and the national policy encourages SMEs, and in fact depends on it to help the national economy (Zaied, 2012). Although SMEs have limited access to finance and weak property rights protection, SMEs contribute significantly to the employment and the economy mostly in developing countries (Ayyagari *et al.*, 2011).

In recent years, Egypt has recognised the vital role of having a policy framework to help the SMEs. Egypt has also improved the targeted policy to enhance SMEs innovation (ACD, 2014; Zamzam, 2018). In 2018, Egypt planned to set aside $1.7bn in loans to SMEs. The Egyptian government directed the central bank of Egypt to direct commercial banks to increase the number of loans to SMEs to 20% of their total portfolios. In addition, the Egyptian government is also supporting SMEs by reducing the administrative time and costs (Krafft *et al.*, 2020).

Wang and Poutziouris stated that SMEs are considered as fundamental for innovation, wealth and employment. Because of this importance and the immature managerial skills that evidence has shown in SMEs, SMEs need an appropriate leadership style to help them achieve their goals (Wang & Poutziouris, 2010). House talked about four types of behaviour of leadership which are as follow: directive, supportive, achievement and participative (House, 1996b). Wang and Poutziouris studied the House's four types of behaviour of leadership in the SMEs in the UK. They found that SMEs would

benefit the most from participative style followed by, the supportive, directive and achievement-oriented styles (Wang & Poutziouris, 2010). In this participative style, leaders provide advice, evaluation and suggestions to their followers. They empower and support them and allow them to become involved more in day-to-day activities (Wang & Poutziouris, 2010). While SMEs are vital for any economy, SMEs need an effective leadership style to achieve their goals and sharing knowledge to provide innovative values to the economy (Zamzam, 2018).

The study focused on Gamsah and New Demaitta in Egypt because the two regions are considered as industrial regions and are famous for their production of wood and furniture, Mediterranean sweets, Demaiitta cheese, dairy products and clothes manufactory. These products are sold in Arab countries, Africa and Europe (World Bank, 2020; Khalefa, 2018). New Damietta is an expanding area of Damietta which was built in 1980. New Damietta has 516 big factories and 206 factories are under construction ('New Cities in Egypt,' 2018). Due to their profound impact on the economy, this study focuses on the causal relationship of the variables SL, INN, and KS, specifically in SMEs in these two regions.

2.2 Research problem

The literature review revealed that SL and KS and INN are critical to any organisation to survive and succeed. Researchers studied the important role of leadership styles, such as Jaskyte who found that transformational leadership (TL) has an effective relationship on process innovation more than product innovation (Jaskyte, 2011). Alomiri studied the effect of leadership styles (TL, SL, transactional styles) on organisational culture and he found that there are significant positive relationships (Alomiri, 2016). Al-Husseini studied the relationship between TL, KS and innovation in higher education and found that TL has an impact on KS, and it has also had an impact on process innovation more than product innovation. Al-Husseini highlighted that there is a need to study the measures of leadership styles, KS and INN and test these constructs in different environments (Al-Husseini, 2014). Al-Husseini & Elbeltagi also recommended that there is a gap in studying and clarifying which knowledge dimensions have more significant effect on product and process innovation in different environments (Al-Husseini, 2014; Al-Husseini & Elbeltagi, 2016).

There are a number of previous researchers that have claimed leadership empowers and facilitates KS (Hoon Song *et al.*, 2012; Seba *et al.*, 2012; Shih *et al.*, 2012) which creates and impacts on innovation (Al-Husseini, 2014; Alomiri, 2016) and KS leads to innovation (Al-Husseini & Elbeltagi, 2016; Ferraresi *et al.*, 2012).

Most of the researchers studied leadership styles with different variables, Such as Alomiri who studied the effect of leadership styles on organisational culture. He mentioned that the field of leadership needs more additional research, especially on leadership styles and the dimensions of measuring them (Alomiri, 2016).

Al-Husseini & Elbeltagi studied the relationship between TL, KS and INN (Al-Husseini, 2014; Al-Husseini & Elbeltagi, 2016) and Vargas studied the transactional leadership (Vargas, 2015). Sikorski mentioned that there is a need for a better understanding of servant leadership and its operationalisation in organisations (Sikorski, 2017). Tuan also mentioned that the role of SL in creating and affecting KS is still under-researched. This relationship is very important, where leaders need to reach their higher level of service orientation in their leadership towards their followers. He added that previous research studied the relationship between transformational leadership and KS. Therefore, he mentioned that there is a need to study the relationship between SL and KS (Tuan, 2016).

Begheri & Akbari mentioned that there is a need to study the relationship between innovation and leadership styles (Bagheri & Akbari, 2018). In the context of SMEs in Egypt, Zamzam recommended that there is a need to study KS in order to help SMEs to innovate and add value to the Egyptian economy (Zamzam, 2018).

From the literature review, there is a lack of research studies on the causal relationships between SL, KS and INN. There is no research that has examined these relationships in SMEs in Egypt especially in Gamsah and New Dameitta. To fill this gap in the literature, this study has examined the causal relationships between SL and its dimensions and INN and its dimensions through the mediating role of KS in SMEs Gamsah and New Dameitta region in Egypt. Applying research on SMEs in Egypt will be useful for SMEs to innovate and may help eliminate the barriers that stop development of product and process innovation taking in consideration SL characteristics. It is also important for the Egyptian economy, as SMEs are vital for the Egyptian economy (OBG, 2020).

2.3 Research aim and objectives

The study aims to investigate the effects of SL and its dimensions on product and process innovation through the mediating role of knowledge sharing in SMEs in Gamsah and New Dameitta in Egypt.

The main aim can be divided to these sub-objectives as follow:

1. Determine the effects of SL and its dimensions (CO, PO and TO) on INN and its dimensions (PDI and PCI).
2. Determine the effects of SL and its dimensions (CO, PO and TO) on KS and its dimensions (KD and KC).
3. Determine the effects of KS and its dimensions (KD and KC) on INN and its dimensions (PDI and PCI).
4. Determine the mediating role of KS on the relationship between SL and INN. And define a model that conceptualises the relationship between SL, KS and INN.

2.4 Research questions

The main research question of this study is:

What are the effects of SL on INN through the mediating role of KS in SMEs in Gamsah and New Dameitta region in Egypt?

This question can be divided into the following sub-questions:

1. What are the effects of SL (CO, PO and TO) on INN (PDI and PCI) in SMEs in Gamsah and New Dameitta in Egypt?
2. What are the effects of SL and (CO, PO and TO) on KS (KD and KC) in SMEs in Gamsah and New Dameitta in Egypt?
3. What are the effects of KS (KD and KC) on INN (PDI and PCI) in SMEs in Gamsah and New Dameitta in Egypt?
4. What is the model that can conceptualise the relationship between SL, KS and INN in SMEs in Gamsah and New Dameitta in Egypt?
5. Does the KS mediate the relationship between SL and INN positively?
6. What are the recommended strategies for INN using SL and KS in SMEs in Gamsah and New Dameitta in Egypt?

2.5 Research methodology

The study uses a quantitative method based on positivism philosophy. The study used a deductive approach to test the hypotheses about the effects of SL practice on INN and KS and the effects of KS on INN in SMEs in Gamsah and New Dameitta region in Egypt. The study measured the independent variables (SL and KS) and the dependent variable (INN) using a questionnaire. The study adopted the quantitative data collection by means of a survey. The questionnaire was distributed in several ways; majority were self-administered, while some were answered online. The questionnaire was distributed to the managers and leaders to rate their leaders using the five-points Likert scale. The questionnaire was anonymous, and this helped to keep the participants safe and assure them that their answers were not disclosed to anyone. The questionnaire was translated to Arabic as it was distributed in SMEs in Gamsah and New Dameitta region in Egypt.

2.6 Structure of the thesis

The study is divided into nine more chapters, as follows:

Chapter 1: Discusses background of the study, the research problem, the main aim of the study and objectives, research question and the research methodology briefly and the structure of the thesis.

Chapter 2: Covers the definition of SMEs and the economic contributions of SMEs in Egypt briefly.

Chapter 3: Discusses definitions of leadership, the leadership styles, leadership theories, definition of SL and SL dimensions.

Chapter 4: Discusses definitions of KS and why KS and the relationship between the SL, KS and INN

Chapter 5: Discusses definitions of INN, types of innovation and why innovation.

Chapter 6: The chapter covers the conceptual framework and hypotheses of the study.

Chapter 7: Covers the research philosophy, research approach, research method, questionnaire survey, pilot study, validity and reliability of the questionnaire, sampling, and data preparation and screening.

Chapter 8: Presents the data analysis and study's findings and explanations of the descriptive statistics of the data, structure equation modelling (SEM), reliability and validity of research, measurement model first order, measurement model second order, structure model and hypothesised model of SL, KS and INN.

Chapter 9: Covers the discussion of the findings.

Chapter 10: covers study's conclusion, limitation and recommendations.

Chapter 2 Small and Medium Enterprises (SMEs)

In the previous chapter, a brief introduction was provided and laid out the structure of the thesis. In this chapter discusses the definition and the number of SMEs in Egypt, the importance of SMEs, economic contribution of SMEs in Egypt, and obstacles of SMEs and their solutions.

2.1 Introduction

The role of the small and medium enterprises (SMEs) can't be neglected in every economy. It is critical for the SMEs to develop their innovations to maintain development and succeed in the market (Rezaei *et al.*, 2012). The Portuguese industry as an example, consists of SMEs as they make up 75% of the workforce employed in industry, they represent 99.5% of national business (Santos *et al.*, 2011).

In Egypt, in 1952, SMEs represented 1% of the total establishment. In 1963 to 1972, SMEs represented 2.4% of total establishment. In 973 to1992, SMEs represented 20.5% of the total establishment. In the late 1990s, the Egyptian government started to encourage SMEs, instead of depending on a select few big companies, in order to solve the country's unemployment problem. Therefore, the Egyptian government established "the social fund for development (SFD)" to create more jobs and increase the economic activity. In 2018, the percentage of SMEs is between 95% to 98% to the total industrial enterprises (Bary, 2019).

SMEs are important and they are the backbone of Egyptian economy. In Egypt there are around 2.5m SMEs, and they represent 75% of the labour force, and the majority are involved in manufacturing (Mahmoud Mourad, 2020). Although the SMEs are spread around all cities in Egypt, Gamsah and New Demaitta are famous in SMEs for their involvement in wood, furniture, cheese and dairy products, clothes, Mediterranean sweet manufactory (*World Bank*, 2020; Khalefa, 2018). This region was selected for study due to the wide variety of industries present in Gamsah and New Demaitta.

SMEs are facing some challenges mainly in infrastructure such as the lack of transportation systems, electricity systems and financial problems (Zamzam, 2018). However, Egypt set aside in 2018 LE30bn ($1.7bn) in loans, this increased to LE50bn ($2.8bn) in 2019. The central bank of Egypt has advised commercial banks in Egypt to increase the number of loans to SMEs to 20% of their total portfolio (OBG, 2020). The fact that the government has set aside

money to invest in SMEs reiterates the importance of SMEs and their role in Egypt's economy.

2.2 Definition and the number of SMEs in Egypt

Researchers have not established a specific definition for SMEs. The definition varies from one country to another. The definition of SMEs depends on the economy of the country and the social environment of this country. Even inside the country itself, the definition of SMEs varies and depends on the culture and social environment of the cities in this country (Westhead & Storey, 1996). The definition depends on three important factors, which are: the number of employees, investment size and revenues (Zamzam, 2018). However, according to European Commission, 2003, SMEs are companies which have less than 250 employees and their annual turnover is less than EUR 50 million, or the annual balance total is lower than EUR 43 million (Sandulli *et al.*, 2013).

According to Jinjarak and Wignaraja, the definition of SMEs depends on the number of full-time employees. The number of employees varies from one country to another. For example, Thailand's definition of SMEs is 200 full-time employees, Turkey defines it as less than 250 employees and Korea defines it as less than 300 full-time employees (Jinjarak & Wignaraja, 2016). In the USA, the definition of a small business is when the number of employees is from 1 to 100 employees, and the number of employees in a medium business is 101 – 499 (Hamad, 2014).

Some researchers suggested that the number of employees in a small business does not exceed 50, while the number of employees in medium businesses is between 50 and 100 employees (Abou-Shouk, Megicks & Lim, 2013; Alasrag, 2007; Hamad, 2014). Researches and studies on SMEs have different opinions about the criteria to define SMEs, this is due to the difference in objectives of the study, area of study and the country that the research is conducted in.

In Egypt, according to Ayadi et al., the number of employees in SMEs is between 10 - 200 (Ayadi *et al.*, 2017). Abbas stated that there are two approaches that can be taken into consideration to define SMEs. These two approaches are as follows: behaviour-based approach and trait-based approach (Abbas, 2017).

According to Bary, the percentage of SMEs is 95% to 98% of the total industrial enterprises (Bary, 2019). The number of SMEs in Egypt is 2.5 Million enterprises. As mentioned above, they represent 75% of the total work force where, 95% of these enterprises are not agricultural enterprises. Small and

Medium firms represent 13% & 46% manufacturing enterprises respectively (Bary, 2019).

The central bank of Egypt differentiated between the definition of small organisations and medium organisations. Moreover, the central bank of Egypt depends on three criteria in defining SMEs. These three criteria are: the capital size of the enterprise, number of employees in workplace and revenues.

The current research adopted the central bank of Egypt's definition of SMEs. Therefore, the current research highlighted the criteria that the central bank of Egypt uses in defining SMEs in Egypt in Table 1. The central bank of Egypt defines the small enterprise, according to Egyptian law, as the organisation with revenues greater than one million EGP and less than 50 million EGP per year. Their capitals should be between 50,000 EGP to 5 million EGP for industrial organisation and 3 million EGP for non-industrial organisations. The number of employees in a small enterprise should be lower than 200. The central bank of Egypt defines the medium enterprise as the enterprise with a capital between 5 million to 15 million for industrial enterprise and between 3 million to 5 million for non-industrial enterprise. The revenue for each type is between 50 million and 200 million. The number of employees is less than 200 (Bank, 2017; OBG, 2020).

Table 1 the criteria of defining SMEs in Egypt according the central bank of Egypt

Type of enterprise		**Capital (CAP) in EGP**	**Number of employees**	**Revenue (REV) in EGP**
Small enterprise	industrial enterprise	50,000 – 5 million	< 200	1m ≤ REV < 50 million
	nun-industrial enterprise	50,000 – 3 million		1 m ≤ REV < 50 million
Medium enterprise	industrial enterprise	5 million – 15 million	< 200	50 million ≤ REV < 200 million
	nun-industrial enterprise	3 million – 5 million		50 million ≤ REV < 200 million

Source: (Bank, 2017; OBG, 2020).

2.3 Importance of SMEs

SMEs play a critical role in the economy of any country. The importance of SMEs role differs from a country to another depending on the level of development in the economy and social conditions of the country (Mansour *et al.*, 2018). SMEs contribute to the economy by generating employment opportunities and as a result, developing the economy. SMEs can create changes in different areas such as political environments and social lives of individuals and for the country overall. SMEs do not only contribute to a country but contribute to the world too (Liedholm & Mead, 2013). Liedholm and Mead mentioned that the SMEs are very important as they create job opportunities through the expansion of existing organisations or through a new organisation. This contribution of SMEs in employment positively affects investments and human capital (Liedholm & Mead, 2013). However, SMEs can struggle especially in the beginning of the business to give the employees secure jobs and payments to raise their profits. Liedholm and Mead stated that there is evidence that when the economy of a country is growing efficiently and effectively, SMEs are growing well and are expanding their labour force. They also added that most of the new jobs in SMEs come from the expansion of existing organisations. SMEs are in many important industries such as service, manufacturing, retailing, service, fishing and others (Liedholm & Mead, 2013). This existence of SMEs alongside large organisations helps create competition and in turn, growing economies. Peacock argued that although SMEs have a limited capacity for R&D, they contribute to innovation positively (Peacock, 2004). Peacock also reported that in Australia SMEs' contribution was 54% in technical innovations through their R&D investments. This shows that SMEs have an important role for the growth of industries and economics (Peacock, 2004).

Sandulli et al. mentioned that the small and medium businesses contribute significantly to gross domestic product (GPD) and the economies generally (Sandulli *et al.*, 2013). Malaysia is an example for considering SMEs as a backbone of a developing of the country. SMEs in Malaysia represented 32% of GDP in 2012, and SMEs is expected to reach 41% of the country's GDP by 2020 (Musa & Chinniah, 2016). Vega et al. explained that SMEs have empowerment and has essential influence on innovation systems. This would have a positive effect on SMEs' policy and this would help SMEs achieve their goals (Vega *et al.*, 2012). Wang and Poutziouris explained that SMEs are considered as a generator of innovation, wealth and employment (Wang & Poutziouris, 2010). In Egypt, the number of SMEs is more than 2.5 million and 99% of them are private non-agricultural enterprises. They are contributing 80%

of GDP, covering 90% of capital formation and represent 75% of labour force (Mansour *et al.*, 2018; Zamzam, 2018).

In developing countries, Zamzam mentioned that SMEs are important for the economy as they are helping to create job opportunities (Zamzam, 2018). Mansour et al. stated that SMEs are playing an important role in economies by increasing the volume of exports, because of the diversity of the goods and the low costs of the products (Mansour *et al.*, 2018). Mansour et al. added that because of the size of SMEs and their flexibility to spread across the country, they can help to develop rural areas. SMEs are important for the employees to create new skills and innovation. In addition, SMEs are important to strengthen the social and political aspects of the country (Mansour *et al.*, 2018).

2.4 Economic contribution of SMEs in Egypt

Globalisation has an impact in young peoples' attitudes, behaviours and perspectives about business and taking the risk to have their own SME. The governments' policies focus on creating jobs for young people (Barsoum, 2016). SMEs have become a critical feature of Egyptian economy making them as assists of the country (Abbas, 2017; Zamzam, 2018).

SMEs have an important role in the Egyptian economy as they represent 2.5 million enterprises (Mansour *et al.*, 2018). These SMEs create job opportunities, allows a great number of poor and middle-class people to buy their products at affordable prices. Most of SMEs in Egypt are wood and furniture, ceramics, building materials, engineering, food processing and finally, clothing and electrical workshops(Ghanem, 2013).

In Egypt, the small and medium enterprises represent 80% of the total employment in the private sector. Of which 85% are concentrated in the manufacturing sector and the wholesale trade, and 15% only in agriculture (Creative Associates International, 2016). SMEs in Egypt according to the Central Agency for Public Mobilization and Statistics CAPMAS highlighted that there are 2.4 million establishments of SMEs in Egypt (Mounir, 2016).

According to Zamzam, Egypt was the first country among 64 countries whose citizens had intentions to work in SMEs. It was also ranked second out of 61 in terms of the citizens perceptions about SME opportunities. In addition, Egypt ranked third among 61 countries when examined the perspective about the SMEs as a career (Zamzam, 2018).

According to Bary SMEs play a critical role in economic development through increasing the production, creating job opportunities, increasing exports and promoting innovation (Bary, 2019). Abbas also stated that SMEs have essential

roles in the Egyptian economy (Abbas, 2017). They emphasised that SMEs create job opportunities, determine the local problems and help in solving them as much as they can (Abbas, 2017; Mansour *et al.*, 2018). Most researchers reported the essential role of SMEs in adding values to economies such as (Jinjarak & Wignaraja, 2016; Mansour *et al.*, 2018; Musa & Chinniah, 2016; Rezaei *et al.*, 2012; Santos *et al.*, 2011). According to Hume and Hume, SMEs also have an advantage of using an effective and successful knowledge management (KM) because of the short communications channels across the organisation and they have stronger networks (Hume & Hume, 2015).

From the literatures, the current research has chosen to study the relationship between the three variables which are servant leadership, knowledge sharing and innovation in SMESs in Gamsah and New Dameitta region in Egypt, due to the important role of SMEs in the economy and the attention, in terms of financial support, that SMEs are getting from the government.

2.5 Obstacles of SMEs and their solutions

In comparison with the large enterprises, the SMEs have a simple structure, but they have limitations of financial resources and managerial expertise which can affect the adaptation of technological change (Sandulli *et al.*, 2013). The differences between SMEs and large organisations in their resources and managerial expertise highlights that SMEs do not have the skills to benefit from the new technology (Sandulli *et al.*, 2013).

According to Rezaei SMEs need 24 – 36 months to become independent with a maintained development in their business (Rezaei *et al.*, 2012). The early years in SMEs' lives is to focus on the research, especially identification of the factors that can help them achieve their missions to grow and succeed in the market. The competitors now requires special skills and wide knowledge to succeed. Knowledge and skills of SMEs' leaders are vital factors to achieve their missions and have a strong position in the market. Researchers argued that the lack of knowledge and the skills of leadership cause SMEs' failures (Feeser and Willard, 1990; Martocchio and Baldwin, 1997; Zahra and Covin, 1993). Rezaei argued that SMEs need to be able to adapt new circumstances and have their knowledge centres. They must be able to introduce training to their employees and their leaders (Rezaei *et al.*, 2012). It is important for SMEs to choose the right training programs at the right times. Rezaei added that some SMEs use the universities to give their employees and their leaders courses and training they may need (Rezaei *et al.*, 2012). Some other SMEs use their own techniques to meet the required training for their employees. These training

programs are vital for the organisations to develop their quality of work and productivity in the long term as well as in the short term (Rezaei *et al.*, 2012).

Despite the importance of SMEs for the economy of the country that has a big percentage of their SMEs of their GDP, Musa & Chinniah mentioned that there is a lack of knowledge around the world about the link between SMEs implementation and the advantages of having SMEs (Musa & Chinniah, 2016).

Jocumsen argued that the SMEs are significantly influenced by poor performance (Jocumsen, 2004). Jocumsen added that SMEs need to investigate and understand an important issue which is: why some SMEs are successful and others are failures, also the SMEs have to look at and review their strategic planning (Jocumsen, 2004). Strategic planning is very important for SMEs and large organisations. It is concerned with determining the long terms goals, developing and implementing plans to achieve their goals (Wijethunge & Pushpakumari, 2014). Moreover, SMEs that put effort into strategic planning are more successful and more innovative than others. They are also more likely to produce new products and create new processes and management technologies that help to grow. They added that these SMEs are less likely to fail in achieving their organisational goals (Wijethunge & Pushpakumari, 2014). Almadhoun argued that SMEs are suffering from weaknesses in management due to a lack of managerial skills and it could be due to the SMEs managers themselves. He added that training is effective at developing and improving managerial skills. He also suggested that more effort is needed to be directed towards management to minimise the difficulties that SMEs face. He also explained that management theories have effects on performance and productivity of SMEs (AlMadhoun, 2006).

Despite the importance of SMEs for the economy and overall, SMEs usually focus on the near future and they try to save money as much as they can when they use technology, especially cyber security (Mayadunne & Park, 2016).The economy of the country can affect SMEs. In an inactive economy, In general, large organisations and SMEs are affected and they reduce the number of employees (Liedholm & Mead, 2013).

Sandulli et al. argued that SMEs with lower adoption of new technological change are going to be unlikely to adapt organisational innovations and they will not benefit from highly educated employees (Sandulli *et al.*, 2013). Skilled workers increase the efficiency of the company and increase the level of technological change (Sandulli *et al.*, 2013). They also mentioned that there is an empirical research on skill based technological change that gives little

evidence on the complementarity's relationship between technological changes, employees skills and innovation in SMEs (Sandulli *et al.*, 2013).

Ahmad and Abdel-Aziz highlighted that the SMEs in Egypt are facing several problems that are stopping them from achieving their potential (Ahmad & Abdel-Aziz, 2015). Zamzam also mentioned that the SMEs in Egypt are facing some challenges to get into the market (Zamzam, 2018). Zamzam stated that these challenges are mainly problems in the infrastructure such as the lack of transportation systems and electricity systems (Zamzam, 2018).

In Egypt, Although SMEs owners are working incredibly hard to grow their business and using new technology to improve the quality of their products, they have financial problems (Mansour *et al.*, 2018). In the meantime, The central bank of Egypt has advised commercial banks in Egypt to increase the number of loans to SMEs to 20% of their total portfolio (OBG, 2020).From the review of SMEs in Egypt, it is revealed that choosing SMEs in Egypt as an area of study is an important one.

2.6 Summary

This chapter has presented the definition of SMEs, the importance of SMEs. It has also presented the definition and number of SMEs in Egypt and the economic contribution of SMEs in Egypt. It also highlighted some obstacles of SMEs and their solutions. It also explained the reason for choosing SMEs for the current study.

Chapter 3 Leadership

In the previous chapter, SMEs and their importance were discussed. In addition, the reason for choosing SMEs in this study was established. This chapter discusses the differentiation of management and leadership, leadership definitions, leadership skills, theories of leadership, leadership styles, servant leadership, and dimensions of servant leadership. It will also discuss the reason of choosing servant leadership in this study, servant leadership, and SMEs.

3.1 Introduction

Leadership is an important domain of management research. Researchers link the success of an organisation to its leadership. It considers the fundamental factor that affects any organisation's processes and outcomes. Effective leadership can make a good difference in the lives of employees and organisations. Leaders are concerned with employees' beliefs and supporting them to achieve their potential (Lunenburg, 2013). Therefore, the employees are likely to be satisfied with the organisation and they will be motivated to work hard to achieve the organisation's goal. On the other hand, the leader can cause problems for the employees and the organisation too. As he/she can cause the employees' stress which can create problems for the organisation in the absence of the employees by replacing them or delaying the organisation to achieve its goals. Therefore, effective leadership is very important for success. Leadership decisions determine the success or failure of the organisation (Lussier & Achua, 2015).

Popa also highlighted that the success of any organization depends on appropriate leaders being in the right place. It is the greatest responsibility for the leaders to develop the conditions, and the environment for work to allow the followers to achieve their potential targets (Popa, 2012). The challenge of leading, in the recent era of change and globalisation, requires an innovative leader who can help the followers achieve the organisations' goals and alongside their own goals (Senge, 2006). The importance of leadership is due to the skills that the leaders have which can affect the followers, shape their goals, and help to achieve the organisations' goals (Senge, 2006).

3.2 Differentiation of Management and Leadership

Scholars and researchers differentiated the definition of leadership from management in many studies and books. According to Laub, management is

different from leadership and leadership is not a part of management. It is a separate process, although they are related (Laub, 2004). Daft defined management as the process of achieving the organisational goals effectively and efficiently through the main jobs of the management which are: planning, organising, directing, and controlling. Daft also added that leadership is completely different from management. Both are essential for all organisations (Daft, 2014). From Daft's definition of management, the manager is the person who talks and has concerns about the organisations and its goals while the leader is the person who has stronger qualities to help the followers (Daft, 2014). Carroll and Levy mentioned that the manager definition has become a negative thought comparing with the leader definition (Carroll & Levy, 2008). Both are important to any organisation and both have different jobs and they might have similar characteristics. In addition, Carroll and Levy mentioned that management and leadership are different with regards to the nature of skills, strategies, activities, aims, and behaviours. At the same time, both are essential to any organisation (Carroll & Levy, 2008; Lunenburg, 2013). Grint stated that management and leadership are founded by social actors' preferences and both are intangible (Grint, 2005). Grint also suggested that management and leadership are different in skills, strategies, and aims, but both are important and combined to achieve the organisations' goals (Grint, 2005). According to Lunenburg, the roles of managers include responsibilities and they get their authority from their formal positions in the organisation. While leaders are concerned with employees and they get authority from their personalities. Lunenburg highlighted that a good leader is not necessary a good manager and vice versa. However, good management skills can transfer a leader into a successful leader. Therefore, the organisation's success requires effective leaders and managers (Lunenburg, 2013).

3.3 Leadership Definitions

Although, there are many definitions of leadership, it is like all social sciences, it is difficult to define it because the nature of leadership. It is very subjective and arbitrary (Yukl, 2010). Other scholars wrote about the same ambiguity and hesitancy of the definition of leadership (Lussier, 2011). While, the simplest definition of leadership, according to the Oxford dictionary, is that leadership is an action of leading a group of people or an organisation, or the ability to do this (Stevenson, 2010).

Laub argued that the definitions of leadership were describing it as an influence, as a relationship and loving others (Laub, 2004). According to Laub this is not a definition of leadership and in turn is not a definition of leadership styles. Laub

argued that the definition of a leader should be different from the position of a leader. There are differences between the person who leads and the person who holds a role to lead. Laub stated a definition of a leader includes four essential elements. These four elements of Laub's definition of leadership are as follow: vision, action, mobilising others, and the ability to pursue change. Whilst the leader is a person who has a vision, takes actions, mobilises followers and pursues change. Laub defined leadership as an intentional change process which gathers both the leader and the followers, both parties share the same vision, actions and pursue change (Laub, 2004).

Leadership has been extremely researched because it is believed that it plays a vital role in the success of organisations, countries and communities. According to DuBrin, a Google search of books and articles about leadership in organisations shows more than 123 million results. The studies on leadership had started in the early 20th century due to the important role of leadership in any organisation (DuBrin, 2015). Many researchers and leaders are persuaded that the effective leadership style is essential to meet most challenges in organisations. Therefore, appropriate leadership skills are required to affect the followers in any organisation (Lunenburg, 2013). Without effective leaders, it is difficult to achieve the organisational goals of profitability, productivity, stability in the market, and good customer service (DuBrin, 2015). DuBrin also added that leadership is not only essential in the higher-level positions, it is also required in all level of positions in organisations. It is not only required in big organisations but is important in SMEs, and is also required by a person who is not in a formal leadership position (DuBrin, 2015).

Although the studies highlighted the importance of leadership style for any organisation in all levels, the ability to lead people and affect them appropriately is rare. It is even rarer at the high levels in organisations because the positions require special leadership skills. DuBrin also explained that because of the responsibilities and risks of leading people, some people prefer to avoid leadership position (DuBrin, 2015).

Mahembe and Engelbrecht explained that the term leadership refers to the power and authority that a person has, and this person leads the group. It is also referring to the command that the person gives. Researchers have recently recognised leadership as an important factor that can affect the workers engagement and the organisational success (Mahembe & Engelbrecht, 2013). Some researchers agreed that leadership is the most important factor that is responsible for the success or failures of any organisation (Bass & Ruth, 2009; Lunenburg, 2013; Tatlah & Iqbal, 2012).

Lussier and Achua explained in Figure 1 the key elements of leadership (Lussier & Achua, 2012; Lussier & Achua, 2014).

Figure 1 leadership definition key elements

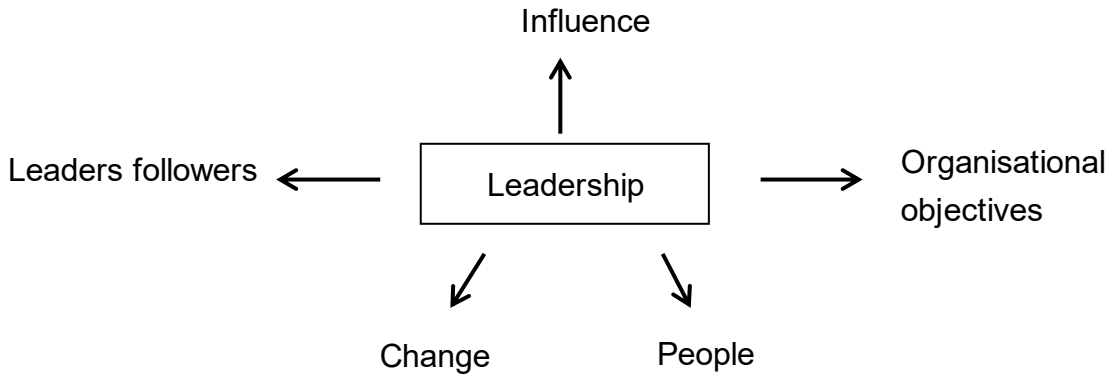


Figure 1 Source:(Lussier & Achua, 2012), p.6.

According to Lussier and Achua leadership is the influencing process between the employees and their leader (Lussier & Achua, 2015). Therefore, it is not only the leader who is influencing the employees but the employees that are also influencing him/her. Lussier and Achua stated that there is a difference between a manager and a leader. The manager is the person who has a formal position and authority. The leader is the person who can influence the followers. The follower is the person who is influenced by the leader (Lussier & Achua, 2015). Lussier and Achua explained that leadership is the process of influencing followers in order to achieve a specific organisational goal by implementing change (Lussier & Achua, 2015).

Bennis and Townsend explained that leadership is hard to define, it is like beauty, but you know it when people see the effects and the characteristics of it (Bennis & Townsend, 1989). While Chemers explained that leadership is where one person is enlisted to help and support their followers in the accomplishment of a specific goal; it is a process of social influence (Chemers, 1997).

Fiedler illustrated that leadership depends on three situational variables: a) The leader relationship with the followers. b) The authority that is due to the position. c) The structure of each task that the followers must do (Fiedler, 1978). In other words, this system concentrates on the leader's behaviour. Fiedler added that the situation is the most important factor that affects the leaders effectiveness (Fiedler, 1978; Tatlah & Iqbal, 2012). Fiedlers' leadership definition focuses only on the leaders' behaviour. However, the other researchers' definitions, which were discussed in this current study, explain that leadership is a process that affects followers and is affected by the followers' behaviours and the situations, not only the leaders' behaviours.

Hersey et al. agreed that the leadership style is hard to apply for different situations, so they suggested that leaders need to have appropriate training to improve and develop their ways to lead their followers and achieve better outcomes in different situations (Hersey *et al.*, 2007; Hersey & Blanchard, 1976).

Leadership has many aspects, including the relationship between leaders and followers, the effects of the followers, making a difference, responsibility, promoting innovative ideas, and strategic planning (DuBrin, 2015). DuBrin introduced a framework for understanding leadership as shown in Figure 2.

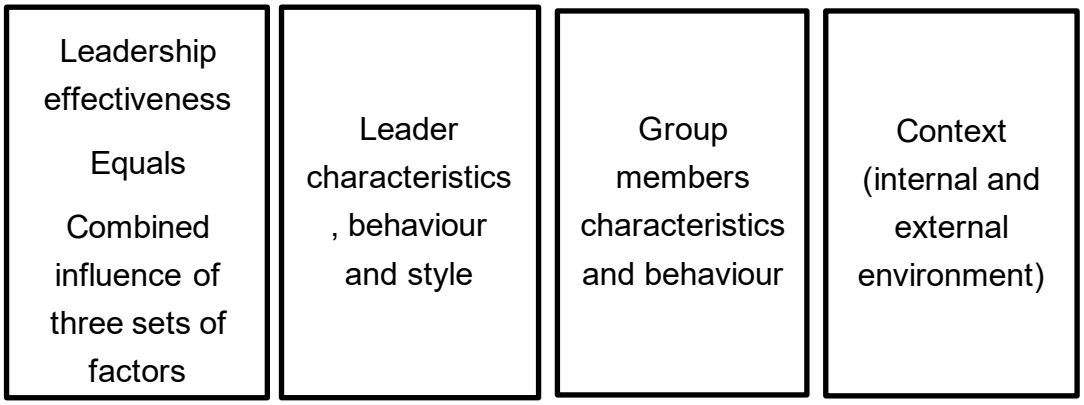


Figure 2 A basic framework for understanding leadership (DuBrin, 2015)

From the framework in Figure 2, the concept of leadership can be understood by key variables: leadership characteristics, behaviour and style, member characteristics, and their behaviours, as well as internal and external environments. The leadership effectiveness at the left side of the figure represents the desirable outcomes such as quality, satisfaction etc. The leaders' characteristics represent their inner qualities such as self-confidence. Leader behaviour and style represent the leadership approach that the leader follows. Group members' characteristics and behaviour represent how the leader affects them. The internal and external environments affect the leadership effectiveness (DuBrin, 2015).

From the researchers' definitions and explanations of leaders, they have agreed that the leadership refers to a process by a person who has the leadership role, gives the instructions to the followers and helps to work in their full potential to achieve the organisations' goals. Table 2 summarises some researchers' definitions of leadership.

From the definitions of leadership, this study explains that the leadership is a social process in which one person leads the other members to structure the tasks and the relationships in an organisation. The leadership is the process of

leading a group of people and the leader is the person who gives command to the members in the group.

Table 2 some researchers' definitions of leadership

Author and year	Definitions of leadership
(Laub, 2004)	Leadership is an intentional change process which gathering leader and the followers, both parties share the vision, actions and pursuing change.
(Vroom & Jago, 2007)	Leadership is a process of motivating people to work together collaboratively to accomplish great things.
(Yukl, 2010)	Leadership is the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives.
(Northouse, 2012)	Leadership is a process whereby a person influences a group of individuals to achieve a common goal.
(Popa, 2012)	Leadership is a persuasion process of affecting others and motivating them to achieve a certain goal or specific goals.
(Mahembe & Engelbrecht, 2013)	Leadership refers to the power and authority that a person has to lead the group. It is also referring to the command that the person gives.
(Lussier & Achua, 2015)	Leadership is the influencing process of the leaders and their followers to achieve organisational objectives through change.

3.4 Leadership Skills

There are two related questions people ask about leadership skills. These questions are as follow: Are leaders born or made? Is leadership an art or a science?

Leaders are born with some leadership skills and learn other skills of leadership through training and experience at work. Lussier and Achua stated that there are three management skills that leaders need to have to be successful. These

skills are technical skills, interpersonal skills, and decision-making skills (Lussier & Achua, 2015). Technical skills involve knowledge about methods, procedures, techniques and use of tools and equipment to achieve a task. Followers usually approach the leader if they are struggling to complete a task, therefore leaders must have these skills to be successful. These skills are varying from job to job. Interpersonal skills involve the ability to understand and communicate well with the followers and others, be able to work with a team, motivating others, diversity and having ethical skills. These skills can be developed. Decision making skills are important for the success of the organisation. Leadership decision is a critical element in the success or failure of an organisation. These skills include conceptual, diagnostic, analytical time management, creativity, ability to anticipate changes, and solving problems (Lussier & Achua, 2015). Mumford et. al highlighted that the leadership skills are four types. These skills are: decision making and planning skills, information gathering skills, supervisions skills and technical problem solving (Mumford, Campion & Morgeson, 2007). DeRue & Myers mentioned that leadership is critical when an organisation is facing changes in technology and environment. Therefore, leaders must have special leadership skills (DeRue & Myers, 2014). In addition, researchers have acknowledged that leaders can be affected by personal attributes, learning orientation, developmental readiness, situational characteristics, feedback, coaching and practices (DeRue & Myers, 2014; Hannah *et al.*, 2008).

Leaders are evaluated in terms of their effectiveness by judging leaders' traits and personal characteristics instead of focusing on the achievements. According to Dubrin, the combination of traits and behaviours can affect the leaders' effectiveness differently. Dubrin classified the characteristics of leaders as guides only to three categories: personality traits, motives and cognitive elements. The characteristics of the leaders affect the leadership effectiveness according to how these characteristics of the leader fit the situation effectively. There are general personality traits which are related to the leaders' effectiveness. They are as follows: self-confidence, humility, core self-evaluations, sense of humour, trustworthiness, enthusiasm, optimism, warmth, authenticity, assertiveness, and extraversion (DuBrin, 2015).

According to Popa, leaders must have vision, integrity, be open to adopt new approaches towards followers, flexibility to change, creativity, and take responsibility (Popa, 2012).

According to Axelrod, leadership is an art of affecting others to achieve what the leader wants them to do and they also want to achieve it (Axelrod, 2006).

From the definitions of leadership and leadership skills, leadership is an art and it is in the meantime science. Although leaders have specific characteristics and skills to be effective in their role, leaders can be developed by the knowledge and experiences that they acquire. A good leader must have good characteristics and skills to influence others and lead them towards the purpose that it needs to be achieved (Popa, 2012).

3.5 Theories of Leadership

Researchers have discussed leadership in different ways. Some researchers have discussed it as theories, others have classified it as traits (DuBrin, 2015). On the other hand others looked at leaderships as approaches, including Bass who classified leadership of groups into: personal and situational groups, interaction groups, interactive groups, and cognitive groups (Bass, 1985). Bass reclassified leadership in different ways including : instrumental group, inspirational group and informal group (Giltinane, 2013). However, Kibbe stated that there are many different leadership theories and from these theories, many leadership styles have appeared. Kibbe added that the theories consider leadership traits, behaviours, the situation, the source of power and influence. While, leadership styles describe how the leaders lead to achieve the successful goals (Kibbe, 2019).

Popa has classified leadership as styles. These styles are as follows: autocratic leadership, bureaucratic leadership, charismatic leadership, democratic leadership, participative leadership, laissez-faire leadership, transformational leadership, transactional leadership, and servant leadership (Popa, 2012). Each of these leadership styles affects the organisational performance and helps the organisation achieve its goals differently. Each style has different skills and characteristics and has a different way in leading people (Popa, 2012).

Some of the researchers did not differentiate between the theories of leadership and the styles of it, however they explain the styles of the leadership under the theories of leadership. This includes Stanley who considers the styles of leadership as theories of leadership (Stanley, 2017).There is a significant difference between them as it will appear in the definition of the theories and the leadership styles.

Lussier and Achua defined the leadership theory as an explanation of some characteristics of leadership and they added that the theories usually have practical values because they give understanding, predict and control successful leadership. They explained that leadership style is the way of applying these characteristics (Lussier & Achua, 2015).

There are many theories that have been discussed and introduced by the researchers. The most common of these theories are: The great man theory, contingency or situational, trait theory, and path-goal theory (Bass & Ruth, 2009; Kibbe, 2019; Lussier & Achua, 2015; Nawaz & Khan, 2016; Stanley, 2017). These theories are explained below:

3.5.1 The Great Man Theory:

This is one of the earlier theories of leadership. It assumes that the characteristics of leadership are inherent. Therefore, great leaders are born (Kibbe, 2019; Uzohue, Yaya & Akintayo, 2016). This theory considers leaders as the heroes. The person born into a great family was considered to be a great leader. This theory considers leaders are born not made (Nawaz & Khan, 2016).The great man theory emerged as a result of an old leadership culture. However, this theory declined as new leadership styles materialised from new generations (Stanley, 2017).

3.5.2 Situational Leadership Theory:

This theory was created by (Hersey & Blanchard, 1976). The theory implies that leaders should change their leadership styles according to the maturity or readiness of the followers and according to the nature of the task (Stanley, 2017). According to Hersey and Blanchard, there are four styles of leadership and four levels of maturity of the followers (Hersey & Blanchard, 1976);

Four styles of leadership are as follow:

Telling (S1): the leaders tell the followers what and how to do the task.

Selling (S2): the leaders give information and instructions to the followers with more communication.

Participating (S3): leaders share with the followers the decision-making responsibility and work with the team.

Delegating (S4): the leaders give most of the responsibilities to the followers and they are still monitoring their progress but encouraging the followers to work independently.

And the fourth level of maturity or readiness are as follows:

Low Maturity (M1): followers have lack of knowledge and skills. They also have lack of confidence to work independently.

Medium Maturity and limited skills (M2): followers might be willing to complete the task, but they don’t have enough skills to get it done.

Medium Maturity and High skills (M3): Followers might have the willingness and the skills to complete the task, but they don't have the confidence to work on their own.

Table 3 Level of maturity and leadership style

Maturity level	Most appropriate leadership style
M1: Low Maturity	S1: Telling/Directing
M2: Medium Maturity and limited skills	S2: Selling/ Coaching
M3: Medium Maturity, high skills but lacking confidence.	S3: Participating/ Supporting
M4: High Maturity	S4: Delegating

Source of the table : http://www.mindtools.com/pages/article/newLDR_44.htm

High Maturity (M4): followers have high skills, high confidence and the ability to work independently. Table 3 shows how the level of maturity and the leadership style work (Hersey & Blanchard, 1976). Hersey et al. argued that leaders will be more effective if they use a leadership style based on the followers and the situation (Hersey *et al.*, 2007). However, Cairns et al. argued that followers, regardless of their mutuality or readiness level, may need more consideration (Cairns *et al.*, 1998). Stanley added that this theory depends on the event or the situation and the followers. Therefore, the theory concludes that great leaders come from great events (Stanley, 2017).

3.5.3 Trait Theory

Trait theory looks at the leader, not at the situation. Therefore, according to this theory, the person is more important than the situation (Northouse, 2012; Stanley, 2017). Trait theory developed from the great many theory and it agrees

with Grint's description of leadership as 'the arts of leadership' (Grint, 2000). Although the trait theory depends on the characteristics of leaders, it also suggested that these characteristics of leaders can be learned (Northouse, 2012).

3.5.4 Path-goal Theory:

Path-goal leadership theory has been founded for more than three decades (Evans, 1996). It is one of the major approaches to leadership that is discussed by most of textbooks on management (Schriesheim *et al.*, 2006). The path-goal leadership theory was the earliest leadership theory that mentioned several leader behaviours (Jermier, 1996).

Jermier criticised the path-goal theory and stated "The path-goal theory did not pay much attention to achievement-oriented and participative leader behaviours, emphasizing instead directive and supportive leader behaviours. It did not explain how leadership can impact valences and instrumentalities of followers. Instead, it tended to link leader behaviour directly with role perceptions, satisfaction, commitment, and job performance" (Jermier,1996, p.314).

According to the path-goal theory, leaders focus on the motivation of followers to improve their performance. They also impact the satisfaction of followers so that they accept their leaders. Although the theory is looking at the situation in general, there are some situations where leadership is not taken into consideration. House reformulated the path-goal theory after twenty-five years in 1996 (House, 1996a). House stated, "The reformulated theory specifies leader behaviours that enhance subordinate empowerment and satisfaction and work unit and subordinate effectiveness." (House, 1996a, p.323).

3.6 Leadership Styles

Leadership styles are tactics that motivate and influence followers. In addition, leadership style should be adapted according to organisations, groups, followers and situations (Amanchukwu *et al.*, 2015). While, Gandolfi & Stone defined leadership style as "An intentional means by which a leader influences a group of people in an organisation to a widely understood future state that is different from the present one."(Gandolfi & Stone, 2018). Therefore, it is useful to understand the different styles that have been explained by researchers. Researchers have classified many different leadership styles. Each style has different characteristics, although there are some common characteristics between them. However, researchers have suggested that good leaders inspire, motivate, and help to achieve goals (Amanchukwu *et al.*, 2015).

Goleman et al. mentioned that there are six emotional leadership styles including: visionary, coaching, affiliative, democratic, commanding and pacesetting. The first four styles promote positive outcomes and the last two styles can create tension and should be used in certain situations (Goleman *et al.*, 2013). Goleman et al. described the characteristics of leaders and they called them leadership styles. These characteristics vary from one style to another (Amanchukwu *et al.*, 2015).

Researchers have classified leadership as styles (Amanchukwu *et al.*, 2015; Nawaz & Khan, 2016; Popa, 2012; Uzohue, Yaya & Akintayo, 2016). Avolio mentioned three types of leaders: autocratic, democratic and laissez-faire (Avolio, 2004). According to Ibara there are some factors that determine the styles of leadership. These factors are: size of organisation, degree of communication, personality of members, goals of organisation and level of decision making (Ibara, 2014).

These are the most common leadership styles:

1. Transformational leadership style (Charismatic Leadership).
2. Transactional leadership.
3. Autocratic Leadership Style.
4. Bureaucratic Leadership Style.
5. Democratic/Participative Leadership Style
6. Laissez-faire leadership.
7. Authentic leadership.
8. Ethical leadership.
9. Servant leadership.

3.6.1 Transformational Leadership (Charismatic Leadership):

Transformational leadership style has rapidly become the choice for the researchers and scholars. Transformational leadership style is sometimes called charismatic leadership style (Reed *et al.*, 2019). Transformational leaders have the skills to be able to transform the vision of the organisation to an action plan that helps the followers to apply it and work according to it (Piccolo & Colquitt, 2006).

Dvir et al. described transformational leadership as enhancing motivation and the positive emotions of the followers and therefore creating a vision of the future and raising awareness for the great collective interests (Dvir *et al.*, 2002; Reed *et al.*, 2019; Rowold & Schlotz, 2009).

Transformational leadership style has been theorised (Antonakis & House, 2004) using five dimensions: (a) Idealised influence (attributed) refers to the

leaders' charisma, the leaders' confidence and power; (b) Idealised influence (behaviour) refers to leaders' charismatic actions that are formed from values, beliefs, and a sense of mission (Ivan, 2012); (c) Inspirational motivation refers to the ways leaders motivate and inspire their followers by emphasising ambitious goals and offering an idealistic plan of the future; (d) Intellectual stimulation refers to the way the leaders challenge and encourage followers to be creative and find solutions to difficult problems and (e) Individualised consideration refers to the leaders' behaviours that help, support and advise as well as pay attention to the followers and their needs (Al-Husseini & Elbeltagi, 2016).

Popa described transformational leadership style as the most successful style of leading, and the leaders play a role model to the followers, the leaders delegate responsibility to the followers, try to understand them and know their strengths and their weaknesses to help them achieve their potential goals (Popa, 2012). Popa mentioned that the attributed charisma is the main dimension of this style of leadership. It refers to the leader having the trust of their followers and involving them. Inspirational motivation is another dimension of the transformational leadership style, which refers to communicating positively, showing confidence and enthusiasm to motivate followers. The third dimension is individualised consideration: the leader sees every follower as an individual who has needs, strengths and weaknesses. The fourth dimension according to Popa is intellectual stimulation, the leader is able to change and adopt new ideas and to encourage their followers to be creative, helping them to improve (Popa, 2012). Although Popa mentioned the importance of leadership in the success of an organisation, he added that the organisational culture also affects the success of an organisation (Hariri *et al.*, 2016; Popa, 2012).

DuBrin described transformational leadership style as a process that the leader motivates the followers and in meantime the followers motivate the leader and help each other. The leader of this style focuses on the emotions of the followers and takes their needs into his/ her account to help them to achieve their targets (DuBrin, 2015).

Bell called transformational leadership charismatic leadership. Bell defined the charismatic leader as a leader who has experience and behaviours in certain situation, this encourages followers to be charismatic towards the leader. Bell explained that charisma is a trait which can be felt by the followers to act charismatically towards the leader. Bell also added that charismatic leadership has certain characteristics, which are effective communication, vision, integrity, humour, and delegation (Bell, 2013). Amanchukwu et al. stated that charismatic

leadership has disadvantages including excessively high level of confidence of leaders more than followers and this can make the leaders believe that they are always right. They added that this confidence can put the entire organisation at risk if the leader leaves (Amanchukwu *et al.*, 2015). However, Reed et al. stated that charisma is a fundamental characteristic of transformational leadership. They added that charisma is usually used with idealised influence (Reed *et al.*, 2019).

3.6.2 Transactional Leadership:

Transactional leadership starts with the followers agreeing to obey the leaders once they accept the job. In another meaning, transactional leadership refers to order and control. It includes a contingent reward in motivating the followers (Deichmann & Stam, 2015).

Transactional leadership style depends on command and control. It is described as a less complex style (Ivan, 2012). Ivan added that the transactional leadership includes three main characteristics which are: contingent reward leadership, management-by-exception active, and management-by-exception passive. The contingent reward refers to the leader identifying the task and explaining the requirements of it and clarifying the rewards for completing the task. Management-by-exception active: the leaders are cautious and look for the mistakes to correct them. On the other hand, management-by-exception passive refers to leaders using a passive style when mistakes happen and it includes negative feedback (Deichmann & Stam, 2015; Hariri *et al.*, 2016). Transactional leadership style depends on three assumptions including: the followers will be motivated by reward and punishment; they must obey the leaders and they must be monitored to achieve tasks. Transactional leaders look at the details and short-term goals, they focus on the rules and procedures. They are not open to new approaches or new ideas to help the followers' creativity. Therefore, the followers are not motivated enough to improve, and this will reduce their job satisfaction (Avolio & Bass, 2001). Transactional leadership is effective in decisions which are aiming to reduce costs and increase productivity (Epitropaki & Martin, 2005).

3.6.3 Autocratic Leadership Style

Autocratic leaders are an extreme form of transactional leaders. The leaders have authority and power over the followers. The followers have little chance to suggest or give their opinions (Amanchukwu *et al.*, 2015). In another words, the autocratic leader directs, guides and controls the followers. The followers will work better when they are forced to perform their jobs (Chukwusa, 2018). This

style of leadership has some advantages such as rapid decision making, and timely commencement of work. This leadership style is particularly suitable in crises. However, the disadvantages of this style include: it does not take the followers satisfactions or needs into account, it also does not give the followers an opportunity to give suggestions, therefore resulting in poor motivation, low confidence and resistance to set goals (Chukwusa, 2018).

3.6.4 Bureaucratic Leadership Style

According to Van der Voet the term bureaucracy in organisation theory refers to an organisation that is adopting a formal hierarchy, rules, and routine (Van der Voet, 2014). Amanchukwu et al. defined bureaucratic leader as the leader who follows rules strictly and ensures that the followers also follow the rules precisely. They added that this style of leadership is appropriate for jobs involving serious safety risks and it also appropriate when the followers do routine jobs. They added that this style does not encourage creativity or innovation (Amanchukwu *et al.*, 2015).

3.6.5 Democratic/Participative Leadership Style

Democratic leaders include followers in decision-making process, but they make the final decision. This type of leadership encourages followers to be engaged in projects, encouraging their creativity, improving their skills and increasing productivity of followers due to higher job satisfaction. The disadvantage of this type, however, is that it can put the organisation at risk in certain situation that needs rapid decisions (Amanchukwu *et al.*, 2015).

3.6.6 Laissez-Faire Leadership

The leaders of this style give the followers the freedom to complete their work the way they like and when they want. The leader advises the followers when they need to and support them with resources, but he/ she does not get involved. This style can lead to high level of job satisfaction but in the meantime can waste time of the followers if they don't have the skills and the knowledge to achieve the job (Lewin, 1944). In this style of leadership, leaders avoid making decisions and avoid the responsibility (Bass, 1985; Yukl, 2010). Leaders in this style avoid the responsibility even when an important problem may have occurred (Northouse, 2012).

3.6.7 Authentic Leadership

Authentic leadership first appeared in 1990 in the sociology and education field (Chan *et al.*, 2005). Avolio et al. mentioned that the authentic leadership is the

root of all new positive forms of leadership, including transformational leadership and servant leadership (Avolio *et al.*, 2004). It is the expression of 'true self'. The leaders must know the nature of that self to be able to lead authentically. Avolio et al. defined the authentic leader as the person who knows how he/she thinks, behaves with followers, is aware of his/ her own values and followers' values and morals, knowledge, strengths, and weaknesses (Avolio *et al.*, 2004). Authentic leaders have self-confidence, helpful, optimistic, deal with followers with high moral character. However, Fields stated that it is not clear from the theory of authentic leadership how deeply 'true self' aspects of the leader's self, and their moral values, eventually become apparent to followers (Fields, 2007). Field defined the authentic person as the person who is true to himself or herself. Authentic people believe in their abilities. Field also explained that the authentic leader focuses on listening to the followers and empowering them (Fields, 2007). Reed et al. also added that authentic leaders and their followers have mutual trust. They highlighted that authentic leaders must have self-awareness (Reed *et al.*, 2019).

Cardwell Jr stated that in the authentic leadership style, the leaders require uplifting followers through encouraging and inspiring them using words and rewards. He added it involves unconditional love for everyone. He added that the leaders in this style try to eliminate the boundaries and strive to live in harmony as much as they can (Cardwell Jr, 2014). According to Ladkin and Taylor, the main aspect of authentic leadership is an expression of the 'true self". An authentic leader acts from the material of his/her own real life. Authentic leaders act as themselves, using emotional memories and experiences (Ladkin & Taylor, 2010; Mahembe & Engelbrecht, 2013). Ladkin and Taylor suggested that there are three aspects of authentic leadership: self-exposure, relating well to others, and leaders' choices. Self-exposure means that the leaders express their real emotions and show their real experiences. Leaders relate in an authentic way to the followers and to a situation. Leaders can be his or her 'true self' and relate well with others, but at the same time, the followers can't see him/her as a leader (Ladkin & Taylor, 2010). They also mentioned that acting as an authentic or 'true self' puts the leader in vulnerable positions. Leaders face challenges solving the tensions that can happen between the followers (Ladkin & Taylor, 2010).

3.6.8 Ethical Leadership

Researchers are not able to define ethical leadership without defining Ethics itself. Ethics is hard to define. It is something you know when you see it. It is like beauty. The Collins dictionary defines ethics as a moral principle or a set of

moral values held by an individual or group (Collins). Loulakis and Rowland stated that ethics can be identified when you see it (Loulakis & Rowland, 2003). They added that the person has either got them or not. McCarthy explained that ethical conduct is doing the right thing even when no one is watching you (McCarthy, 2012). Yukl et al. mentioned that ethical leadership is wide, and it has several types of values. They added that the behaviour of the leaders reflects these values (Yukl *et al.*, 2013).

Ethical leadership has two factors. First, the leaders must make decisions, secondly, leaders must treat people ethically. Leaders treat them in a way that encourages the followers or by giving them the task that needs to be completed and instructing them ethically. Ethical leaders act ethically all the time. Brown et al. defined ethical leaders as the leaders who emphasise the importance of the direct involvement of followers, building trust, and behave ethically (Brown *et al.*, 2005). Brown et al. suggested that ethical leaders focus on making fair decisions, displaying ethical behaviour, listening and having the best interest of employees in mind. Yukl et al. stated the values that the ethical leaders have are very supportive, fair when distributing rewards, honest, making sacrifices, setting ethical standards for work, accountable for ethical and unethical behaviour, and promote ethical values (Yukl *et al.*, 2013). These characteristics of ethical leadership are similar to the servant leadership characteristics (Mahembe & Engelbrecht, 2013). Ethical leadership and servant leadership share some characteristics: honesty, serving people and the organisation, while trying to support and achieve the best for everyone. Ethical leadership enforces normative behaviour (Mahembe & Engelbrecht, 2013).

3.6.9 Servant Leadership Style

This study focused on studying servant leadership. servant leadership is the independent variable of this study. Therefore, the following section will explain servant leadership in more details.

3.7 Servant Leadership

The servant leadership idea was presented in Robert Greenleaf's essay "The Servant as Leader". He presented that the servant and the leader roles can be in one person who wants to serve first (Greenleaf, 1973). Robert Greenleaf has been considered as the father of servant leadership. Greenleaf defines servant leadership as: "The servant leader is servant first. It begins with a natural feeling that one wants to serve. Then conscious choice brings one to aspire to lead."(Greenleaf, 1998). According to Greenleaf, servant leadership is the process of leading followers to serve them first, serve the organisation, and

serve communities. Servant leadership appeals to leaders who want to serve and also lead (Greenleaf, 2002). In addition, Greenleaf stated that the leader who adopts this style of leadership differs from a leader who leads followers to satisfy his/her need of power of control or prestige (Greenleaf, 2002). Greenleaf also explained that a servant leader is an innovative leader who believes in serving others. In another words, serving the followers is first and then any management style can follow (Greenleaf, 1998; Greenleaf, 2002). It is an educational way that encourages leaders to reflect on their ability to encourage and support followers to maximise their potential to achieve the organisations' goals. It also encourages them to apply changes in their organisation (Spears, 1996). Sendjaya also defined servant leadership style as a style that morally and ethically serve the leaders, followers, organisations, and societies (Sendjaya, 2003). Therefore, servant leadership helps others to improve professionally and personally going beyond their own self-interest (Greenleaf, 2002; Lussier & Achua, 2014).

Barbuto and Wheeler studied eleven constructs of servant leadership. These constructs were calling, listening, empathising, healing, awareness, persuasion, conceptualization, foresight, stewardship, growth, and community building. They found, from their research on servant leadership and from the definitions of Greenleaf and Spears, that there are five constructs out of the eleven that are considered as the dimensions of servant leadership. These constructs include: altruistic calling, emotional healing, persuasive mapping, wisdom, and organizational stewardship (Barbuto Jr & Wheeler, 2006). Mahembe & Engelbrecht also agree that servant leaders encourage workers to make sacrifices and work hard to achieve the organisations' goals (Mahembe & Engelbrecht, 2013).

Laub studied 60 characteristics of servant leadership and they were grouped in six areas. Laub defined servant leadership as an understanding process from the leader of the good of the followers over the self-interest of the leader (Laub, 2004). Laub added to the definition of servant leadership that servant leaders encourage developing, valuing, building communities, and applying authenticity. From Laub's definition of Servant leadership, there are six important areas the servant leaders do. These areas are the following: valuing people, developing them, building community, promoting authenticity, leading and sharing leadership (Laub, 2004).

In addition, Parris & Peachey stated that servant leadership have been used in verities of business, charities organisations, and government organisations (Parris & Peachey, 2012). Therefore, servant leadership is now a common style of leadership, this revealed the need for future studies on servant leadership to

improve the understanding of it and its use (Sikorski, 2016). The servant leadership style has not been studied widely by researchers as the transformational, transactional leadership, and other styles. There are limited studies that have been conducted on servant leadership (Sikorski, 2016). Further research is needed to provide evidence about how a leader who wants to serve first is able to affect followers and to support them to achieve their potential (Northouse, 2012; Sikorski, 2017). The servant leader invests in the followers and motivates them to empower them (Sikorski, 2017). Dutta and Khatri described the servant leader as the person who has desire and wants to serve others by developing the followers and motivating them (Dutta & Khatri, 2017).

Mahembe and Engelbrecht stated that servant leadership style is one of the leadership styles that have been recognised in positive psychology. They added that servant leaders have high commitment to their members and serve their needs mainly. Servant leaders provide plans, empowerment and they serve first. The servant leader is highly ethical and puts the service of the followers as the first interest (Mahembe & Engelbrecht, 2013). Wong and Page defined the servant leader as a leader whose first purpose for leading is serving others by investing in them, developing them, and their well-being, for the benefit of completing tasks and achieving their goals (Wong & Page, 2003).

Wong and page stated that the servant leader has a genuine desire to serve the followers for the common good. However, some people see the servant leader as an example of a weak leader. When the situation gets tough, the servant leader must be as skilled as the other types of leaders. The difference between the servant leaders and other kind of leaders is not the quality of the decision but how they manage their responsibility and whom they can get advice from to reach good decisions. Effectiveness and success for an organisation depend on the employees. Highly motivated and trained employees can affect the success of the organisation and help it to achieve its goals. Servant leaders motivate the employees, invest in them and empower them in order to achieve their potential (Page & Wong, 2000; Wong & Page, 2003).

3.8 Dimensions of Servant Leadership

A servant leader serves the employees with integrity and humility. Page and Wong placed it at the core of the circle because everything the leaders do comes from it. Figure 3 shows the conceptual framework for measuring servant leadership (Page & Wong, 2000).

Servant leaders' objective is to serve the followers and enable them to work at their potential by respecting, encouraging, and motivating them. Listening and encouraging feedback from the followers are important elements in servant leadership. Valuing individual workers and offering advice when the followers do mistakes is also one of the important factors in servant leadership. Page and Wong stated that there is a concern that servant leadership means the leaders give up their power or authority. This concern is not inaccurate, as the servant leaders can be humble whilst having the power to lead (Page & Wong, 2000; Wong & Davey, 2007).

In servant leadership, everyone is a part of a team. They are working together in different roles to achieve the goals of the organisation regardless of the job position or title (Wong & Davey, 2007). Although other leadership styles perform many of the same tasks as servant leaders, there are differences in the approach that the servant leaders take to complete the tasks. Servant leaders are engaging their followers to create a shared vision that inspires the team to achieve the goals.(Page & Wong, 2000).

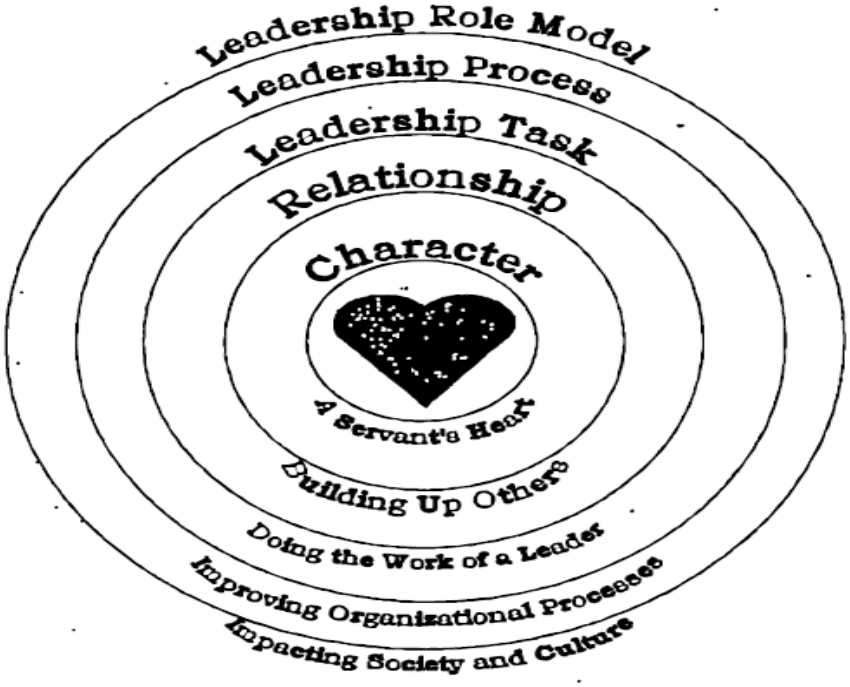


Figure 3 source: A conceptual Framework for measuring servant leadership p.3 (Page & Wong, 2000); permission granted by author.

Dierendonk and Nuijten indicated that there are four characteristics connected with servant leadership: empowering and developing people, humility, stewardship, interpersonal acceptance, authenticity, and providing direction. Dierendonck & Nuijten's concept about the servant leadership shows that the servant leadership has two aspects: authenticity and humility (Dierendonck & Nuijten, 2011).

There are more researchers who studied the characteristics of servant leadership differently as shown in Table 4. Table 4 shows that characteristics of servant leadership that the researchers highlighted. The researchers agreed that the common characteristics of servant leadership are inspiration, morality, listening, empathy, awareness, persuasion, vision, trust, empowerment, humility, encouraging, accountability, credibility, serving, creating value, and behaving ethically.

Table 4 The dominant themes of servant leadership

Researchers	**Themes**
Graham (1991)	Inspirational, moral
Buchen (1998)	Self-identity, capacity for reciprocity, relationship builders, preoccupation with the future
Spears (1998)	Listening, empathy, healing, awareness, persuasion, conceptualisation, foresight, stewardship, commitment, community building
Farling, Stone& Winston (1999)	Vision, influence, credibility, trust, service
Laub (1999)	Valuing people, developing people, building community, displaying authenticity, providing leadership, shares
Russell (2001)	Appreciation of others, empowerment, vision, credibility, trust, service, modelling, pioneering
Patterson (2003)	Agapáo love, humility, altruism, vision, trust, empowerment, service
Dennis & Bocarnea (2005)	Empowerment, trust, humility, Agapáo love, vision
Liden, Wayne, Zhao & Henderson (2008)	Empowering, helping, subordinates grow and succeed, putting subordinates first, emotional healing, conceptual skills, creating value for community, behaving ethically
(Sendjaya, 2003)	Transforming influence, voluntary subordination, authentic self, transcendental spirituality, covenantal relationship, responsible Morality

(Dierendonck & Nuijten, 2011)	Empowerment, humility, standing back, authenticity, forgiveness, courage, accountability, stewardship

"Source: Adapted from Sendjaya, S. (2003). Development and validation of Servant Leadership Behaviour Scale. Proceedings of the Servant Leadership Research Roundtable. Retrieved March 4,2013, from http://www.regent.edu/acad/cls/2003ServantLeadershipRoundtable/ Sendjaya.pdf; (Dierendonck & Nuijten, 2011). The servant-leadership survey (SLS): development and validation of a multidimensional measure. Journal of Business and Psychology, 26(3), 249–267. http://dx.doi.org/10.1007/s10869-010-9194-1"(Mahembe & Engelbrecht, 2013)

Bass and Ruth stated that the transformational and servant leadership styles are similar as both depend on the values and behaviour of the leaders (Bass & Ruth, 2009). However, they are different in the focus of the leaders. Transformational leaders focus on developing workers through influence, personalised consideration, and motivation (Mahembe & Engelbrecht, 2013). Transformational leaders motivate the followers by informing them with the importance of the outcomes of their tasks, trying to go beyond their own self-interest, and activating their potential. Therefore, in transformational leadership attaining the objectives and reaching the highest level of the outcomes is the most important factor. However, servant leaders focus on the workers' needs. This can be a problem if the needs of the organisations cannot fulfil the workers' needs (Mahembe & Engelbrecht, 2013).

Mahembe and Engelbrecht stated that there are also some similarities between ethical leadership and servant leadership. Ethical leadership is basically focusing on behaving ethically all the time and the leader act ethically when he/she makes decisions and when they treat people. Servant leadership is applying the ethical elements and focusing on developing the followers. However, they added that the servant leadership is a unique leadership paradigm as it focuses on the desire to serve, improve and motivate the followers without linking this with the organisational outcomes (Mahembe & Engelbrecht, 2013).

Spears suggested some characteristics of servant leadership: importance of communication with followers, understanding of others, healing, awareness, persuading others, predicting and able the ability to predict a problem before it happens, stewarding, trustworthy, helping to develop others, awareness of others' needs and abilities professional and building community (Spears, 1996). Rachmanwti and Lantu suggested some characteristics of servant leadership are as follows: developing followers, sharing leadership, building community, valuing followers, authenticity and providing leadership as shown in Table 5 (Rachmawati & Lantu, 2014).

Russell and Stone mentioned that primary and functional attributes of servant leadership. The primary attributes include vision, honesty, trust, serving, modelling, empowering, appreciating, and pioneering. The second attributes consist of communication, competence, stewardship, visibility, effecting, listening, credibility, encouraging, training, and delegating (Russell & Stone, 2002). Laub explained that the servant leadership dimensions have six areas and they are represented (Table 6) in the organisational leadership Assessment model (OLA) (Laub, 2003).

Table 5 The uniqueness of servant leadership - compare with other leadership

Motivation to serve	**Motivation to recreate organization survive**	**Motivation to express the true self.**	**Motivation to do the things appropriate the norm in organization**	**Good to great = Doing extraordinary ways**	**Motivation to involved others in decision making**	**Motivation to find out meaning of work**	**Motivation to gain organization goals and no self-oriented**
Personal growth of followers without necessarily being organization objectives	Organization survival in dynamic environment	Owning one's personal experiences	Resulting appropriate behaviour of followers in organizations	Organization success and long-term performance	Shared leadership and responsibility of organization	Building organization values and culture by sense of calling	Focus on organization goals performance

Source: (Rachmawati & Lantu, 2014) p.390.

Table 6 servant leadership and the servant organisation (OLA) model

Servant leadership:	
an understanding and practice of leadership that places the good of those led over the self-interest of the leader. Servant leadership promotes the valuing and development of people, the building of a community, the practice of authenticity, the providing of leadership for the good of those led and the sharing of power and status for the common good of each individual, the total organisation and those served by organisation.	
The servant leader…	
Values people	• By believing in people • By serving other's needs before his or her own. • By receptive, non-judgmental listening
Develops people	• By providing opportunities for learning and growth • By modelling appropriate behaviour • By building up others through encouragement and affirmation
Builds community	• By building strong personal relationships • By working collaboratively with others • By valuing the differences of others
Displays authenticity	• By being open and accountable to others • By a willingness to learn from others • By maintaining integrity and trust
Provides leadership	• By envisioning the future • By taking initiative • By clarifying goals

Shares leadership	• By facilitating a shared vision • By sharing power and releasing control • By sharing and promoting others
The servant organisation is an organisation in which the characteristics of servant leadership are displayed through the organisational culture and are valued and practiced by the leadership and workforce.	

source: (Laub, 2003) " From paternalism to the servant organization: Expanding the Organizational Leadership Assessment (OLA) model".p.3

Patterson and others researchers agreed that there are seven characteristics of servant leadership which are: Agapao love, humility, Altruistic: helping others, self-sacrifice, visionary for followers, trusting, serving, and empowering (Patterson, 2003; Rachmawati & Lantu, 2014).

While Dierendonk and Nuijten stated that there are six constructs of servant leadership including: empowering and developing followers, humility, authenticity, interpersonal acceptance, providing direction, stewardship (Dierendonck & Nuijten, 2011).

Table 7 Servant leadership dimensions

SL dimensions	Title	researchers
Character-orientation being – what kind of person is the leader. • Integrity • Humility • Servanthood	A conceptual Framework for Measuring servant leadership.	(Page & Wong, 2000)
People orientation relating. How does the leader relate to others? • Caring for others • Empowering others • Developing others		
Task-orientation doing. What does the leader do?		

• Visioning • Goal setting • Leading		
Process- orientation organising. How does the leader impact organisational processes? • Modelling • Team building • Shared decision-making		
Agapao love	Development of servant leadership assessment instrument.	(Dennis, Kinzler-Norheim & Bocarnea, 2010)
Acts with humility		
Altruism		
Is visionary for the followers(vision)		
Trusting		
Serving		
Empowers followers		
Standing back	The servant leadership survey, development and validation of a multidimensional measure.	(Dierendonck & Nuijten, 2011)
Forgiveness		
Courage		
Empowerment		
Accountability		
Authenticity		
Humility		
Stewardship		

Table 7 summarised some of the servant leadership characteristics as the scholars mentioned. Page and Wong mentioned that there are four dimensions of servant leadership: character orientation, people orientation, task orientation,

and process- orientation organising (Page & Wong, 2000). According to some researchers Table 8 summarises the key characteristics of servant leadership related to measurement dimensions (Dierendonck & Nuijten, 2011; Rachmawati & Lantu, 2014).

The current study adopted three dimensions of servant leadership as classified by Page & Wong (Page & Wong, 2000; Wong & Page, 2003). The current study adopted these three dimensions as they are divided according to orientation of each characteristic. These dimensions are character orientation, people orientation, and task orientation. Each dimension includes some items. Character orientation includes integrity, humility, and servanthood. People orientation includes caring for others, empowering, and developing others. Task orientation includes vision, goal setting and leading.

3.9 Servant Leadership Conceptualisation

Scholars, researchers and writers are paying attention to servant leadership, the concept of it, its measurements and the effects of it on an organisations' successes in any industry. A lot of research is needed for a deeper study of the meaning, effects and how to measure the effects of servant leadership on different variables inside the organisation (Laub, 2004). There are many studies about leadership styles and the effects of them in different variables in the organisations (Sokoll, 2014).

Studying servant leadership theory is needed as the scholars and researchers of the theory mentioned the need for empirical evidence and casual relationship of servant leadership and the success of an organisation (Sokoll, 2014). In the last decade, servant leadership has gained attraction among academics and within the organisations. The reason for this attraction might be due to the ethicality and morals of servant leaders. Other researchers suggested that the reason for the attraction to servant leadership is most likely because of the failures from leaders in many fields (Yukl, 2010). Yukl suggested that benefits of adopting this style are likely to improve the followers' trust of the leaders and job satisfaction (Yukl, 2010). Servant leader behaviour usually focuses on supporting and serving followers (Yukl, 2010; Yukl *et al.*, 2013), and serving the followers' needs (Winston & Fields, 2015). However, servant leadership theory has had multiple constructs that were studied and highlighted by the researchers over the last decade. Yukl stated that although most of the researches talked about the conceptual of SL only, qualitative researches and empirical studies have begun to measure the servant leadership using the dimensions of it (Yukl, 2010).

Table 8 Key Characteristics of SL relates to measurement dimensions

Key characteristic	Laub (1999)	Wong & Davey (2007)	Barbuto & Wheeler (2006)	Dennis & Bocarnea (2005)	Liden et al. (2008)	Sadjaya & Santora (2008)	Dienrendonck (2010)
Empowering & developing people	Develops people	Serving & developing others Consulting & involving others		Empowerment Trust	Empowering Healing	Transforming influence	Empowerment
Humility	Share leadership	Humility and selfishness	Altruistic calling	Humility	Putting subordinates first	Voluntary subordination	Humility
Authenticity	Display authenticity	Modelling integrity and authenticity				Authentic self Transcendental spirituality	Authenticity
Interpersonal acceptance	Values people		Emotional healing	Agapao love	Emotional healing		Forgiveness
Providing direction	Providing leadership	Inspiring and influencing others	Persuasive mapping	Vision	Conceptual skills		Courage
Stewardship	Builds community	Organisational stewardship Wisdom		Creating value for community Behaving ethically	Responsible community		Accountability Stewardship

Source: (Rachmawati & Lantu, 2014) "Servant Leadership Theory Development & Measurement." p.392-393.

Winston and Fields mentioned that servant leadership attributes have overlapped with other leadership styles, which can cause problems for the researchers. The validity and reliability of servant leadership constructs, clarifies and concretes this theory (Winston & Fields, 2015). Russell and Stone stated that there are 20 servant leadership attributes (Russell & Stone, 2002), while Winston and Field identified 25 characteristics (Winston & Fields, 2015). There is an overlap of attributes highlighted by most researchers with others adding more such as Winston & Fields (Winston & Fields, 2015).

Table 9 shows these attributes. These two groups of servant leadership attributes have common attributes such as empowerment, appreciation of others, behaving ethically, trust, vision, shared decision making, goal setting, humility, team building, teaching, stewardship, credibility, caring for others, honesty, encouragement, listening, creating values, and serving.

Table 10 summarises the key characteristics of servant leadership (Gandolfi & Stone, 2018; Hanse *et al.*, 2016; Jones & Bennett, 2012; Swanwick & McKimm, 2011; Winston & Fields, 2015; Yukl, 2010). These characteristics have been investigated by the researchers as the dimensions of servant leadership.

Table 9 Forty- five servant leadership attributes

Russell & Stone's Lit. Review	Fields & Winston's Lit. Review
Appreciation of others	Altruism
Communication	Authentic self
Competence	Behaving ethically
Credibility	Caring for others
Delegation	Conceptual skills
Empowerment	Covenantal relationship
Encouragement	Creating value for the community
Honesty	Creating value for those outside the organization
Influence	Developing others
Integrity	Emotional healing
Listening	Forming relationships with subordinates
Modelling	Goal setting
Persuasion	Helping subordinates grow and succeed
Pioneering	

Service Stewardship Teaching Trust Visibility Vision	Humility Leader's agapao Persuasion mapping Putting subordinates first Responsible morality Servant-hood Shared decision making Team-building Transcendent spirituality Transforming influence Voluntary subordination Wisdom

Source: (Sokoll, 2014), "Servant leadership and employee commitment to a supervisor." P.89-90

Table 10 servant leadership characteristics

Key characteristic	**Yukl 2010**	**Swanwick& Mckiman 2011**	**Jones & Bennett 2012**	**Winston & Fields 2015**	**Hanse et al. 2016**	**Gandolfi & Stone 2018**
Empowering, caring and developing others	Supporting followers	Developing followers	Caring for others	Empowering Caring for others Developing others	empowerment	Commitment to growth of people Healing Awareness
Humility	Humility	Humility	Humility	Humility Share leadership	Humility	Selfishness

Providing directions and leading	Courage Inspiring others	Providing directions	Vision	Providing directions Goal setting Courage Vision Inspiring followers	Vision	Conceptualisations Persuasion
Integrity		Integrity		Integrity		Integrity
Stewardship		Stewardship	Stewardship	Accountability Wisdom Behaving ethically	Accountability Stewardship	Stewardship Building community
Servitude (standing back) and forgiveness	Serving others	Serving others	Serving others	Serving others Forgiveness	Servitude (standing back)	Putting followers first

The current study adopted the following dimensions which are character orientation, people orientation, and task orientation (Wong & Page, 2003). Each dimension includes some characteristics. The first dimension is character orientation (Fernandez, 2008; Shaw & Newton, 2014; Wong & Davey, 2007) which includes integrity, humility, and servanthood. The second dimension is people orientation and it includes caring for others, empowering and developing others (Fernandez, 2008; Shaw & Newton, 2014; Wong & Davey, 2007). The third one is task orientation. It includes visioning, goal setting, and leading (Fernandez, 2008; Shaw & Newton, 2014; Wong & Davey, 2007).

3.10 Servant Leadership and SMEs

SMEs as explained in chapter 2, they play an important role in economies around the world. Leadership is an essential factor for any organisation irrespective of its size (Gandolfi & Stone, 2018). It is not only very critical for large organisations, but it also is very vital to SMEs. Gandolfi & Stone stated that it is the leadership responsibility to move organisations forward and achieve their goals. They added that this is a very difficult balancing act. However, this makes leadership very significant and illustrates why the chosen leadership style is an extremely important decision (Gandolfi & Stone, 2018). They added

that not all leadership styles will help organisations to better future their states. Therefore, choosing a leadership style is vital for any organisation, especially in a crisis. They added that it is time to give attention to servant leadership (Gandolfi & Stone, 2018).

Wang and Poutziouris stated that SMEs are considered as agents of innovation, wealth and employment. Due to this importance of SMEs, and the immature managerial skills that evidences show in SMEs, SMEs need an appropriate leadership style to help them achieve their goals (Wang & Poutziouris, 2010). Wang and Poutziouris added that there are many studies that addressed the traits of leadership (Wang & Poutziouris, 2010). This includes Stodgill who listed 100 traits that effect the success of the leader (Stogdill, 1974). However, Wang and Poutziouris stated that the studies of traits have failed to provide a set of attributes that make a good leader and non-effective leader (Wang & Poutziouris, 2010). However, Bass and Burns stated that the behaviour of the leader is an important element to achieve the goals of an organisation. They determined the behavioural leadership style and they divided it to transactional and transformational leadership (Bass, 1985; Burns, 1978). House (House, 1996b) talked about four types of behaviour of leadership including directive, supportive, achievement, and participative (Wang & Poutziouris, 2010). Wang and Poutziouris discussed the leadership styles and theories that Bass, Burns and House generated and they advised that SMEs would benefit from a directive leadership style (Wang & Poutziouris, 2010). They explained the reason for this suggestion is that SMEs are usually ran by the owner of the business or are operated in the sight of the philosophy of their owners. While Gandolfi & Stone stated that servant leaders have common characteristics as any other leaders, but they focus on the followers first. This style of leadership is suitable for any organisation regardless the size of it because servant leadership focus on followers first. While the other styles focus on achieving their missions first, followed by empowering others (Gandolfi & Stone, 2018). Northouse stated that the empirical evidence suggested that servant leadership does not only work but it is effective and desirable (Northouse, 2012). Gandolfi & Stone mentioned that servant leadership is the most interactive leadership style in terms of the relationship between leader and followers because the leaders focus on the followers first. They added that if servant leadership is applied correctly, the performance of the followers will increase and in turn the organisational performance will also increase (Gandolfi & Stone, 2018).

SMEs need an appropriate leadership style. According to Kibbe, servant leadership is an uncomplicated style, it encourages the smooth running of organisations. It is also needed in a crisis and when the organisation needs to

make a quick decision (Kibbe, 2019). Gandolfi & Stone explained the reasons behind choosing servant leadership style in any organisation including SMEs. There are two reasons for choosing servant leadership. The first reason is that the servant leaders empower and develop followers to reach their potential rather than the organisation. The second reason is that servant leadership also assumes that if the followers are reaching their potential, they will directly achieve the organisation potential and its goals (Gandolfi & Stone, 2018).

The current study addressed the servant leadership style and the effect of it on innovation (INN) in SMEs through the mediating role of knowledge sharing (KS).

3.11 Summary

This chapter has reviewed the definitions of leadership and the difference between the concept of leadership and the concept of management. It has also reviewed researchers' concepts of the leadership styles and theories of leadership. It also has reviewed the importance of leadership and the definitions of servant leadership. The dimensions of servant leadership have also been explained in the current research studied as well as the reason to study them.

Chapter 4 Knowledge sharing

In the previous chapter leadership definitions and styles were discussed. In addition, servant leadership and its dimensions were discussed. This chapter discusses the definition of knowledge sharing (KS), types of knowledge, definition of knowledge management (KM), importance and dimensions of KM, as well as the definition, importance and dimensions of KS.

4.1 Introduction

Interest in knowledge has increased incredibly. Articles, conferences, scholars and researchers are all interested in knowledge. There are many researches that studied relationship between knowledge and many variables because knowledge has become a topic of importance to social and business scientists. Knowledge is considered as a source of innovation and generating competitive advantages (Emadzade *et al.*, 2012). Hartono and Halim also highlighted that knowledge can be an excellent resource for innovation, creating a unique position of an organisation in the market if it invests in knowledge management (KM) effectively and efficiently. It is also important for the leaders to be able to encourage their followers and improve their performances (Hartono & Halim, 2014).

Knowledge is critical in the life of all individuals and any organisation (Davenport & Prusak, 1998). Asrar-ul-Haq and Anwar described knowledge as the lifeblood of any organisation, and it is a vital element for an organisation to survive and compete in the markets. It is important for continuous innovation and to achieve the organisations' goals (Asrar-ul-Haq & Anwar, 2016; Drucker, 1985; Kogut & Zander, 1992; Nonaka *et al.*, 2006). Asrar-ul-Haq and Anwar added that because of the essential role of knowledge there is an essential need of having an effective and sufficient knowledge management system (Asrar-ul-Haq & Anwar, 2016).

4.2 Definitions of knowledge

Definition of knowledge varies from different areas in an organisation (Tan *et al.*, 2010). For example, Schreiber et al. defined knowledge as an organised way of data, information, skills and experiences for reuse in certain tasks (Schreiber *et al.*, 2000). On the other hand, Usoro et al. mentioned that knowledge is hard to measure as it is intangible. It also must be defined through

the differentiation between data, information and knowledge (Usoro *et al.*, 2007).

4.2.1 Nonaka's knowledge definition

Mahdi et al. stated that the most accepted meaning of knowledge is defining it as "justified true belief"; this is Nonaka's definition (Nonaka, 1994). It is a certain perception of an act, a fact and understanding (Mahdi *et al.*, 2011). Bolisani & Bratianu stated that Nonaka's definition of knowledge is well known. They added that this definition has three conditions which are: the truth condition, the belief and justification (Bolisani & Bratianu, 2018). However, Mahdi et al. stated that the authors defined knowledge through four perspectives. The first perspective represents knowledge as an important independent object that is related to human beings and the organisational background. Nonaka (Nonaka, 1994) described it as 'justified true belief' that can be in an individual's mind. The second perspective considers that knowledge is in peoples' minds and these people convert it into action (McDermott, 1999; Polanyi, 1967). This perspective defines it through the change of peoples' actions of thinking. The third perspective considers knowledge as a social practice. Researchers such as (Blackler, 1995; Wenger, 1998) defined knowledge from this perspective, they added that knowledge is created in a community from more than one person. From this perspective, knowledge is dependent on other elements. It has three sides. These sides are as follows: storage, transferring and interactions.

4.2.2 Differentiation between data, information and knowledge

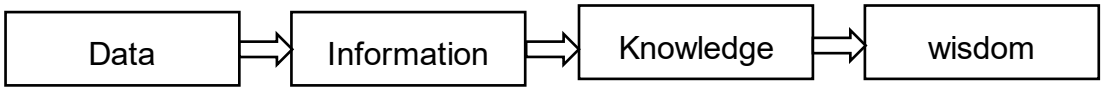
Mahdi et al. explained that there is an important point in defining knowledge, this includes an understanding that knowledge is not data or information (Davenport & Prusak, 1998). According to Mahdi et al. knowledge has a life cycle as shown in Figure 4. They also explained that knowledge has a series which starts with data, data transferred to information, information turns to knowledge and in turn to wisdom. This process of changing the data to knowledge and then to wisdom needs managing and understanding (Mahdi *et al.*, 2011).

Other researchers defined it through the process of transformation of data and information such as (Davenport & Prusak, 1998; Stewart, 2012). Stewart stated that managers and organisations need data to be able to reach their targets. The data must be in a useful form to be used. Therefore, this needs a process to turn the data into information and in turn this information forms knowledge. According to Stewart the word 'knowledge' shows that there is gathered and

managed useful information. The important point is this knowledge is useful for the future. Knowledge includes information, facts, skills, descriptions, experiences, and awareness (Stewart, 2012).

Chouikha and Dakhli also explained that knowledge is a result of information which is a result of data (Chouikha & Dakhli, 2012).

Figure 4 Series of knowledge (Mahdi *et al.,* 2011, p.9923)



Davenport and Prusak argued that knowledge is not data nor information, although it is related to both (Davenport & Prusak, 1998). They mentioned that to be able to know what knowledge is, data and information must be defined. Data is a set of discrete and continuous figures. It tells nothing by itself. However, information has purpose and meaning. Davenport and Prusak added that information is a message. The aim of this message is to covey something to the receiver, and it will affect the way that they judge or act. It comes from the word 'inform'. Knowledge is broader and deeper than data and information (Davenport & Prusak, 1998).

Faucher et al. described the hierarchy of transferring data to wisdom as a pyramid including an explanation of the difference between tacit and explicit knowledge. They also showed in the pyramid that there are two barriers between the transferring process for the data as shown in Figure 5. These two barriers are existence, which describes the sources of the data that humans get, and the enlightenment representing the highest level of understanding (Faucher *et al.*, 2008).

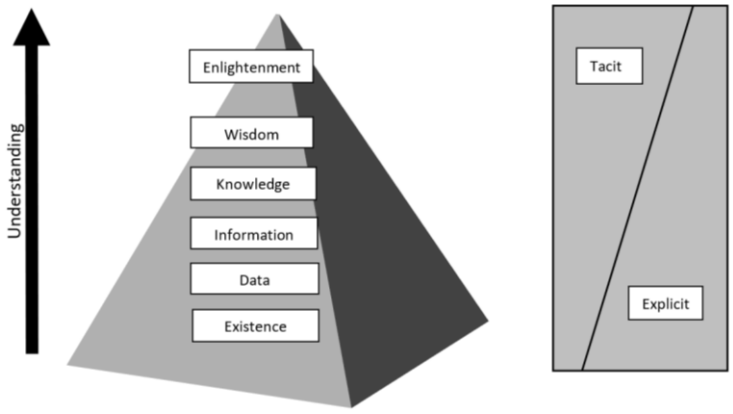


Figure 5 The extend knowledge management pyramid. Source: (Faucher *et al.,* 2008, p.9)

Davenport and Prusak added that knowledge is not easy to define (Davenport & Prusak, 1998). However, there are key components that must be known to understand the meaning of knowledge. These components are experiences, truth, judgment, and rules. Experiences come from situations, lessons, books and meeting people. Experiences develop knowledge. When an organisation appoints experts, it buys the experiences that they have. Truth means knowing facts that work or do not work. Such as a strategy that can work in a certain situation and another strategy does not work in the same situation. Judgement is used to choose between people, decisions, and situations. Knowledge is related to a living system which is affected by internal and external environments. Also, rules are used to form knowledge. Awareness of rules is an important component of knowledge. Rules help to solve problems and contribute to ease of life. Knowledge helps people and organisations to deal with situations quickly and rationally. Knowledge forms also from values and beliefs. Although people might think the values and beliefs are only related to individual knowledge not to organisations, however, the reality is that organisations depend on people as managers, employees, suppliers, and customers (Davenport & Prusak, 1998).

4.2.3 Definition of individual and organisational knowledge

Daven and Prusak also differentiated between the definition of individual knowledge and knowledge in organisations (Davenport & Prusak, 1998). The individual knowledge, according to Davenprot & Prusak, is a mix of experiences, values, information, customs and awareness that makes the person able to judge or evaluate something. Knowledge in organisations includes documents, reports, organisational rules, practices, and procedures. Knowledge in organisations also includes managers and employee's knowledge. This organisational knowledge is very wide as it includes internal and external knowledge. Davenport and Prusak also mentioned that knowledge comes from information, and information comes from data (Davenport & Prusak, 1998). Davenport and Prusak added that this process happens through four C words: comparison, consequences, connections and conversations.

1. *Comparison* happens when an organisation compares between situations, employees, markets, suppliers, and rules.
2. *Consequences* happens when an organisation tries to determine the impacts of a decision or an action.
3. *Connections* happens from connecting and communications between people who are inside or outside the organisation.

4. *Conversations* happens between people inside and outside the organisation and what people think of the organisation (Davenport & Prusak, 1998).

Kodama stated that knowledge is created through the communication between people. The interactions between people and their environment also create knowledge. Employees, leaders, customers, and suppliers have different values and knowledge (Kodama, 2005). The interactions among them create new knowledge in their workplaces. Knowledge creation is an important element that shows that knowledge is a part of the organisation and it is not only a resource that can be acquired by individuals (Kodama, 2005).

Janson et al. defined knowledge as a set script in everyone's brains. It affects actions and behaviours. It includes knowledge of everything that the person learned and experienced. It comes also from the environment, motivation, exposure, books and opportunity. It builds up every day through learning new techniques, usages of experiences, making decisions and scanning environments. This knowledge is strengthened and expanded by experiences and lessons learned. Working, dealing, leading people, and facing problems add to knowledge (Janson *et al.*, 2011).

Waltz stated that knowledge is intelligence. This intelligence has a cycle and this cycle comes from the knowledge requirements. These requirements require planning, tasking, collection and analysing of this knowledge (Waltz, 2003). Waltz also mentioned that this intelligence is called knowledge but in the simplest term. Waltz added that this intelligence is related to collecting facts, analysing, and evaluating them. This analytical process must happen in the resealable time and according to policies and rules (Waltz, 2003).

4.2.4 Definition of knowledge according to its benefits

Musen also mentioned that Allen Newell's definition (Newell, 1982) of knowledge was the most interesting definition. Allen Newell defined knowledge from the benefit of it for the people. Allen Newell considered knowledge as a construct that cannot be written, because the nature of knowledge, it can be skills, values or experiences (Musen, 1992). Allen Newell explained the nature of knowledge, especially tacit knowledge as it is intangible. Although tacit knowledge is intangible and it is in people's minds, it can be transferred to a tangible form (Maftennson, 2000).

Davenport and Prusak stated that knowledge is difficult to be defined (Davenport & Prusak, 1998). However, some scholars and researchers defined

and described it according to the action of it such as (Janson *et al.*, 2011). Some researchers defined knowledge through the benefits from it.

Usoro et al. agreed that knowledge exists in people's minds and it is interpreting and responding to the world around them. Therefore, knowledge helps the person to decide what action is needed for a certain situation. They added that knowledge is an action and a reflection of this action. This process of communication between two people, for example, can create and share knowledge (Usoro *et al.*, 2007).

From the definitions of knowledge, this study adopted Nonaka's definition of knowledge which is "justified true belief" that can be in an individual's mind. (Nonaka, 1994). The study also looks at knowledge as skills, experiences and values that people have and use them in a certain situation (Janson *et al.*, 2011). It also looks at knowledge as a result of information which was data before (Chouikha & Dakhli, 2012).

4.3 Types of knowledge

Researcher and scholars divided knowledge to different types. Nonaka divided knowledge according to who creates the knowledge. While Conklin divided it according to formality. Others divided it according to surrounding environment. Although this study focused on tacit knowledge only, however, it explained briefly the other types of knowledge.

4.3.1 Formal and informal knowledge

While Conklin divided knowledge according to formality: formal and informal knowledge. Formal knowledge is knowledge or information that comes from certain resources such as books, reports and magazines. This type of knowledge is easy to be shared between people. Whilst informal knowledge is information that comes to the mind of people and interactions between people; it is not easy to share unless transferring it to formal knowledge (Conklin, 1996).

4.3.2 Individual and group knowledge

Nonaka divided knowledge according to who creates the knowledge. He divided it into two types; the first type is social knowledge which is created by a group. The second type is individual knowledge and it is created by the actions of a person (Nonaka, 1994).

4.3.3 Declarative and procedural knowledge

Fernandez et al. differentiated between two types of knowledge which are declarative and procedural knowledge. The declarative knowledge is peoples'

beliefs and opinions, while procedural knowledge is peoples' skills and the abilities (Fernandez *et al.*, 2004). Banks & Millward studied declarative and procedural knowledge. They explained that declarative knowledge is facts, rules, figures, and concepts to achieve a certain task. While the procedural knowledge is the steps to complete this task. They found out that accurate procedural knowledge has a positive relationship with team performance (Banks & Millward, 2007)

4.3.4 Factual, situational and social knowledge

Mathew explained that knowledge can be formed in three forms. These three forms are as follow: factual, situational and social knowledge. The factual knowledge comes from facts. The situational knowledge comes from situations. Social knowledge comes from social relationships and social networks (Mathew, 2010).

4.3.5 Core, advanced and innovative knowledge

Some researchers used different classifications of knowledge such as (Gratton & Truss, 2003; Haggie & Kingston, 2003; Schwartz, 2007; Zack, 1999). They classified it to three types as follows: core knowledge which is essential to do something, advanced knowledge which is important to create a competitive advantage, and innovative knowledge which helps an organisation to create a new product or new methods (Mahdi *et al.*, 2011).

4.3.6 Internal and external knowledge

Chugh highlighted that in any organisation important knowledge is the one inside employees' mind. This knowledge is inside the organisation, while the knowledge in the mind of the suppliers and customers represents the outside knowledge which is surrounding the organisation (Chugh, 2013). He added that knowledge also includes different types of knowledge of environments such as: knowledge about economic environments, social environment, political environments and knowledge about the law. Lopez-Saez et al. explained the differentiation of knowledge according to the environments as internal and external knowledge. This classification is well-matched to Chugh's deferrization of knowledge. The internal knowledge comes mainly from employees, knowledge about the assets and reports. While the external knowledge comes from the external environments that surround an organisation such as knowledge about the laws and political environments (Lopez-Saez *et al.*, 2010).

4.3.7 Tacit and explicit knowledge

Michael Polanyi is considered as the founding father of tacit knowledge, as he was the first to identify the significance of this concept (Seidler-de Alwis & Hartmann, 2008). Polanyi explained that tacit knowledge is the ability to recognise things without explaining how this happened. He added that people know more than what they can tell (Polanyi, 1969; Polanyi, 2007).

Nonaka & Takeuchi, and Dalkir described two types of knowledge: tacit and explicit knowledge. They described the tacit knowledge as personal knowledge, and it is intangible, while explicit knowledge is tangible, and it is in forms such as of reports, manuals or documents. This differentiation of these two types is according to tangibility (Dalkir, 2005; Nonaka & Takeuchi, 1995).

Several other researchers agreed with Nonaka & Takeuchi in the differentiation between the two types. Chugh also called the two types of knowledge tacit and explicit knowledge. He added that the tacit Knowledge is intangible and the explicit knowledge is tangible (Chugh, 2013). Intangible knowledge is the knowledge that people have and it is difficult to reach. For these two reasons, it is considered as an intangible knowledge (Chugh, 2013). However, Bassi and Maftensson explained that knowledge can be available to others if it is shared in a meeting or documented in reports (Bassi, 1997; Maftennson, 2000).

Chugh advised that tacit knowledge needs to be transformed to different forms to be reused in different ways and get the highest benefit of it (Chugh, 2013). Nonaka defined explicit knowledge (tangible knowledge) as knowledge that can be collected, documented and supported by evidence. It is knowledge that is available in reports, policies and documents (Nonaka, 1998). Seider-de Alwis & Harmann stated that tacit knowledge is personal and difficult to be formalised. It is gained from action, procedures, values, emotions and experiences. It cannot be coded or written, it is developed by sharing experiences or by observation. They added that tacit and explicit knowledge are important to knowledge creation. Without tacit knowledge, the meaning of explicit knowledge will be lost and cannot be used. They also highlighted the importance of the interactions between them. This will be effective for the organisation and it will benefit from the knowledge gained (Seidler-de Alwis & Hartmann, 2008). Hislop et al. differentiated between the characteristics of tacit and explicit knowledge as shown in Table 11.

Table 11 ***Characteristics of tacit and explicit knowledge***

Tacit knowledge	Explicit knowledge
Inexpressible in a codifiable form	Codifiable
Subjective	Objective
Personal	Impersonal
Context- specific	Context- independent
Difficult to share	Easy to share

Source: "Knowledge management in organizations: A critical introduction" (Hislop *et al.*, 2018) p.19

Hislop et al. and Nonaka et al. also explained that tacit knowledge includes two elements. Firstly, it is related to the technical aspect which includes personal skills and experiences such as know-how. The second part is related to cognition of tacit knowledge and it includes the values and beliefs of a person (Hislop *et al.*, 2018; Nonaka *et al.*, 2006). Kim and Ju explained that tacit knowledge comes from the professional experiences, personal skills, and ability to solve problems (Kim & Ju, 2008). This type of knowledge can create innovation and in turn generate competitive advantages for organisations (Seidler-de Alwis & Hartmann, 2008), and it can also make the individual unique. Pérez-Luño et al., found in their study that tacit knowledge has linear and positive effects on innovation (Pérez-Luño *et al.*, 2019). Although tacit knowledge can create innovation and improve the organisations and individuals, it is difficult to share and recorded in documents (Pérez-Luño *et al.*, 2019). However, knowledge management can help to manage this type of knowledge (Bryant, 2003; Chen & Edgington, 2005). Explicit knowledge is the second type of knowledge which was described as tangible, recorded and easy to be shared. It can be reused in similar situation as it is in the form of documents, reports and manuals (Hislop *et al.*, 2018; Kumar *et al.*, 2013).

Mahdi et al. also mentioned that knowledge has two types tacit and explicit. They added that knowledge can be divided to two other types according to who has this knowledge. These two types are personal knowledge or organisational knowledge (Mahdi *et al.*, 2011)

Birasnav et al. highlighted the importance of interactions between the tacit and explicit knowledge. They mentioned that these interactions support the organisation and help to create knowledge, create innovation and create competitive advantages (Birasnav *et al.*, 2011).

Seidler-de Alwis & Hartmann mentioned that tacit knowledge is an important element in the innovation process and managing it has significant impact on the

innovation process and, therefore, tacit knowledge plays an important role in organisations' success, as it helps to compete in the market (Seidler-de Alwis & Hartmann, 2008).

Pérez-Luño et al., stated that there is need for future research to study KS and innovation (Pérez-Luño *et al.*, 2019). Therefore, the current study focused on studying the tacit knowledge and sharing this knowledge. This type of knowledge has an impact on innovation. It can create innovation and create competitive advantages to the organisation (Pérez-Luño *et al.*, 2019; Seidler-de Alwis *et al.*, 2004; Seidler-de Alwis & Hartmann, 2008).

From the above discussion of the types of knowledge, the current study summarised the difference between the tacit and explicit knowledge as shown in Table 12.

Table 12 difference between tacit knowledge and explicit knowledge

Tacit knowledge	Explicit knowledge
In the peoples' minds	In books, manuals, documents etc.
Subjective	Objective
Internal	External
Sensitive	Not sensitive
Difficultly documented	Easily documented
Difficult to share	Easy to share
Difficult to transfer and reuse it	Easy to transfer and reuse
Depends on human interpretation	Easy to interpret
Needs more efforts to managing it	Easily managed

4.4 Knowledge Management definitions

Knowledge management (KM) is an important process for any organisation or an individual to be able to use knowledge effectively and efficiency. Scholars defined it from different perspectives. These perspectives are as follow: processes, strategic perspective, technical perspective, perspective of value-added, an intangible asset, KM Learning, Innovation process, Knowledge architecture, and customer relationship management (CRM) adoption (Mahdi *et al.*, 2011).

Some researchers defined it as the process of managing knowledge, others, like Waltz, defined it as a strategy that an organisation uses to manage

knowledge (Waltz, 2003). Waltz stated this definition of KM: “provides a strategy and organisational disciplines processes and information technologies used to acquire, create, reveal, and deliver knowledge that allows an enterprise to accomplish its mission.” (Waltz, 2003, p.1)

According to Koenig, KM is a concept that appeared about two decades ago, around 1990 (Koenig, 2012). Koenig discussed some definitions of KM among these definitions Davenport & Prusak (1998)’s definition: “KM is the process of capturing, distributing, and effectively using knowledge.”(Davenport & Prusak, 1998). Koenig described Davenport’s definition with simplicity and clarity. The second definition that Koenig presented was Duhon’s (1998) definition which described KM as a discipline that helps to identify, capture, evaluate, and sharing information. It also includes recording databases, documents, and policies (Koenig 2012). Knowledge can be described in three forms: the knowledge that can be set out in tangible forms which is called “Explicit”, the knowledge that is not in tangible forms which is called “Implicit” and the third one which is called “Tacit” and this knowledge is extremely difficult to be in tangible forms (Koenig 2012).

Koenig also explained that there are three bases for KM. These three bases are: lessons learned databases, expertise location, and communities of practice (Koenig, 2012). Koenig looked at KM through three stages. These stages are information technology, creating culture, and managing knowledge (Koenig, 2012).

On the other hand, Frost mentioned that KM involves the creation of and acceptance of processes, and using this knowledge across the organisation (Frost, 2014). He also added that the KM depends on many factors of an organisation. These factors include people, process, and technology (Frost, 2014).

In addition, according to Frost, the important element of successful KM is the organisational culture and it consists of values, beliefs, events, and behaviours of its individuals (Frost, 2014). Frost also explained that culture plays an important role in knowledge sharing and the factors that culture affects as follow: trust, the willingness to learn, the ability to learn, the support of communication informally, the ability to change, the ability to innovate, managing the process, and creating changes (Frost, 2014). Therefore, management of culture is one of the important factors for the success of KM. Birasnav et al. defined KM as a process of managing and creating knowledge strategies to support the organisations’ performances. This definition is addressing that KM is a process of involving employees’ knowledge and the

leaders' knowledge; it cannot be done in isolation of any part of them (Birasnav *et al.*, 2011).They added that this process comprises some important elements. These elements are knowledge acquisition, knowledge documentation, knowledge transfer, knowledge creation, and knowledge application. Filius et al. also explained the importance of three elements of KM process (Filius *et al.*, 2000). Filius et al. added that employees gain their knowledge from surrounding environments both internal and external. Customers and suppliers are examples for the external environment. The employees also gain their knowledge from recording the solutions of problems that they faced through their experiences (Filius *et al.*, 2000).

Sarkheyli et al. also mentioned that KM is a comprehensive process as it includes collecting, organising, sharing, analysing knowledge, and assessing the resources, skills, and documents of the knowledge. They added that KS is an important process in the KM (Sarkheyli *et al.*, 2013).

From Waltz's and other previous definitions of KM, it is a process or a strategy of managing knowledge in an organisation and its efficient and effective use. In addition, KM is also helping to create a culture of innovation and achieve the organisation's goals.

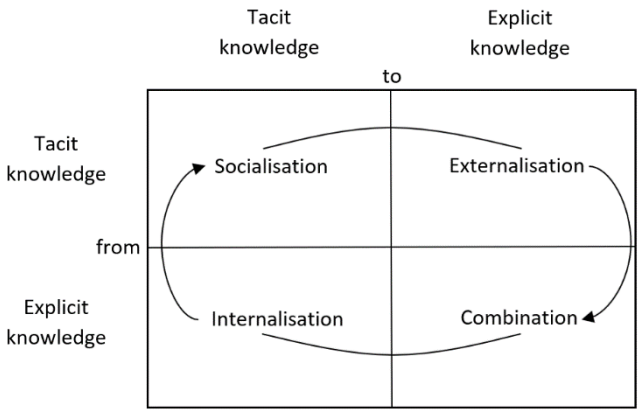


Figure 6 SECI model (Nonaka & Takeuchi, 1995, p.71)

Nonaka and Takeuchi designed a model called SECI model. This demonstrates model creation process as shown in Figure 6. This model represents the knowledge cycle and it shows four modes of knowledge conversions. These four modes include socialisation, externalisation, combination, and internalisation. The first mode is socialisation. It is a process of exchanging tacit knowledge between people through experiences such as meetings. The second mode is externalisation which is a creation process between the tacit knowledge and explicit knowledge by putting it into concepts, images and documents. Tacit knowledge becomes clear and it is easy to be shared by others. The third mode

is combination. It is from explicit to explicit knowledge. It is a process of combining and exchanging knowledge. The fourth mode is internalisation. It is a process of creating tacit knowledge from explicit knowledge such as learning by doing or practice (Nonaka & Takeuchi, 1995).

4.5 Importance of KM

The use of knowledge is an essential element in small or large organisations to create competitive advantages and have stability in the markets. KM is also a contentious process. It is not only a process of managing knowledge inside departments in an organisation, but it is also managing knowledge outside the organisation. Nonaka and Takeuchi explained that there is a key element to manage knowledge effectively. Collecting, storing, and sharing knowledge must be in the suitable form, to the right people, in the suitable place, and at the correct time (Nonaka & Takeuchi, 1995). In addition, Chugh mentioned that KM is not only helping in improving the business and achieving the organisations goals, but it is helping to create value. He also added that knowledge that is created during the business activities must be reused in the future. He also mentioned that there is a problem in using the scholars' researches knowledge by organisations. He recommended that organisations must benefit from the researchers knowledge and be able to transfer it in the suitable form to reuse in certain situation or a certain need (Chugh, 2013).

Maftennson and Bssi explained the importance of KM in transferring the tacit (intangible) knowledge into explicit (tangible) form to use it. They recommended that the KM must have mentoring programs to train the new staff using the experienced and skills employees to explain the business processes, technology system, identifying the mission and explaining the organisation's goals. Information system (IT) is important for process of transformation of tacit knowledge (Bassi, 1997; Maftennson, 2000). Chugh highlighted that having a strong relationship between IT and KM, can help the organisation to benefit from the implicit and explicit knowledge. He also advised that the KM system must adopt a balanced approach in using IT to be able to create, collect, and share knowledge. He added that IT is considered a small part of KM. Therefore, he mentioned that there is a need of support systems in each organisation to collect, structure, store, and use knowledge and skills. This will help the organisation to make decision processes and strategic planning effectively (Chugh, 2013). Asrar-ul-Haq and Anwar explained in their study of the barriers of knowledge sharing (KS) that knowledge if not well managed and shared correctly, it will be lost and mislead, especially tacit knowledge as it is intangible. They also explained the importance of sharing this type of

knowledge and transforming it into useful form and storing it to reuse in the future (Asrar-ul-Haq & Anwar, 2016). KM strategy enables an organisation to manage the KM activities and this will generate awareness of important knowledge. It also will help an organisation to achieve its goals. They added that it is important and critical to deliver and meet the needs of an organisation at the right time and effectively. This will support all the strategies across the organisation (Hume & Hume, 2015). Hume and M. Hume explained that successful KM needs engaging staff in an organisation at all levels and trying to build trust (May & Perry, 2017), good relationships and satisfaction to manage knowledge and benefit from it (Hume & Hume, 2015; May & Perry, 2017). May and Perry added that effective KM requires effective organisation and to include employees to be able to benefit from KM (May & Perry, 2017).

4.6 Dimensions of KM

As it is clear from the previous definitions of KM as a process or a strategy of managing knowledge inside and outside an organisation effectively and efficiency, the process has many elements and dimensions affecting it. One of these elements, as Pasternack et al. highlighted, is the knowledge and skills of experienced employees. These knowledge and skills were created due to their role in the organisation. This element has to be managed and kept inside the organisation otherwise it will be lost when the employees leave the organisation (Pasternack *et al.*, 1999). Drucker also mentioned the importance of knowledge and skills that the employees have. He advised that these knowledge and skills are considered as a competitive advantage for an organisation. He also added that KM is an important process and it involves people, activities, innovation, outside environment, knowledge creation, knowledge collection, knowledge donation and use of this knowledge at both an organisational and individual level (Drucker, 1985). According to Drucker, the process of KM has many dimensions one of them is knowledge sharing, and this knowledge sharing has two dimensions which are Knowledge collecting and knowledge donating (Drucker, 1985). Birasnav et al. highlighted that the dimensions of KM are: knowledge acquisition, knowledge documentation, knowledge transfer, knowledge creation, and knowledge application (Birasnav *et al.*, 2011). The dimensions that Birasnav et al. mentioned are similar to the dimensions that were highlighted by Drucker.

Usoro et al. outlined that there are two important dimensions of KM which are knowledge creating and knowledge sharing. These dimensions depend on the availability of information systems. Although the information systems do not encourage the desire of employees to share knowledge, but it is important to

develop and create new knowledge if an organisation is to manage it well. They also mentioned that levels of trust between employees in essential to share knowledge (Usoro *et al.*, 2007). Levin et al. focused in their study on receiving knowledge and the role of trust on KS. They highlighted the important role of trust in KS in general, and especially in organisations. They added that if an organisation fails to create trust relations and develop them, it will face problems in KS activities (Levin & Cross, 2004). Ardichvili et al. studied the factors that affect KS and they found that lack of trust has an impact on KS (Ardichvili *et al.*, 2003).

Hwang et al. stated that the KM system depends on three important factors which are as follows: 1) effective commitment which is related to the desire of individuals to use and share the knowledge. 2) calculative commitments which is about the costs of using or not using knowledge. 3) normative commitment which is related to the obligation of using KM (Hwang *et al.*, 2018). They also stated that the most important job of KM is knowledge sharing among employees in an organisation (Hwang *et al.*, 2018). Hwang et al. found in their research that the effective and calculative commitments affect positively on KS, and normative commitment has no effect on KS. They also found that KS intention is related to these two factors more than normative commitment. They mentioned that the reason for the usage of KM is on a voluntary basis and the users have freedom to adopt this or not (Hwang *et al.*, 2018). The Hwang et al.' research results are interesting, but they can't be generalised on all fields as this is one of the recommendations of any research. They described the nature of knowledge systems as a voluntary basis. Therefore, people have no obligation to share and use knowledge. They also mentioned that the KS depends on the person's behaviour (Hwang *et al.*, 2018).

The current research focused on KS and two dimensions of it which are knowledge donating and knowledge collecting only, because knowledge sharing has an impact on innovation and can create it (Hartono & Halim, 2014; Seidler-de Alwis & Hartmann, 2008; Zheng, 2017) and the current study used KS as a mediator in the relationship between servant leadership and innovation.

4.7 Definitions of KS

Amongst the important role of KM, knowledge sharing has been highlighted by researchers and scholars as one of essential elements in an organisation (Anwar *et al.*, 2019; Asrar-ul-Haq & Anwar, 2016; Witherspoon *et al.*, 2013). Witherspoon et al. described knowledge sharing as a building block for the organisation's success. They added that it has been neglected by human resources (HR) professionals for several years but in 2000 they realised the

importance of KS and KM for the organisation to survive and compete. Therefore, KM became an important element of the HR field. The concept of KS also is used by many researchers in different fields (Witherspoon *et al.*, 2013). Musen explained that the first thoughts of people about KS and reusing knowledge, is that it can be moved from people to others or from a device to another. He added this means that they are transferrable (Musen, 1992).

Kim et al. defined KS as a dynamic learning process, this process is continuous, and it includes interactions between employees, customers and suppliers. This process helps the organisation to create new ideas, innovate a new product or generate new methods that can reduce costs generally (Kim, Nelson & Nelson, 2000). Ipe defined KS as a process of transferring of knowledge between individuals, groups of people and organisations (Ipe, 2003). Tan et al. defined KS as an activity or a process of distributing ideas, values, opinions, skills, and experiences between people, group, organisations or communities. They also added that this process of KS helps an organisation to gain a competitive advantage. They explained the potential benefits that could be experienced if the employees have the willingness and desire between them to share knowledge. This also helps them to improve their performances (Tan *et al.*, 2010). In addition, transferring knowledge or KS is also affected by several factors mainly trust between people (Simonin, 1999) and culture (Javidan *et al.*, 2005).

Asrar-ul-Haq and Anwar explained that KS has many factors that affect it. These factors are included when defining KS. Personal characteristics of people, characteristics of groups, and organisational knowledge are examples of the factors that affect KS. According to Asrar-ul-Haq and Anwar, there are also different researchers who identified different factors that are affecting KS such as demographic variables (Asrar-ul-Haq & Anwar, 2016). According to Anwar et al. in order to define KS, it is essential to identify the factors that affect it (Anwar *et al.*, 2019). In addition, Anwar et al. represented in their study different researchers' definitions of KS, shown in Table 13 (Anwar *et al.*, 2019).

Table 13 Definition of KS

Definition of KS	Author and year
KS is the "provision of task information and know-how to a person, so that (s)he can collaborate with others to solve problems, develop new ideas or implement policies or procedures".	(Souza, 2012)

The term KS "implies the giving and receiving of information framed within a context by the knowledge of the source".	(Sharratt & Usoro, 2003)
KS is the "deliberate act in which knowledge is made reusable through its transfer from party to another".	(Lee & Al-Hawamdeh, 2002)
KS is the "provision of task information and know-how to collaborate with others to solve problems, develop new ideas or implement policies or procedures".	(Cummings, 2004)
KS is defined as the "provision or receipt of task information, know-how, and feedback regarding a product or procedure".	(Hansen, 1999)
KS occurs "when an individual disseminates his knowledge (i.e., know-how, and know-why) to other members within an organisation".	(Van Den Hooff *et al.*, 2012)

Source: "Systematic literature review of knowledge sharing barriers and facilitators in global software development organizations using concept maps". (Anwar *et al.*, 2019)

Villamizar Reyes et al. mentioned that 'share knowledge' comes from Knowledge sharing in the English dictionary. They explained that it has two acts. The first act is to give and the second act is collect (Villamizar Reyes *et al.*, 2014).

Sarkheyli et al. defined KS as a movement process and transferring information, skills, and experiences between people on a personal base or an organisational base. They added that KS is the management of both types of knowledge (tacit and explicit). In other words, it is the process of transferring, combining, interpreting, integrating, creating, and using knowledge. They also added that there are three terms of knowledge sharing are used to illustrate KS process including: knowledge sharing, knowledge transfer and knowledge flow. Sarkheyli et al. explained that knowledge can be shared at individual, group or organisational levels inside or outside an organisation (Sarkheyli *et al.*, 2013).

Chouikha & Dakhli mentioned that KS is one of the important dimensions of KM (Chouikha & Dakhli, 2012). They added that knowledge sharing is a difficult process and that organisations need more efforts to solve KS problems. They also highlighted that the effectiveness of KS processes relies on the organisation's characteristics. Drucker in 2002 predicted that society will

depend on knowledge and he called it “the knowledge society”. He also added that the knowledgeable employees will be an important element for an organisation (Drucker, 2002). Drucker and Grant highlighted that the organisation is considered as a firm for integrating knowledge (Drucker, 2002; Grant, 1996). They also mentioned that KM is an essential process for the organisations’ performances and survival in the continuously changeable environments, and KS is a part of KM activities (Drucker, 2002; Grant, 1996). Usoro et al. defined KS as a process of communications or interactions between two or more parties through this process, they can exchange, transfer, and create new knowledge. This process can take different forms, for example it can be verbal or non-verbal, it also can be through the use of technology or face to face communication. They added that KS in an organisation is facing some challenges, and one of the most important challenges from previous studies (Andrews & Delahaye, 2000; Argote *et al.*, 2000; Corritore, Kracher & Wiedenbeck, 2003; Smith *et al.*, 2006) is levels of trust (Usoro *et al.*, 2007). Chowdhury highlighted the importance of trust in KS. He also mentioned that trust provides confidence and creates a high level of cooperation between people (Chowdhury, 2005). Azema and Jafari described KS as sending knowledge by someone to others in an organisation. They added this process requires peoples’ behaviours to be in high level of cooperation. This description of KS illustrates that it depends on the desire of people to share their knowledge with others (Azema & Jafari, 2016).

According to Hasemi and Tan, knowledge is not important by itself. It is essential when it is used by people. Therefore, organisations must focus on the people who use and create the knowledge (Hashim & Tan, 2015).

4.8 Importance of KS

Organisations are facing high competition due to fast advances in technology and globalisation. It is also difficult for them to benefit from knowledgeable employees. Therefore, organisations need to put efforts on sharing knowledge between employees. They also need to be able to create new knowledge and develop organisational trust among employees (Birasnav *et al.*, 2011).

The KM literature shows that KS is a part of the functions of KM. From the definitions of KM, It is a process of creating, collecting, evaluating, distributing, storing, transferring, and sharing knowledge between people and teams in an organisation (Koenig, 2012). Scholars highlighted the important role of knowledge management to an organisation in all fields. KM and KS can help an organisation to create a competitive advantage (Azema & Jafari, 2016; Liebowitz, 2006; Tan *et al.*, 2010). Others researchers explained the important

role of KS in leadership and helping leaders in decision makings and solving problems (Hartono & Halim, 2014). In addition, KS can improve the employees performances and the organisations performances (Supar *et al.*, 2005). KS includes creating, collecting, and donating knowledge (Chouikha & Dakhli, 2012).

Many researchers mentioned the importance of KS and they discussed and studied the benefits of it (Chouikha & Dakhli, 2012; Hwang *et al.*, 2018; Lin, 2007b; Mesmer-Magnus *et al.*, 2011; Wang & Noe, 2010). They highlighted that KS helps an organisation to reduce costs, produce a new product, improve employees' performances, develop new projects, generate innovation, strength innovation capabilities and gain competitive advantage. These benefits of KS increase the importance of KM and encourage the organisations to put efforts and investing more in KM. The KM consists of creating, collecting, storing and donating knowledge (Chouikha & Dakhli, 2012). Supar et al. found that there are some factors that are affecting KS. These factors include culture, technology, communication, and organisational factors. They also found that KS may positively affect the organisation's performance therefore highlighting the importance of KS (Supar *et al.*, 2005). Bontis et al. also mentioned that KS is an essential component for an organisation (Bontis *et al.*, 2009).

Tan et al. mentioned according to Liebowitz (Liebowitz, 2001) that when the employees have the desire and willingness to share their knowledge between themselves, their performance will be improved, and their organisation will gain competitive advantages (Tan *et al.*, 2010).

Azema and Jafari also highlighted the necessity of KS in an organisation. People share their experiences and their skills in an organisation overall. This process also affects managers and leaders, and simultaneously helps them to make effective decisions. They added that knowledge sharing is considered as the most important factor that helps an organisation to create competitive advantage, innovation, increase efficiency, reduce time for creating new product, improve performances, improve customers' services, reduce delivery time, and reduce costs. It is considered as one of the main jobs of KM in an organisation (Azema & Jafari, 2016). Because of the importance of KS in any organisation, the organisation must eliminate any barriers to KS (Azema & Jafari, 2016). Azema and Jafari stated that there are three conditions that can affect the effective KS process. These three conditions are as follow: 1) important knowledge is available only to a number of employees. 2) knowledge cannot be accessible at the right time and place. 3) sharing knowledge sometimes will increase the security level of it, and thereby can cause difficulty to reach it. They added that there are many barriers to KS, and they divided

these barriers into three categories: organisational, individual, and technological barriers. They also recommended that an organisation must identify these barriers to have a successful knowledge sharing system (Azema & Jafari, 2016).

From reviews of the importance of KS, this study explored KS and used it as a mediator in the relationship between servant leadership and innovation.

4.9 Dimensions of KS

According to Anwar et al. there are many factors that affect KS, these factors can be measurements of the KS. They can be useful if they were used well and they can also be ineffective. This depends on how they are managed. They highlighted the factors of KS as follows: individuals, organisational, technological, geographical, and cultural factors (Anwar *et al.*, 2019). Chouikha and Dakhli highlighted that KS is one of KM dimensions. KS dimensions are knowledge creating, collecting, and donating (Chouikha & Dakhli, 2012). Levin and Cross studied trust as an important factor that affects knowledge transferring. They found that trust mediates the relationship between strong ties and receiving useful knowledge. They also found that trust improves the beneficial impact of tacit and explicit knowledge sharing (Levin & Cross, 2004). Ismail and Yusof mentioned that knowledge is considered as the most strategically significant resource of an organisation. They explained that there are three factors related to KS, including individual, organisational and technological factors. According to Ismail and Yusof individual factors include awareness, trust, personality and job satisfaction. Organisational factors include structure, culture, reward, workplace, and office layout. Technological factors are tools, infrastructure, and know-how (Ismail & Yusof, 2008). Tan et al. agreed that there are individual factors that affect KS as highlighted by Ismail and Yusof. These individual factors can be the willingness and desire of employees to share their knowledge with others, and to collect knowledge from others. They also mentioned that KS is a critical component of KM. The knowledge sharing process is applied by organisational structures, technology and principles that encourage employees to share their skills, values, and experiences with others to achieve the organisation's goals (Tan *et al.*, 2010).

Villamizar Reyes et al., defined KS as an action which has two acts. The first part is to give, and the second part is to collect. This simple definition of KS divides it into two dimensions: donating knowledge and collecting knowledge (Villamizar Reyes *et al.*, 2014). Fong and Chu also agreed to divide KS to these two dimensions (Sik-wah Fong & Chu, 2006). Van Den Hooff and De Ridder developed a KS scale that helps to measure KS. The scale includes two

dimensions of KS which are knowledge donating and knowledge collecting (Van Den Hooff & De Ridder, 2004). Kamasak and Bulutlar also studied the two dimensions of KS (donating and collecting) and suggested that the dimensions have a significant effect on exploitative, exploratory, and ambidextrous innovation. They found that knowledge donating from outside organisations has no impact on all types of innovation. While, knowledge collecting has an impact on the three types of innovation (Kamaşak & Bulutlar, 2010). Kamasak and Buulutlar recommended that knowledge collecting needs consulting between employees, this changes the traditional work styles and may also change the process. It also provides new approaches, structures, cultures, and innovation. They added that knowledge creation depends on interpreting and integrating knowledge. They also mentioned the important role of knowledge collecting in exploitation innovation, while knowledge donating outside an organisation did not have any effect on innovation dimensions. They suggested that the reason behind this was employees' lack of interest in donated knowledge. Therefore, they found that lack of attention and interest stops knowledge donating from being absorbed and effective (Kamaşak & Bulutlar, 2010).

Usoro et al. also investigated the dimensions of KS and the role of trust on one of these dimensions. These two dimensions according to Usoro et al. are the provision of knowledge (donating) and acquisition of knowledge (collecting). In their study of the effect of the trust factors on KS, they highlighted that there are three components of KS including quantity, quality, and focus (Usoro *et al.*, 2007).

Azema and Jafari divided knowledge sharing into two dimensions which are donation of knowledge and gathering of knowledge. They mentioned that donating knowledge means people communicate with others to give knowledge that they have from their skills and experiences. The second dimension, according to Azema and Jafari, is gathering and collecting knowledge from each other, inside and outside an organisation, by asking questions, interpreting, and consulting others. Both dimensions are active and they can happen at the same time, as people exchange knowledge by donating and collecting knowledge (Azema & Jafari, 2016). Therefore, this study explored KS and the two dimensions of it as a mediator in the relationship between servant leadership and innovation.

4.10 Summary

Knowledge is an essential element to individuals, communities, countries, and organisations. It is not data or information, and crucially, it is created through the communication between people. Most researchers divided knowledge to

two types: tacit and explicit knowledge. Tacit knowledge is intangible because it is in people's mind. This type of knowledge includes values, skills, and experiences. Explicit knowledge is tangible, and it can be found in documents, reports, and manuals. Managing these types of knowledge is a critical process for any organisation. It is also an important tool for leadership. Therefore, investing in KM and encouraging KS between employees, pays off in innovation, in gaining competitive advantages, accessing new markets and achieving the organisation's goals.

Chapter 5 Innovation

In the previous chapter, knowledge sharing and its dimensions were discussed. In addition, the importance of knowledge sharing was discussed. This chapter presents definitions of innovation (INN), importance of INN, types of INN, dimensions of INN and innovation in the small and medium enterprises (SMEs).

5.1 Introduction

Innovation is one of the essential elements of success of any organisation. It is important to compete, target new markets, and increase the market share (Sarros *et al.*, 2008). Innovation is not related to product and process only; it is related to the competition in the markets. There are many types of innovation including: new product, new techniques of production, new sources of supplying, new markets, and new management to organise the business (Gunday *et al.*, 2011).

Researches have advised organisations to adopt innovation in their business due to the huge change of technologies currently in the world (Lichtenthaler & Ernst, 2012; Martens, 2013; McMillan, 2010). Appropriate leadership has been called for the organisations to be able to cope with the changes (Sarros *et al.*, 2008). The role of innovation in business and economies has been described more than 70 years ago when Schumpeter explained the important role of innovation for all organisations and even countries (Schumpeter, 1942). Pitt also highlighted the importance of the relationship between innovation and organisation success. He added that innovation can help the organisation to compete and survive (Pitt, 2007).

5.2 Definition of innovation

Choi and Lee mentioned that innovation is very complex and is difficult to define. Part of this complexity is due to innovation varying depending on the type of organisation. It also has different meaning depending on the field of the organisation (Choi & Lee, 2002). Because of the broad concept of innovation, Sadeghi and Rad suggested looking at innovation as a commercialisation of a new product or new technology. They added that this definition represents the innovation in any field (Sadeghi & Rad, 2018). Although this definition is simple and easy to understand, innovation is wider. Innovation does not only include new products, but includes many new elements such as new ideas, new organisational structures, and new methods of introducing the products into

markets. In another words, innovation is a broad concept and it can be incorporated all over the organisation in the form of as new ideas, new customer services, new products etc (Sadeghi & Rad, 2018).

From the research of Choi and Lee, and Sadeghi and Rad, other researchers and scholars' view the definitions of innovation as varying (Choi & Lee, 2002; Sadeghi & Rad, 2018). It depends on the activities of an organisation or the industry. In addition, the definition of innovation can't be separated from the management, as it is one of the concepts of management. Therefore, it can't be defined without highlighting the relationship of innovation with entrepreneurship and the organisation (Sadeghi & Rad, 2018). Diniz et al. stated that it is difficult to define innovation in a single definition, however, innovation means new products, new process, new production methods, new markets, new suppliers, new management strategies, and new forms of organisation that leads to a better performance. They added that whatever the definition of innovation, it is a critical source of competition and development of organisations (Diniz *et al.*, 2015).

Drucker for example defined innovation as the process of introducing new equipment, improving abilities or increasing facilities. He defined it as an action that adds innovation to create wealth (Drucker, 1985). While Leonard and Sensiper defined it as a new significant change of goods, and it depends on employees and their skills (Leonard & Sensiper, 1998). However, Pérez-Luño et al. stated that innovation is not only a result of employees and their skills but it is an outcome of combinations of knowledge and other resources (Pérez-Luño *et al.*, 2019). Other researchers defined innovation as a process of creating new ideas and adopting these new ideas to create a new good (Bartel & Garud, 2009; MacLeod & Davidson, 2007; Martens, 2013; West *et al.*, 2006). Drucker explained that any organisation must innovate and manage innovation to achieve its goals. He mentioned that innovation system in any organisation should be systematic. There are sources of innovation inside the organisation and outside it. He called them windows of opportunities (Drucker, 1985). Martens agreed that innovation requires collaborative efforts of groups inside and outside the organisation (Martens, 2013). Organisational innovation as mentioned by (Sarros *et al.*, 2008; Sarros *et al.*, 2011) it is the producing new product, process or system. The word innovation comes from Latin word "Novus" which means new (Sarros *et al.*, 2008; Sarros *et al.*, 2011).

Burgelman et al. mentioned that since the Second World War, innovation had spread, and it became an important element to the success of business and the solution of many business problems. However, this remedy is not always suitable all the time as it is affected by many variables (Burgelman *et al.*, 1996).

Damanpour et al. mentioned that innovation has been defined as a development or use of new product/service. They defined it as new to the adopting organisation. They added that organisations innovate because of the pressure they face from competitors, customers' demands, external environment, increasing their market targets, and surviving (Damanpour *et al.*, 2009).

Pitt defined innovation as an idea or an action that is necessary for the company survival and success (Pitt, 2007). According to Table 14, Pitt explained some characteristics of organisational innovation that the scholars found (Pitt, 2007).

Table 14 Characteristics of organisational innovativeness

Amabile 1998	**EFQM study 1999**	**Higgins 1995**	**McGinnis & Verney 1987**
• Challenge • Freedom • Resources • Work-group features • Supervisory encouragement • Organisational support	• Anticipation • Risk acceptance • Funnel concept • People 'boost' • Business results and innovation linked • External co-operation • Technology • Sharing information	• Strategy • Structure • Systems • Style • Staff • Shared values • Skills	• Open to ideas • Create a performance gap • Develop organisational competence • Focus efforts on external challenges • Foster open Communications

Source: (Pitt, 2007), "Leading innovation and entrepreneurship: an action research study in the Australian red meat industry" p. 55.

Doyle and Bridgewater described innovation as the results of set of processes, these processes are affected by some factors such as organisation's marketing policies, strategies, resources, networks culture and leadership (Doyle & Bridgewater, 1988).

While, Lacity and Willcocks defined innovation as an activity that helps to improve the employees' performance. They mentioned that the top ranked definition of innovation by clients, providers, and advisors was an action to improve costs and customers services (Lacity & Willcocks, 2014).

Lacity and Willcocks stated that the definition of innovation varies according to the person who defines it. For example, the academic often defines innovation as an idea, practice, or an object that is perceived as new by an individual or organisation (Lacity & Willcocks, 2014). Lacity and Willcocks mentioned that the most common kind of innovation was a new technology as tools such as a new customer tracking tool. The second most common type was new processes or improved processes (Lacity & Willcocks, 2014). They also mentioned that it is difficult to categorise innovation in a technology, process, methods or automated innovation because innovations are a combination of these elements (Lacity & Willcocks, 2014). Melenhorst et al. defined innovation as an act of doing something for a better result and there is always a different method of doing it and this includes the desire and ability to complete it (Melenhorst *et al.*, 2006).

Zacher and Rosing explained some definitions of innovation that the scholars argued about (Zacher & Rosing, 2015). One of these definitions showed that innovation is about generating and implementing new useful ideas (West & Farr, 1990) and it is essential for any company because it contributes to a company's growth and performance (Rosenbusch *et al.*, 2011). Zacher and Rosing stated that "Organizational scholars argued that innovation is the result of both individual factors (e.g. cognitive abilities, personality, and motivation) and contextual factors (e.g. work characteristics and leadership, Hammond *et al.,* 2011; Shalley *et al.,* 2004)" (Zacher & Rosing, 2015, p54). Baregheh et al. defined innovation as a process of transforming new ideas to new/ improved goods or new methods of producing the goods in order to compete in the market and achieve the organisation's goals (Baregheh *et al.*, 2009).

Loon and Chik mentioned that innovation takes many forms. It may include new products, improved products, service development, development in production methods, development in distribution methods, new distribution methods, new markets, and new ways of doing business (Loon & Chik, 2019).

From the definitions of innovation, this study adopted the definition of innovation that was produced by Sadeghi and Rad 2018 as it includes the explanation for the whole process of innovation. Sadeghi and Rad defined innovation as a process of improving the current goods or making new products or services. This process can also include new methods or improving ways of distributing, pricing, promoting and getting to new markets. It can be a tool for an organisation to adopt new organisational structures to gain competitive advantage in the market (Sadeghi & Rad, 2018).

5.3 Importance of innovation

Innovation is an important concept for an organisation especially in this era because of the huge technological products and services around the global. The world's environment is full of products with new ideas to use, such as mobile phones, each type has a unique idea to get into the market. This type of environment forces the organisations to invest in innovation to create competitive advantages and get into the market. Martens highlighted the need of innovation for any organisation to be able to cope with technical changes and to survive in the market (Martens, 2013). James Canton predicted, in his book, that innovation can determine the future of productivity of organisations, the wealth of people and it can determine the future of leadership (Canton, 2006). Innovation is a key element of long-term success of organisations' competitiveness in the markets (Baker & Sinkula, 2002; Lyon & Ferrier, 2002). Gaynor highlighted that innovation is a key factor to keep worldwide competitiveness for any organisation. It is the engine that allows the organisation to sustain its viability in the market (Gaynor, 2002). Nemati et al. found out that technical product and uniqueness in the product increases customer satisfaction and sales, this will help the organisation to grow in the market. Therefore, they highlighted that when an organisation produces new products with new features, the customers will be inspired, and this will increase the sales. They added that development in the product innovation and process innovation help the organisation to grow and have stability in the global market. They also added that innovation at any level of producing the goods and marketing process increase sales and bring customer satisfaction (Nemati *et al.*, 2010). Nemati et al. also explained that innovation does not have to be in the product itself, but it can be in the way of interacting with customers, delivering the product, packaging, and service after sale. This innovation or developing the current services will increase the customer satisfaction and this will increase sales (Nemati *et al.*, 2010). Hammond et al. mentioned that innovation is mainly considered to be a constructive, productive and positive change that helps the organisation to grow and compete in the market (Hammond *et al.*, 2011).

Edquist et al. mentioned that product innovation has a positive impact on employment in any organisation and on employment in the society. They added that if any government wants to increase employment in the long term, the government should focus on product innovation. They highlighted that innovation creates jobs and helps the countries to develop (Edquist *et al.*, 2001). Becker & Egger also explained that innovation has effects on three

different fields which are industrial economics, international economics, and macro-economic (Becker & Egger, 2013).

Singh mentioned that innovation is considered a vital factor that affects any organisation at all levels and in any size of the organisation. Singh also added that organisations that are constantly and continuously investing in innovation and creativity will not expect series of failures. In addition, the organisations will achieve competitive positions in the market. Therefore, the organisation must be able to invest in inventing new products, develop current products and extending new technology to add to its position in the marketplace (Singh, 2011).

Hartono and Halim mentioned three reasons for the need for innovation. These three reasons include strong international competition, unstable markets, and rapid change of technologies (Hartono & Halim, 2014). Dobni highlighted that investing in innovation effectively and efficiency is one of most important tools to strengthen the organisations' positions in the markets, increasing their profits and success in the long term. In addition, he mentioned that the organisation must understand and choose the right strategy that is suitable for innovation and how they can achieve their goals (Dobni, 2010). Bogliacino & Pianta mentioned that there are two parts of innovation: product and process innovation. They added that technological changes and process innovation create new jobs. It also increases the performance of the employees. In addition, it reduces the time that it needs for a task to be completed. It also increases their skills and this increases their productivity (Bogliacino & Pianta, 2010). Naude et al. mentioned that innovation plays a key role in supporting the growth of any organisation. The organisations innovate to gain profit (Naudé *et al.*, 2011). Becker & Egger also differentiated between the importance of product and process innovation. They mentioned that product innovation is a key element for getting into the market and to success. While process innovation helps the organisation to secure the market position. They highlighted that the higher investment in process innovation increases the organisation's national and foreign output. Increasing the foreign market size helps to reduce the level of trade costs and increases the product market competition (Becker & Egger, 2013).

From the above discussion about the importance of innovation, both product and process innovation are vital for any organisation regardless the size of it, employees, and economies.

5.4 Types of innovation

Scholars and researchers defined the types of innovation in different ways and in different names as follow:

5.4.1 Front-end innovation and back-end innovation

Deschamps stated that there are different types of leaders at different stages of the process of innovation. Deschamps claimed that there are two types of innovations (Deschamps, 2005). These types are:

1. Front-end innovation: this type depends upon considering market needs, analysing the new technology in the market and creating new ideas to help the company to achieve its mission. Front-end innovation leaders need to have unique characteristics which help to apply this type of innovation. These characteristics are as follow: openness to new technologies in the entire world, thinking from a new perspective, ability to endure difficult situations, ability to wait for achieving good results, accepting risk and failures and willing to explain the reasons for failures and improving it. The front-end innovation leaders were discussed and studied by researchers and scholars (Deschamps, 2005).

2. Back-end innovation: this type relies on entering the market fast to gain the benefits and a good position within the market. It works to strengthen an organisation by developing, testing the resources, creating and introducing new products or new services. The main goal for this type of innovation is to get into the market rapidly before other companies. Leaders of this type must have certain characteristics such as: problem solving, developing a firm plan and applying it, rapid decision making and timely action, implementing, operational knowledge, efficient risk management and special skills to win the market. At the same time, the leaders have a strong willingness to guide their followers and engage them in order to achieve the goals of the organisation (Deschamps, 2005).

This differentiation between the two types of leaders, according to the types of innovation, is useful. However, it does not describe the other types of innovation leaders. As Deschamps mentioned, there are numbers of different types of innovation and each type requires certain type of leaders (Deschamps, 2005).

5.4.2 Top-down (administrative) innovation and bottom-up (technological) innovation

Deschamps defined another two types of innovation, these two types are called the bottom-up innovation and top-down innovation. Each one of these types, according to Deschamps, needs different leadership characteristics

(Deschamps, 2005). As stated by Deschamps, top-down leader should be able to highlight the objectives from this innovation and having more management skills (Deschamps, 2005). Henriques and Sadorsky called the top-down innovation administrative innovation (Henriques & Sadorsky, 2007). They mentioned that it is about the application of new ideas in the management of innovation. It is the change of the administrative process or organisational structures. Although this type of innovation does not involve changes in the goods and it happens due to the need of internal structure (Choi, Garcia & Friedrich, 2010), it has indirect effect on the product and process innovation (Damanpour, 1992). At the same time, it has direct effect on the need of leadership style (Jaskyte, 2011).

The second type of innovation according to Deschamps is the bottom-up (Deschamps, 2005). The leader in this type of innovation should encourage and create a good environment for the followers, as well as manage knowledge, take risk, be able to correct mistakes and learn from them, encourage new ideas and be able to choose between them, develop and improve the followers (Deschamps, 2005). Borins agreed that there is a relationship between the type of innovation and the leadership (Borins, 2002). The bottom-up innovation requires a specific leadership, and, at the same time, it creates leadership. Borins explained that innovation leads to new management strategies. Borins stated that innovative processes play a role to create alternative leadership structure (Borins, 2002). Griffith and Yalcinkaya called the bottom-up innovation technological innovations. It is related to the change of the goods, it can be creating new products or improving current products. Fundamentally, it is about significant changes in the product or process innovation (Griffith & Yalcinkaya, 2018; Srivastava, 2007).

5.4.3 Radical and incremental innovation

Some researchers differentiated between radical and incremental innovation (Dewar & Dutton, 1986; Schuhmacher *et al.*, 2018). They defined radical innovation as the essential changes that happened in technology and it includes major changes in the product or process innovation. Ritala and Hurmelinna-Laukkanen stated that the organisations must depend on internal and external information in applying the radical innovation (Ritala *et al.*, 2013). Although, radical innovation is a risky process, and expensive too, (Moosmayer & Koehn, 2011), however, it creates new needs for the customers and this affects the organisations success in the markets (Ritala *et al.*, 2013). According to Dewar and Dutton, the other type of innovation is the incremental innovation (Dewar & Dutton, 1986). Ritala et al. defined the incremental innovation as minor changes

of an existing product or service. It is about improvement of product or process innovation (Ritala *et al.*, 2013). Moreover, Egbu stated that this type of innovation can happen in the normal environment and it a continuous process because of the continuous changes of the technology (Egbu, 2004). According to Sorescu and Spanjol, the incremental innovation represents 90% of product innovation of most of organisations (Sorescu & Spanjol, 2008).Table 15 shows the differentiation between the incremental and radical innovation (Oddande, 2008).

Stamm et al. also mentioned the two different levels of innovation as Egbu stated. These two levels of innovation according to Stamm et al. are incremental and radical. Each one of these needs to be implemented in a different way and the leaders need to differentiate between them (Stamm *et al.*, 2009). In incremental innovation leaders need to bring new people who are passionate about innovation and have great ideas into the decision-making process. In radical innovation, the leaders need to involve the employees, not only their heads, but their hearts into the innovation. The change can be significant and is therefore associated with risk. Leaders, therefore, have to assess the level of risk otherwise the organisation can set up a separate business or a separate business unit to implement the new innovation (Stamm *et al.*, 2009).

Table 15 differentiation between incremental and radical innovation

Criteria	Incremental innovation	Radical innovation
Project timeline	Short	Long
Frequency of occurrence	Often	Seldom
Nature of process	Continuous	Discontinuous
Objective	Improvement of existing products etc.	Creation of new products etc.
Degree of change	Small	Large
Impact on competence	Competence enhancing	Competence destroying
Impact on market or industry	Expansion of existing markets	Creation of new markets, transformation of existing markets, destruction of old ones.

Focus	Exploitation	Exploration
Risk and uncertainty	Low	High
Predictability of outcome	High	Low
Success rate	High	Low
Potential return of investment	Low	High
Costs	Low	High
Technical novelty	Low	High

Source: (Oddande, 2008), "Organizational conditions for innovation: a multiperspective approach to innovation in a large industrial company" p.34.

5.4.4 Product innovation, process innovation, marketing innovation and organisational innovation

Oecd Oslo stated that there are four different types of innovation. They are as follow: product innovation, process innovation, marketing innovation and organisational innovation (Oecd Oslo, 2005). Oecd Oslo also added that the product and process innovation are relating to technical development. Product innovation is related to introducing a good service of the product, improving the product or new materials. Product innovation can use new knowledge or technology or can even include new use of the product. It involves services and goods. Process innovation is applying new production, new improved production or even a new way of delivery. It includes changes of the techniques to produce a new product or to improve the existing product. Market innovation includes entering a new market, new marketing technique, new package, promotion and pricing. Whilst, Organisational innovation includes implementation of new business strategy, new leadership style, new workplace, new training programs for the employees or external relations (Oecd Oslo, 2005).

Pitt stated the types of innovation are as follow: product innovation, process innovation, organisational innovation, management innovation, production innovation, commercial/marketing innovation, and service innovation (Pitt, 2007). Table 16 shows the types of innovation as Pitt mentioned. Pitt stated that innovation can happen at design level or at the process level (Pitt, 2007).

Doyle and Bridgewater highlighted the importance of continuious innovation. If the products or services are not improved with new innovation, this can lead to falling behind and it can cause big losses to the company (Doyle & Bridgewater,

1988). Pitt also agreed that innovation is a fundamental path to achieving company's goals and the organisation's success (Pitt, 2007).

Burgelman et al. highlighted that there are important factors that should be taken into consideration when assessing innovation success. It should be an opportunity to apply the new idea, product or system, taking into account the operational consequences of new technology on the marketing, as well as taking the market dynamics into consideration (Burgelman *et al.*, 1996). Meeus and Edquist divided innovation into four types: two related to product innovation (in goods and in services) and two related to process innovation (organisational and technological) innovation (Meeus & Edquist, 2006). Damanpour et al. mentioned that there are three types of innovation which include service innovations, administrative process innovations, and technological process innovation (Damanpour *et al.*, 2009).

Table 16 types of innovation and examples

Type of innovation	Example
• Product innovation	• The development of a new or improved product.
• Process innovation	• The development of a manufacturing process.
• Organisational innovation	• A new venture division; a new internal of new accounting procedure.
• Management innovation	• Total quality management (TQM) systems, business process re-engineering (BPR)
• Production innovation	• Quality circle; just-in-time (JIT) manufacturing system; new production planning, software.
• Commercial/marketing innovation	• New financing arrangements; new sales approach.
• Service innovation	• Internet based financial services.

" Source: (Hoecht & Trott, 2006)" (Pitt, 2007), p. 49.

5.5 Dimensions of innovation

The current study focused on two dimensions of innovation which are product innovation and process innovation to study the effect of servant leadership on

both types using knowledge sharing as a mediator. Therefore, this section covers the two dimensions in more details.

Stock et al. suggested that leadership has an essential contribution to product and process innovation, as well as to knowledge sharing (Stock *et al.*, 2014). Oyemomi et al. also stated that knowledge sharing has an impact on product and process innovation (Oyemomi *et al.*, 2019). Therefore, this study examined the causal relationship between servant leadership, knowledge sharing and innovation.

Pavitt stated that the innovation has three overlapping processing, these three processes are as follow: product, process and systems. These processes help organisations to cope with market needs (Pavitt, 2005). Pavitt added that the main processes which are related to the technological innovation are product innovation and process innovation. Product innovation is related to introducing the product, or the service, with new or improved techniques. Process innovation represents the implementation of new techniques, equipment, software, or any significant changes (Pavitt, 2005). Becker &Egger stated that product and process innovations are important for any organisation to compete in the market. However, these two types depend on the organisation's efficiency related to its competitors (Becker & Egger, 2013).

Meeus and Edquist highlighted that the two types of innovation are; product and process innovation. They mentioned that product innovation refers to goods whilst services and process innovation refers to technological and organisational (Meeus & Edquist, 2006). However, Lam divided the innovation into two parts or two dimensions: the creation and adoption (Lam, 2011). Lam added that innovation has another dimension which is relating to managing the creation and the adoption. Lam also suggested two meanings for organisational innovation these include creating or adopting a new idea and changing in managerial process (Lam, 2011). While, Haned et al. didn't divide innovation to dimensions, they looked at all types as innovation. However, they mentioned that technological innovation includes product and process innovation (Haned *et al.*, 2012).

McMillan mentioned that innovation has three elements in order to implement it including product innovation, process innovation, and the organisational structure (McMillan, 2010). However, Gehlhar et al. divided it from the firm orientation point of view into three types which are; product, process and market orientations. Product innovation is producing the products or services with high quality and according the customers' needs. Whilst process innovation is related to adopting efficient production and distribution technology. Both product

and process innovations should be produced according to the current market demand (Gehlhar *et al.*, 2009).

Sadeghi and Rad mentioned that there is no need to categorise innovation, however, this approach neglects two dimensions of innovation. These dimensions are product innovation and process innovation (Sadeghi & Rad, 2018).

Researchers agreed that product and process innovation are essential factors for the organisations to achieve their goals (Bohlmann *et al.*, 2013; Lichtenthaler & Ernst, 2012; Un *et al.*, 2010).

5.5.1 Product innovation

Oecd Oslo defined product innovation as the introduction of products (goods/services) that are new or improved with respect of their intended use. This significant improvement might be in technical specifications, materials, software, or other characteristics (Oecd Oslo, 2005). Meeus and Edquist mentioned that product innovation has two parts which are innovation in goods and innovation in services (Meeus & Edquist, 2006). Damanpour et al. explained that product innovation includes new products or new services and it depends on the customers' demands and markets' needs (Damanpour *et al.*, 2009).

In addition, Un et al. defined product innovation as the process of innovating a new product or service. It is an important factor that creates a competitive advantage and reaching the target market (Un *et al.*, 2010). Stefanovitz et al. defined product innovation as the development of a new product which can help the organisation to survive in the market (Stefanovitz *et al.*, 2010). Tudor et al. stated that product innovation refers to producing a new product that meet markets' needs, and it is unique and different from the competitors (Tudor *et al.*, 2014).

Bohlmann et al. mentioned that product innovation involves adding new features to customers by improving an existing good or creating a new good. They added that product innovation is a fundamental factor for the organisations to achieve the profitability because it is considered as the main source of creating a competitive advantage (Bohlmann *et al.*, 2013). It is also important to meet the customers' needs (Lichtenthaler & Ernst, 2012). There are many factors that affect product innovation, these factors are internal or external to organisations. These processes can be new features through improving a current product or innovating a new product (Bohlmann *et al.*, 2013; Kock *et al.*, 2011).

5.5.2 Process innovation

Oecd Oslo defined process innovation as the process of implementing a new or improved production or new delivery method and implementing significant changes in software or techniques. It might attempt to reduce unit costs of production, delivery, increase quality or produce new or improved products (Oecd Oslo, 2005).

Meeus and Edquist stated that process innovation includes two types of innovation which are: technological innovation and organisational innovation (Meeus & Edquist, 2006). Hamel agreed with Meeus and Edquist and explained that process innovation has two parts which are: innovations in operational process such as customers services and innovations in management process such as strategic planning (Hamel, 2006). Damanpour et al. mentioned that process innovation focuses on increasing efficiency and effectiveness of the organisational processes to support the production and deliver the products or the services to the customers in the best quality (Damanpour *et al.*, 2009).

Egbu defined process innovation as the production process itself to create a product or a service (Egbu, 2004). It is related to the process of transferring the raw materials and designs into a product. Process innovation is also related to the production of the goods effectively and efficiency. Lam explained that process innovation aims to produce goods in a good quality and at a low cost (Lam, 2011). In other words, process innovation is related to developing the current tools or innovate new tools to transform the raw materials into products orservices. It aims to reduce the production costs and, in the meantime, to improve the efficiency of process; this can lead to a competitive advantage (Damanpour *et al.*, 2009).

Cui and Wu stated that process innovation concentrates on the production tools to design new products to get them onto the market (Cui & Wu, 2016).

Moreover, Tudor et al. highlighted the vital role of innovation processes to business survival and interpreting innovation as an optional factor is no longer acceptable (Tudor *et al.*, 2014).

Loon and Chik mentioned that the process innovation can take a form of cycle where it creates innovation. They gave an example about the use of an innovative technology to create product innovation and a new innovative product can require a new business model. In addition, product innovation may require new process innovation (Loon & Chik, 2019).

5.6 Innovation in SMEs

The review of the literature show that studies and researches focused on studying innovation in large companies while the innovation in SMEs had been neglected. However, there are a number of studies looking at innovation in SMEs (Romijn & Albaladejo, 2002). Gehlhare et al. mentioned that SMEs are usually involved in niche marketing. Niche marketing involves a supplier to sell products to a target group of customers. These customers usually have a loyalty to the product. SMEs depend on the positive feeling that customers have. They added that generally, innovation is indefinable concept for SMEs. They explained that because innovation involves expensive changes or elusive changes such as changing product lines. Therefore, SMEs need to be able to take changing market conditions in their considerations by adapting, developing new ideas and improve their products (Gehlhar *et al.*, 2009). Gehlhar et al. added that SMEs have limited scope for reducing the production and distribution costs. However, the speed and flexibility of adapting a new idea is key to the organisation's success. Gehlhar et al. suggested that the organisation must be cautious when producing a new product if it does not fit with its production capabilities. This requires effective leadership to be able to produce different products from competitors. In addition, process innovation facilitates product innovation to differ it from the competitors and can affect the leadership position (Gehlhar *et al.*, 2009).

Some researchers argued that the innovation in SMEs is related to the capabilities in the workplace (Borch & Forsman, 2001; Le Bars, Mangematin & Nesta, 1998; Romijn & Albaladejo, 2002). Some researchers argued that innovation SMEs is research and development (R&D) based (Borch & Forsman, 2001) while other argued it is not mainly R&D based (Le Bars, Mangematin & Nesta, 1998). However, most researchers (Huiban & Bouhsina, 1998) have argued that innovation is necessary for all organisations, including all types of innovation (radical innovation and incremental innovation). Brem and Tidd highlighted that technology acquisition, application, and innovation management are the most important resources for any organisation (Brem & Tidd, 2012). Loon and Chik mentioned the important role of the technology as an input and its role in converting the process of creating technological outputs. They added that the ability to manage technology in SMEs will enable them to get the most benefits of technological and non-technological resources that support it (Loon & Chik, 2019).

Technological change can occur via the investment in two types of capabilities; technological capability and scientific capability. Product technological

capabilities are important for innovation. This is also true for the incremental innovation (Borch & Forsman, 2001). Romijn and Albaladejo found that innovation was correlated positively with the number of engineers, while it is correlated negatively with the number of technicians (Romijn & Albaladejo, 2002). However, Freel reported that the training activities in any technology area is important to meet the needs of the employees in an organisation. Freel also found that organisations that are developing and improving their products' innovation, can increase their customer base and market search activities, in general less established process. These cause consequences of innovation in general (Freel, 2000). Loon and Chik stated that innovation is a core activity of many SMEs especially. They added that SMEs are flexible in how they adopt innovation and its application. Therefore, SMEs seek to maximise the product innovation and seek new markets. They generally have two related parts for that: technology and markets. The technology depends on discovery of new technologies or new applications for existing products to create markets through product innovation. For markets, this means the company looks at the markets and identifies the needs before adopting new technologies (Loon & Chik, 2019). Bijker et al. mentioned that SMEs must consider the organisation environment to manage their technology acquisitions and application (Bijker *et al.*, 2012). Researchers suggested that the degree of innovation in countries depends on formal (Nair *et al.*, 2007) and informal factors (McCloskey, 2013; Mokyr, 2016) such as culture, economic policies, and law. Therefore, these environmental factors encourage innovation and they can affect SMEs management approaches (Loon & Chik, 2019).

5.7 Summary

This chapter has reviewed the definitions of innovation, and the importance of innovation for any organisation. It also reviewed the researchers' concepts about the types of innovation, the dimensions or the measurements of the innovation (product and process innovation) and the innovation in SMEs.

Chapter 6 The conceptual framework and hypothesis of the research

In previous chapters, servant leadership (SL), knowledge sharing (KS) and innovation (INN) were discussed. This chapter discussed research problem, the conceptual framework model of the relationship between SL, KS and INN, the mediating role of KS in the relationship between SL and INN and the hypothesis of the current study.

6.1 Introduction

The literature review of SL, KS, and INN revealed that there is an opportunity for further study. It also found that SL and KS are essential factors to create and improve INN of any organisation regardless the size of it. Therefore, this study focused and examined the causal relationship between SL, KS and INN. This chapter presents the research problem and the conceptual framework model of this study. It also describes the relationship between SL, and INN, SL and KS, and KS and INN. It also highlights the mediating role of KS in the relationship between SL and INN. It also presents the hypothesis of the study in SMEs in Gamsah and New Dameitta in Egypt.

6.2 Leadership and KS

Politis stated that leaders are considered the centre of the organisation and they provide vision, knowledge sharing, and knowledge management (Politis, 2002). A leader plays an important role in enabling or disabling KS between the followers. Practical intelligence from the leader is more important than academic intelligence for effective leadership. However, academic intelligence is also important as it is part of knowledge (Janson & McQueen, 2007). Janson and McQueen believed that leadership knowledge depends on a combination of three factors which are experience, reflection and action. Therefore, knowledge cannot be taught, it must be built (Janson & McQueen, 2007). Nonaka et al. highlighted the important knowledge-oriented leadership in developing and creating knowledge. This type of leadership style helps the employees to believe that the knowledge creation and KS are critical to develop themselves and achieve the organisation's goals. They added that storing, collecting, donating and applying knowledge are more significant with this type of leadership style (Nonaka *et al.*, 2006). In addition, Politis stated that leadership styles provide KS and knowledge management (KM) (Politis, 2002). However,

Jansen et al. highlighted that transformational leadership style supports the employees and encourages them to share and apply knowledge (Jansen *et al.*, 2009).

Kodama provided a new model of new knowledge creation through dialectical leadership (Kodama, 2005). This model, as shown in Figure 7, explains that leadership creates knowledge. The relationship starts from the leadership and the characteristics of the style. This leadership contains creative leadership, strategic leadership, forceful leadership and servant leadership. These four styles or characteristics of leadership creates the dialectical leadership. This type of leadership in turn combines and forms capability, then creates new knowledge creation.

Kodama's model shows that the leadership style has four types or characteristics of that form the dialectical leadership. One of these characteristics is servant leadership. It is clear from the model that the leadership style that creates knowledge is a mixture of leadership characteristics.

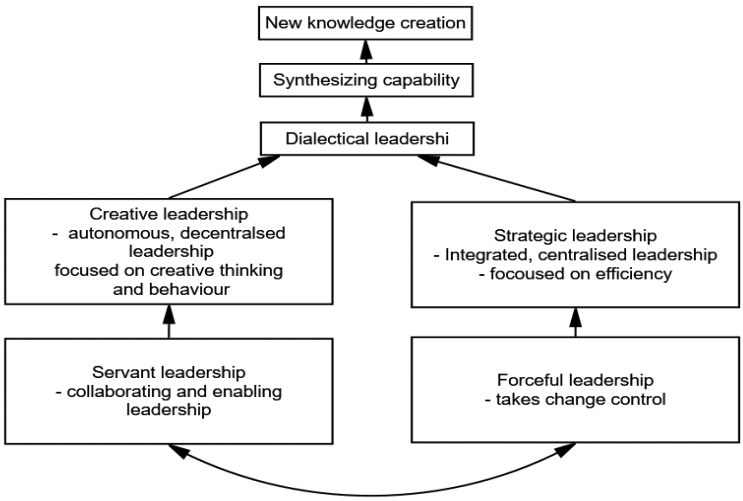


Figure 7 New knowledge creation through dialectal leadership, p. 907. (Kodama, 2005)

Sarkar et al. in their study about the role knowledge-based leadership in innovation, found that knowledge-based leadership has a positive effect on knowledge transfer. They mentioned that knowledge-based leadership is considered part of KM in order to be able to motivate the employees to share their knowledge. They added that the nature of KS is implicit motivation while producing and storing of knowledge are tangible (Sarkar *et al.*, 2016). Donate

and Pablo agreed that KS requires a combination of leadership styles, motivation and communication. They recommended from the results of their study that a combination of transformational and transactional leadership styles, motivation and communication can lead to an effective KM (Donate & De Pablo, 2015). Sadeghi and Rad highlighted the importance of leadership behaviour in effecting and directing KM in an organisation. The role of a leader in KS especially and in KM generally is critical. It is also significant in an organisation overall (Sadeghi & Rad, 2018). De Vries et al. stated that a leader's support is very important to communicate with employees. They added that communication styles of leadership have a positive impact on all leadership styles. Supportive communication of leaders improves and increases employees' knowledge donating behaviours to the leaders. Simultaneously, it encourages knowledge collecting behaviours from the leaders towards their employees (De Vries *et al.*, 2010). Sarkar et al. stated that the main aims for leaders should be encouraging employees to learn, challenging, stimulating their knowledge, adopting new cultures of learning, handling their mistakes and correcting them, and developing new knowledge as well as storing and reusing knowledge (Sarkar *et al.*, 2016). Jad et al. found that there is a significant link between the knowledge of leaders and KM. They also highlighted that there is positive relationship between the KM and the performance of the organisation (Jad *et al.*, 2017).

Naqshbandi and Jasimuddin mentioned that research into the relationship between leadership and KM are growing but there is still need for further studies to investigate the role of types of leadership in both KM and in INN. They mentioned that the literature shows the important role of leadership in managing knowledge effectively. They also added that leadership does not affect KM only, but it affects an organisation overall. They agreed with Donate & de Pablo (Donate & De Pablo, 2015) that knowledge-oriented leadership is important in KM. They commented that adopting a certain leadership style might not help to improve KM. Therefore, they added that adopting a combination of leadership styles may have a more beneficial impact on KM capability (Naqshbandi & Jasimuddin, 2018).

6.2.1 SL and KS

Ipe described KS as a game which has a power and this power will affect the followers' behaviours (Ipe, 2003). In other words, If followers felt that sharing knowledge causes a loss of power, they will not share their knowledge and they will hoard it for personal defence (Ipe, 2003). Therefore, scholars call for the creation of a good work environment, and the choice of an appropriate

leadership style (Chen & Hsieh, 2015). Chen & Hsieh added that KS occurs when followers perceive the value of KS and when they have a justice environment and a trust culture (Chen & Hsieh, 2015). Therefore, adopting SL style can encourage followers to share their knowledge (Tuan, 2016). According to Tuan, there is a relationship between SL and KS. He added that SL can cultivate KS and servant leaders can motivate their followers by giving away knowledge and encouraging KS between them. Tuan also mentioned that this relationship between SL and KS has not been studied by researchers. Previous researches focused on studying the relationship between the transformational leadership and KS (Tuan, 2016). Van Den Hoof et al. mentioned that KS is a two-way process which is people donate and collect knowledge between themselves (Van Den Hooff *et al.*, 2012) and SL encourages and cultivates this process (Tuan, 2016). Brown & Treviño mentioned that according to social learning theory, people learn by observing and emulating the attitudes, values and behaviours of successful models (Brown *et al.*, 2014). Therefore, the followers perceive servant leaders as inspirational because servant leaders serve the followers first and help them to develop. Thus, the followers learn to serve colleagues and share their knowledge to support and help them to succeed and develop (Tuan, 2016). Additionally, Chen & Hsieh mentioned that KS is a result of a person's benefits and costs. Thus, the followers will not share their knowledge unless they perceive the benefits of it. Therefore, Chen & Hsieh stated that SL cultivates and stimulates KS because followers perceive the benefits of sharing their knowledge. This coincides with Davenport & Prusak's statement that KS is a voluntary act (Davenport & Prusak, 1998), and followers cannot be forced to share their knowledge, therefore SL style encourages followers to share their knowledge and respect their desire of not sharing it (Chen & Hsieh, 2015).Tuan also added that under SL, the followers respond by returning great contributions by sharing knowledge between themselves and the leaders. They will exchange knowledge to support their leaders in return for the leaders' serving characteristics (Tuan, 2016).

6.2.2 SL and INN

According to Deschamps the leaders must take into consideration the four strategic dimensions of innovation which are: why innovate, where to innovate, who to innovate and how much to innovate (Deschamps, 2005).

Researches have showed evidence that the leadership style is one of most elements which affect innovation product and process (Paulsen *et al.*, 2013). There are several concepts about the leadership and the effects of it on innovation. One of these concepts is about leaders understanding the sensitivity

of any change happens due to new technology, product or process. Predicting and fostering any change are essential for the organisation (Pitt, 2007).

There are many researchers have examined if there is a specific form of leadership for innovation? and if there is a requirement for a specific leadership style for a certain type of innovation?" and also how the best leader will be chosen for a certain innovation? (Deschamps, 2005).

Deschamps claimed that the innovation leaders are creators and they lead the innovation process in the organisation, develop, encourage and adopt an innovation culture (Deschamps, 2005). Deschamps also stated that there are six traits in differentiating innovation leaders from other types of leaders. These traits are as follow: unique creativity with ability to bring new product to the market, risk taker and accept failures, braving and able to stop a unsuccessful project before gets serious, talent for building teams, open to new ideas and willing to apply them and passionate for innovation to achieve the organisation's goals. However, general traits of leaders do not help toward innovation. Each stage in innovation requires a different type of leaders (Deschamps, 2005; Haned *et al.*, 2012).

Leavy mentioned that effective innovation requires a balancing between these important factors: discipline, practice, process, creativity and efficiency. He added that the leaders must establish the right balance between these three levels: innovation process itself, between primary functions in the organisation, the approach to corporate management (Leavy, 2005). Moreover, Stamm et al. mentioned that the leaders need to give their followers an inspiring and exciting range of view to contribute ideas and they need to create a common language around innovation to encourage everyone to use it (Stamm *et al.*, 2009). They added that the leaders need to adopt appropriate processes and structures to support a certain kind of innovation that they want to implement. The followers need to be aware of where they can go when they have a new idea and understand the process of introducing the new idea. According to Stamm et al. the followers also need to be aware of the new INN that is taking place to process and evaluate and comparing it with their new ideas. The leaders must give feedback to the follower who produced a new idea as soon as possible and be able to understand the decision that has been made regarding the new idea and whether the organisation will implement it or not. They also should know the reason for the decision to encourage them to create new ideas. To do so, the leaders need to set different criteria for each stage of innovation. The change will be added to the current process or the change will be in the root of the business. The way that the employees present the new idea can affect the decision, so the leaders must take the presentation of the new INN into account

and must give it much consideration. The new idea must be clear and understood by the decision makers and the leaders have to assess the risk preference of the follower who is involved (Stamm *et al.*, 2009).

Leadership is not only encouraging INN, but INN can maintain leadership as Gehlhar et al. mentioned that INN can maintain the leadership position. Maintaining leadership position needs branding power and innovative products (Gehlhar *et al.*, 2009). In another meaning, maintaining leadership is a result of successful process innovation which can facilitate product innovation and this leading to unique product. Companies with a strong product orientation make the product innovation as their essential and primary goal. To compete in the market, they try to be a successful innovator. To be a successful innovator a firm needs to have competencies in the marketing, product innovation and process innovation. Having a unique product may give the firm a competitive advantage. The firm not only needs to differentiate the product from the competitors but have a product that cannot be easy to produce by competitors. Market signals about the demand of the product must be taken in innovation products. Gehlhar et al. suggested that many companies must focus on one of these: product, process or market. This can affect the culture and the behaviour of the company. Product orientation means focus on the product innovation and the quality. Process orientation involves adopting technologies to improve efficiency. Market orientation when the company try to work according to the market trends and demands (Gehlhar *et al.*, 2009).

Lacity and Willcocks stated that leadership is fundamental element of the dynamic innovation process and it starts with innovation incentives (Lacity & Willcocks, 2014).

Bidault and Castello stated that the nature of innovation as an activity is risky and adopting innovation can add complications to the organisations. This risky activity requires an effective leadership (Bidault & Castello, 2010).

Paulsen et al. mentioned that because of the complexity of the innovative work, there is a need for collaborative efforts from people, and this puts responsibility on leaders. The development is developed through the teamwork (Paulsen *et al.*, 2013). An important point was mentioned by Lovelace which is working in diversity, it helps the organisations to bring more knowledge and information of new technology and encourages innovation (Lovelace, 2001). Leaders need to encourage people, trust, support, create a teamwork environment and encourage new ideas in product, process innovation (Paulsen *et al.*, 2013).

It is a big challenge for the leaders to encourage people to be creative and improve their technical skills (Paulsen *et al.*, 2013). However, the leaders

characteristics such as trust, inspiration, support, encouraging and dynamics environment help to get creative ideas and innovative products (Keller, 2006). Leaders affect the followers, and their perceptions about themselves and their works. Therefore, they can be creative and innovative (Keller, 2006).

Lacity and Willcocks stated that leaders must be strong as individuals and experienced and have high levels of credibility, clout, and power in their own organisations to apply dynamic innovation (Lacity & Willcocks, 2014). They added that there some factors that make the leadership effective, these factors as follow: concentrate on the future, bravery, problem solving, adopting new ideas and remove any obstructions, trust (Bidault & Castello, 2010), rotating leadership (Davis & Eisenhardt, 2011) and honesty.

Trust is an important factor of effective leadership. However, as Bidault and Castello stated, the level of trust is an important factor that can affect innovation. They found that the best level of trust is between the very high and very low level of trust (Bidault & Castello, 2009).

Zacher and Rosing stated that there is a relationship between leadership and innovation involving motivation from the leaders to their followers. They mentioned that there is also a relationship between the other styles of leadership and innovation such as initiating and supervisor support. They concluded that it showed an accurate model of leadership for innovation (Zacher & Rosing, 2015).

The encouragement and the support that the leaders provide the followers will affect the degree of innovation in the organisation and will change the perception of the followers to achieve their potentials (Sarros *et al.*, 2008). There is evidence from previous researches that the leadership style is an important element of innovation (Dess & Picken, 2000). Al-Husseini suggested that the transformational leadership style has a positive effect on innovation (Al-Husseini, 2014). Lacity and Willcocks argued that leaders who have experiences, capable, high level of credibility and trust affect positively on innovation process (Lacity & Willcocks, 2014). Lacity and Willcocks also believed that effective leadership includes certain characteristics to be able to manage the innovation. These characteristics are focus on the future, spirit of togetherness, problem solving, outcomes first, action-oriented and trust (Lacity & Willcocks, 2014). However, Bidault and Castello stated that the trust as a characteristic of leadership must be in an optimal level otherwise it can be detrimental to innovation. Very low level and very high level of trust can destroy innovation (Bidault & Castello, 2010). Bidault and Castello considered trust as one of vital factor in the relationship between leadership and innovation. There

are more factors in addition of trust such as competencies, knowledge and judgement (Bidault & Castello, 2010). Bidault and Castello added that the organisations face the technologies in this era. Technology has huge tangible and intangible impact on the business and economies. Therefore, organisations must develop innovations, cope with R&D costs, developing employees in all levels and access new markets (Bidault & Castello, 2010). The leadership is a critical factor that affects innovations and implement of innovation requires knowledge sharing (Bidault & Castello, 2010). Davis and Eisenhardt found that the rotating leaders affects innovation, it can produce innovation, or decrease innovation. It depends on the type of leaders (Davis & Eisenhardt, 2011). Lacity and Willcocks agreed that right leader makes a positive impact on innovation (Lacity & Willcocks, 2014)

McMillan defined the relationship between leadership and innovation as the process to manage the innovation and implementing it to compete in the market (McMillan, 2010). McMillan added that there are five factors of leadership can be used in decision process. These five factors are as follows: skills and capabilities of the leaders, learning, listening, motivating and INN. The last factor of these five factors agrees with (Borins, 2002) in the point that the INN creates and requires leadership. Stock et al. mentioned that there are some researches focused on the effects of transformational leadership on INN (e.g., Gumusluog˘lu and Ilsev, 2009; Jansen, Vera, and Crossan, 2009). They found that there is a positive direct effect of this type of leadership on INN. They also mentioned that there are more studies (e.g., Lee, 2008; Pieterse, van Knippenberg, Schippers, and Stam, 2010) found that this type of leadership has a stronger effect on INN more than the some other leadership styles such as transactional leadership (Stock *et al.*, 2014). Stock et al. also highlighted that innovation-oriented leadership and HR are essential sources for INN and in turns generating competitive advantages (Stock *et al.*, 2014).

6.2.3 KS and INN

The world is embedded with INN and new technology. In addition, these technologies are growing and changing quickly. Therefore, INN has become the backbone of organisations. This speed of INN has affected the nature of global economic (Du Plessis, 2007). Du Plessis also added that the growth in the amount of knowledge available to organisations has also increased the difficulty of INN (Du Plessis, 2007). Therefore, organisations must face this challenge by using KM and using it to create new INN in its product or replace new technology to create a competitive advantage (Hashim & Tan, 2015). Chen and Huang found that if an organisation has a higher degree of INN, the interactions

between employees would be more important and KS would be developed. Chen and Huang's study highlighted the effect of innovative organisations on KS (Chen & Huang, 2007). Pennings and Harianto suggested that an organisation may improve its innovative capacity by encouraging KS (Pennings & Harianto, 1992). Researchers mentioned that KS and its dimensions (donating and collecting) are the most critical components that affect INN because of nature of knowledge (Day, 1994; Grant, 1996; Teece, 2008).

More researchers (Gilbert & Cordey-Hayes, 1996; Szulanski, 1996) agreed that KS may increase or improve INN in an organisation (Darr & Kurtzberg, 2000). Darr and Kurtzberg stated that new knowledge can encourage INN in a new product or in new methods which can improve the routines in an organisation (Darr & Kurtzberg, 2000). Nonaka and Takeuchi suggested that INN is related to knowledge creation. Nnaka & Takeuchi mentioned that INN can be created by knowledge and on the other side INN can create knowledge (Nonaka & Takeuchi, 1995). Tsai also mentioned that new knowledge and KS are essential factors to create new ideas, develop and innovate new products (Tsai, 2001). Storey and Kelly found that lack of knowledge is a main problem to INN especially in service organisations (Storey & Kelly, 2002). In addition, Subramaniam and Youndt explained that collecting and gathering new knowledge (KS) will create INN. It can help to create a new product or create new methods in production, marketing or new organisational structure (Subramaniam & Youndt, 2005). Tan et al. mentioned that investing in KS in an organisation enhances INN (Tan *et al.*, 2010).

Kamasak and Bulutlar also mentioned that INN depends on new KS in an organisation (Kamaşak & Bulutlar, 2010). Mothe et al. stated that focusing on knowledge is an important investment for an organisation. They added that effective KM helps the organisation overall especially in developing new products. They recommended that the organisation must develop the organisational capability to benefit from KM and in turn will generate INN. They also added that the important factor related to INN is not knowledge itself, but the ability to apply this knowledge and use this knowledge at the right time and in the right place, to create and improve INN (Mothe *et al.*, 2015).

Researchers differentiated between radical INN and incremental INN (Dewar & Dutton, 1986; Moosmayer & Koehn, 2011; Ritala *et al.*, 2013; Schriesheim *et al.*, 2006; Schuhmacher *et al.*, 2018). They explained that radical INN is a creation of a new products. It is unique, it can change the consumption pattern in the marketplace, and it can add a competitive advantage. Therefore, radial INN does not only require knowledge, but it requires KS, management, maintenance and creation of knowledge (Zhou *et al.*, 2012).

There are many researchers that studied the effects of knowledge on INN these include: (Al-Husseini, 2014; Hill & Rothaermel, 2003; Miller *et al.*, 2007; Subramaniam & Youndt, 2005; Zhou & Wu, 2010). They explained that the organisation's knowledge is the most important resources for INN. However, Chesbrough suggested that an organisation's knowledge can create new ideas and this helps the organisation to gain market opportunities (Chesbrough, 2003). In other words, knowledge significantly affect radical INN. In contrast, Laursen and Salter stated that knowledge may inspire new ideas without the efforts to convert these ideas to new product, but it will just affect incremental INN (Laursen & Salter, 2006). Zahara and George believed that the role of knowledge depth of a specific industry is important as many organisations have lack of expertise to be able to implement new ideas and solve problems that happen in applying them (Zahra & George, 2002). On the other hand, Tripsas and Gavetti stated that knowledge depth in a specific industry can constrain the organisation and the market. This can weaken the opportunity for it to be unique in using and developing technologies (Tripsas & Gavetti, 2000). Zhou and Li also addressed that the organisation's existing knowledge, as well as internal and external knowledge must be taken into consideration as they have significant impacts on radical INN (Zhou *et al.*, 2012). Laursen & Salter also suggested that many sources of knowledge are important for radical INN (Laursen & Salter, 2006). Others highlighted the role of KS in stimulating new ideas and support radical INN (Tsai, 2001; Zander & Sölvell, 2000).

Bierly and Chakrabarti mentioned that knowledge has two features, which are breadth and depth (Bierly & Chakrabarti, 1996). Knowledge breadth is the variety of internal and external knowledge an organisation has, meanwhile, knowledge depth is the level of complexity of knowledge. The organisations need to be able to manage and KS in the effective and sufficient way to create INN (Bierly & Chakrabarti, 1996; De Luca & Atuahene-Gima, 2007).

Kale and Singh stated that KS is a mixture of knowledge collecting (KC) and knowledge donating (KD) through an individual and organisational level via pre-established processes (Kale & Singh, 2007). Fengjie et al. highlighted the important role of knowledge in INN. They mentioned that knowledge innovation is one of the goals of KM, but knowledge innovation cannot happen without effective KS. They added an interesting explanation of KS which is that KS means knowledge innovation because individuals add their understandings, skills and experiences when they share knowledge. This explanation of KS shows the important relationship between KS and INN (Fengjie *et al.*, 2004). Tan et al. also highlighted the important role of KS on INN. They explained that investing in KS helps an organisation to innovate and this helps to gain a

competitive advantage (Tan *et al.*, 2010). Donate and Pablo highlighted in their research that an effective KM is important for improving and developing an organisation's INN. They added that many researchers e.g. (Li & Calantone, 1998; Lynn *et al.*, 2000) also found that there is a positive relationship between KS and INN. They also highlighted that knowledge-oriented leadership is an important factor for the new technology and INN. Donate and Pablo's study shows that KM storage has an indirect relationship with the performance of INN. They explained that this result is due to the type of INN. They also added that the effect of KM storage and KS would have higher impact on PCI than PDI. They mentioned that INN is likely to increase in the process of KM when the technologies develop and improve as a result of KS and transferring (Donate & De Pablo, 2015). Sadeghi and Rad stated that KM has become essential for organisations and for their innovations to survive and to compete in the markets. This requires from organisations to invest in KM and encourage their employees to share knowledge, and encourage creativity to improve their performance and also improve INN in their organisations (Sadeghi & Rad, 2018). On the other hand, investing in KM helps organisations to make suitable decisions. It is important for an organisation to be able to manage individual knowledge and organisational knowledge and sharing these between its employees. It is a way to develop and improve the organisation's INN. They added that INN according to Schumeter (Schumpeter, 1991) means creating new product or business using new ideas, new process, new material and knowledge. This means that INN comes from new knowledge or even existing knowledge that helps to create new ideas. This definition considers INN as the process of discovering new ideas and new knowledge to help in problem solving and implementing new ideas in PDI, PCI and the organisation overall. It is also essential for an organisation to develop and improve its position in the markets and gain competitive advantages (Sadeghi & Rad, 2018).

Jad et al. found that there is a positive significant relationship between KM and INN. They also suggested that there is a positive relationship between KM and the knowledge of leadership, and this can help to encourage the employees to share knowledge and to help to increase the employees' job satisfaction (Jad *et al.*, 2017). Kim et al. defined KS as a dynamic learning process, this process is continuous, and it includes interactions between employees, customers and suppliers. This process helps the organisation to create new ideas, innovate a new product or generate new methods that can reduce costs generally (Kim, Nelson & Nelson, 2000).

Chouikha and Dakhli highlighted that KS dimensions are knowledge creating, KC and KD (Chouikha & Dakhli, 2012).While, other researchers such as

Villamizar Reyes and Castañeda Zapata mentioned that the two KS dimensions which are KD and KC affect INN (Al-Husseini & Elbeltagi, 2016; Villamizar Reyes *et al.*, 2014).

6.3 The role of KS in the SL and INN relationship

According to Hartono and Halim, leadership is an important element for INN and at the same time knowledge must be taken into consideration. The knowledgeable leaders can help the organisation to create new innovative products, ideas, methods of marketing etc. (Hartono & Halim, 2014).

According to Drucker, there are seven windows of opportunities for INN, four of them are inside an organisation, they are as follows: unpredicted events, incongruities, process and change in the structure of the market. The other three windows are outside the organisation, they are as follows: demographics, new awareness and new knowledge (Drucker, 1985). It is very important for any organisation to accept the changes and try to convert these changes to successful innovations. This converting process of opportunities needs a good leadership and the SL is the suitable style for this process (Chen & Hsieh, 2015). The organisation should prioritise new opportunity of INN. Drucker mentioned that the organisation must look at the INN as an opportunity not as a threat. Encouraging people to be innovative is an important element to success of any organisation, as well as putting innovative people in the right position (Drucker, 1985).

Frost also stated that leadership is one of the important factors that can affect KM (Frost (2014). It is also important to understand the benefits of KS (Nonaka & Konno, 1998). Bidault and Castello mentioned that implementing INN requires effective leadership and KS (Bidault & Castello, 2010). They added that the relationship between leadership, KS, and INN requires a suitable level of trust. This trust can be created by the SL (Chen & Hsieh, 2015).

Although, there are researches on the relationship between transformational leadership, KM and INN, there are lack of researches on the causal relationship between SL, KS and INN (Tuan, 2016). Noruzy et al. for example studied the relationship between the transformational leadership, KM and INN. They found that transformational leadership directly affect KM and it also affects positively and indirectly organisational INN through KM (Noruzy *et al.*, 2013).

According to Kodama, it is important for any organisation to take INN into consideration and create ongoing INN through profit and non-profit activities that have information based on KS. Any organisation aims to achieve and establish a competitive advantage, it needs to find new value and create a wide

range of knowledge inside and outside the organisation (Kodama, 2005). Kodama also added that creating and sharing a new value between the followers is an important element for the organisation. The followers can teach and learn from each other. This approach needs dialectical leadership. This type of leadership, as Kodama described it, is an important element and the role of leadership is not only producing short- and long-term strategies and focuses on efficiency, but there is a need for creative leadership which focuses on producing creative thinking and creating knowledge. Kodama also mentioned that there are some characteristics that must be in the leaders to be able to do so; these characteristics are creative, listeners, recipients, collaborators, encouraging motivation and elements of SL. As well as these elements, leaders must be able to create new knowledge creation. This type of leader should be able to achieve INN and be creative, strategic and be able to act (Kodama 2005). Tuan also agreed that leaders especially servant leaders encourage KS and enhance INN (Tuan, 2016). Naqshbandi and Jasimuddin also mentioned that achieving the higher level of INN requires a combination of leadership styles and this mixture of leadership style is known as knowledge-oriented leadership (Donate & De Pablo, 2015). Leadership is an essential element for an organisation to achieve a higher level of INN and competitive advantages through KM. They also recommended that organisations should appoint leaders who have skills in creating and storing knowledge, encouraging employees to share and foster knowledge as well as reusing it. Therefore, this will impact on generating new creation and INN. This also will lead to developing and achieving the organisation's goals (Naqshbandi & Jasimuddin, 2018).

Kodama mentioned that if an organisation wants to establish competitive advantage, it must be through superior KS and managing it well, inside and outside the organisation, before applying new technology, creating new product or improving PCI (Kodama, 2005). Kodama also added that the desire to create a competitive advantage, needs an appropriate leadership style through well manged knowledge. From Kodama's results and Tuan's study, there is a relationship between SL, KS and INN (Tuan, 2016). This relationship can help any organisation to compete and achieve its goal. Mothe et al. highlighted that the organisational practices vary according to the type of INN. They mentioned that implementing KM and KS in workplaces helps PDI and PCI. They added that these two types of INN can be affected by different organisational structures. They also mentioned that the level of INN varies according to whether the organisation is new or not. This needs a different type of organisational practice. In addition, implementing KM, and KS in workplaces, is better for INN. It is not only beneficial for PDI, but it is also better for generating

new organisational structures which may reduce costs in general. They recommended that leaders should be familiar with the factors that affect organisational and technological innovations (Mothe *et al.*, 2015).

Sarkar et al. stated that leaders must aim to achieve a high level of INN, and to achieve this aim, they must have a combination of exploration and exploitation of knowledge (Sarkar *et al.*, 2016). Naqshbandi and Jasimuddin suggested that leaders who adopt knowledge exploration and exploitation support their organisations to manage KM. They added that leadership forms the cultures, changes structure of the organisation and achieves INN. This leadership encourages the employees to work towards INN and in turn towards achieving the organisation's goals (Naqshbandi & Jasimuddin, 2018). Sadeghi and Rad also highlighted the important role of leadership for the success of KM, especially if an organisation chooses the appropriate leadership style. SL according to Tuan (Tuan, 2016) can encourage KS between the employees, improve INN, gain competitive advantages and improve the organisation's performance overall (Sadeghi & Rad, 2018). There are studies (Stock *et al.*, 2014; Tuan, 2016) suggested that leadership (in general) has an essential contribution to KS and, at the same time, to INN and its dimensions. However, Tuan suggested that SL is an important leadership style which can encourage KS and in the same time can achieve INN (Tuan, 2016).

6.4 SL in SMEs

SMEs as explained in chapter 2, play an important role in the economies around the world. Leadership is an essential factor for any organisation despite the size of it (Gandolfi & Stone, 2018). It is not only very critical for large organisations, but it also is very vital to SMEs. Gandolfi & Stone stated that it is the leadership responsibility to move organisations forward and achieve their goals. They added that this is a very difficult balancing act. However, this makes leadership very significant and illustrates why chosen leadership style is an extremely important decision (Gandolfi & Stone, 2018). They added that not all leadership styles will help the organisations to better future state. Therefore, choosing leadership style is a vital for any organisation especially in crisis. They added that it is time to give attention to servant leadership (Gandolfi & Stone, 2018).

Wang and Poutziouris stated that SMEs are considered as agents of innovation, wealth and employment, because of this importance of SMEs and also the immature managerial skills that evidences show in SMEs, SMEs need an appropriate leadership style to help them achieve their goals (Wang & Poutziouris, 2010). Wang and Poutziouris added that there are many studies

studied the traits of leadership (Wang & Poutziouris, 2010). Such as Stodgill who listed 100 traits that affect the success of the leader (Stogdill, 1974). However, Wang and Poutziouris stated that the studies of traits have failed to provide a set of attributes that make a good leader and non-effective leader (Wang & Poutziouris, 2010). However, Bass and Burns stated that the behaviour of leader is an important element to achieve the goals. They determined the behavioural leadership style and they divided it to transactional and transformational leadership (Bass, 1985; Burns, 1978). House (House, 1996b) talked about four types of behaviour of leadership which are as follows: directive, supportive, achievement and participative (Wang & Poutziouris, 2010). Wang and Poutziouris discussed the leadership styles and theories that Bass, Burns and House generated and they advised that SMEs would benefit from a directive leadership style (Wang & Poutziouris, 2010). They explained the reason for this suggestion for SMEs, which is that SMEs are usually run by the owner of the business or are operated in the sight of the philosophy of their owners. While Gandolfi & Stone stated that servant leaders have common characteristics as any other leaders, but they focus on the followers first. This style of leadership is suitable for any organisation regardless the size of it because SL focus on followers first. While the other styles focus on achieving their missions first and then empowering others (Gandolfi & Stone, 2018). Northouse stated that the empirical evidence suggested that SL is not only work but it is effective and desirable (Northouse, 2012). Gandolfi & Stone mentioned that SL is the most interactive leadership style in terms of the relationship between leader and followers because the leaders focus on the followers first. They added that if SL is applied correctly, the performance of the followers will increase and in terns the organisational performance will also increase (Gandolfi & Stone, 2018).

SMEs need an appropriate leadership style. According to Kibbe, SL is uncomplicated style, it makes things to go well and smoothly. It is also needed in crisis and when the organisation need to make a quick decision (Kibbe, 2019). Gandolfi & Stone explained the reasons behind choosing SL style in any organisation including SMEs. There are two reasons for choosing SL. First reason is that the servant leaders empower and develop followers to reach their potential rather than the organisation. Second reason is that SL also assumes that if the followers are reaching their potential, they will achieve directly the organisation potential and its goals (Gandolfi & Stone, 2018).

6.5 Research problem

From the literature on SL style and its dimensions, INN and its dimensions (PDI and PCI), and KS and its dimensions (KD and KC), it revealed to the researcher that there is no such study about the relationship between SL, KS and INN especially in SMEs in Egypt. There is a lack of empirical studies of the impact of SL on KS and INN. Therefore, this study examined the causal relationship between SL and its dimensions, and INN (PDI and PCI) through the mediating role of KS and its dimensions (KD and KC) in SMEs in Gamsah and New Demaitta in Egypt.

The study developed a model that filled the gap in literature and connecting the three variables SL, INN and KS as shown in Figure 8.

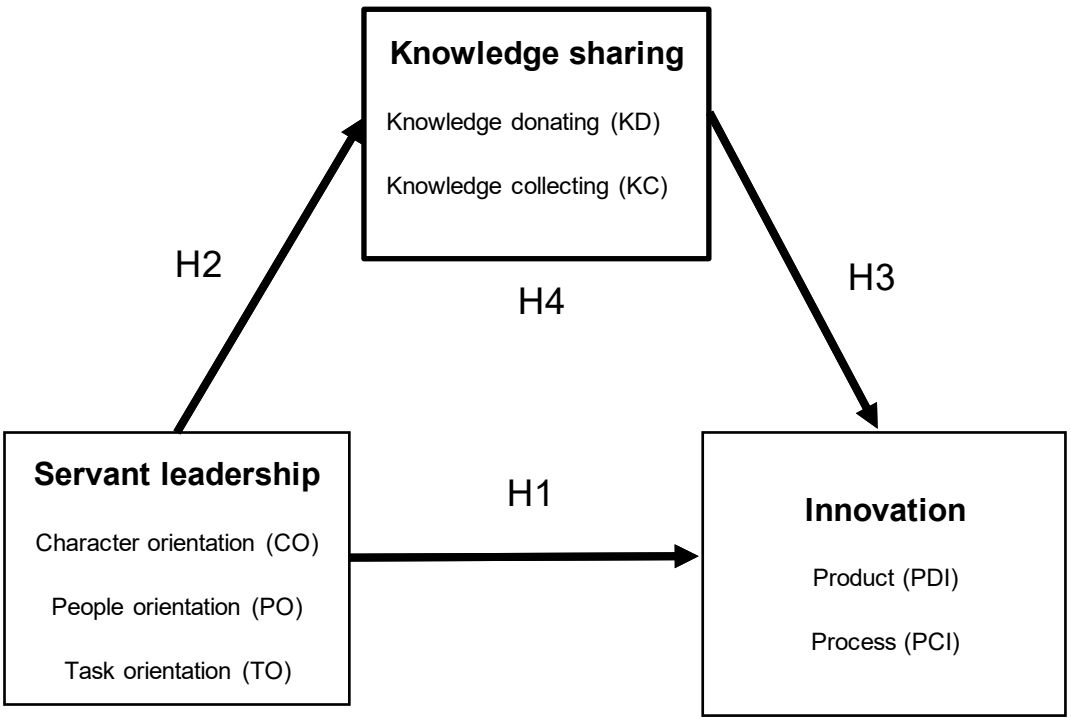


Figure 8 The research model

Figure 8 shows that there are four relationships of the model. These four relationships are: 1) the relationship between SL and INN. 2) the relationship between SL and KS. 3) the relationship between KS and INN. 4) the indirect relation between SL and INN through KS as a mediator.

6.6 Hypotheses of the study

The conceptual framework of this research suggested the following hypotheses:

H1: SL and its dimensions will positively influence on INN and its dimensions in SMEs in Gamsah and New Dameitta region in Egypt, the sub-hypothesis:

- H1a: Character orientation of SL will have a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1b: People orientation of SL will have a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1c: Task orientation of SL will have a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1d: SL will have a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1e: Character orientation of SL will have a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1f: People orientation of SL will have a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1g: Task orientation of SL will have a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1h: SL will have a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1i: SL will have a positive influence on INN in SMEs in Gamsah and New Dameitta region in Egypt.

H2: SL and its dimensions will positively influence on KS and its dimensions in SMEs in Gamsah and New Dameitta region in Egypt, the sub-hypothesis:

- H2a: Character orientation of SL will have a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.
- H2b: People orientation of SL will have a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.
- H2c: Task orientation of SL will have a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.
- H2d: SL will have a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.

H3: KS and its dimensions will positively influence on INN and its dimensions in SMEs in Gamsah and New Dameitta region in Egypt, sub- hypotheses:

- H3a: KS will have a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- H3b: KS will have a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- H3c: KS will have a positive influence on INN in SMEs in Gamsah and New Dameitta region in Egypt.

H4: KS and its dimensions will positively mediate the impact of SL and its dimensions on INN and its dimensions in SMEs in Gamsah and New Dameitta region in Egypt.

H1 will test the relationship between SL and INN. H2 will test the relationship between SL and KS. H3 will test the relationship between KS and INN. H4 will test the mediate role of KS on SL and INN.

6.7 Summary

This chapter discussed how the relationship between SL and INN. It also discussed the relationship between SL and KS. It also discussed the relationship between KS and INN. In addition, it discussed the role of KS as a mediator in the relationship of SL and INN. It explained SL in SMEs in Gamsah and New Dameitta region in Egypt. It highlighted the research problem, research model and the hypotheses of the current research.

Chapter 7 Research methodology and research design

Previous chapters discussed the background of the study, small and medium enterprises (SMEs) and its importance of the economy of Egypt, servant leadership (SL), knowledge sharing (KS) and innovation (INN). In addition, the conceptual framework model and the hypotheses of the study were discussed. This chapter describes the research methodology that is used in this study, to examine the causal relationship between SL, KS and INN in SMEs in Gamsah and New Dameitta in Egypt. It includes the following: research philosophy, research approach, research design, research methods, sampling, questionnaire survey, data analysis, validity and reliability, pilot study, analysing procedures of questionnaire, and statistical tools to analyses the results.

7.1 Introduction

Research methodology is an important set of activities that enables researchers to conduct their research (Mingers, 2001). The research methodology is the philosophy, hypothesis, and values that researchers use for investigation about a certain topic in an area of research. It consists of six important elements, they are as follow: research philosophy, research approach, research strategy, research design, data collection, analysis and interpreting. Wilson created a honeycomb of research methodology to explain the six elements of the research methodology, as is shown in Figure 9 (Wilson, 2014).

Figure 9 Honeycomb of research methodology (Wilson, 2014, p.8); permission granted by Sage publication as Fair Dealing requirement is met.

7.2 Research Philosophy

The research method that researchers use is a very important step to help investigate and answer research questions. The choice of research methods sometimes depends on the personal choice due to the skills and experiences. This personal choice of research method may make it easy and quick, and this depends on personal environments. Making a decision about research approach requires the researcher to know the types of philosophical perspectives which are related to specific methodologies (Zaborek, 2009). The researchers must understand the research philosophies and approaches that they use. Saunders et al. produced an important figure called the 'research onion' to explain the research philosophies (Figure 10). It shows that there are four different philosophies of research: pragmatism, positivism, realism and interpretivism. The philosophy that the researcher uses, depends on certain considerations. The main factor is the researchers' views and the knowledge they have about their research. This can also affect their views about the important strategy and methods (Saunders *et al.*, 2018).

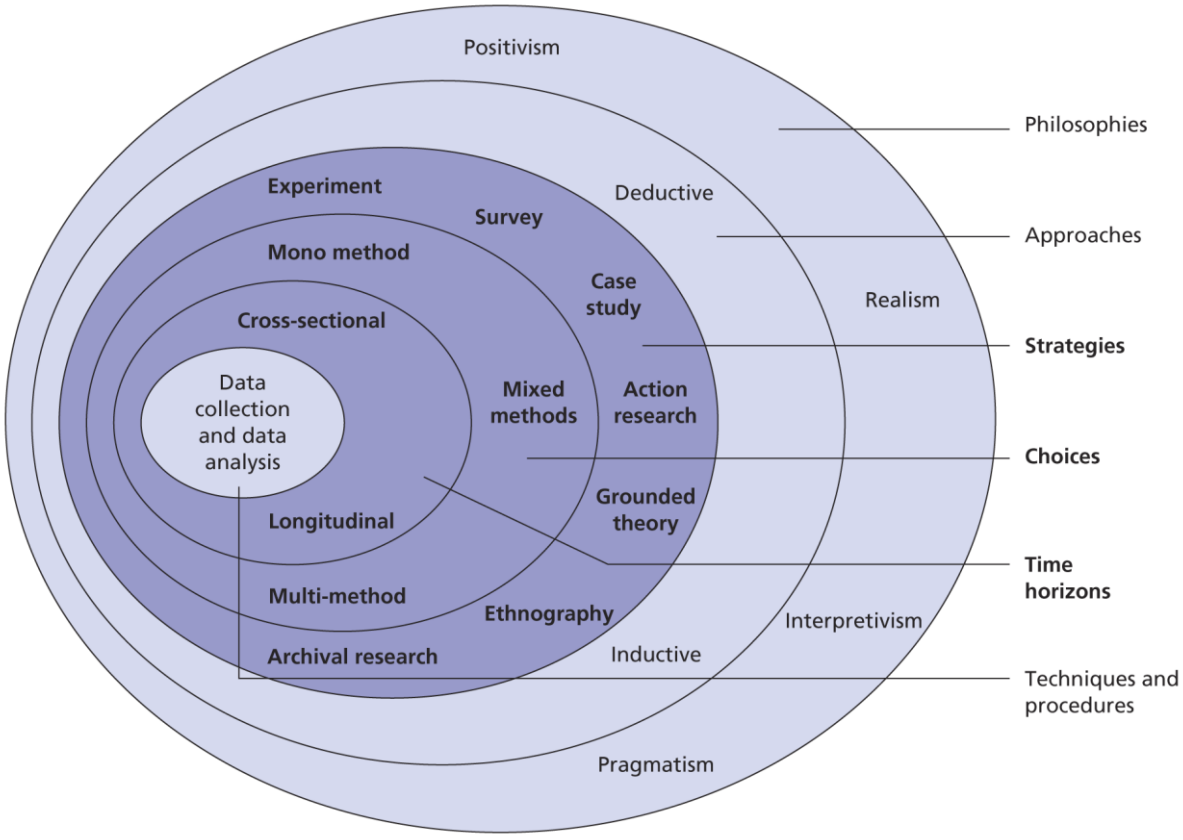


Figure 10 "The research onion" p.130. (Saunders *et al.*, 2018); the research onion diagram is ©2018 Mark Saunders, Philip Lewis and Adrian Thornhill and is reproduced with their written permission.

Johnson and Clark mentioned that business researchers must know the philosophical commitments that they make through their research strategy, as this will affect their understanding about what they are investigating and will guide their research (Johnson & Clark, 2006). The important issue is not only which philosophy is used but how it is reflected and how to defend it. There is no philosophy that suits-all research, it depends on the research questions (Johnson & Clark, 2006; Saunders *et al.*, 2018). The researchers can choose between positivist and interpretivist philosophies or between quantitative and qualitative approaches (Saunders *et al.*, 2018). However, Niglas recommended the use of a multidimensional approach (Niglas, 2010).

The research methodology can be divided into two categories: qualitative and quantitative method. The qualitative research is involved in interpreting philosophy. In qualitative research, some researchers use the inductive approach to develop a theory which already exists. Others may use the deductive approach to test a theory. Most qualitative research uses mixed approaches of inductive and deductive approaches, called an abductive approach (Yin, 2014). Quantitative research is related to positivism. Davies and Hughes argued that positivism is an epistemological position and knowledge depends on what the researcher observes and measures. It is objective and depends on proving or disproving hypotheses (Davies & Hughes, 2014). In the positive perspective, everything can be measured, predicted, and explained by certain laws and rules (Ryan, 2018).

Positivism is associated with a hypothetic deductive model of science that is generated from a previous theory. This previous theory has been experimented by measuring some variables. The results from the hypothesis model will be used for future research but cannot be generalised. In other words, positivism aims to test an existing theory (Mackenzie & Knipe, 2006; Ryan, 2018). Positivism is usually focused on identifying causal relationships (Saunders *et al.*, 2018) through quantitative approaches and the results come from large size samples (Zaborek, 2009). Positivism is summarised in Figure 11.

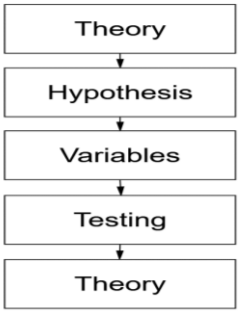


Figure 11 Summarise positivism approach steps, p.22 (Bell *et al.*, 2018)

According to Saunders et al. the adopted research philosophy consists of important assumptions about the knowledge of the researchers and their views. These assumptions support the research strategy and the research methods. The researchers differentiate between Epistemology, Ontology and Axiology. (Saunders *et al.*, 2018). Epistemology relates to attaining knowledge or the theory of attaining knowledge. Epistemology of the positivism philosophy is to determine hypotheses according to an existing theory and test these hypotheses using a quantitative method. Epistemology in the interpretivism philosophy is about using a qualitative method to solve a certain problem. Ontology is the belief about reality. It is in positivism philosophy objectivist and related to a single reality. However, it is in the interpretivism, a different concept and has different reality, so there is no single reality (Easterby-Smith *et al.*, 2015; Ryan, 2018; Saunders *et al.*, 2018).

Interpretivism is generated from two intellectual phenomenology and symbolic interactionism. These refer to the way that humans understand and affect the world around them. It depends on observations and interviews of people to solve a certain problem. The results of this research are only applied to a certain organisation. They can't be generalised. However, there are limitations of generalising the results of interpretivism research (Ryan, 2018; Saunders *et al.*, 2018).

Pragmatism involves using a mix of qualitative approach with another (Frost *et al.*, 2010). This pragmatic approach according to Johnson et al. would be called "British pluralism" (Johnson *et al.*, 2001). Clarke and Visser also adopted the "British pluralism" in their study to refer to pragmatism approach (Clarke & Visser, 2019). The reason for using the term "British pluralism" was explained by Atkinson and Delamont. They mentioned that regardless of the methodological limitations, most British studies used a range of qualitative methods instead of using a specific method (Atkinson & Delamont, 2005). Pragmatism is not a new approach. It is about using a mixture of qualitative and quantitative methods. In other words, when using this approach, there is a possibility of combining different approaches (Clarke & Visser, 2019). Morgan mentioned that there is a link between pragmatism and combining research methods, including quantitative and qualitative approaches. Morgan added that this requires more inclusive application and a good understanding of why to conduct a research, not only how to conduct it (Morgan, 2014).

Realism is another research philosophy. It emphasises that the information that the researchers have comes from the experiences and the reality which is independent of the human mind (Saunders *et al.*, 2018). According to Saunders et al. there are two types of realism as follow: direct and critical realism. Direct

realism is what you experience through your senses represents the world accurately. Critical realism states that your experience are sensations and the images of the real world (Saunders *et al.*, 2018). Table 17 represents the comparison of four research philosophies in business and management research (Saunders *et al.*, 2018).

Table 17 Comparison of four research philosophies in business and management research

	Pragmatism	Positivism	Realism	Interpretivism
Ontology: the researcher's view of the nature of reality or being	External, multiple, view chosen to best enable answering of research question	External, objective and independent of social factors	Is objective. Exists independently of human thoughts and beliefs or knowledge of their existence (realist), but is interpreted through social conditioning (critical realist)	Socially constructed, subjective, may change, multiple
Epistemology: the researcher's view regarding what constitutes acceptable knowledge	Either or both observable phenomena and subjective meanings can provide acceptable knowledge dependent upon the research question. Focus on practical applied research, integrating different perspectives to help interpret the data	Only observable phenomena can provide credible data, facts. Focus on causality and law-like generalisations, reducing phenomena to simplest elements.	Observable phenomena provide credible data, facts. Insufficient data means inaccuracies in sensations (direct realism). Alternatively, phenomena create sensations which are open to misinterpretation (critical realism). Focus on explaining within a context or contexts	Subjective meanings and social phenomena. Focus upon the details of situation, a reality behind these details, subjective meanings motivating actions
Axiology: the researcher's view of	Values play a large role in interpreting	Research is undertaken in a value-free way, the	Research is value laden; the researcher is biased by world views,	Research is value bound, the researcher is part of

the role of values in research	results, the researcher adopting both objective and subjective points of view	researcher is independent of the data and maintains an objective stance	cultural experiences and upbringing. These will impact on the research	what is being researched, cannot be separated and so will be subjective
Data collective techniques most often used	Mixed or multiple method designs, quantitative and qualitative	Highly structured large samples measurement, quantitative, but can use qualitative	Methods chosen must fit the subject matter, quantitative or qualitative	Small samples, in-depth investigations, qualitative

(Source: Saunderes, Lewis & Thornhill, 2012, p: 140)

7.3 Research approach

According to Saunders et al. there are three research approaches: deduction, induction and abduction (Saunders *et al.*, 2018). Deductive approach explains the causal relationships between independent variables and dependent variables using quantitative methods of collecting data. In this approach, the researcher suggests a set of principles that are tested by empirical experiments. These principles are suggested from an existing theory and the researcher needs to test the theory. This is associated with the positivism philosophy (Berg & Lune, 2012). In this approach, the quantitative measurement is used on a large sample in order to generalise the results statistically. In the quantitative research, there are two different approaches: survey research and experimental research (Davies & Hughes, 2014). According to Bell et al. the deductive approach is very linear, and it is in logical steps. They added that this approach in practice can be less linear for one of these reasons: new theories and findings might be found before the research was conducted, the relevant theory appeared after data collection, and data might not fit with the hypotheses (Bell *et al.*, 2018). Ryan explained that deductive approach depends on finding a theory, making hypotheses based on the theory, then using methods to test it (Ryan, 2018).

The second approach is the inductive approach. The researcher in this approach starts by interviewing a sample of people to understand the nature of the problem of the research. This approach depends on qualitative methods of collecting the data such as interviews and observations. The sample size is small, and this helps to get a better result. Therefore, this approach is

exploratory, and it is associated with the interpretivism paradigm (Creswell & Clark, 2017; Saunders *et al.*, 2018).

The third approach is the abduction approach. It is a mix of the induction and deduction approach. This approach starts with the observations of the facts and then works out the suitable theory of how the facts could have happened. This can happen at any stage in the research. Deduction and induction complement abduction for testing reasonable theories (Saunders *et al.*, 2018).

This study adopted the positivism philosophy and deductive approach. It used the quantitative methods to collect data. This philosophy was chosen for two reasons; the research depends on an existing theory, while the second reseson was to examine the causal relationship between SL, KS and INN. The literature reviews in these three variables helped identify the research approach and research philosophy. Therefore, quantitative method and a self-administered questionnaire were used.

7.4 Research design

According to Creswell and Clark and other researchers, there are three methods of research: quantitative, qualitative and mixed methods (Creswell & Clark, 2017; Saunders *et al.*, 2018).

The current study used quantitative method. As this study adopted the positivism and deductive approach, it used a self- administered questionnaire. This type of questionnaire gives the candidates the chance to answer the questions freely and without pressure from the researcher. The questionnaire was distributed and collected. The questionnaire distributed to the employees to rate their leaders using the five-points Likert scale.

The current study measured the independent variables (SL and KS) and the dependent variable (INN) using the questionnaires.

7.4.1 Questionnaire surveys

The questionnaire survey is used for descriptive or explanatory research. In descriptive research, it aims to collect opinions and attitudes to identify and describe a phenomenon. In explanatory research, the questionnaire survey helps the researchers to examine and explain the relationships between the independent and dependent variables (Saunders *et al.*, 2018).

The questionnaire survey is used to collect information about the respondents' feelings, behaviour, and opinions related to the variables of the research (Creswell & Clark, 2017).

Zaborek advised that the questionnaire should not contain more than 100 variables, in order to be a good tool of collecting data. The reason, as Zaborek explained, is that the respondents are not keen to answer the questions. He added that if the questionnaire is too long, it will affect the quality of data as the respondents will answer without thinking in order to complete the questionnaire. This can cause significant errors which can cause difficulty in measuring the variables and use certain statistical measures (Zaborek, 2009).

Saunders et al. stated that the choice of type of questionnaire to use depends on some factors related the research questions, the research objectives, sample size, characteristics of respondents and the number of questions in the questionnaire (Saunders *et al.*, 2018).

The researcher used the questionnaire method to collect the data because the research adopted the positivism philosophy and deductive approach. The quantitative data collection method suits the positivism philosophy and deductive approach (Ryan, 2018).

The questionnaire was distributed in several ways; majority were self-administered, some were answered online. The researcher conducted a pilot study. The researcher found out from the pilot study that the self-administered questionnaire is suitable for Egyptian environment because employees prefer to use paperwork more than online questionnaire. They also prefer to have freedom when they answer the questions. Therefore, the researcher made sure that the questions are clear, closed ended questions, direct and relevant questions. The questionnaire was anonymous, and this helps to keep the participants safe and to assure them that their answers were not disclosed to anyone. This is one of the benefits of using this type of questionnaire survey (Creswell & Clark, 2017).

7.4.2 Questionnaire design and measures

Designing the questionnaire is an important part of collecting data. The questions must be clear and related to the points that the researchers are interested in (Bryman & Bell, 2011; Ryan, 2018; Saunders *et al.*, 2018). According to Saunders et al. there are two types of questions in the questionnaire survey: open questions and closed questions. Open questions are used widely in semi-structured interviews. In the questionnaire, open questions are useful if the researcher is unsure of the response or more details are needed. However, these types of questions can consume more time to analyse. The second type of questions are closed questions. This type gives the participants a list of choices for the answer. This makes it relatively easy for the participants to answer and for the researcher to analyse. Closed questions are

of six types (Saunders *et al.*, 2018). List questions, whereby the participants are offered a list of answers. Category questions, whereby the participants can choose from different categories. Ranking questions, whereby the respondents can arrange the order of the answers. Rating questions uses a scale regarding a concept. Likert- style rating is the most used rating scale. Quantity questions are used to get an amount of something. Matrix or grid questions helps the participants to record their answers to two or more questions at the same time (Saunders *et al.*, 2018).

This study uses closed questions and mainly: list questions and rating questions using five Likert- style rating to collect data from employees in SMEs in Gamsah and New Demaitta in Egypt. The questionnaire was designed to be clear, direct, relative, easy and quick for the respondents to answer. The questionnaire survey consists of four parts and the introduction. The introduction is important to explain and clarify the purpose of the survey (Bryman & Bell, 2011; Saunders *et al.*, 2018). In this study, the self-completed questionnaire is accompanied by a covering letter to explain the purpose of the research, and to assure confidentiality. The first part of the questionnaire was demographic questions. The second part was related to the dimensions of servant leadership. The third part was related to the dimensions of innovation. The fourth part was about the dimensions of knowledge sharing. The three parts of the questionnaire, five-point Likert-scale rating was used. The questionnaire asked the followers to rate the dimensions of the SL, KS as independent variables and INN as dependent variables using five-point Likert- scale rating: 1 = strongly disagree, 2= disagree, 3 = neither agree or disagree, 4 = agree and 5 = strongly agree.

The researcher designed a new questionnaire to measure the SL based on questionnaires that were used in previous researches. For example, the MLQ (multifactor leadership questionnaire) from the previous studies and some others studied SL and compared it with other leadership styles (Andersen, 2009; Barbuto Jr & Wheeler, 2006; Brown & Keeping, 2005; Hale & Fields, 2007; Liden *et al.*, 2008; Page & Wong, 2000; Stone *et al.*, 2004; Winston & Fields, 2015).

Stone et al. stated that transformational leadership (TL) and SL have similar attributes such as influence, trust, vision, respect, credibility, delegation, risk-sharing and integrity (Stone *et al.*, 2004). Similarly, Winston and Fields claimed that the SL dimensions are integrity, influence, vision, listening. These dimensions are similar to that of TL (Winston & Fields, 2015). Therefore, the researcher adopted Page and Wong (Page & Wong, 2000) to measure the SL to avoid overlapping between the SL and TL. Page and Wong dimensions of SL are similar to the dimensions of SL that other researchers had missioned but

they categorised them according to orientation of the behaviour of the leaders. These dimensions are as follow: character orientation being, people orientation relating and task orientation doing (Page & Wong, 2000).

In this study, each respondent was asked to rate the leadership behaviour to each of the three SL components which are: character orientation, people orientation and task orientation (Page & Wong, 2000). There were 25 items in the questionnaire for the SL dimensions (Table 18).

Table 18: SL Items

SL items	Dimensions
1) Is open about his/her values and beliefs 2) Invokes respectfulness 3) Displays selflessness for the betterment of the team 4) Able to encourage the followers 5) Interacts with people in a humane manner 6) Considers the followers' needs 7) Takes charge and is accountable for the consequences when a problem arises	Character orientation being (Page & Wong, 2000)
8) The team is happy to work under his/her leadership 9) Clarifies the goals of the company to the followers 10) Displays optimism about the future of the group 11) Positively encourages the team when undertaking tasks 12) Has confidence in the followers 13) Encourages thinking outside the box 14) Makes time for training and developing the team 15) Takes each follower's individual needs into consideration 16) Takes each follower's individual ability into consideration	People orientation relating (Page & Wong, 2000)

17) Able to recognise individual's weaknesses and works to develop them 18) Ensures the strengths of the followers are utilised and developed 19) Supports followers when they are facing problems 20) Able to forgive mistakes and remain supportive	
21) Considers ethical consequences of any decisions 22) Is a visionary leader 23) Emphasises the importance of team-building 24) Encourages followers to look at the problem with a new outlook 25) Is open about new ideas when making important decision	Task orientation doing (Page & Wong, 2000)

The respondents were asked also to answer questions about the KS and the two dimensions of it which are: knowledge donating and knowledge collecting (Azema & Jafari, 2016; Chouikha & Dakhli, 2012; Villamizar Reyes *et al.*, 2014). There were 15 times in the questionnaire (Table 19).

Table 19 KS items

KS items	Dimensions
1) Sharing information with colleagues is normal in my department 2) Sharing information with colleagues is normal in other departments 3) When I gain new information, I share it with colleagues in other departments	Knowledge donating (Azema & Jafari, 2016; Chouikha & Dakhli, 2012; Villamizar Reyes *et al.*, 2014).

4) I share with my colleagues the information that I am a specialist in 5) I inform colleagues when I have information about problems within the company 6) I share new information with colleagues in my department to help them with the work 7) Colleagues in my department are happy to share information with me 8) Colleagues in other departments are happy to share information with me	
9) When asked, I am happy to share information with colleagues in my company 10) When asked, colleagues in my department are happy to share skills with me 11) When asked I am happy to share my skills with colleagues in my department 12) When asked, I am happy to share my skills with colleagues in other departments 13) When asked, I am happy to share useful information with my colleagues in my department 14) When asked, my colleagues are happy to	Knowledge collecting (Azema & Jafari, 2016; Chouikha & Dakhli, 2012; Villamizar Reyes *et al.*, 2014).

share information about any problem in the company 15) When asked, colleagues don't mind sharing their professional skills with others	

The respondents were also asked to answer questions about the INN and there were two dimensions which are: product innovation and process innovation (Al-Husseini, 2014; Pitt, 2007; Sadeghi & Rad, 2018). There were 10 items in the questionnaire (Table 20).

Table 20 INN items

INN items	Dimensions
1) The company emphasises the importance of development and research 2) The company is constantly developing its business methods 3) New services and programs are developed and made available to the staff 4) Services and courses are made available to a variety of different employee groups that are not usually served by the company 5) New training schemes are being developed for members of staff	Product innovation (Al-Husseini, 2014; Pitt, 2007; Sadeghi & Rad, 2018).
6) The company stresses the importance of team-work and cooperation between its members of staff 7) The company strives to improve its quality of service	Process innovation (Al-Husseini, 2014; Pitt, 2007; Sadeghi & Rad, 2018).

/product by developing new technology 8) Staff are encouraged to be more innovative using incentives such as bounces, promotions etc 9) The company uses multimedia effectively 10) The company is constantly improving its facilities (e.g. computers)	

7.4.3 Data analysis for the questionnaire

This study used Structured Equation Modelling (SEM). SEM with AMOS 25 is used to analyse and test the hypothesis. It explains the relationship between multiple variables. It helps to build models, illustrate the relationships and analyse the effects (Byrne, 2013) . It is a collection of tools to analyse relationships between variables, either for expanding knowledge or solving problems. It is a set of tools to allow verification of theories. It is essentially a confirmatory technique (Blunch, 2013). SEM is used in marketing research and other business researches in quantitative research methods. SEM contains latent variables which are measured by observed (Manifest) variables. The observed variables are explained by the indicators. The indicators are the questions that are answered using Likert scale (e.g. 1 is strongly disagree, 2 is disagree, 3 is neither agree or disagree, 4 is agree and 5 is strongly agree) (Kock, 2019).

According to Blunch and others, there are two factor analyses: exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). EFA can help to determine if there is a correlation between the variables. It is designed to determine the number of factors and the pattern of the factors. It is selected to underlying dimensions of the variables without the influence of hypothetical constructs (Blunch, 2013; Floyd & Widaman, 1995). In this research, EFA is used to refine and validate the data. The confirmatory factor analysis is used to determine the internal reliability of the measures when the researcher has knowledge of the dimensions of the latent variables. To determine the dimensions of the latent variables, factor loadings was used in CFA (Hair *et al.*, 2010). CFA is used to determine the dimensions of the variables. In this study, to determine the dimension of SL, KS and innovation, EFA was used first to screen the data before SEM was used. The EFA was conducted using SPSS

software version 25 with 50 items: 25 for SL, 15 for KS and 10 for innovation. From EFA, there were seven factors as follow: character orientation, people orientation, task orientation, knowledge donating, knowledge collecting, product innovation and process innovation. These factors were measured using 22 items. The study used SEM using AMOS version 25. The fit model of SEM depends on the sample size (Brown, 2015). According to Kline the sample size should be greater than 100 otherwise the model would be unreasonable (Kline, 2011). There are a set of criteria that are used to evaluate the goodness of fit of the model (Blunch, 2013; Byrne, 2013; Kline, 2011). They are as follow: RMSEA (the root mean square error of approximation)- the value of this index should be between 0.05 – 0.08. RMSEA takes the error estimate of the population. It is sensitive to the degree of freedom (Blunch, 2013). CFI (comparative fit index) should be close to 0.90. It compares the existing model with the null model (Byrne, 2013).

NFI (normed-fit index) should be close to 0.90 (Byrne, 2013),or close to 0.95 (Hair *et al.*, 2010). It represents the ratio of the differences in x^2 value for the null model (Byrne, 2013). TLI (the Trucker-Lewis index) is a comparison of the normal x^2(Chi squared) values for the null and specified models. TLI should be greater than or equal to 0.90 (Blunch, 2013; Byrne, 2013; Kline, 2011). These fit measures were used in this study to evaluate the goodness of fit of the model.

7.4.4 Reliability and validity of the questionnaire

7.4.4.1 Reliability

“Reliability is the extent to which data collection technique or techniques will yield consistent findings, similar observations would be made, or conclusions reached by other researchers or there is transparency in how sense was made from the raw data.”(Saunders *et al.*, 2018).

“Reliability just means that a scale should consistently reflect the construct it is measuring.” (Field A., 2005, p. 666). Reliability means consistency or stability of measurement.

Cronbach’s Alpha (α) is the most common measure of scale reliability. Researchers suggested that the value of Cronbach’s Alpha of 0.7 or more is acceptable to measure the reliability (Field, 2013; Hair *et al.*, 2010). The other interpretation of Cronbach’s Alpha is measuring unidimensionality, which is measuring the strength of the factor that is underlying the data. Cronbach (1951) recommended that if there are several factors in the questionnaire, α should be calculated separately to these factors (Field, 2013). Cronbach’s Alpha is an indication degree of the consistency. When factors all tend to

measure the same things, they are highly correlated, and alpha is high, and when the factors measure different things, alpha is low, and they have less correlation.

Cronbach's Alpha values were calculated to test the reliability of the questions and to check the respondents' understandings of the questions (Saunders *et al.*, 2018). Therefore, in this study, the researcher used the SPSS 25 to calculate the Cronbach's Alpha for the pilot study sample and for the main sample.

Table 21 shows the Cronbach's Alpha for the SL items in the pilot study (35 responses). The Cronbach's Alpha for the character orientation construct was 0.834, for the people orientation it was 0.928, and for the task orientation it was 0.814. Product innovation score is 0.771, process innovation score is 0.894, knowledge donating score is 0.763, and knowledge collecting score is 0.916. So, Cronbach's Alpha of the variables scores indicate that the variance in the scores is reliable, and the error variance of each variables is less than 30%.

Table 21 Reliability analysis for SL, KS and INN constructs

Construct	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Character orientation Is open about his/her values and beliefs (CO1)	.478	.826	.834
Invokes respectfulness (CO2)	.333	.849	
Displays selflessness for the betterment of the team (CO3)	.556	.815	
Able to encourage the followers (CO4)	.711	.809	
Interacts with people in a humane manner (CO5)	.631	.804	
Considers the followers' needs (CO6)	.683	.795	
Takes charge and is accountable for the consequences when a problem arises (CO7)	.828	.764	
People orientation The team is happy to work under his/her leadership (PO8)	.518	.928	.928
Clarifies the goals of the company to the followers (PO9)	.685	.922	
Displays optimism about the future of the group (PO10)	.727	.921	

Positively encourages the team when undertaking tasks (PO11)	.733	.921
Has confidence in the followers (PO12)	.651	.923
Encourages thinking outside the box (PO13)	.520	.928
Makes time for training and developing the team (PO14)	.740	.920
Takes each follower's individual needs into consideration (PO15)	.752	.920
Takes each follower's individual ability into consideration (PO16)	.854	.916
Ables to recognise individual's weaknesses and works to develop them (PO17)	.504	.929
Ensures the strengths of the followers are utilised and developed (PO18)	.636	.924
Supports followers when they are facing problems (PO19)	.772	.919
Able to forgive mistakes and remain supportive (PO20)	.739	.920

Task orientation Considers ethical consequences of any decisions (TO21)	.554	.793	.814
Is a visionary leader (TO22)	.699	.748	
Emphasises the importance of team-building (TO23)	.567	.790	
Encourages followers to look at the problem with a new outlook (TO24)	.754	.730	
Is open about new ideas when making important decision (TO25)	.461	.816	
Product innovation The company emphasises the importance of development and research (PDI 26)	.742	.651	.771
The company is constantly developing its business methods (PDI 27)	.500	.750	
New services and programs are developed and made available to the staff (PDI 28)	.518	.737	

Services and courses are made available to a variety of different employee groups that are not usually served by the company (PDI 29)	.317	.800	
New training schemes are being developed for members of staff (PDI 30)	.734	.667	
Process innovation The company stresses the importance of team-work and cooperation between its members of staff (PCI 31)	.686	.884	.894
The company strives to improve its quality of service /product by developing new technology (PCI 32)	.751	.864	
Staff are encouraged to be more innovative using incentives such as bounces, promotions etc (PCI 33)	.792	.859	
The company uses multimedia effectively (PCI 34)	.608	.903	
The company is constantly improving it facilities (e.g. computers) (PCI 35)	.894	.835	
Knowledge donation Sharing information with colleagues is normal in my department (KD36)	.496	.738	.763

Sharing information with colleagues is normal in other departments (KD37)	.710	.705	
When I gain new information, I share it with colleagues in other departments (KD38)	.525	.731	
I share with my colleagues the information that I am a specialist in (KD39)	.763	.670	
I inform colleagues when I have information about problems within the company (KD40)	-.210	.900	
I share new information with colleagues in my department to help them with the work (KD41)	.809	.691	
Colleagues in my department are happy to share information with me (KD42)	.614	.707	
Colleagues in other departments are happy to share information with me (KD43)	.809	.691	
Knowledge collection When asked, I am happy to share information with colleagues in my company (KC44)	.786	.900	.916

When asked, colleagues in my department are happy to share skills with me (KC45)	.781	.901	
When asked I am happy to share my skills with colleagues in my department (KC46)	.480	.929	
When asked, I am happy to share my skills with colleagues in other departments (KC47)	.772	.901	
When asked, I am happy to share useful information with my colleagues in my department (KC48)	.781	.900	
When asked, my colleagues are happy to share information about any problem in the company (KC49)	.838	.893	
When asked, colleagues don't mind sharing their professional skills with others (KC50)	.804	.898	

7.4.4.2 Validity

Validity refers to the ability of the test to measure what it is set out to measure (Kelley, 1927).

According to Saunders et. al validity refers to "(1) the extent to which data collection method or methods accurately measure what they were intended to measure. (2) the extent to which research findings are really about what they profess to be about." (Saunders *et al.*, 2018).

As reliability is an important element of research quality, the validity and various forms of validity are also important to ensure the quality of research. Validity is concerned with whether the theoretical latent constructs measure what they are supposed to measure (Tarkkonen & Vehkalahti, 2005). Construct validity looks at which research measures measure what the researcher needs to measure. It is used with positivist and quantitative research. Internal validity is used when the research studies a causal relationship between two variables. It is also used with positivist and quantitative research. It can be used in causal or explanatory studies but not for exploratory or descriptive studies. External validity shows that the research findings in a certain sample can be applied to the rest of the relevant population (Saunders *et al.*, 2018).

In this research, convergent validity was tested by investigating the items loadings, which were greater than 0.5 and p-values were less than 0.05. Convergent validity is concerned with the degree to which dissimilar measures of the same construct are related (Fernández-Marcos *et al.*, 2018). Discriminant validity is concerned with that the latent construct is different from other constructs (Hair *et al.*, 2010). If the square root of average variance is greater than the correlation of the construct, the model has an acceptable discriminant validity (Hair *et al.*, 2010). The discriminant validity was assessed through CFA using Amos 25.

7.4.5 Pilot study

Pilot study is important to test the questionnaire and so that the researcher knows that the participants will have no issues with answering the questions. It is also important to show that there is no problem recording data. Furthermore, it enables the researcher to test the validity and reliability of the data that will be collected. The researchers should ask the experts to check the questionnaire to ensure its suitability. For self-completed questionnaires, the researcher should obtain information about the study to make sure that the respondents understand the questionnaire and its aim (Saunders *et al.*, 2018).

In this research, the researcher sent the questionnaire in English and in Arabic to several PhD students and professors to check the length of the questionnaire, the clarity of the questions, if there is an uneasy question to answer, the layout of the questions, the accuracy of translation of questions from Arabic to English, and if there are any comments that the researcher needs to take into the consideration.

The researcher assured the respondents' privacy and confidentiality for responses. The respondents had the right to withdraw from taking part in the questionnaire at any time. The questionnaire was anonymous. This helped the respondents answer the questions truthfully without concern. The researcher explained in the covering letter which was attached to the questionnaire of the purpose of the study and objectives of it. It was difficult to send the questionnaire via the emails as most companies don't use emails for this purpose. Additionally, the respondents were managers, so some had time constraints and were unable to complete it via email. Therefore, the researcher sent some via emails and distributed a hard copy questionnaire, delivered it, and collected it. The questionnaire distributed to the managers was to to rate their leaders using the five-points Likert scale.

The researcher sent the Arabic version of the questionnaire to 100 companies to test the validity and reliability of the questionnaire. There are 35 responses from the companies. This number is acceptable for testing the validity and reliability according to (Lumsden *et al.*, 2013; Saunders *et al.*, 2018; Vickers & Offredy, 2010).

7.4.6 Questionnaire translation

Researchers must give more care in translating the questionnaire into another language. According to Saunders et al. there are some elements that require extra attention. These elements are as follow: lexical meaning (the precise meaning of each word), idiomatic meaning (the meanings of words that it are natural to the native speaker), experiential meaning (the equivalent meanings of words), and grammar and syntax (the correct language and the order of the words etc.) The translation has to be accurate and clear (Saunders *et al.*, 2018).

There are four techniques for translating the questionnaire (Usunier, 1998) and these are as follows:

- direct translation; the researcher translates it directly. It is an easy way, low cost but it may lead to some errors.
- the back-translation technique; the researcher translates the questionnaire to the target language, then translates it back to the

original language by using two independent translators and then compares the two questionnaires in the original language to create the final questionnaire. This method is expensive, but it can help to avoid some translation errors.

- parallel translation; the questionnaire is translated to the target language by independent translators, and at the same time the researcher compares the two questionnaires to create the final questionnaire. It is also expensive, but it may help in reduce the translation problems.
- Mixed techniques; using the back-translation technique by using two or more independent translators and comparing the two questionnaires to create the final questionnaire in the target language. It is also expensive because it requires more than two independent translators, but it can discover translation problems and correct them.

This study used the back-translation technique to translate the English questionnaire to Arabic language, then translate it back to English language. The two English questionnaires were compared and discussed using two independent translators. They found some items had different meanings, so then these items were corrected in the final version of the questionnaire. Therefore, this study took more care in translating the questionnaire to make sure that the questions cover the dimensions of the independent variables and the dependent variable clearly and with no confusion for the respondents.

7.5 Sampling

Population refers to all cases from which a sample is chosen (Saunders *et al.*, 2018). It is difficult to collect the data from the entire population. Therefore, sampling is important to collect data. The sample must represent the population (Field, 2013; Vogt *et al.*, 2007).

Collecting data from a sample which represents the population is a useful method (Saunders *et al.*, 2018). It is also important to plan using questionnaire, interviews, observations, or secondary data. Collecting data using sampling increases accuracy than using the entire population. Using a sample allows the researcher to spend time designing and testing the data. It also allows collection of more detailed information (Barnett 2002). The important point of using the sample is that the sample must help the researcher to answer the research questions (Saunders *et al.*, 2018).

Sampling techniques can be divided in to two types: non-probability and probability sampling (Etikan *et al.*, 2016; Saunders *et al.*, 2018).

In the probability sampling, the probability of each case is unknown (Saunders *et al.*, 2018). This type is usually used in the case studies. This technique is unbiased and gives a good estimate of the parameters if the population is similar (Singh & Masuku, 2014). With probability sampling (known as representative sampling) the probability of each case is known and usually is the same for all cases. It is associated with survey (Saunders *et al.*, 2018; Vogt *et al.*, 2007). The probability sampling is most common in survey research where the researcher needs to make an assumption from the sample to answer the research question. Probability sampling is divided into four stages according to (Saunders *et al.*, 2018). Identify the suitable sampling frame depends on research questions and the objectives. The sampling frame is a complete list of all cases in the population. It is important to determine this list in order to decide the suitable sample. However, it has some possible problems according to Edward et al. (Edwards & Lambert, 2007), such as incomplete individual database. Vogt et al. stated that using the probability technique helps the researcher to maximise the validity of generalisation and minimise bias (Vogt *et al.*, 2007).

Non-probability sampling is sometimes called judgemental sampling. Etikan et al. sated that non-probability sampling has two types which are: convenience sampling and purposive sampling (Etikan *et al.*, 2016). Convenience sampling is known as accidental sampling or haphazard sampling. It is a form of non-random sampling, where the data is collected from the target population in non-specific way, due to practical criteria such as accessibility and proximity of the participants, their availability and willingness to be included in the sample. It happens where the researcher is collecting the data (Etikan *et al.*, 2016).

Due to the accessibility, proximity of participants, their availability and willingness, the current research used non-probability sampling which is convenience sampling. This type of sampling assume that the members of the population are similar. This would have no deference in research results found from random sample (Etikan *et al.*, 2016; Palinkas *et al.*, 2015).

In this research, the population is SMEs in Gamsah and New Dameitta region in Egypt. The sampling unit in this research is the employees of the SMEs in the region of the study. It is difficult to collect data from the entire population of the SMEs in Gamsah and New Dameitta because of the time and the cost.

7.5.1 The sampling frame

The sampling frame is a list of all cases in the population (Saunders *et al.*, 2018).

The number of SMEs in Egypt is 2.5 Million enterprises. They represent 75% of the total work force where, 95% of these enterprises are not agricultural enterprises. Small and Medium firms represent 13% & 46% manufacturing enterprises respectively (Bary, 2019).

In Egypt, SMEs represent 80% of the total employment in the private sector. 85% are concentrated in the manufacturing sector and the wholesale trade, and only 15% in agriculture (creative Associates International, 2016). The SMEs in Egypt according to The Central Agency for Public Mobilization and Statistics CAPMAS highlighted that the SMEs in Egypt 2.4 million establishments (Mounir, 2016).

To determine the sampling frame of this research, the researcher used the two lists that were obtained from a directory of businessmen association in Gmasah and New Dameitta. The first list showed 155 firms and the second list showed 257 firms. Therefore, the sample frame used in this research is 412 SMEs in different types of business in the industrial areas in Gamsah and New Dameitta (ACD, 2014).

7.5.2 Sample size

The sample size is an important element to determine in collecting data. It helps to avoid the risk of inadequate information (Saunders *et al.*, 2018). The sample represents the population. Therefore, the sample size must be appropriate. Sekaran and Bougie stated that if the sample size is large, the error will be low. They also mentioned that there are some factors that need to be taken into consideration when determining sample size, such as: variability, type of sample, time, cost, the estimation precision and level of certainty (Sekaran & Bougie, 2011).

The study used the population of SME in Gamsah and New Dameitta in Egypt which is 412 firms and they are industrial area. Thus, a required sampling error level ±7% and 95% confidence level determines a required sample of 204 of the SMEs in the region of the study using the following equation (Singh & Masuku, 2014):

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

Where:

n is the sample size

N = the population

e = the sampling error or the level of precision.

The questionnaires were distributed to 400 managers to increase the response rate. The responses were 220 responses, 10 of which were invalid, with some questions incorrectly answered or not completed. Therefore, 210 were valid and free of missing data. According to Hair et al. the sample size when using SEM should be 100 or more to give acceptable results (Hair *et al.*, 2010). Therefore, the sample size of this study is acceptable.

7.6 Data preparation and screening

Preparing and screening the data is important to make sure that there are no missing values which can cause bias and invalidate results (Hair *et al.*, 2010). Therefore, the current study excluded 10 questionnaires, which represents 4% of the responses. Thus, there were 210 valid questionnaires with no missing data. Data were recorded in the SPSS version 25 and coded as shown in Table 22.

Table 22 Coding the questionnaire

Construct	**Code in SPSS**	**Description in the questionnaire**	**Value**	**Measures**
Gender	1 = Male 2 = Female	Male Female	2 options	Nominal
Marital status	1 = single 2 = married 3 = widowed/ divorced	Single Married Widowed/divorced	3 options	Nominal
Age	1 = 20 - 30 2 = 31 - 40 3 = 41 – 50 4 = 51 – 60 5 = > 60	a) 20 - 30 b) 31 - 40 c) 41 – 50 d) 51 – 60 e) > 60	5 options	Nominal
Tenure	1 = < 10 2 = 11 – 15 3 = 16 – 20 4 = 21 – 25 5 = > 25	a) < 10 b) 11 – 15 c) 16 – 20 d) 21 – 25 e) > 25	5 options	Nominal

Qualifications	1 = Bachelor 2 = High Diploma 3 = Master 4 = PhD 5 = Others	a) Bachelor b) High Diploma c) Master d) PhD e) Others	5 options	Nominal
Job	1 = Manager 2 = deputy general manager 3 = others	a) Manager b) Deputy general manager c) others	3 options	Nominal
Character orientation	CO1 - CO7	1 -7	5 options	Scale
People orientation	PO8 - PO20	8 - 20	5 Options	Scale
Task orientation	TO21 - TO 25	21 - 25	5 options	Scale
Product Innovation	PDI26 - PDI 30	1 - 5	5 options	Scale
Process innovation	PCI 31- PCI 35	6 - 10	5 options	Scale
Knowledge donating	KD 36 - KD 43	1 – 8	5 options	Scale
Knowledge collecting	KC 44 - KC50	9 - 15	5 options	Scale

7.7 Summary

This chapter showed the research methodology for the current study. The study used the quantitative method based on positivism philosophy and deductive approach to explain the causal relationship between the independent variables SL and the dependent variables INN through the mediating role of the KS. The study used the self-administrated questionnaire with close-ended questions using Likert point scale. SEM was used to examine the effect of SL on INN through the mediating role of KS.

Chapter 8 Data Analysis and Finding

Previous chapters covered the background of the study, the literature review of servant leadership (SL), knowledge sharing (KS) and innovation (INN). In addition, previous chapters discussed the conceptual framework of the model, the hypotheses of the study, and the research methodology. This chapter covers description of the sample, descriptive analysis, structure equation modelling (SEM), structure model and testing of the hypotheses and summary of the results.

8.1 Introduction

This chapter is about the data analysis and techniques which are used to study the impact of the SL on INN using the KS as a mediator in the small and medium enterprises (SMEs) in Gamsah and New Dameitta region in Egypt.

Structural equation modelling (SEM) was used in Amos 25 was used in this study to test the hypothesised relationships. SEM helps to produce models and illustrates the relationships between the dimensions. It also helps in analysing the direct and indirect effects between the factors. The SPSS version 25 was used to examine the reliability of the questionnaire and the validity of the constructs. It was also used to carry out two types of factor analysis; exploratory factor analysis (EFA), which identifies any underlying relationships between variables, and confirmatory factor analysis (CFA), which is used to test whether the data are compatible with the hypothesised model.

This chapter also discusses the results and findings of the study. Based on the objectives of the study, this chapter discusses the impact of the SL and its dimensions on INN and its dimensions using KS as a mediator. The study evaluated and investigated the strength of the relationships between the constructs. EFA was used to determine the factors and correlation between these factors. CFA was used to determine the dimensions of the variables in each construct. From the EFA and CFA, there were seven factors and these factors were: character orientation, people orientation and task orientation (SL dimensions), knowledge donating, and knowledge collecting (KS dimensions) and product and process innovation (INN dimensions).

The study used quantitative approach to study the relationship between SL, KS and INN. This chapter discusses these: servant leadership and innovation, servant leadership and knowledge sharing, knowledge sharing and innovation and the effect of KS as a mediator in the relationship between SL and INN.

8.2 Description of sample

It is difficult to collect data from the entire population of the SMEs in Gamsah and New Dameitta because of the time and cost. Collecting data from a sample which represents the population is a useful way to minimise the time and cost, and yet still be able to draw conclusions about the population from the sample (Saunders *et al.*, 2018). It is also important to plan the way the data will be collected such as using questionnaire, interviews, observations, or secondary data. Collecting data using sampling increases accuracy than using the entire population as it allows the researcher to focus on a small number of the population. In addition, using a sample allows the researcher to spend time designing and testing the data. It also allows to collect more detailed information (Barnett, 2002). The important point of using the sample is that the sample must be geared and powered to answer the research questions (Saunders *et al.*, 2018).

Table 23 Demographic statistics of the sample from SME

Characteristic	Group	Frequency	Percentages
Gender	Male	181	86.2
	Female	29	13.8
Marital Status	Single	39	18.6
	Married	157	74.8
	Widow or divorced	14	6.7
Age	20 - 30	34	16.2
	31 – 40	106	50.5
	41 – 50	48	22.9
	51 - 60	22	10.5
Tenure	Less than 10	75	35.7
	11 – 15	84	40.0
	16 – 20	22	10.5
	21 – 25	23	11.0
	More than 25	6	2.9
Qualifications	Bachelor	116	55.2

	High diploma	41	19.5
	Master	9	4.3
	PhD	1	0.5
	Others	43	20.5
Job	Manager	210	100.0

The sampling frame in this study is a list of small and medium enterprise (SMEs) in the Gamsah and New Dameitta region in Egypt. In this study, there are 412 SMEs in different types of business. The target population in this study is the employees of the 210 of SME in the Gamsah and New Dameitta region in Egypt.

Table 23 shows the demographic statistics of the sample from SME in Gamsah and New Demaitta in Egypt. In the sample the percentage of males was 86.1% and only 13.8% female. For the marital status, 18.6% of the sample was single, 74.8 married, and 6.7% widowed and divorced. The percentage number of people aged between 20 - 30 years was 16.2%, while 50.5% were aged between 31 - 40. The percentage of 41- 50 years old was 22.9% and 51- 60 years old made up the 10.5% of the sample. The percentage number of people who have worked for less than 10 years was 35.7%, while 40% worked in their jobs from 11 to 16 years, and 10.5% worked from 16 to 20 years. In addition, 11% worked from 21 years to less than 25 years and 2.9% worked more than 25 years. In terms of the qualifications, the majority of the sample attained a bachelor's degree (55.2%), while 19.5% attained a High Diploma, 4.3% obtained a master's degree, and only 0.5% attained a PhD, while 20.5 % had other qualifications. In the terms of the job, 100% of the sample were managers.

8.3 Descriptive analysis

Table 24 Skewness and Kurtosis of the seven components

Descriptive Statistics						
	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Character Orientation	3.9317	.41643	-.557	.168	2.480	.334
People Orientation	4.0167	.51678	-.231	.168	-.012	.334
Task Orientation	4.0429	.36568	-.675	.168	5.445	.334
Knowledge donating	3.9405	.67422	-.148	.168	-.984	.334
Knowledge Collecting	3.8095	.55502	-.188	.168	-.881	.334
Product Innovation	3.9413	.60323	-.179	.168	-.845	.334
Process Innovation	4.0250	.49365	-.298	.168	.011	.334

It is important to screen data in order to assess whether SEM is an appropriate method and before testing the measurement model (Byrne, 2013). The normality must be tested for the factors in SEM (Hair *et al.*, 2010). Multivariate normality was tested for the dimensions of the SL, KS and innovation. Kurtosis and skewness were tested to measure the normality and should range between 2 and -2 (Field, 2013). Table 24 shows Skewness and Kurtosis of the components of the sample from SME in Gamsah and New Demaitta in Egypt. It is clear that kurtosis for the majority of the dimensions are between 2 and -2 except two dimensions: character orientation 2.480 and task orientation 5.445. According to central limit theorem, when the sample size is big, the sampling distribution tends to be normal (Field, 2013; Mishra *et al.*, 2019). Field stated that the sampling distribution will show normality regardless of the population distribution if the sample size is 30 or more (Field, 2013). Therefore, in the current study, the sample size is 210. This confirms the normality. The histogram Figure 12 and the normal Q-Q plots Figure 13 were also used to visually confirm the normality test; the two graphs show that the two dimensions follow a normal distribution. Therefore, from these tests of the data in this study, the normality assumption of the data, required to carry out the SEM methods, hold.

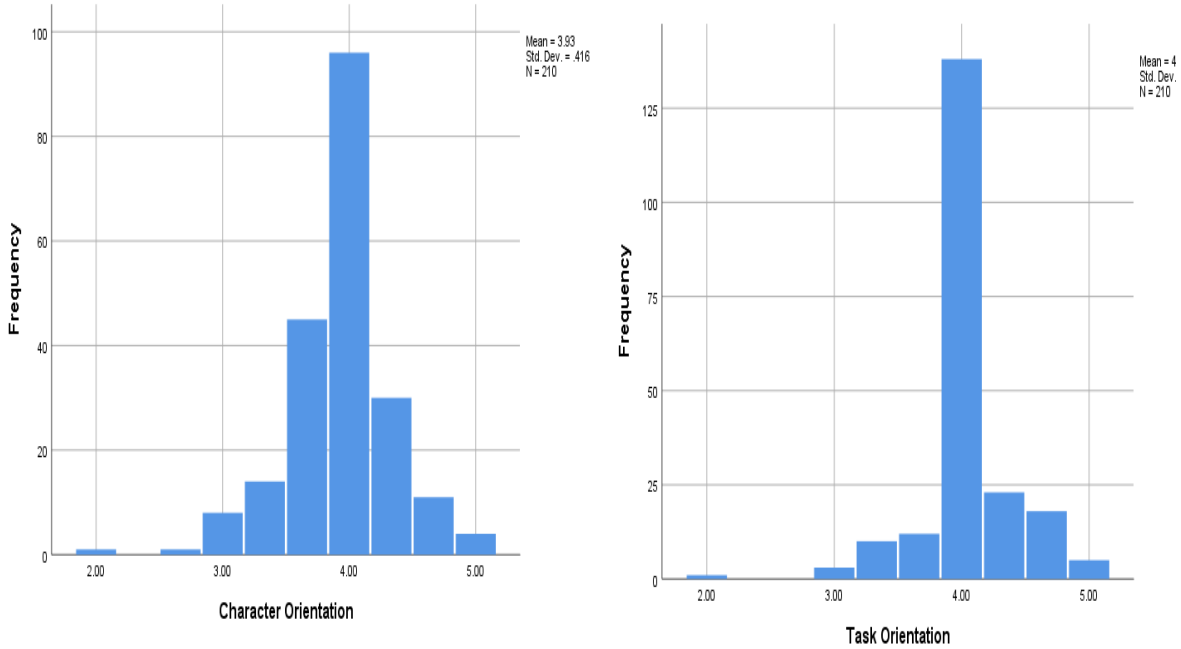


Figure 12 Histograms of Character Orientation and Task Orientation

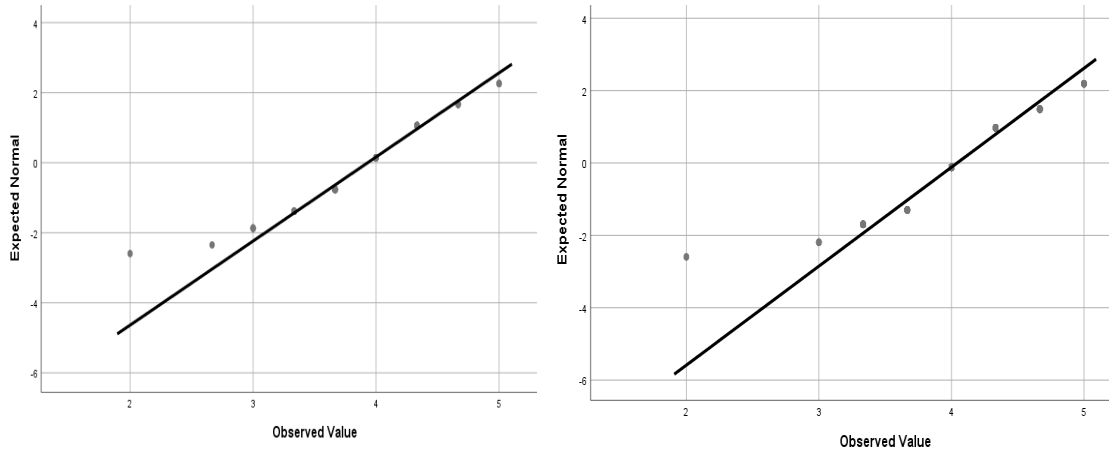


Figure 13 Normal Q-Q Plots of Character Orientation and Task Orientation

8.4 Structure equation modelling (SEM)

8.4.1 Factor Analysis

As mentioned above, there are two types of factor analysis, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The EFA is a method of testing dimensionality. In another word it is selected to underlying dimensions of the variables without the influence of hypothetical constructs (Blunch, 2013; Floyd & Widaman, 1995). The use of CFA can significantly reduce the complexity of the data. There are different methods within the CFA framework such as Maximum likelihood factor analysis and principle component. The CFA is used to determine the internal reliability of the measures when the researcher has knowledge of the dimensions of the latent variables. To determine the dimensions of the latent variables, factor loadings was used in CFA (Hair *et al.*, 2010).

Structural equation modelling (SEM) is defined as a statistical method that depends on a confirmatory approach to analyse a structural theory bearing on some phenomenon. This theory explains a causal relationship between variables (dependent and independent variables (Byrne, 2013). SEM is used in marketing research and other business researches in quantitative research methods. It represents and tests the relationship between variables. The main aim of the SEM is to measure the causal relationship between one or more independent and dependent variables by assessing to what extent the hypothetical constructs are fit with the obtained data. These variables are latent and observed variables (Byrne, 2013). Latent variables which are measured by observed variables. The observed variables are explained by the indicators. The indicators are the questions that are answered using the 5-point Likert scale (e.g. 1 is strongly disagree, 2 is disagree, 3 is neither agree or disagree, 4 is agree and 5 is

strongly agree). The Likert scale is a scale to represent people's opinions to a certain matter. It ranges from an extreme to another and it can 3,4,5 and 7 points (Kock, 2019).

In this study to determine the dimensions of SL, KS and innovation, EFA was used first to screen the data before SEM was used. The EFA was conducted using SPSS software version 25 with 50 items: 25 for SL, 15 for KS and 10 for innovation. Kaiser-Meyer-Olkin (KMO) & Bartlett's test is used by most academic and business studies. KMO & Bartlett's test is an important test for accepting the sample adequacy and it should have a value greater than 0.5, according to (Field, 2009). The result for this study from SPSS showed that the KMO measure of sampling adequacy was 0.918, as shown in Table 25 means that the sample is adequate.

Table 25 KMO and Barlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.918
Bartlett's Test of Sphericity	Approx. Chi-Square	7864.389
	df	1225
	Sig	0.000

Principal component factor analysis was used with varimax rotation to determine factors were linearly independent. Eigenvalues greater than 1 were used to retain the number of items. Table 26 shows that there were seven factors and 22 items (10 items of SL, 5 for KS and 7 for innovation) remaining after 28 items below 0.4 were deleted. From EFA, there were seven factors character orientation (CO), people orientation (PO), task orientation (TO), product innovation (PDI), process innovation (PCI), knowledge donating (KD), and knowledge collecting (KC), these factors were measured using 22 items.

The dimensions of the SL are as follows:

- Character orientation (CO4, CO5 and CO6)
  - Ables to encourage the followers (0.693).
  - Treats the followers with great sense of humanity (0.639).
  - Takes into consideration the needs of the followers (0.820).
- People orientation (PO16, PO18, PO19 and PO20)
  - Takes into consideration the abilities of the followers (0.602)
  - Is aware of the strength of the followers and able to capitalise on them (0.661)

    - Supports the followers in the face of work-related hardships (0.626)
    - Ables to forgive mistakes and remains supportive (0.653)
- Task orientation (TO22, TO24 and TO25)
    - Ables to look ahead and plan accordingly (0.715)
    - Encourages followers to address problems from a variety of different perspectives (0.771)
    - Considers new innovative ideas during decision-making process (0.773)

The dimensions of Innovation are as follows:

- Product innovation (PDI26, PDI28 and PDI30)
    - The company values the importance of research and development (0.640)
    - The latest technologies are made available on an individual level when needed in the company (0.626)
    - Employee training sessions are always available to encourage their developments (0.652)
- Process innovation (PCI31, PCI32, PCI33 and PCI35)
    - The company prioritises cooperation teamwork between employees (0.620)
    - The company works to improve the quality of its products or services by incorporating new technologies (0.696)
    - The company encourages its employees to innovate through providing them with personnel rewards and bonuses (0.793)
    - The company always endeavours to improve available facilities for the employees and customers (0.711)

The dimensions of KS are as follows:

- Knowledge donating (KD39 and KD42)
    - The employees share knowledge of their field with others. (0.644).
    - Colleagues in the same department share their knowledge within themselves (0.748).
- Knowledge collecting (KC47, KC48 and KC49)
    - If requested, colleagues within the same department share skills (0.782).
    - If requested, colleagues within the same department share useful information (0.848).
    - If requested, in the face of a particular problem, colleagues share required information to help solve it (0.789)

Table 26 Results of EFA (from rotated component matrix)

Items	1	2	3	4	5	6	7
CO4 CO5 CO6	0.693 0.639 0.820	Character orientation (CO)					
PO16 PO18 PO19 PO20		0.602 0.661 0.626 0.653	People orientation (PO)				
TO22 TO24 TO25			0.715 0.771 0.773	Task orientation (TO)			
PDI26 PDI28 PDI30			Product innovation (PDI)	0.640 0.626 0.652			
PCI31 PCI32 PCI33 PCI35				Process innovation (PCI)	0.620 0.696 0.793 0.711		
KD39 KD42					Knowledge donating (KD)	0.644 0.748	
KC47 KC48 KC49						Knowledge collecting (KC)	0.782 0.848 0.789

8.4.2 Reliability and validity of the research

Table 27 Reliability results of the factors from EFA

Items	Cronbach's alpha	Cronbach's alpha if item deleted	Corrected item total correlation
CO4	0.728	0.695	0.464
CO5		0.699	0.442
CO6		0.658	0.543
PO16	0.809	0747	0.653
PO18		0.788	0.567
PO19		0.722	0.704
PO20		0.780	0.583
TO22	0.703	0.711	0.439
TO24		0.446	0.639
TO25		0.639	0.503
PDI26	0.772	0.620	0.677
PDI28		0.769	0.534
PDI30		0.672	0.633
PCI31	0.880	0.812	0.620
PCI32		0.792	0.665
PCI33		0.789	0.674
PCI35		0.773	0.708
KD39	0.814	-	0.686
KD42		-	0.686
KC47	0.858	0.794	0.738
KC48		0.687	0.843
KC49		0.889	0.630

The reliability of the data refers to whether the process of data collection and analytic procedures are reproducible and produce consistent findings if they were replicated by another researcher, or if they were repeated on another occasion. There are threats to research reliability. These threats are participant

error, participant bias, research error and researcher bias (Saunders *et al.*, 2018). While reliability has one clear definition, there are many different types of validity. Construct validity refers to the extent to which the research measures what it claims to measure. Internal validity is concerned to a causal relationship between two variables. External validity refers to whether the study's findings can be applies to other relevant groups or research (Drost, 2011).

Reliability for the seven factors was assessed using Cronbach's alpha as shown in Table 27. Cronbach's alpha shows how closely related items are as a group, it is a measure of internal consistency. Cronbach's alpha is a coefficient of reliability. Reliability shows the amount of measurement error in a test. The values of Cronbach's alpha for each factor were greater than 0.7 as recommended by most researchers (Byrne, 2013; Tavakol & Dennick, 2011). According to Tavakol and Dennick the acceptable values of alpha range from 0.70 to 0.90 (Tavakol & Dennick, 2011). If Cronbach's alpha is 0.7, there is 0.51 error variance (random error). It is calculated as $1 – (0.7^2) = 1 – 0.49 = 0.51$. As the reliability estimates increases, the random error decreases.

8.4.3 Measurement model and validity

In order to carry out SEM, two steps are required: the measurement model and the structural model. The validity of the hypothesised model is assessed using the measurement model, while the structural model evaluates the relationships between the latent variables found in the model.

After measuring the reliability, the validity of all constructs of the model is required. Validity is the most important measurement (Tarkkonen & Vehkalahti, 2005). Validity is concerned with whether the theoretical latent constructs measure what they are supposed to measure (Tarkkonen & Vehkalahti, 2005, p.173). There were two types of validity: construct validity checks the set of measured items of the model in this research, while convergent validity which is concerned with the degree to which dissimilar measures of the same construct are related (Fernández-Marcos *et al.*, 2018). If the item loadings are equal to or greater than 0.5 and the p-value is less than 0.05, the model has an acceptable convergent validity (Hair *et al.*, 2010). In this research, convergent validity was tested by investigating the items loadings, which were greater than 0.5 and p-values was less than 0.05. Discriminant validity which is concerned with that the latent construct is different from other constructs (Hair *et al.*, 2010). If the square root of the average variance is greater than the correlation of the construct, the model has an acceptable discriminant validity (Hair *et al.*, 2010).

Table 28 CFA factor loading estimates, t-values and p-values (* indicates that the p-value is significant)**

Construct	indicator	Factor loading	Estimate	Standard error	t-value	p-value
Character orientation	CO4	0.633	0.596	0.074	8.094	***
	CO5	0.807	1.000	*	*	***
	CO6	0.767	0.767	0.101	7.608	***
People orientation	PO16	0.892	1.000	*	*	***
	PO18	0.751	0.749	0.054	13.817	***
	PO19	0.844	0.905	0.053	17.145	***
	PO20	0.798	0.773	0.050	15.381	***
Task orientation	TO22	0.905	1.000	*	*	***
	TO24	0.945	0.769	0.030	25.351	***
	TO25	0.826	0.464	0.026	17.712	***
Product innovation	PDI26	0.884	1.000	*	*	***
	PDI28	0.714	0.649	0.052	12.550	***
	PDI30	0.856	0.776	0.045	17.296	***
Process innovation	PCI31	0.785	1.000	*	*	***
	PCI32	0.827	1.096	0.083	13.198	***
	PCI33	0.803	1.164	0.092	12.711	***
	PCI35	0.878	1.258	0.088	14.257	***
Knowledge donating	KD39	0.860	0.939	0.056	16.895	***
	KD42	0.889	1.000	*	*	***
Knowledge collecting	KC47	0.878	1.356	0.098	13.794	***
	KC48	0.975	1.624	0.105	15.438	***
	KC49	0.755	1.000	*	*	***

Note: (*) = Not estimated when loading set to fixed value (which is 1.0), and (***) = the p-value is significant.

The discriminant validity was assessed through CFA using Amos 25, and the findings are shown in Table 28. It shows the factor loading estimates, t-values

and p-value for the 22 items that were used to measure the seven factors from the EFA. The t-value was tested for each item of the seven factors. According to (Hair *et al.*, 2010) the t-value should be greater than 1.96 and the p-value is less than 0.05. From the table, the t-value for each item was above 1.96, and the p-value was less than 0.05. According to (Hair *et al.*, 2010), the value for the factor loading should be above 0.5. Table 288 shows that the factor loadings for each item in this study were above 0.5. It is therefore concluded that the model has an acceptable discriminant validity.

To measure the convergent validity, according to Fornell & Larcker the average variance extracted (AVE) and composite reliability (CR) can be used to assess the convergent validity (Fornell & Larcker, 1981), the AVE was used for each factor. It measures the level of variance taken by a construct against the error variance. The value 0.7 is considered good and 0.5 is acceptable. AVE for each construct was calculated using the sum of squares of the standardized factor loadings divided by the sum of squares of the standardized factor loadings plus total of error variances for indicators Table 299. Although the AVE of two constructs (people orientation and product innovation) are 0.4 and 0.41, they are acceptable as the AVE can be biased (Farrell, 2010; Fornell & Larcker, 1981). CR is greater than 0.6. According to Alarcón et al. the value of CR is acceptable if it is 0.7 and above (Alarcón *et al.*, 2015). As shown in Table 29 the CR is above 0.7 for all the items. Furthermore, CR is a less biased measure of reliability (Alarcón *et al.*, 2015); the required value of CR is 0.7 or above (Fernández-Marcos *et al.*, 2018). Therefore, the convergent validity is still adequate. These values: CR, AVE, and the Cronbach's alpha (α) are summarised in Table 29.

Table 29 Validity and reliability of the measurement model

Factor	α	AVE	CR
Character orientation	0.728	0.53	0.76
People orientation	0.809	0.40	0.73
Task orientation	0.703	0.56	0.80
Product innovation	0.772	0.41	0.70
Process innovation	0.880	0.50	0.80
Knowledge donating	0.814	0.50	0.70
Knowledge collecting	0.858	0.65	0.85

Note: a = Cronbach's alpha, AVE = average variance extracted, CR = composite reliability

8.4.4 Measurement model first order

The CFA was used to test the hypothesised dimensions of the model and measure the covariance between the dimensions that were identified from the EFA. The dimensions for SL were CO, PO and TO. The dimensions for innovation were PDI and PCI. The dimensions for KS were KD and KC.

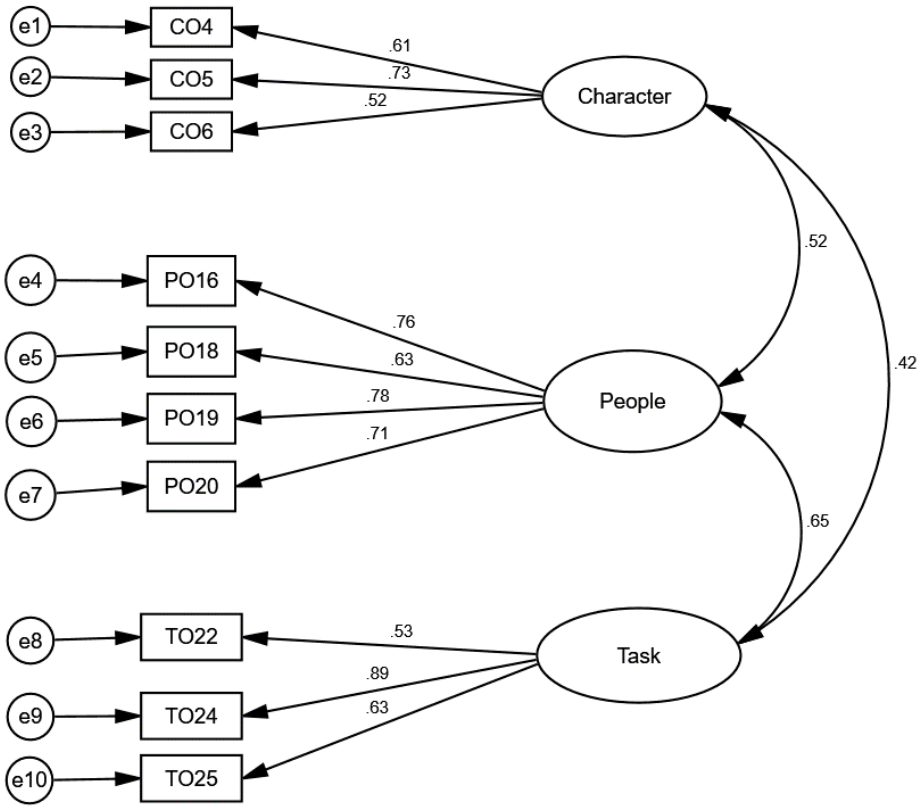


Figure 14 first order of measurement model of SL (Character orientation, people orientation and task orientation)

Figure 14 shows the dimensions of SL and Table 30 shows the results from CFA to evaluate the model fit. The results and fit indices of the dimensions of SL were found to be as follows: chi-square = 96.014, degree of freedom (df) = 32, χ^2/df= 3.00, root mean square error of approximation (RMSEA) = 0.098. The RMSEA index shows how well the model fits. It has been recognised as the most important informative index in covariance structure modelling (Byrne, 2013). It was recommended that the value of RMSEA be between 0.08 to 0.10 to be acceptable and if it is below 0.08 then the model has a good fit (MacCallum, Browne & Sugawara, 1996). If it is greater than 0.10 then it indicates a poor fit (Byrne, 2013). However, recently a cut-off value under 0.07 is recommended (Steiger, 2007). Generally, the value of RMSEA for the well-fitting model should be between 0 to 0.08 (Hooper, Coughlan & Mullen, 2008).

RMSEA for the SL first measurement model is 0.098. It is acceptable according to MacCallum et al. (MacCallum, Browne & Sugawara, 1996) and it is just above the upper limit of the cut-off value according to Byrne (Byrne, 2013). However, the model fits the sample data according to the other indices. These indices are CFI (comparative fit index), NFI (normed-fit index), TLI (Tucker-Lewis coefficient), GFI (goodness of fit index), AGFI (adjusted goodness of fit index), for these indices the value should be close to 1 to suggest a good fit. For the RMR (root mean square residual) the value should be less than 0.05 well fitting. The value of each of these indices as follow: CFI = 0.900, NFI = 0.860, TLI = 0.859, GFI = 0.918 and AGFI = 0.859. These indices show that the model of SL is good fit. RMR = 0.021 also suggests a good fit.

Figure 15 shows the dimensions of KS (KD and KC) and the results of the fit indices of the dimensions of KS as follow: chi-Square = 9.625, df = 4, χ^2/df= 2.407, RMSEA = 0.082, CFI = 0.991, NFI = 0.985, TLI = 0.978, GFI = 0.983, AGFI = 0.936, RMR = 0.008. The values of the indices of the first order measurement of the KS show a good fit of the sample data.

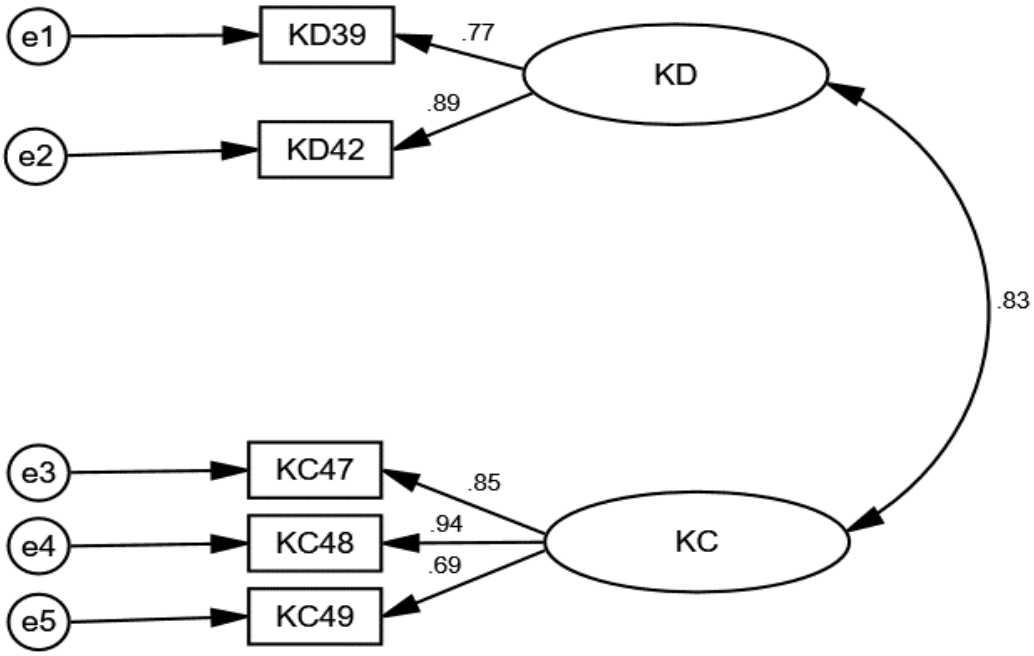


Figure 15 first order of measurement model of KS (knowledge donating and knowledge collecting)

Figure 16 shows the dimensions of innovation (product innovation and process innovation) and the results of the fit indices of the dimensions of innovation as: Chi- square = 14.813, df = 13, χ^2/df= 1.139, RMSEA = 0.026, CFI = 0.997, NFI = 0.977, TLI = 0.995, GFI = 0.981, AGFI = 0.960, RMR = 0.010. These values of indices suggest a good fit of the first order measurement of the dimensions of innovation for the sample data.

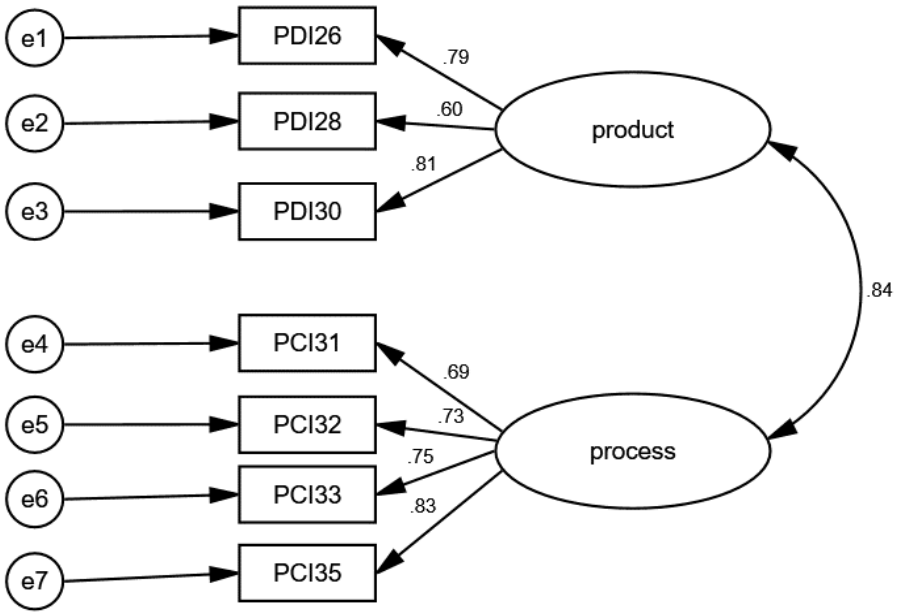


Figure 16 first order of measurement model of innovation (product and process)

Table 30 First order measurement model of SL, KS and innovation.

Indices	SL	KS	Innovation	Recommended criteria
Chi- square χ^2	96.014	9.625	14.813	P > 0.05
df	32	4	13	
$\frac{\chi^2}{df}$	3.000	2.407	1.139	<2-5
RMSEA	0.098	0.082	0.026	between 0.08 to 0.10
CFI	0.900	0.991	0.997	Close to 1
NFI	0.860	0.985	0.977	Close to 1
TLI	0.859	0.978	0.995	Close to 1
GFI	0.918	0.983	0.981	Close to 1
AGFI	0.859	0.936	0.960	Close to 1
RMR	0.021	0.008	0.010	<0.05

8.4.5 The first order of the measurement model of the SL, KS and innovation

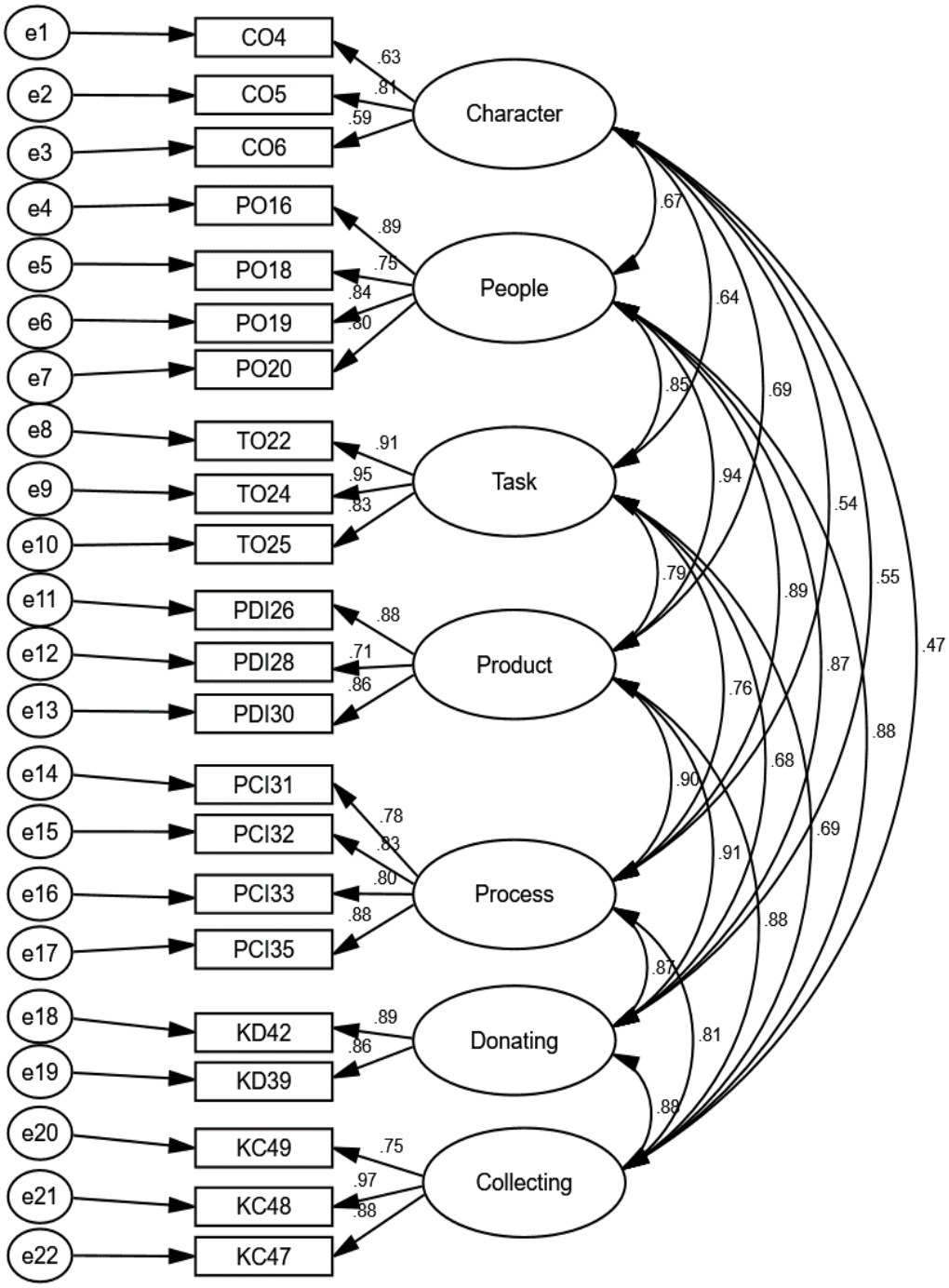


Figure 17 first order of measurement model for the seven factors (N=210)

Figure 17 shows the hypothesised model for the first order of SL,KS and INN. The figure shows that the three dimensions of SL(character, people and task orientation), two dimmensions of INN (product and process innovation) and two dimentions of KS (knowledge donationg and collecting). The results of the fit

indices as follows: chi- square = 552.596, df = 189, χ^2/df= 2.765, RMSEA = 0.092, CFI = 0.860, NFI = 0.800, TLI = 0.828, GFI = 0.855, AGFI = 0.806, RMR = 0.217. The results suggest a good fit of the first order of measurement model.

8.4.6 Measurement model second order

The second-order of measurement model of the SL, KS and INN as shown in Figure 18. It shows the three dimensions of SL, the two dimensions of KS and the two dimensions of INN. It shows that all these dimensions load well into the second-order model.

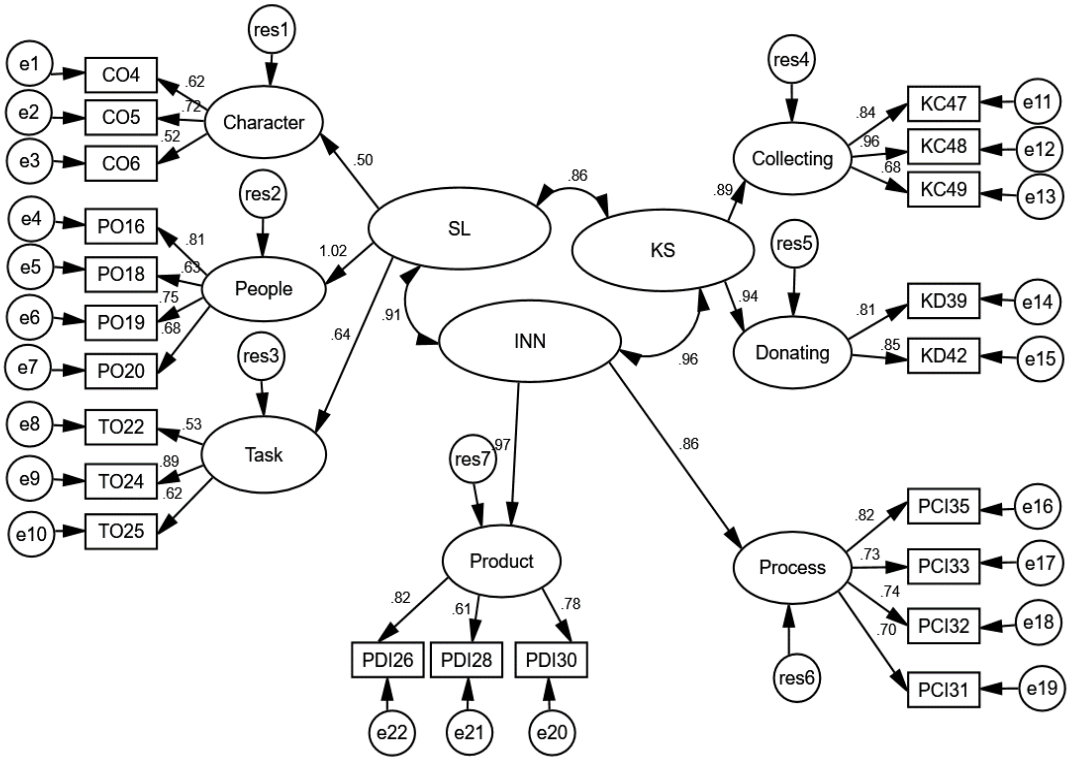


Figure 18 CFA second-order model of SL, KS and INN

The results form CFA second-order model are as follows: chi-square =353.884, df = 199, χ^2/df= 1.778, RMSEA = 0.061, CFI = 0.935, NFI = 0.864, TLI = 0.924, GFI = 0.870, AGFI = 0.835, RMR = 0.022. These indices suggest a good fit. Therefore, the model is acceptable.

8.5 Structure model and testing of the hypotheses

The structural equation model was used to measure the relationships between the constructs: SL, KS and INN and test the strength and the directions of these relationships by testing the hypotheses of this study. H1, H2 and H3 suggested that there are direct effects of SL on KS and KS on INN in SMEs in Gamsah and New Dameitta region in Egypt.

AMOS 25 was used to test the hypothesis model. From the fit indices, the hypothesised model had a good fit to represent the data. The path coefficients and its t-values should be above 1.96 to be significant at p<0.05 as shown in Table 31.

Figure 19 shows the model of direct effect of dimensions of SL on dimensions of INN. The results for the model from AMOS are as follows: chi-square = 314.933, df = 113, χ^2/df= 2.787, RMSEA = 0.092, CFI = 0.863, NFI = 0.805, TLI = 0.835, GFI = 0.852, AGFI = 0.799, RMR = 0.056.

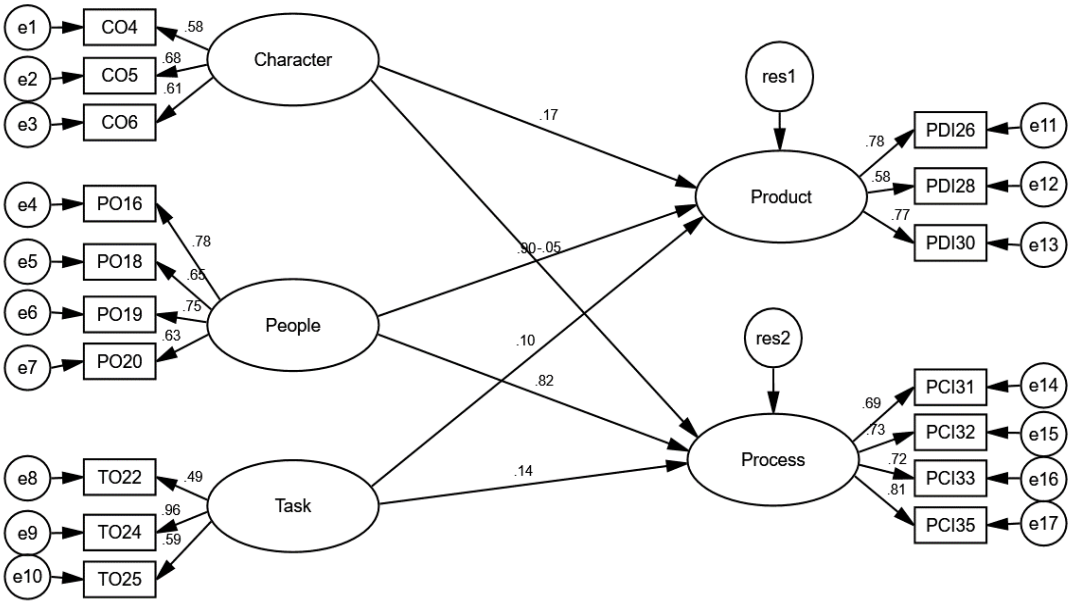


Figure 19 structure model of direct effects of SL dimensions on INN dimensions

Figure 20 shows the model of direct effects of SL on product and process innovation. The results of the model in AMOS are as follows: chi-square = 213.415, df = 114, χ^2/df= 1.872, RMSEA = 0.065, CFI = 0.933, NFI = 0.868, TLI = 0.920, GFI = 0.894, AGFI = 0.857, RMR = 0.022.

Figure 21 shows the model of direct effects of SL on INN. The results of the model from AMOS are as follows: chi-square = 209.991, df = 113, χ^2/df= 1.858, RMSEA = 0.064, CFI = 0.934, NFI = 0.870, TLI = 0.921, GFI = 0.895, AGFI = 0.858, RMR = 0.022. The model of direct effects of SL on INN is a good fit to the data.

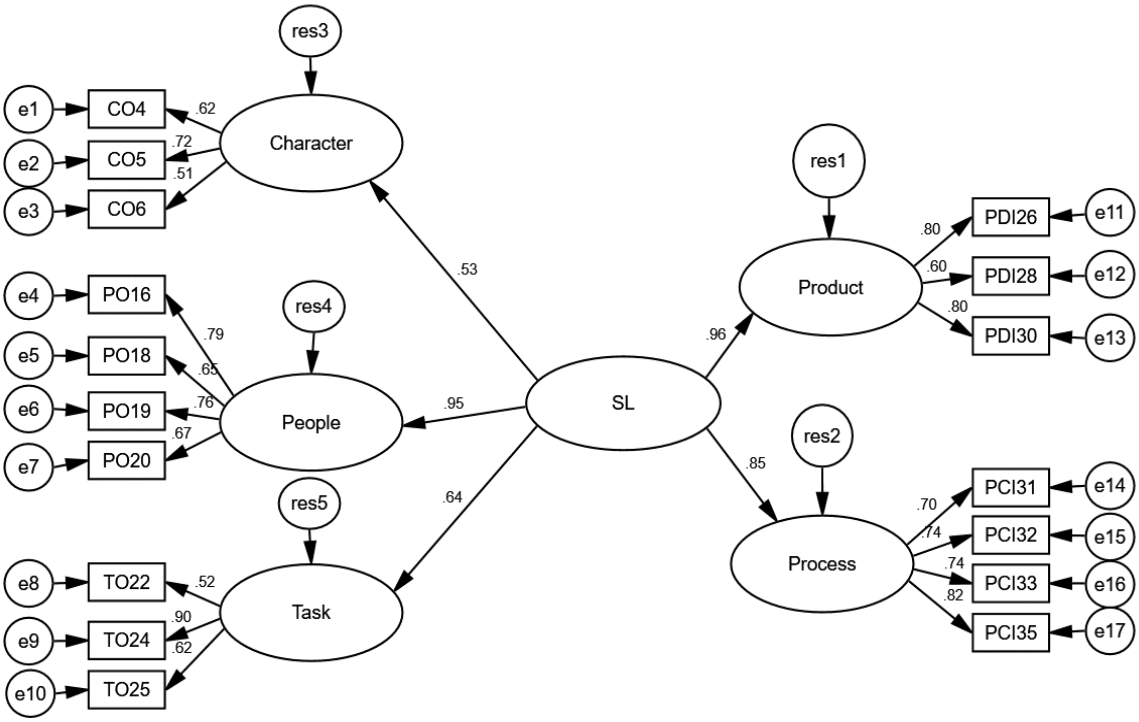


Figure 20 Structure direct effects model of SL on product and process

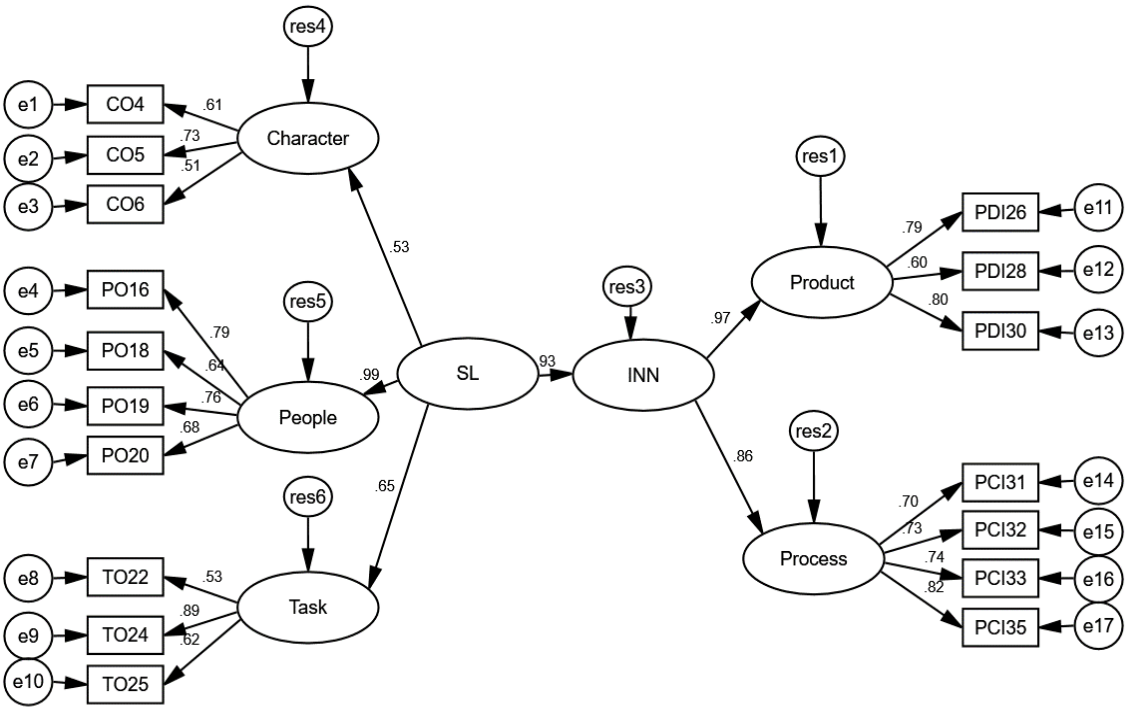


Figure 21 Direct effects model of SL on INN

The first hypothesis, H1, suggests that there is an effect of SL on INN. From Table 31, the effect of SL on INN is 0.348. The effect of the SL on product innovation is 0.956 with the effect of CO on product innovation is 0.175, the effect of PO on product innovation is 0.903 and the effect of TO on product innovation is 0.098. The effect of SL on process innovation is 0.849 with the

effect of CO on process innovation is -0.054, the effect of PO on process innovation is 0.820, and the effect of TO on process innovation is 0.136. it can be concluded that H1 is acceptable as there is an effect of SL on INN.

Figure 22 shows the direct effects model of SL dimensions on KS dimensions. The results of the model from AMOS are as follows: chi-square = 329.074, df = 86, χ^2/df= 3.826, RMSEA = 0.116, CFI = 0.834, NFI = 0.790, TLI = 0.797, GFI = 0.831, AGFI = 0.764, RMR = 0.057. The results show a good fit.

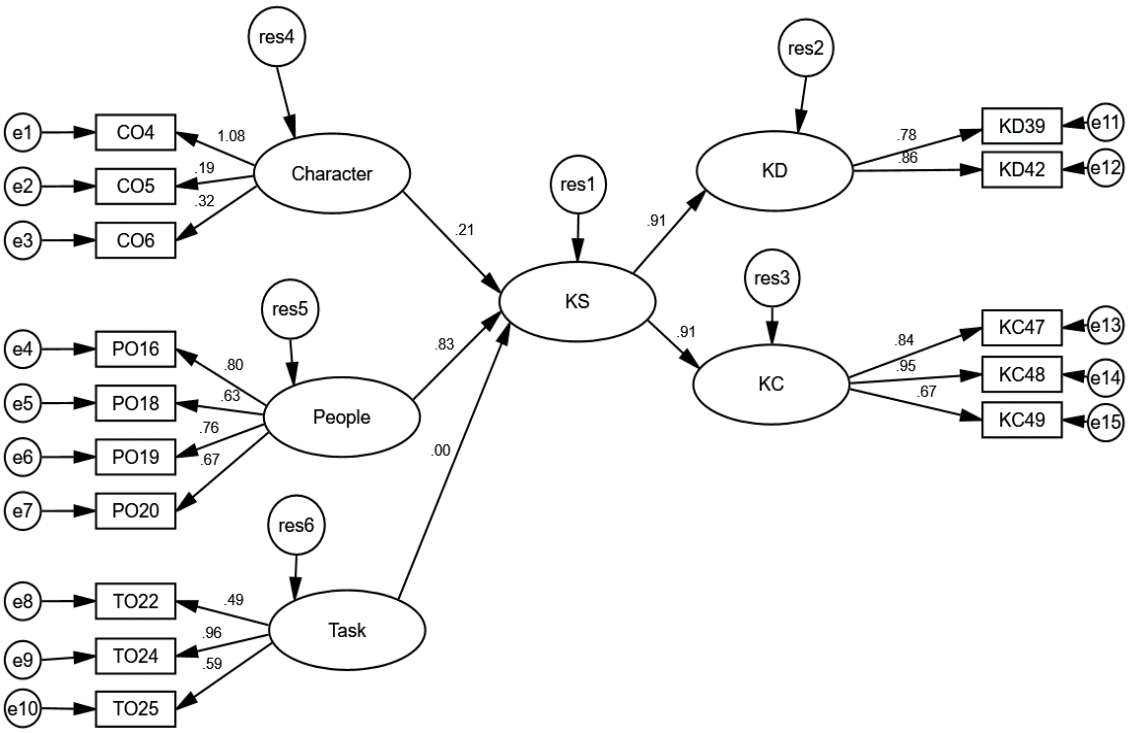


Figure 22 Direct effects of SL dimensions on KS

Figure 23 shows the direct effects model of the SL on KS. The results of the model from AMOS are as follows: chi-square = 192.228, df = 84, χ^2/df= 2.288, RMSEA = 0.079, CFI = 0.926, NFI = 0.877, TLI = 0.907, GFI = 0.896, AGFI = 0.852, RMR = 0.023. The results show that the model is a good fit.

The second hypothesis, H2, suggests that there is an effect of SL dimensions on the KS. The effect on KS is 0.861. The effect of CO on KS is -0.104, the effect of PO on KS is 0.793 and the effect of TO is 0.266. From the result, H2 is acceptable as there is an effect of SL on KS.

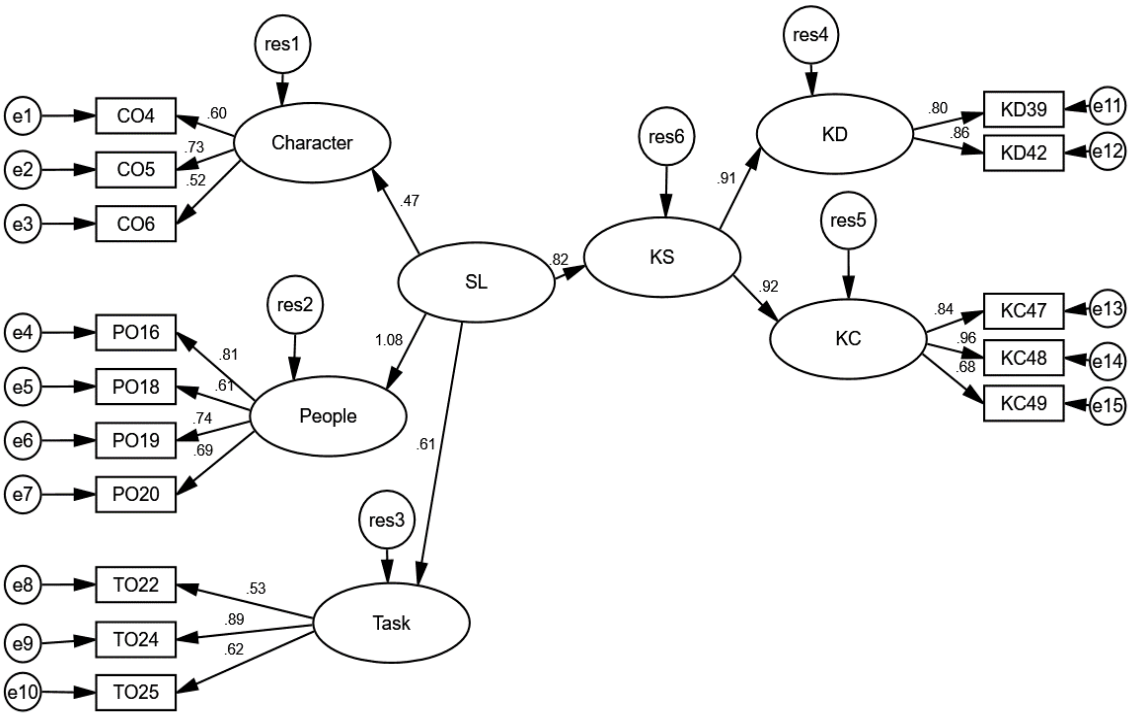


Figure 23 Direct effects model of SL on KS

Figure 24 shows the direct effects model of the KS dimensions on the product and process innovation. The results of the model from AMOS are as follows: chi-square = 79.252, df = 50, χ^2/df= 1.585, RMSEA = 0.053, CFI = 0.980, NFI = 0.948, TLI = 0.974, GFI = 0.943, AGFI = 0.911, RMR = 0.014. The results show that the model is a good fit model.

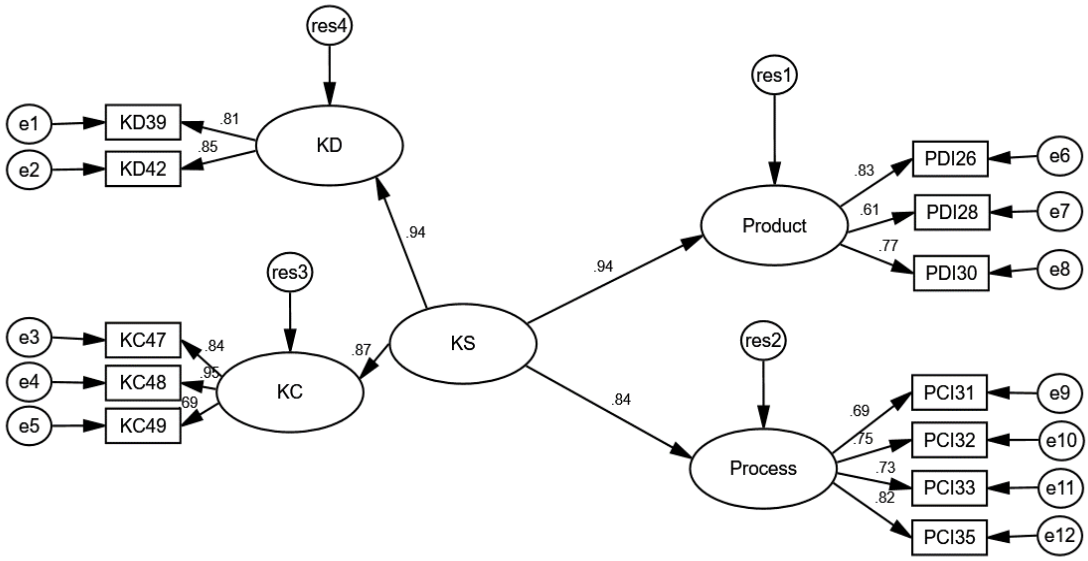


Figure 24 Direct effects model of KS on product and process innovation

Figure 25 shows the direct effects of the KS on INN. The results of the model from AMOS are as follows: chi-square = 76.933, df = 49, χ^2/df= 1.570, RMSEA

= 0.052, CFI = 0.981, NFI = 0.950, TLI = 0.974, GFI = 0.945, AGFI = 0.913, RMR = 0.014. The results show that the model is a good fit.

The third hypothesis, H3, suggests that there is an effect of KS dimensions on INN. The effect of KS on INN is 0.657. The effect of KS on product innovation is 0.944, the effect of KS on process innovation is 0.845. From the result, H3 is acceptable as there is an effect of KS on INN.

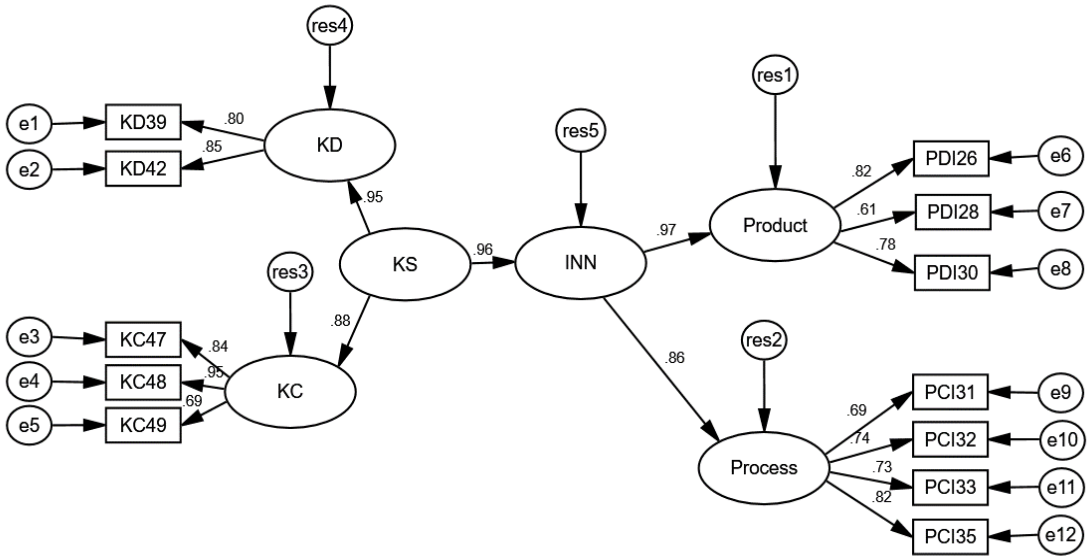


Figure 25 Direct effects model of KS on INN

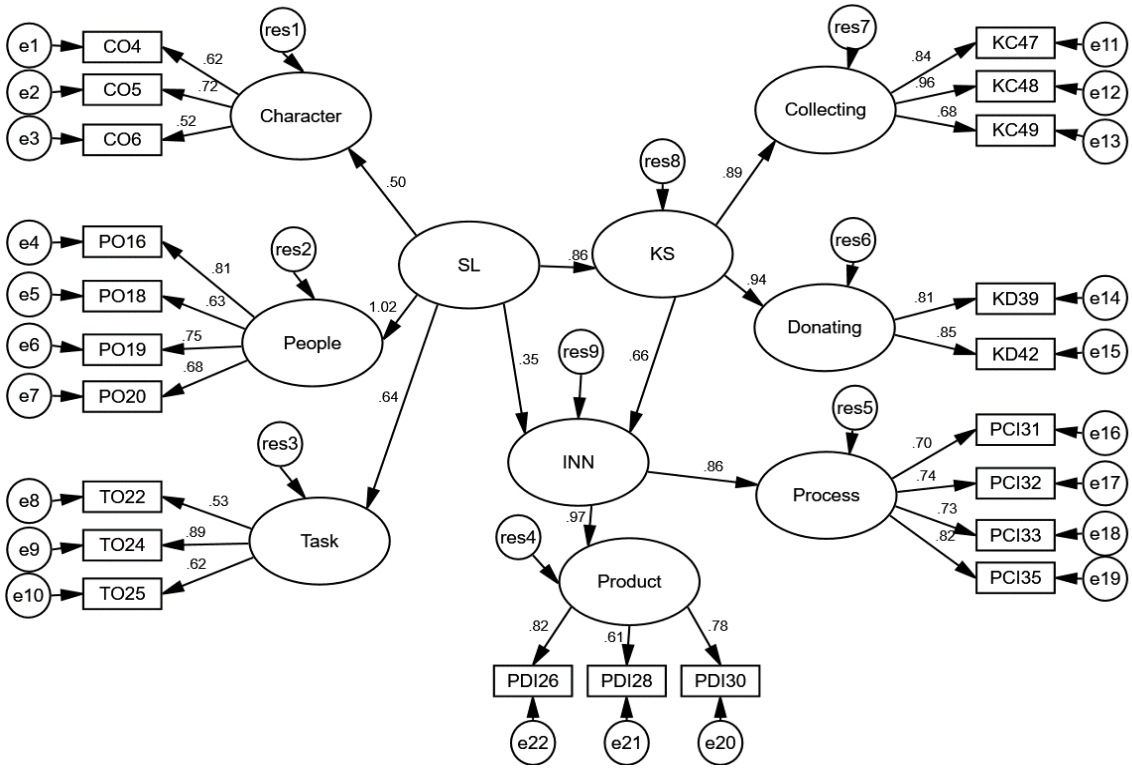


Figure 26 Hypothesised model of SL, KS and INN

Figure 26 shows the hypothesised model-structural of the SL, KS and INN. The results of the model from AMOS are as follows: chi-square = 353.884, df = 199,

χ^2/df= 1.778, RMSEA = 0.061, CFI = 0.935, NFI = 0.864, TLI = 0.924, GFI = 0.870, AGFI = 0.835, RMR = 0.022. The results suggest that the model has a good fit.

The fourth hypothesis, H4, suggests that there is a positive effect of SL on innovation using KS as mediator for this relationship.

Table 31 the direct effects of SL, KS and INN

Hypothesis		Hypothesis path	estimates	CR
H1	H1a	Character → product	0.175*	2.510
	H1b	People→ *product*	0.903***	10.374
	H1c	Task→ product	0.098	1.708
	H1d	**SL**→ product	0.956***	5.487
	H1e	Character → process	-0.054	-0.792
	H1f	People→ process	0.820***	8.637
	H1g	Task→ process	0.136**	2.233
	H1h	**SL**→ process	0.849***	5168
	H1i	**SL→ INN**	0.348*	2.318
H2	H2a	Character → KS	-0.104	-1.568
	H2b	People → KS	0.793***	9.419
	H2c	Task→ KS	0.266	
	H2d	**SL → KS**	0.861***	5.866
H3	H3a	KS → product	0.944***	11.231
	H3b	KS → process	0.845	10.128
	H3c	**KS → INN**	0.657***	4.150

Note: *** p < 0.001, ** p < 0.010 and * p < 0.050

8.6 Summary of the results of the hypotheses testing

Using SPSS 25 and AMOS 25, the hypotheses (highlighted below) were fully supported:

H1: SL and its dimensions have a positive influence on INN and its dimensions in SMEs in Gamsah and New Dameitta region in Egypt, the sub-hypothesis:

- H1a: Character orientation of SL has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.

- H1b: People orientation of SL has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1c: Task orientation of SL has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1d: SL has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1e: Character orientation of SL has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1f: People orientation of SL has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1g: Task orientation of SL has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1h: SL has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- H1i: SL has a positive influence on INN in SMEs in Gamsah and New Dameitta region in Egypt.

H2: SL and its dimensions have a positive influence on KS and its dimensions in SMEs in Gamsah and New Dameitta region in Egypt, the sub-hypothesis:

- H2a: Character orientation of SL has a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.
- H2b: People orientation of SL has a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.
- H2c: Task orientation of SL has a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.
- H2d: SL has a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.

H3: KS and its dimensions have a positive influence on INN and its dimensions in SMEs in Gamsah and New Dameitta region in Egypt, sub- hypotheses:

- H3a: KS has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- H3b: KS has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- H3c: KS has a positive influence on INN in SMEs in Gamsah and New Dameitta region in Egypt.

H4: KS and its dimensions positively mediate the impact of SL and its dimensions on INN and its dimensions in SMEs in Gamsah and New Dameitta region in Egypt.

8.6.1 Servant leadership and innovation

The first objective of this study was to determine the effect of SL and its dimensions on product and process innovation. To answer question1 of the study which is: what are the effects of SL and its dimensions on INN in SMEs in Gamsah and New Dameitta in Egypt?

SL dimensions were character orientation (CO), people orientation (PO) and task orientation (TO). INN dimensions were product innovation (PDI) and process innovation (PCI).

From the SEM and the results of testing the hypothesised model, there are positive influence of SL and its dimensions on INN and its dimensions. The answers for question1 are in details as below:

- CO has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- PO has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- TO has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- SL has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- CO has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- PO has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- TO has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- SL has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- SL has a positive influence on INN in SMEs in Gamsah and New Dameitta region in Egypt.

The servant leadership style is a style that the leader puts serving the followers as priority, takes the followers' needs and abilities in considerations. According to Greenleaf, the servant leader has 10 characteristics: listening, empathy, awareness, persuasion, commitment to develop the followers, conceptualisation, healing stewardship, foresight and building community (Spears, 1996).

The servant leadership style builds good relationships between the followers. In this study the aspects of the servant leaderships were as follow: the leader encourages the followers, treats them in humility, takes their needs in

considerations, takes their abilities in considerations, be able to utilise strengths of the followers, supports them to solve work problems, forgives them if they do mistakes and explains the corrections, has the ability to predict the future problems or solutions, encourages the followers to look to problems from different angles, respects and encourages their new ideas. The results show the positive relationship of SL on INN, but the relationship is stronger by the mediation of KS.

8.6.2 Servant leadership and Knowledge sharing

The second objective of this study was to determine the effects of SL and its dimensions on the KS and its dimensions. The dimensions of KS are knowledge donating (KD) and knowledge collecting (KC). The KS is an important part of organisational activities. Transferring and sharing the knowledge is necessary between the leaders, followers and the individuals who deal with organisation. It is the bridge between the employees and their organisation. (Kogut & Zander, 1992), (Grant, 1996),(Argote & Ingram, 2000).

The results of this study support H2 which suggests that SL and its dimensions have a positive influence on KS and its dimensions in SMEs in Gamsah and New Dameitta region in Egypt. In addition, it answers the question 2 which is: what are the effects of SL and its dimensions on KS and its dimensions?

From the results of SEM, there is a positive influence of SL and its dimensions on KS and its dimensions. The answers for question 2 are summarised below:

- CO has a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.
- PO has a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.
- TO has a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.
- SL has a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.

SL has a positive influence on KD and KC. Therefore, the study suggests that this style of leadership encourages sharing knowledge about the work performance or work problems between the followers and the leaders.

8.6.3 Knowledge sharing and innovation

The third objective to this study was to determine the effects of KS and its dimensions on INN and its dimensions. The results from the SPSS and AMOS support H3 which suggest that KS and its dimensions have a positive influence

on INN and its dimensions in SMEs in Gamsah and New Dameitta region in Egypt. In addition, the results answer question 3 which is: what are the effects of KS and its dimensions on INN and its dimensions?

From the results of SEM, there are positive influence of KS and its dimensions on INN and its dimensions. The answers for question 3 are in details as below:

- KS has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
- KS has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
- KS has a positive influence on INN in SMEs in Gamsah and New Dameitta region in Egypt.

The SEM in AMOS shows that the effect of KS on PDI is greater than the effect of KS on PCI. Overall effects of KS are high on both product and process innovation. Therefore, the results suggest that KS is playing an important role and affecting the INN in the SMEs in Gamsah and New Dameitta region in Egypt. According to Von Krogh et al. the role of KS is an important role in innovation in organisations (Von Krogh *et al.*, 2012).

8.7 Summary

This chapter has showed the statistics results from using SPSS 25 and AMOS 25. These were used to evaluate the model and investigate the strength and direction of the relationship between the dimensions. The hypotheses were fully supported. The SL and its dimensions have a positive influence on INN and its dimensions via KS. In other words, SL has an impact on INN through the mediation role of KS in SMEs in Gamsah and New Dameitta region in Egypt.

Chapter 9 Discussion

The previous chapters covered the background of the research, literature review, conceptual framework of the model, research methodology and data analysis and finding. This chapter covers the discussion of the findings of the current study. The study developed a conceptual model to examine the causal relationship between servant leadership (SL), innovation (INN) and knowledge sharing (KS). The study examined the impact of SL on INN through the mediating role of KS in small and medium enterprises (SMEs) in Gamsah and New Dameitta region in Egypt.

9.1 Introduction

Based on the objectives of the study, this chapter discusses the impact of SL and its dimensions on INN and its dimensions using KS as a mediator. The study used SPSS 25 and AMOS 25 to evaluate and investigate the strength of the relationships between the dimensions. Exploratory factor analysis (EFA) was used to determine the factors and correlation between these factors. Confirmatory factor analysis (CFA) was used to determine the dimensions of the variables in each construct. From the EFA and CFA, there were seven factors as follows: three factors were the SL dimensions which are: character orientation (CO), people orientation (PO) and task orientation (TO). Two factors were the dimensions of KS which are knowledge donating (KD), and knowledge collecting (KC). The other two factors were the dimensions of INN which were product innovation (PDI) and process innovation (PCI). The study used quantitative method based on positivism philosophy. The study used deductive approach to study the relationship between SL and INN through the mediating role of KS in SMEs in Gamsah and New Dameitta region in Egypt. The results showed that KS plays an important role in the relationship between SL and INN in SMEs in the region of study.

This chapter discusses the findings of the study. These are discussed in four sections: the first section discusses SL and INN, the second section discusses SL and KS, the third section discusses KS and INN, and finally the fourth section discusses the effect of KS as a mediator in the relationship between SL and INN.

9.2 Servant leadership and innovation

The first objective of this study was to determine the effects of SL and its dimensions (CO, PO, and TO) on INN and its dimensions (PDI and PCI).

From the structural equation modelling (SEM) and the results of testing the hypothesised model, it was revealed that there is a positive influence of SL and its dimensions on INN and its dimensions.

It answers the first question of the study: what are the effects of SL, namely character orientation, people orientation and task orientation on INN (product and process innovation) in SMEs in Gamsah and New Dameitta in Egypt?

A summary of the answers to this question are highlighted below:

1. Character orientation of SL has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
2. People orientation of SL has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
3. Task orientation of SL has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
4. SL has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
5. Character orientation of SL has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
6. People orientation of SL has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
7. Task orientation of SL has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
8. SL has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
9. SL has a positive influence on INN in SMEs in Gamsah and New Dameitta region in Egypt.

SL is a style where the leader puts serving the followers as a priority; they take the followers' needs and abilities into consideration. They have a desire to serve followers by developing and motivating them. This can have many benefits to the company as a whole, but in particular the servant leadership style builds good relationships between the followers (Dutta & Khatri, 2017). Mahembe and Engelbrecht also highlighted that servant leadership is recognised in positive psychology. In addition, servant leaders have high commitment to their followers, serve their needs and empower them. Mahembe and Engelbrecht

also described servant leadership as a highly ethical style due to the fact that they serve their followers first (Mahembe & Engelbrecht, 2013). According to Greenleaf 2002 and Spears 1996 the servant leader has 10 characteristics: listening, empathy, awareness, persuasion, commitment to develop the followers, conceptualisation, healing stewardship, foresight and building community (Greenleaf, 2002; Spears, 1996). The servant leaders create opportunities for the follower to develop and improve. They don't use their authority to get the followers do the tasks, but they persuade and encourage them to get tasks done (Dierendonck & Nuijten, 2011). SL is different from other leadership styles as SL focuses on the needs of the followers more than the organisation (Greenleaf, 2002). Soken & Barnes mentioned that effective INN requires true leadership, not just good management. True leaders have skills to engage employees, these leaders should have the ability to inspire, encourage, develop, and improve followers to be creative and innovative (Soken & Barnes, 2014)

As mentioned previously, the aspects of SL were character orientation (CO), people orientation (PO) and task orientation (TO). Each of these aspects can encompass a variety of characteristics and responsibilities.

CO is centred around how the leader treats their followers and includes opening up about values and beliefs, invoking respectfulness, displaying selflessness, encouraging the followers, interacting with people in a humane manner, taking the followers' needs into consideration and taking charge and responsibility.

PO is focused around the environment which the leader creates for his workers and includes creating happiness between the team, encouraging team work, being optimistic about the future, positively encouraging workers, having confidence in the followers, thinking outside the box, allowing time for training, considering followers' needs, considering followers' abilities, highlighting followers' weaknesses, utilising followers' strengths, supporting to solve work problems and forgiving the followers if they make mistakes, and being willing to explain the corrections.

Finally, TO focuses on the leader's responsibility to direct their followers in order to accomplish their company's targets. This includes taking into consideration ethical consequences when making a decision, having the ability to predict future problems from different angles, building teamwork, encouraging followers to look at the problems from different angles and encouraging and respecting new ideas.

For the first dimension of SL, the results show that CO has a positive relationship to PDI and PCI. The results show that servant leaders who have

these three characteristics: encouraging the followers, interacting with people in a humane manner and taking the followers' needs into consideration, positively affect product and process innovation. In particular, emphasising the important of development and research, producing new services and programs for development, providing new training schemes for staff, stressing the importance of teamwork and cooperation between staff, developing new technology to improve the quality of products, encouraging staff to be more innovative, and improving facilities to develop followers' innovation.

For the second dimension of SL, the results show that PO also has a positive relationship to PDI and PCI. The results show that servant leaders who have these traits: considering the followers' abilities, utilising followers' strengths, supporting the followers when problems appear, and forgiving the followers if they have made mistakes and helping them to correct them, positively affect PDI and PCI. In particular, emphasising the importance of development and research, producing new services and programs for development, providing new training schemes for staff, stressing the importance of teamwork and cooperation between staff, developing new technology to improve the quality of the products, encouraging staff to be more innovative, and improving facilities to develop followers' innovation.

Finally, for the third dimension of SL, the results show that TO has a positive relationship with PDI and PCI. In other words, the results show that servant leaders who have the following traits: the ability to predict future problems from different angles, encouraging followers to look at the problems from different angles, and encouraging and respecting new ideas, positively affect product and process innovation. The positive impact that these aspects of servant leadership has on product and process innovation is particularly potent in the these items: emphasising the importance of development and research, producing new services and programs for development, providing new training schemes for staff, stressing the importance of teamwork and cooperation between staff, developing new technology to improve the quality of products, encouraging staff to be more innovative, and improving facilities to develop followers' innovation. The results of the three dimensions of SL show that SL has a positive impact on product and process innovation.

The results of the three dimensions of the SL are congruent with other researchers' findings who studied the importance of SL in INN. For example, Dierendonck and Nuijten highlighted that applying and understanding the SL style and its dimension can affect the performance of the followers and this will affect PDI and PCI. SL style helps the followers to be creative and innovative (Dierendonck & Nuijten, 2011). Other researchers stated that SL has many

aspects similar to transformational leadership.SL focuses on serving the followers while transformational leadership focuses on the strategic way to get the followers to achieve the organisations' goals. However, both may affect innovation in different ways (Greenleaf, 2011; Stone *et al.*, 2004). SL focuses mainly on the followers and taking their needs into consideration to empower them (Hanse *et al.*, 2016). SL may also be related to the ethical leadership style. Brown stated that ethical leadership and SL can improve INN. Both share certain characteristics, such as caring for followers, trustworthiness, and integrity. The focus of ethical leadership is on the behaviour in the organisation, while the focus of SL is serving followers first (Brown *et al.*, 2014). Dierendonck and Nuijten also stated that the ethical leadership is more instructive and normative, while SL focuses on developing and improving the followers to be creative and innovative. SL focuses on taking followers' needs and their abilities into consideration and this will lead to achieving the organisation's goals (Dierendonck & Nuijten, 2011)

The results show that these characteristics of SL: encouraging followers, interacting with people in humane manner, taking the followers' needs into consideration, considering the followers' abilities, utilising the strengths of the followers, supporting them if they face a problem, forgiving and correcting their mistakes, having the ability to predict future problems, encouraging followers to see solutions to these problems from different angles, encouraging and respecting new ideas, all have a positive impact on PDI and PCI. Although the impact of SL and its dimension on PDI is more than the impact on PCI, the impact of SL on PCI is still positively high.

9.3 Servant leadership and knowledge sharing

The second objective of this study was to determine the effects of SL and its dimensions on the Knowledge sharing (KS) and its dimensions. KS has been highlighted by researchers as one of the most essential elements of organisational activities (Anwar *et al.*, 2019; Asrar-ul-Haq & Anwar, 2016; Witherspoon *et al.*, 2013). Transferring and sharing knowledge is necessary between leaders, followers and the individuals who deal with organisation; it is the bridge between the employees and their organisation (Argote & Ingram, 2000; Grant, 1996; Kogut & Zander, 1992). KS is one of the important dimensions of knowledge management (KM) as KM depends on KS (Chouikha & Dakhli, 2012). Reyes and Zapata defined KS as an action which has two acts: the first part is to give, and the second part is to collect. This simple definition of KS divides it in to two dimensions : donating knowledge and collecting knowledge (Villamizar Reyes *et al.*, 2014). Other researchers also agree with

this definition and have divided KS to donating and collecting knowledge (Al-Husseini, 2014; Sik-wah Fong & Chu, 2006).

The results of this study support the second hypothesis (H2) which suggests that SL and its dimensions have a positive influence on KS and its dimensions in SMEs in Gamsah and New Dameitta region in Egypt. In addition, it answers the second question: what are the effects of SL and its dimensions on KS and its dimensions?

From the results of SEM, there are positive influences of SL and its dimensions on KS and its dimensions. A summary of the answers to this question are highlighted below:

1. Character orientation of SL has a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.
2. People orientation of SL has a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.
3. Task orientation of SL has a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.
4. SL has a positive influence on KS in SMEs in Gamsah and New Dameitta region in Egypt.

Previous studies have established that there is a relationship between leadership style and KS (Li *et al.*, 2014; Liu & DeFrank, 2013; Yin *et al.*, 2019). Xue et al. stated that KS is a complex dynamic process for KM and understanding the employees' behaviour towards sharing their knowledge is a very important process for the organisations. Leadership style is an important aspect to support and encourage KS (Xue *et al.*, 2011). Ipe also highlighted the complex role of KS. He mentioned that leaders can create, donate, and collect knowledge if their employees have the willingness and the desire to share their knowledge. Therefore, having an appropriate leadership style is important to use KS and manage knowledge (Ipe, 2003). According to Hülsheger at al., the most appropriate strategy to encourage KS is the soft strategy. Therefore, leadership plays an important role to apply a strategy that encourages KS (Hülsheger *et al.*, 2009). This coincides with the results of the current study as SL and its dimensions encourage the followers to donate and collect knowledge between them.

For the first dimension of SL, the results show that character orientation (CO) leaders who mainly encourage the followers, interact with people in a humane manner and take the followers' needs into consideration, positively affect the KS and its dimensions KD and KC.

For the second dimension of SL, the results show that people orientation (PO) leaders positively affect KS and its dimensions KD and KC.
PO leaders have these characteristics; taking the abilities of the followers into consideration, understanding the strength of the followers and ability to capitalise on them, supporting the followers when they are facing work-related problems, and ability to forgive their mistakes and remaining supportive. According to Zheng, gaining knowledge and sharing it needs leaders to encourage it, be aware of followers' abilities and their desire to share their knowledge (Zheng, 2017). Ipe also stated that sharing knowledge between people needs understanding of the abilities and desire of sharing knowledge (Ipe, 2003). Bass also stated that SL focuses on the followers' learning and understanding their strengths (Bass, 2000). SL is an effective leadership style for creating a good environment where the followers can share their knowledge among themselves and others in an organisation. They also added that the SL style directly affects the attitude towards KS. The dimensions of SL that they studied were humility, authenticity, stewardship, courage, forgiveness, accountability, empowerment. Servant leaders who have forgiveness, accountability and are supportive have effect on KS between the followers (Sial *et al.*, 2014). This is in line with the results of the current study that PO was positively related to KS in SMEs in Gamsah and New Dameitta region in Egypt.
For the third dimension of SL which is TO, the results show that task orientation positively influenced KS in SMEs in Gamsah and New Dameitta in Egypt. The results show these items of TO have positive effects on KS: ability to look and plan ahead, encouraging followers to address problems from a variety of different perspectives, and considering new innovative ideas during decision-making process. The results match the findings of other researchers: Tuan 2016 and Zheng 2017. According to Tuan, SL style encourages the followers to address their problems and helps them to solve problems. SL also encourages the followers to have creative, new ideas and sharing these ideas among them (Tuan, 2016). Van Den Hooff et al. stated that KS is a two-way process in which people exchange their knowledge and mutually generate new knowledge (Van Den Hooff *et al.*, 2012). This process of exchanging knowledge and generating new knowledge needs an appropriate leader who encourages this process (Zheng, 2017). Investing in, developing and encouraging followers to address any problem and to find solutions is important for any organisation. It needs an appropriate leader who has the characteristics of encouraging followers to look at the problem from different perspectives (Van Dierendonck & Nuijten, 2011). The results of the current study suggest that TO has a positive impact on KS in SMEs in Gamsah and New Dameitta in Egypt.

From the results of this study, SL style has a positive influence on KD and KC. It encourages donating and collecting knowledge about work performance, new ideas and work-related problems between the followers and the leaders.

9.4 Knowledge sharing and innovation

The third objective of this study was to determine the effects of KS (KD and KC) on INN (PDI and PCI). Knowledge is considered to be a source of innovation and generates competitive advantages (Emadzade *et al.*, 2012). Pennings and Harianto state that an organisation may improve its innovative capacity by encouraging knowledge sharing (Pennings & Harianto, 1992). While Chen and Huang mention that if an organisation has a higher degree of innovation, the interactions between employees would be more important and thus knowledge sharing would be developed (Chen & Huang, 2007). Many researchers mentioned that KS and its dimensions (KD and KC) are the most critical components that affect innovation because of the nature of the knowledge (Day, 1994; Grant, 1996; Teece, 2008). More researchers (Gilbert & Cordey-Hayes, 1996; Szulanski, 1996) agreed that KS may increase or improve innovation in an organisation (Darr & Kurtzberg, 2000). The two dimensions of KS,KD and KC, are important to improve the knowledge in the organisations and this may improve INN (Nonaka *et al.*, 2006). Previous research on INN also highlighted that there is a relationship between KM and INN (Smith *et al.*, 2005). Kamaşak & Bulutlar mentioned that knowledge and KS are important factors in PCI and in innovation management. They added that knowledge remains avital element, not only in INN, but in the success of the whole business. They also mentioned that learning and gaining new knowledge require interacting and sharing implicit and explicit knowledge among employees. This will create INN and competitive advantages for the organisation (Kamaşak & Bulutlar, 2010). Martens also highlighted the important role of transmission of shared knowledge, values and beliefs to the organisations. Martens added that KS is very important to INN in any organisation. In addition, effective INN requires sharing experiences, values, beliefs and knowledge between people across the organisation at the right time (Martens, 2013). Pérez-Luño et al. stated that creating new products or developing current products requires the ability of the organisation to manage knowledge, maintain and create knowledge. Therefore, understanding KS and KM is important for INN and overall, for the success of the business. They also found a relationship between tacit knowledge and INN- tacit knowledge has an effective impact on INN. They recommended that decision makers must give more attention to this type of knowledge as it is a critical factor for INN (Pérez-Luño *et al.*, 2019).

The results of the current study are congruent with the result that Pérez-Luño et al. found out about KS and INN. The current study studied tacit knowledge and sharing it and the result indicated that there is impact of KS on INN.

The results from the statistical analysis support the third hypothesis (H3) which suggest that KS and its dimensions have a positive influence on INN and its dimensions in SMEs in Gamsah and New Dameitta region in Egypt. In addition, the results answer the third question: what are the effects of KS and its dimensions on INN and its dimensions?

From the results of SEM, there is a positive influence of KS and its dimensions on INN and its dimensions. A summary of the answers to this question are highlighted below:

1. KS has a positive influence on PDI in SMEs in Gamsah and New Dameitta region in Egypt.
2. KS has a positive influence on PCI in SMEs in Gamsah and New Dameitta region in Egypt.
3. KS has a positive influence on INN in SMEs in Gamsah and New Dameitta region in Egypt.

The SEM showed that the effect of KS on product innovation is greater than the effect of KS on process innovation. As shown in Table 31 in chapter 8, the effect of KS on PDI was 0.944 while the effect of KS on PCI was 0.845. Overall KS effects are high on both product and process innovation. Therefore, KS is playing an important role and is affecting the product and process innovation in the SMEs in Gamsah and New Dameitta region in Egypt. According to Von Krogh et al. the role of KS is an important one for INN in organisations (Von Krogh *et al.*, 2012).

9.5 The mediating role of Knowledge sharing on servant leadership and innovation

The fourth objective of this study was to determine the effects of KS as a mediator on the relationship between SL and INN. The fourth question proposed was: does KS mediate the relationship between SL and INN positively?

SL is positively correlated to KS and correlated to INN. The SEM results showed the indirect positive effect of the SL on INN. This is congruent with what Le & Lei mentioned about leadership and KS as the key sources of organisations to develop and improve innovation capability and achieve the organisation's goals. It also helps the organisation to survive and sustain competitive advantage (Le & Lei, 2019). Soken & Barnes stated that INN is

about creating an idea of a new product or process. This process requires leaders to apply it and it also needs KS to gain success. They added that lack of knowledge and hoarding knowledge can destroy new ideas and INN. They added that the process of KS needs a good leader to encourage followers to donate and collect knowledge. The leaders need to have certain characteristics to be able to handle KS (Song *et al.*, 2015) and create a good environment for INN (Zhu *et al.*, 2020). Therefore, the leaders with vision, mission, and values encourage their followers to share their knowledge. Hence, this will help to create new ideas and support INN in the organisation (Soken & Barnes, 2014). Wang et al. also highlighted that KS could improve and encourage individuals to promote new ideas and to be innovative. They added that KS has a positive effect on INN (Wang *et al.*, 2017). However, INN needs an appropriate leadership style to encourage followers to be innovative and promote new ideas (Zhu *et al.*, 2020). On the other hand, KS can create new ideas and INN (Zhou *et al.*, 2012). Therefore, KS needs the leadership style that encourages the followers to share their skills, experiences, values and knowledge (Wu *et al.*, 2017). In addition, Wu et al. highlighted that empowering leadership is an important element for KS (Wu *et al.*, 2017). Leadership is not only important for KS, it is also important to create and improve INN (Le & Lei, 2019). Song et al. also mentioned that a leader with SL characteristics creates a good environment of trust and fairness between followers, which consequently promotes KS (Song *et al.*, 2015). This, in turn, encourages INN (Zhu *et al.*, 2020). Edú-Valsania et al. found that leaders who have ethical values, are aware of the followers' needs and abilities and trust, will easily encourage the followers to share their knowledge (Edú-Valsania *et al.*, 2016). Afsar et al. also highlighted the importance of appropriate leaders to promote INN by encouraging followers to share their knowledge, skills and experiences. They added that creating and adopting a good atmosphere of trust will encourage followers to share knowledge among them and this leads to PDI and PCI (Afsar *et al.*, 2019).

According to Dierendonck & Nuijten, servant leaders have these characteristics: listening, healing, empathy, awareness, conceptualisation, foresight, persuasion, commitment, stewardship and building community (Dierendonck & Nuijten, 2011). Other researchers also mentioned that SL characteristics help in encouraging followers to share their knowledge and experiences. This will support and create INN (Wang & Poutziouris, 2010; Wong & Davey, 2007; Wong & Page, 2003; Yoshida *et al.*, 2014; Zhang *et al.*, 2012; Zhu *et al.*, 2020). Le & Lei stated that leadership characteristics and KS are playing a crucial role in organisational success. They also stated that leadership behaviour and characteristics have effects on KS between the followers. Leadership is

essential for creating a positive attitude towards KS among the followers. They also highlighted that exploring the effects of leadership and KS on INN, especially PDI and PCI, will help the organisation to attain INN, and hence will help to achieve a competitive position in markets (Le & Lei, 2019).

From previous literature, KS has a role to play as a mediator on the relationship between SL and INN. From the results of this study, it is also revealed that the servant leadership style has a direct and indirect effect on innovation through using knowledge collecting and knowledge donating for members of staff in SMEs in Gamsah and New Dameitta region in Egypt. In other words, a leader with the characteristics of the servant leadership style has a positive influence on the followers through knowledge donating and collecting to improve the product and process innovation. The study aimed to examine the mediating role of KS on the relationship between SL and INN. From the results and previous studies, the study confirms the mediating role of KS in the relationship between SL and INN. KS refers to the desire and ability of an individual to share knowledge with others (Le & Lei, 2019; Lin, 2007a). INN is the outcome of knowledge and information that is shared in a certain area (Ritala *et al.*, 2013). Therefore, KS among followers and employees plays a mediation role in the relationship between SL and INN. This confirms the fourth objective of this study. In addition, from the four objectives and from SEM, the current study defined a model that conceptualises the relationship between SL, KS and INN.

9.6 Summary

This chapter discussed the findings of the study according to the research questions, the objectives of the study and the previous researches. The chapter covered the effects of the three dimensions of SL on PDI and PCI through KS as a mediator. The results are congruent with the previous studies regarding the mediating role of KS in the relationship between SL and INN.

Chapter 10 Conclusion and implications

Previous chapters covered the background of the study, literature review, conceptual framework, research methodology, and data analysis and finding. In addition, previous chapter discussed the findings of the study according to the research questions, the objectives of the study and the previous researches. It also covered the effects of the three dimensions of servant leadership (SL) on innovation (INN) through knowledge sharing KS as a mediator. This chapter discussed the conclusion of the study, implication of the study, recommendation to the policy makers of small and medium enterprises (SMEs) in Gamsah and New Dameitta in Egypt, limitation of the study and future research directions.

10.1 Introduction

The main objective of this study was to examine the effect of SL on INN through the mediating role of KS in SMEs in Gamsah and New Dameitta in Egypt. The previous chapters covered the objectives of the study, the literature review, conceptual framework of the study, research methodology, data collections and analysis and discussions of the results and findings.

This chapter summaries the main findings and results of the study. It also covers the implications of the study. Recommendations to the policy makers at SMEs in Gamsah and New Dameitta in Egypt are made. The chapter also covers the limitations of this study. Finally, future research directions are covered.

10.2 Conclusions

The study examined the effects of SL and its dimensions on INN and its dimensions through KS as a mediator. The study introduced a model which consisted of the three constructs; SL, KS and INN. It showed the positive relationship between the three constructs SL, KS and INN. It also showed that KS plays an important role in enhancing INN. KS is not only important for INN, but it is considered as a vital element of knowledge management (KM) and it is also a very important factor for SL in SMEs in Gamsah and New Dameitta in Egypt.

They current study examined the proposed model of SL, KS and INN using the positivism philosophy and deductive approach. The study used the quantitative method of collecting data which was a survey. The study used structural equation modelling (SEM) on AMOS 25 to examine the hypothesised model,

while other statistical methods, such as descriptive statistics, were implemented in SPSS 25. The study used the quantitative approach and used the questionnaire survey to collect data from SMEs in Gamsah and New Dameitta region in Egypt. The questionnaire had 50 questions relating to SL, KS and INN.

The questionnaire was distributed to 400 SMEs in the region of the study, 210 respondents were collected. The responses were 220, 10 of them were invalid, with some questions incorrectly answered or not completed. Therefore 210 were valid and free of missing data. A possible limitation may be the percentage of responders out of the total questionnaires distributed. Upon evaluation a possible solution would be to provide an incentive to the participants in order to increase responses. Despite this, the sample size for this study was adequate as according to Hair et al. the sample size when using SEM should be 100 or more to give acceptable results (Hair *et al.*, 2010).

The questionnaire consisted of 50 questions relating to the SL, KS and INN. The questions were close-ended questions. These questions were as follows: 25 questions on SL, 10 questions on INN and 15 questions on KS plus 6 questions about gender, marital status, age, tenure, qualification and job.

In order to use SEM, there were two important steps that were required. These two steps were assessing the measurement model and the structural model. The validity of hypothesised model was assessed using the measurement model. While, the structural model examined the relationship between the latent variables in the model.

The study used exploratory factor analysis (EFA) to determine if there is a correlation between the variables, number of the factors and the pattern of these factors. The study used SPSS software version 25 to conduct EFA. There were 50 items which included 25 items for SL, 15 items for KS and 10 items for INN. The EFA showed that there were seven factors: three dimensions of SL: character orientation (CO), people orientation (PO) and task orientation (TO), two dimensions of KS: knowledge donating (KD) and knowledge collecting (KC), and two dimensions of INN: product innovation (PDI) and process innovation (PCI). The also study used the confirmatory factor analysis (CFA) to determine the internal reliability of the measures. The reliability was assessed by finding Cronbach's Alpha which showed that the variance scores is reliable while the error variance of each variable was at an acceptable level. The convergent and discriminant validity also were tested through CFA using Amos 25.

In order to assess whether SEM is a suitable method, screening data was conducted. The normality for the factors was tested using Kurtosis and

skewness. Kurtosis should be between 2 and -2 (Field, 2013). The Kurtosis of majority of the dimensions were between 2 and -2 except two variables. Therefore, histogram and normal Q-Q plots were used to test the normality of the two variables which are CO and TO. However, the central limit theorem (CLT) stated that the sample distribution approximates a normal distribution when the sample size is large (Field, 2013; Mishra *et al.*, 2019). Field stated that the sampling distribution will show normality regardless of the population distribution if the sample size is 30 or more (Field, 2013). Therefore, in the current study, the normality was confirmed as the sample size was 210.

The model was examined, and CFA confirmed the measurement model and the fit indices indicated that the model is a good fit for the sample data. Therefore, the model showed that there is a relationship between CO, PO, TO, KD, KC, PDI and PCI.

The structural model and examining the 4 main hypotheses with the sub-hypotheses conceived the causal relationship between the latent variables which are SL and INN. This relationship was mediated by KS in SMEs in Gamsah and New Dameitta region in Egypt. It was found that there is a positive effect of SL on INN, there is also a positive effect of SL on KS, and in turn there is a positive effect of KS on INN. In addition, the three dimensions of SL which are CO, PO and TO have positive impacts on KS, this suggests that the SL style encourages KS, and this has a positive impact on INN in SMEs in Gamsah and New Dameitta region in Egypt.

In other words, it was found that INN in the SMEs region was affected by the SL and its dimensions through the mediating role of KS. The study suggests that adopting SL in SMEs would be effective on INN through KS. As the study highlighted the important role of KS to support the relationship between SL and INN. Table 32 summaries the results of this study.

The results showed that SL helps the SMEs staff to produce greater work and encourage the followers to be creative and produce new ideas. SL helps to interact with followers in a humane manner, considering followers' needs and abilities, highlighting the strengths of the followers and encouraging them to keep them up. It highlights the weakness of followers and advises them to improve and develop. SL also supports followers in solving problems, forgives them when they have done a mistake and corrects it. SL also helps followers to study the problems and look at them from many angles. It also is encouraging them to introduce new ideas and discuss the effect of new ideas on PDI and PCI.

The study suggests that SL would be ideal in SMEs in Gamsah and New Dameitta region in Egypt by promoting KS and affecting INN. The study highlighted the important role of KS in the relationship between SL and INN. If SMEs implemented SL, and promoted KS, would help to create new ideas and improve INN and it would be a competitive advantage for SMEs in the region.

Table 32 Summary of the findings

Hypothesis		Sub-hypothesis	Results
H1: SL and its dimensions have a positive influence on INN and its dimensions	H1a	CO has a positive influence on PDI	CO has a positive influence on PDI
	H1b	PO has a positive influence on PDI	PO has a positive influence on PDI
	H1c	TO has a positive influence on PDI	TO has a positive influence on PDI
	H1d	SL has a positive influence on PDI	SL has a positive influence on PDI
	H1e	CO has a positive influence on PCI	CO has a positive influence on PCI
	H1f	PO has a positive influence on PCI	PO has a positive influence on PCI
	H1g	TO has a positive influence on PCI	TO has a positive influence on PCI
	H1h	SL has a positive influence on PCI	SL has a positive influence on PCI
	H1i	SL has a positive influence on INN	SL has a positive influence on INN
H2: SL and its dimensions have a positive influence on KS and its dimensions	H2a	CO has a positive influence on KS	CO has a positive influence on KS
	H2b	PO has a positive influence on KS	PO has a positive influence on KS
	H2c	TO has a positive influence on KS	TO has a positive influence on KS
	H2d	SL has a positive influence on KS	SL has a positive influence on KS

H3: KS and its dimensions have a positive influence on INN and its dimensions	H3a	KS has a positive influence on PDI	KS has a positive influence on PDI
	H3b	KS has a positive influence on PCI	KS has a positive influence on PCI
	H3c	KS has a positive influence on INN	KS has a positive influence on INN
H4: KS and its dimensions positively mediate the impact of SL and its dimensions on INN and its dimensions	H4		KS positively mediate the impact of SL on INN

10.3 Implications of study

The study contributes to the understanding of SL style as a new paradigm in SMEs. It investigated the causal relationship of SL, KS and INN in SMEs in Gamsah and New Dameitta region in Egypt. The results showed that the SL positively impact KS. The KS also has a positive impact on INN. The SL also positively impacts INN. In other words, the results illustrated the causal relationship between the three variables SL, KS and INN.

The study contributes to understanding of the effects of SL and its dimensions, KS and its dimensions on INN and its dimensions in SMEs in the region of study. The study investigated both direct and indirect effect of SL on INN through the mediating role of KS.

The study has implications for the owners of SMEs, the policy maker, leaders and managers in SMEs in the region of the study. It contributes to knowledge theoretically and practically. The contribution in the theatrical part would be through the information that the study provides about the SL style and the relationship between SL and INN. In addition, the relationship between SL and KS and the relationship between KS and INN. These relationships between the three constructs have not been studied in SMEs, especially in developing countries such as Egypt. The study confirms that the three dimensions of SL (CO, PO and TO) affect the two dimensions of INN (PDI and PCI) through the mediating role of the two dimensions of KS (KD and KC) in SMEs in the region of the study. The study also suggests that there is a relationship between SL

and KS in SMEs in the region. This relationship suggests that SL is a suitable leadership style in SMEs in the region. This style of leadership encourages KS, and this affects positively on INN.

The study illustrated that adopting SL style contributes to INN. This could support leaders to develop strategies that encourage INN and improve PDI and PCI. Leaders in SMEs need to be aware of the importance of SL style to encourage KS and INN. Leaders with SL characteristics; serving the followers first, taking followers 'needs and abilities into their accounts, developing, motivating, and empowering the followers have positive effect on INN.

In other words, the leaders who encourage the followers, interact with them in a humane manner, and take their needs into consideration, affecting INN positively and its dimensions PDI and PCI. They can provide new services, programs for development, provide training for the followers building teamwork, develop new technology to improve the quality of the products, encourage the followers to be more innovative and adopt strategies that help to develop followers' innovation. In addition, leaders who are able to consider followers' abilities, utilise their strengths, support them in solving problems, forgive their mistakes, and correct their mistakes, improves and positively affects PDI and PCI. Leaders must have the ability to predict and sense future problems and be able to discuss them with their followers to highlight the solutions. Through the discussion of the problems, leaders encourage followers to analyse the problems from different angles and encourage them to create new ideas. Leaders must respect these ideas even if they appear as a simple idea or unrealistic in order to reach the practical ideas and apply them. Followers need to feel that any new idea is acceptable to be discussed and this will encourage them to be more innovative.

The results of the study highlighted the essential role of SL and its effect on KS between the followers in SMEs in Gamsah and New Dameitta region in Egypt. KS is an important element for the organisational activities. It is the most important function of KM (Anwar *et al.*, 2019; Asrar-ul-Haq & Anwar, 2016). The study found that there are positive effects of SL and its dimensions on KS. This means that adopting the SL style encourages followers to share their knowledge, skills, new ideas and experiences among them. The followers can donate and collect knowledge if they trust the leaders. In this case they will be willing to share their knowledge and not hoarding them. The servant leaders also need to be able to provide the followers with the suitable training to build the cooperation between them, encourage them to share their knowledge among them.

The results of this study also illustrated that KS is playing an important role in INN. This is congruent with the previous researches mentioned that KS is an essential factor of INN and it is considered a source of INN (Darr & Kurtzberg, 2000; Emadzade *et al.*, 2012; Teece, 2008). The current study provided significant practical implications for the leaders about KS and encouraging the followers to share and donate their knowledge among them. However, encouraging KS needs the SL style to be adopted as the results show that SL style and its dimensions have positive effects and encourage KS. Meanwhile, both SL and KS have positive effects in INN and encourage followers to be more innovative in SMEs in Gamsah and New Dameitta region in Egypt. In other words, this study provided significant practical implication for the leaders of SMEs about the mediating role of KS in the relationship between SL and INN. It suggested that the leaders of SMEs in Gamsah and New Dameitta in Egypt can help their organisation through adopting the SL style as it can improve KS which can improve INN and, ultimately, will improve the followers' performances. In addition, it also suggested that the leaders would benefit from the relationship between KS and the SL style as it has a positive effect on INN and its dimensions PDI and PCI. It also provided an important practical implication for the leaders of SMEs about INN and its two dimensions PDI and PCI.

The study contributes significantly relating to the important mediating role of KS on the relationship between SL and INN. The study provided a model (chapter 8) which shows causal relationship between SL, KS and INN in SMEs in Gamsah and New Dameitta region in Egypt.

10.4 Recommendations of the study

From the findings and the results of this study, there are some general recommendations for owners, leaders and managers about using SL, KS and INN.

The owners, leaders, and mangers in SMEs in the region of the study, should look at the SL style and try to adopt this style. The servant leaders have characteristics that encourage the followers to work in a good atmosphere. Servant leaders put serving the followers first and takes their needs and abilities into consideration. These characteristics helps the followers to trust the leaders, develop, and motivate them. Servant leaders help the followers to be aware of their strengths and utilise them. They also support the followers to highlight their weakness and help them to develop them. Servant leaders also help the followers in correcting their mistakes and explain the mistakes and learn from it. Servant leaders have characteristics that help the followers and in the same

time helps the organisations too. From the results of this study the characteristics that SL have are; opening about values and beliefs, invoking respectfulness, displaying selflessness, encouraging followers, interacting with people in a humane manner, taking the followers' needs and abilities into consideration, accountability, encouraging team work, creating happiness between the team, being optimistic about future, having confidence in the followers, positively encourage the followers, thinking outside the box, allowing time for training, highlighting followers' weakness and help them to develop them, utilising the followers; strengths, supporting to solve problems, forgiving if there is a mistake, taking responsibility to direct the followers in order to achieve the organisations' goals, taking ethical consequences when making decision, encouraging and respect new ideas. These characteristics of SL can help SMEs in the region of the study to benefit from KS and in turns improve INN. The recommendation for the owners, managers, and leaders to adopt the SL style as it supports KS between the followers, and this will improve INN.

Therefore, from the results and the discussion, the study provides some recommendations for the owners, leaders and managers of SMEs in Gamsah and New Dameitta in Egypt should consider. It also provides general recommendations for the SMEs in Egypt.

10.4.1 Recommendations for the SMEs in the region of the study

The study provides some recommendations for the SMEs in Gamsah and New Dameitta in Egypt. These recommendations are as follows:

- Understanding the importance of SL on different levels of management that encourage employees to be creative and work in a good atmosphere. It is very important that the owners, managers and leaders to understand SL style and the characteristics of the servant leaders. It is also important to understand the positive relationship between the SL, KS and INN. This causal relationship can help the owners to achieve their main goals and improve the position of the organisation in the market.
- Adopting SL style in different levels of management as it has a positive effect on the followers, i.e., they become more innovative.
- Understanding the importance of KS, as KS helps the followers to innovate and create new ideas. KS needs an appropriate leadership style to encourage the followers to share their knowledge. The followers will hoard their knowledge if they do not trust the leaders and if they feel that they are not a part of the team.

- Adopting SL style helps the followers to share their skills, experiences and knowledge among them and this helps to improve their performances and achieve their goals. Servant leaders are trustworthy and fair in dealing with KS, this will encourage the followers to share their knowledge.
- Training and development programs are very important for leaders to improve leadership characteristics and qualities. They are also critical in developing leaders who have creative abilities.
- Providing trainings and programs for the leaders to explain and highlight the importance of SL style and the benefits of adopting it.
- Providing trainings for leaders, followers and the employees to explain the importance and benefits of KS for them and for the organisation.
- Hold more workshops to practise KS among the followers and leaders to show them how they benefit from KS.
- Encouraging the followers to discuss new ideas of INN and produce workshop to explain and put them in practice.
- SMEs in the region of study in Egypt need to realise the importance of adopting new technology or new INN. They also need to realise that adopting new technology usually takes time and needs cooperation among the employees to get the benefits of it.
- Investing in SL, KS and INN will help SMEs to achieve their goals.
- Providing trainings and programs inside the organisation for the leaders or managers to exchange experiences.

10.4.2 General recommendations to SMEs in Egypt.

The study provides general recommendations to SMEs in Egypt in general. These recommendations as follows:

- Understanding the importance of SL style in SMEs in different levels of management.
- Providing programs for the owners, leaders and managers in academic providers to update their knowledge about the leadership, management, and innovation.
- Understanding the importance role of knowledge for any organisation; therefore, the organisation should gain knowledge from outside and inside the organisation and manage knowledge effectively and sufficiency by using KM. It is essential for any organisation to have an effective KM.
- The KS is fundamental for SMEs. Therefore, owners, leaders and managers should increase the regular trainings, meetings, workshops,

and exchange expertise with others inside a department and between departments.

- It is important for the owners, leaders and managers to be aware of the importance of KD and KC between them and followers and vice versa. Therefore, investing in KM will help the organisations to achieve their missions.
- Understating the importance of INN for the SMEs and for achieving their goals.
- Providing training not only for employees but for leaders and managers outside the organisation such as private training and university programs to improve employees' creativity and abilities.
- It is very critical for owners, leaders and managers of SMEs in Egypt to realise the importance of adopting new technology or new INN. They also need to realise that adopting new technology usually take time to get the benefits of it.
- Encouraging employees who have a creative ability by sending them to have training with more advanced technologist to improve their abilities.
- Encouraging new ideas and study them well to put them in practice on a trial basis.
- Removing obstacles which prevent innovation and creativity.

10.5 Limitation and future research

While the current study contributes significantly to the knowledge and it has useful theoretical and practical implications, it has several limitations. First, although the study explained the types of leadership through the literature, but the study only focused on the SL style. Future research is needed to focus on other styles of leadership and investigate the impact of these leadership styles on the KS and INN. As there are many styles of leadership, such as ethical leadership and authentic leadership, these may have different impacts on KS and INN.

Second, this study also focused only on KS (KD and KC), and as KS is an essential function of knowledge management (KM), there is a need for future research to focus on KM and the impact of it on innovation.

Third, the study was focused on the relationship between SL and INN. It investigated the two dimensions of the INN which are PDI and PCI. This leaves a gap for new researches to study the relationship between SL and its dimensions and innovation technology as a third dimension of INN.

Fourth, the sample of this study was taken from SMEs in Gamsah and New Dameitta region in Egypt. The study focused only on the manufacturing SMEs in the region. Therefore, the results cannot be applied to other types SMEs or toother regions. Further research can be carried out in different regions and in different industries in Egypt or in another countries. The study used questionnaires to collect data from SMEs in the region. The responses were 53% of the distributed questionnaires, this was due to the small numbers of the respondents via the e-surveys.

In general, the limitations of this study suggest opportunities for future research to study the impact of different styles of leadership on KS and INN in different regions, different county or in different industry. SMEs play an important role in the economy of the developing countries (Zaied, 2012), this important role highlights the huge opportunities for new researches.

10.6 Direction for future research

Based on the results and findings, there are recommendations for future research. Firstly, the study suggests studying the role of SL on three dimensions of INN which are product, process, and technology through the mediating role of KS. Secondly, future studies may try to test other mediator such as KM in the relationship between SL and INN. Thirdly, future research might study the role of SL on INN through the mediating role of KS using organisational culture perspective. Fourthly, the study suggests examining SL on INN through the mediating role of KM. Fifthly, the study suggests testing different styles of leadership and investigate the impact of the leadership styles on the KS and INN. Finally, the model of the current study can be used to compare between two countries. This could provide new perceptions of the impact of SL on INN using KS as a mediator.

References

Abbas, A. (2017) 'Introducing entrepreneurship into the public university scheme in Egypt'. *Sustainable Development Program. The American University in Cairo,*, pp. 5-69.

Abou-Shouk, M., Megicks, P. & Lim, W. M. (2013) 'Perceived benefits and e-commerce adoption by SME travel agents in developing countries: Evidence from Egypt'. *Journal of Hospitality & Tourism Research*, 37 (4), pp. 490-515.

ACD (2014) *Micro, Small and Medium Enterprises in Egypt.* Available at: http://www.creativeassociatesinternational.com/wp-content/uploads/2003/01/Micro_Small_and-_Medium_Enterprises_in_Egypt.pdf.

Afsar, Bilal, Masood Mariam & Ali, U. W. (2019) 'The role of job crafting and knowledge sharing on the effect of transformational leadership on innovative work behavior'. *Personnel Review*,

Ahmad, I. & Abdel-Aziz, M. (2015) 'Assessing Entrepreneurship Ecosystem in Egypt: Access to Finance and Entrepreneurship Education Challenges and Opportunities'. *Cairo University*, pp. 2-49.

Al-Husseini (2014) *The impact of leadership style on innovationin Iraq's higher education institution: the role of knowledge sharing*. PhD. Plymouth University

Al-Husseini, S. & Elbeltagi, I. (2016) 'Transformational leadership and innovation: a comparison study between Iraq's public and private higher education'. *Studies in Higher Education*, 41 (1), pp. 159-181.

Alarcón, David Sánchez, José A & De Olavide, U. (2015) 'Assessing convergent and discriminant validity in the ADHD-R IV rating scale: User-written commands for Average Variance Extracted (AVE), Composite Reliability (CR), and Heterotrait-Monotrait ratio of correlations (HTMT)', *Spanish STATA Meeting*. Universidad Pablo de Olavide.

Alasrag, H. (2007) 'The Future of SMEs in Egyptian Economy'.

AlMadhoun, M. (2006) 'Training under fire'. *Journal of European Industrial Training*,

Alomiri, H. (2016) *The impact of leadership style and organisational culture on the implementation of e-services: An empirical study in Saudi Arabia*. PhD. Plymouth University.

Amanchukwu, Ngozi, R., Stanley, Jones, G. & Ololube, N. P. (2015) 'A review of leadership theories, principles and styles and their relevance to educational management'. *Management*, 5 (1), pp. 6-14.

Andersen, J. A. (2009) 'When a servant-leader comes knocking…'. *Leadership & organization development journal*,

Andrews, K. M. & Delahaye, B. L. (2000) 'Influences on knowledge processes in organizational learning: The psychosocial filter'. *Journal of management studies*, 37 (6), pp. 797-810.

Antonakis, J. & House, R. J. (2004) 'On instrumental leadership: Beyond transactions and transformations'. *UNL Gallup Leadership Institute Summit, Omaha*,

Anwar, R., Rehman, M., Wang, K. S. & Hashmani, M. A. (2019) 'Systematic literature review of knowledge sharing barriers and facilitators in global software development organizations using concept maps'. *IEEE Access*, 7 pp. 24231-24247.

Ardichvili, Alexander, Page, Vaughn & Wentling, T. (2003) 'Motivation and barriers to participation in virtual knowledge-sharing communities of practice'. *Journal of knowledge management*,

Argote, L. & Ingram, P. (2000) 'Knowledge transfer: A basis for competitive advantage in firms'. *Organizational behavior and human decision processes*, 82 (1), pp. 150-169.

Argote, L., Ingram, P., Levine, J. M. & Moreland, R. L. (2000) 'Knowledge transfer in organizations: Learning from the experience of others'. *Organizational behavior and human decision processes*, 82 (1), pp. 1-8.

Asrar-ul-Haq, M. & Anwar, S. (2016) 'A systematic review of knowledge management and knowledge sharing: Trends, issues, and challenges'. *Cogent Business & Management*, 3 (1), pp. 1127744.

Atkinson, P. & Delamont, S. (2005) 'Qualitative research traditions'. *The SAGE handbook of sociology*, pp. 40-60.

Avolio, B. J. (2004) 'Examining the full range model of leadership: Looking back to transform forward'. *Leader development for transforming organizations: Growing leaders for tomorrow*, pp. 71-98.

Avolio, B. J. & Bass, B. M. (2001) *Developing potential across a full range of Leadership Tm: Cases on transactional and transformational leadership.* Psychology Press.

Avolio, B. J., Gardner, W. L., Walumbwa, F. O., Luthans, F. & May, D. R. (2004) 'Unlocking the mask: A look at the process by which authentic leaders impact follower attitudes and behaviors'. *The Leadership Quarterly*, 15 (6), pp. 801-823.

Axelrod, R. H. (2006) 'A Voice Loud Enough to Be Heard: Considerations for Women's Leadership Development'.

Ayadi, R., Sessa, E., El Said, H. H., Ahmed, R. H., Alshyab, N., Sandri, S., Al Sheikh, F., Sidmou, M. L., Rami, J. A. & Mouelhi, R. B. A. (2017) 'MICRO, SMALL AND MEDIUM SIZED ENTERPRISES DEVELOPMENT IN EGYPT, JORDAN, MOROCCO & TUNISIA'.

Ayyagari, Meghana, Demirguc-Kunt, Asli & Maksimovic, V. (2011) *Small vs. young firms across the world: contribution to employment, job creation, and growth.* The World Bank.

Azema, P. & Jafari, M. (2016) 'The effect of dimensions of knowledge sharing on a variety of strategic mind map of managers and employees'. *Independent Journal of Management & Production*, 7 (4), pp. 1256-1283.

Bagheri, A. & Akbari, M. (2018) 'The impact of entrepreneurial leadership on nurses' innovation behavior'. *Journal of Nursing Scholarship*, 50 (1), pp. 28-35.

Baker, W. E. & Sinkula, J. M. (2002) 'Market orientation, learning orientation and product innovation: delving into the organization's black box'. *Journal of market-focused management*, 5 (1), pp. 5-23.

Bank, E. (2017) *Strategy for Egypt: Document of the European Bank for receonstrution and development.* 2 - 67 pp. Available.

Banks, A. P. & Millward, L. J. (2007) 'Differentiating knowledge in teams: The effect of shared declarative and procedural knowledge on team performance'. *Group Dynamics: Theory, Research, and Practice*, 11 (2), pp. 95.

Barbuto Jr, J. E. & Wheeler, D. W. (2006) 'Scale development and construct clarification of servant leadership'. *Group & Organization Management*, 31 (3), pp. 300-326.

Baregheh, Anahita, Rowley, Jennifer & Sambrook, S. (2009) 'Towards a multidisciplinary definition of innovation'. *Management decision*,

Barnett, V. (2002) *Sample survey principles and methods.* Arnold.

Barsoum, G. (2016) ''Job opportunities for the youth': Competing and overlapping discourses on youth unemployment and work informality in Egypt'. *Current Sociology*, 64 (3), pp. 430-446.

Bartel, C. A. & Garud, R. (2009) 'The role of narratives in sustaining organizational innovation'. *Organization science*, 20 (1), pp. 107-117.

Bary, A. (2019) 'SMEs Sector: A Key Driver to the Egyptian Economic Development'. *Available at SSRN 3334845*,

Bass (1985) 'Leadership and Performance Beyond'.

Bass, B. M. (2000) 'The future of leadership in learning organizations'. *Journal of Leadership Studies*, 7 (3), pp. 18-40.

Bass, B. M. & Ruth (2009) *The Bass handbook of leadership: Theory, research, and managerial applications.* Simon and Schuster.

Bassi, L. J. (1997) 'Harnessing the power of intellectual capital'. *Training & development*, 51 (12), pp. 25-31.

Becker, S. O. & Egger, P. H. (2013) 'Endogenous product versus process innovation and a firm's propensity to export'. *Empirical Economics*, 44 (1), pp. 329-354.

Bell, Emma, Bryman, A. & Harley, B. (2018) *Business research methods.* Oxford university press.

Bell, R. M. (2013) 'Charismatic leadership case study with Ronald Reagan as exemplar'. *Emerging Leadership Journeys*, 65 (1), pp. 83-91.

Bennis, W. G. & Townsend, R. (1989) *On becoming a leader.* vol. 36. Addison-Wesley Reading, MA.

Berg, B. L. & Lune, H. (2012) 'Qualitative Research Methods for the Social Sciences p. 408'. *Harlow, Essex, England: Pearson*,

Bidault, F. & Castello, A. (2009) 'Trust and creativity: understanding the role of trust in creativity-oriented joint developments'. *R&D Management*, 39 (3), pp. 259-270.

Bidault, F. & Castello, A. (2010) 'Why too much trust is death to innovation'. *MIT Sloan Management Review*, 51 (4), pp. 33.

Bierly, P. & Chakrabarti, A. (1996) 'Generic knowledge strategies in the US pharmaceutical industry'. *Strategic management journal*, 17 (S2), pp. 123-135.

Bijker, E, W., Hughes, Parke, T. & Pinch, T. (2012) 'The social construction of technological systems: New directions in the sociology and history of

technology (Anniversary ed.)'.[in Cambridge, MA: MIT Press. (Accessed:Bijker, E, W., Hughes, Parke, T. & Pinch, T.

Birasnav, Muthuraj, Rangnekar, S. & Dalpati, A. (2011) 'Transformational leadership and human capital benefits: The role of knowledge management'. *Leadership & organization development journal*,

Blackler, F. (1995) 'Knowledge, knowledge work and organizations: An overview and interpretation'. *Organization studies*, 16 (6), pp. 1021-1046.

Blunch, N. (2013) 'Structural equation modelling using IBM SPSS statistics and AMOS, 2nd edition'. pp. 312.

Bogliacino, F. & Pianta, M. (2010) 'Innovation and employment: a reinvestigation using revised Pavitt classes'. *Research policy*, 39 (6), pp. 799-809.

Bohlmann, J. D., Spanjol, J., Qualls, W. J. & Rosa, J. A. (2013) 'The interplay of customer and product innovation dynamics: an exploratory study'. *Journal of Product Innovation Management*, 30 (2), pp. 228-244.

Bolisani, E. & Bratianu, C. (2018) 'The elusive definition of knowledge', *Emergent knowledge strategies.* Springer, pp. 1-22.

Bontis, N., Bart, C., Sáenz, J., Aramburu, N. & Rivera, O. (2009) 'Knowledge sharing and innovation performance'. *Journal of intellectual capital*,

Borch, O.-J. & Forsman, S. (2001) 'The competitive tools and capabilities of micro firms in the Nordic food sector–a comparative study'. *The Food Sector in Transition: Nordic Research, NILF Report*, 2

Borins, S. (2002) 'Leadership and innovation in the public sector'. *Leadership & organization development journal*,

Brem, A. & Tidd, J. (2012) *Perspectives on supplier innovation: theories, concepts and empirical insights on open innovation and the integration of suppliers.* vol. 18. World Scientific.

Brown, E, M., Treviño, K, L. & Harrison, D. A. (2005) 'Ethical leadership: A social learning perspective for construct development and testing'. *Organizational behavior and human decision processes*, 97 (2), pp. 117-134.

Brown, Michael E, Treviño & K, L. (2014) 'Do role models matter? An investigation of role modeling as an antecedent of perceived ethical leadership'. *Journal of Business Ethics*, 122 (4), pp. 587-598.

Brown, D. J. & Keeping, L. M. (2005) 'Elaborating the construct of transformational leadership: The role of affect'. *The Leadership Quarterly*, 16 (2), pp. 245-272.

Brown, T. A. (2015) *Confirmatory factor analysis for applied research.* Guilford publications.

Bryant, S. E. (2003) 'The role of transformational and transactional leadership in creating, sharing and exploiting organizational knowledge'. *Journal of Leadership & Organizational Studies*, 9 (4), pp. 32-44.

Bryman, A. & Bell, E. (2011) 'Ethics in business research'. *Business Research Methods*, 7 (5), pp. 23-56.

Burgelman, A, R., Maidique, A, M. & Wheelwright, S. C. (1996) *Strategic management of technology and innovation.* vol. 2. Irwin Chicago.

Burns, J. (1978) *Leadership.* Harper&RowNew York.

Byrne, B. (2013) *Structural equation modeling with AMOS.*

Cairns, T. D., Hollenback, J., Preziosi, R. C. & Snow, W. A. (1998) 'a study of Hersey and Blanchard's situational leadership theory'. *Leadership & organization development journal*,

Canton, J. (2006) *The extreme future: The top trends that will reshape the world in the next 20 years.* Penguin.

Cardwell Jr, O. C. (2014) *An Autoethnographic Study of the Heroic Journey and Authentic Leadership*. Union Institute and University.

Carroll, B. & Levy, L. (2008) 'Defaulting to management: Leadership defined by what it is not'. *Organization*, 15 (1), pp. 75-96.

Chan, A., Hannah, T, S. & Gardner, W. L. (2005) 'Veritable authentic leadership: Emergence, functioning, and impacts'. *Authentic leadership theory and practice: Origins, effects and development*, 3 pp. 3-41.

Chemers, M. M. (1997) 'Leadership, change, and organizational effectiveness'. *University of California, Santa Cruz*,

Chen, A. N. & Edgington, T. M. (2005) 'Assessing value in organizational knowledge creation: Considerations for knowledge workers'. *MIS quarterly*, pp. 279-309.

Chen, C.-A. & Hsieh, C.-W. (2015) 'Knowledge sharing motivation in the public sector: the role of public service motivation'. *International Review of Administrative Sciences*, 81 (4), pp. 812-832.

Chen, C.-J. & Huang, J.-W. (2007) 'How organizational climate and structure affect knowledge management—The social interaction perspective'. *International Journal of Information Management*, 27 (2), pp. 104-118.

Chesbrough, H. W. (2003) *Open innovation: The new imperative for creating and profiting from technology.* Harvard Business Press.

Choi, B. & Lee, H. (2002) 'Knowledge management strategy and its link to knowledge creation process'. *Expert systems with applications*, 23 (3), pp. 173-187.

Choi, P., Garcia, R. & Friedrich, C. (2010) 'The drivers for collective horizontal coopetition: a case study of screwcap initiatives in the international wine industry'. *International Journal of Strategic Business Alliances*, 1 (3), pp. 271-290.

Chouikha, M. B. & Dakhli, S. (2012) 'The dimensions of knowledge sharing', *Proceedings of the MCIS 2012, Mediterranean Conference on Information Systems*.

Chowdhury, S. (2005) 'The role of affect-and cognition-based trust in complex knowledge sharing'. *Journal of Managerial issues*, pp. 310-326.

Chugh, R. (2013) 'Workplace dimensions: Tacit knowledge sharing in universities'. *Journal of Advanced Management Science*, 1 (1), pp. 24-28.

Chukwusa, J. (2018) 'Autocratic leadership style: Obstacle to success in academic libraries'. *Library Philosophy and Practice*, pp. 1.

Clarke, E. & Visser, J. (2019) 'Pragmatic research methodology in education: possibilities and pitfalls'. *International Journal of Research & Method in Education*, 42 (5), pp. 455-469.

Collins Available at: https://www.collinsdictionary.com/dictionary/english/ethics.

Conklin, J. (1996) 'Designing organizational memory: preserving intellectual assets in a knowledge economy'. *Group Decision Support Systems*, 1 pp. 362.

Corritore, C. L., Kracher, B. & Wiedenbeck, S. (2003) 'On-line trust: concepts, evolving themes, a model'. *International journal of human-computer studies*, 58 (6), pp. 737-758.

Creswell, J. W. & Clark, V. L. P. (2017) *Designing and conducting mixed methods research.* Sage publications.

Cui, A. S. & Wu, F. (2016) 'Utilizing customer knowledge in innovation: antecedents and impact of customer involvement on new product performance'. *Journal of the academy of marketing science*, 44 (4), pp. 516-538.

Cummings, J. N. (2004) 'Work groups, structural diversity, and knowledge sharing in a global organization'. *Management science*, 50 (3), pp. 352-364.

Daft, R. L. (2014) *The leadership experience.* Cengage Learning.

Dalkir, K. (2005) 'The knowledge management cycle'. *Knowledge management in theory and practice. Oxford: Elsevier*, pp. 25-46.

Damanpour, Fariborz, Walker, M, R. & Avellaneda, C. N. (2009) 'Combinative effects of innovation types and organizational performance: A longitudinal study of service organizations'. *Journal of management studies*, 46 (4), pp. 650-675.

Damanpour, F. (1992) 'Organizational size and innovation'. *Organization studies*, 13 (3), pp. 375-402.

Darr, E. D. & Kurtzberg, T. R. (2000) 'An investigation of partner similarity dimensions on knowledge transfer'. *Organizational behavior and human decision processes*, 82 (1), pp. 28-44.

Davenport, T. H. & Prusak, L. (1998) *Working knowledge: How organizations manage what they know.* Harvard Business Press.

Davies, M. B. & Hughes, N. (2014) *Doing a successful research project: Using qualitative or quantitative methods.* Macmillan International Higher Education.

Davis, J. P. & Eisenhardt, K. M. (2011) 'Rotating leadership and collaborative innovation: Recombination processes in symbiotic relationships'. *Administrative Science Quarterly*, 56 (2), pp. 159-201.

Day, G. S. (1994) 'The capabilities of market-driven organizations'. *Journal of marketing*, 58 (4), pp. 37-52.

De Luca, L. M. & Atuahene-Gima, K. (2007) 'Market knowledge dimensions and cross-functional collaboration: Examining the different routes to product innovation performance'. *Journal of marketing*, 71 (1), pp. 95-112.

De Vries, Reinout E Bakker-Pieper, Angelique Oostenveld & Wyneke (2010) 'Leadership= communication? The relations of leaders' communication styles

with leadership styles, knowledge sharing and leadership outcomes'. *Journal of business and psychology*, 25 (3), pp. 367-380.

Deichmann, D. & Stam, D. (2015) 'Leveraging transformational and transactional leadership to cultivate the generation of organization-focused ideas'. *The Leadership Quarterly*, 26 (2), pp. 204-219.

Dennis, R. S., Kinzler-Norheim, L. & Bocarnea, M. (2010) 'Servant leadership theory', *Servant leadership.* Springer, pp. 169-179.

DeRue, D. S. & Myers, C. G. (2014) 'Leadership development: A review and Agenda for future research'.

Deschamps, J.-p. (2005) 'Different leadership skills for different innovation strategies'.

Dess, G. G. & Picken, J. C. (2000) 'Changing roles: Leadership in the 21st century'. *Organizational dynamics*, 28 (3), pp. 18-34.

Dewar, R. D. & Dutton, J. E. (1986) 'The adoption of radical and incremental innovations: An empirical analysis'. *Management science*, 32 (11), pp. 1422-1433.

Dierendonck, D. V. & Nuijten, I. (2011) 'The Servant Leadership Survey : Development and Validation of a Multidimensional Measure'. pp. 249-267.

Diniz, JLS, F., Vaz, R. & Duarte, N. (2015) 'Innovation Strategies in the Portuguese Footwear Industry'. *International Journal of Contemporary Management*, 14 (1),

Dobni, C. B. (2010) 'The relationship between an innovation orientation and competitive strategy'. *International Journal of Innovation Management*, 14 (02), pp. 331-357.

Donate, M. J. & De Pablo, J. D. S. (2015) 'The role of knowledge-oriented leadership in knowledge management practices and innovation'. *Journal of Business Research*, 68 (2), pp. 360-370.

Doyle, P. & Bridgewater, S. (1988) 'Innovation in Marketing. The Chartered Institute of Marketing'.[in Elsevier Butterworth-Heinemann, Oxford. (Accessed:Doyle, P. & Bridgewater, S.

Drost, E. A. (2011) 'Validity and reliability in social science research'. *Education Research and perspectives*, 38 (1), pp. 105.

Drucker, P. (1985) *Innovation and entrepreneurship.* 1st edn. Butterworth-Heinemann.

Drucker, P. (2002) *administração na próxima sociedade, A–Exame.* NBL Editora.

Du Plessis, M. (2007) 'The role of knowledge management in innovation'. *Journal of knowledge management*,

DuBrin, A. J. (2015) *Leadership: Research Findings, Practice, and Skills.* Cengage Learning.

Dutta, S. & Khatri, P. (2017) 'Servant leadership and positive organizational behaviour: The road ahead to reduce employees' turnover intentions'. *On the horizon*,

Dvir, T., Eden, D., Avolio, B. J. & Shamir, B. (2002) 'Impact of transformational leadership on follower development and performance: A field experiment'. *Academy of management journal*, 45 (4), pp. 735-744.

Easterby-Smith, Mark, Thorpe, Richard & Jackson, P. R. (2015) *Management and business research.* 5th edn. Sage.

Edquist, Charles, Hommen, Leif & McKelvey, M. D. (2001) *Innovation and employment: Process versus product innovation.* Edward Elgar Publishing.

Edú-Valsania, Sergio, Moriano, Antonio, J. & Molero, F. (2016) 'Authentic leadership and employee knowledge sharing behavior'. *Leadership & organization development journal*,

Edwards, J. R. & Lambert, L. S. (2007) 'Methods for integrating moderation and mediation: a general analytical framework using moderated path analysis'. *Psychological methods*, 12 (1), pp. 1.

Egbu, C. O. (2004) 'Managing knowledge and intellectual capital for improved organizational innovations in the construction industry: an examination of critical success factors'. *Engineering, Construction and Architectural Management*,

Emadzade, Mohamad, Kazem, Mashayekhi, Behnaz, Abdar & Elham (2012) 'Knowledge management capabilities and organizational performance'. *interdisciplinary journal of contemporary research in business*, 3 (11), pp. 781-790.

Epitropaki, O. & Martin, R. (2005) 'The moderating role of individual differences in the relation between transformational/transactional leadership perceptions and organizational identification'. *The Leadership Quarterly*, 16 (4), pp. 569-589.

Etikan, Ilker Musa, Sulaiman Abubakar Alkassim & Sunusi, R. (2016) 'Comparison of convenience sampling and purposive sampling'. *American journal of theoretical and applied statistics*, 5 (1), pp. 1-4.

Evans, M. C. (1996) 'R . J . HOUSE ' S " A PATH-GOAL THEORY OF LEADER EFFECTIVENESS "'. 7 pp. 305-309.

Farrell, A. M. (2010) 'Insufficient discriminant validity: A comment on Bove, Pervan, Beatty, and Shiu (2009)'. *Journal of Business Research*, 63 (3), pp. 324-327.

Faucher, PL, J. B., Everett, M, A. & Lawson, R. (2008) 'Reconstituting knowledge management'. *Journal of knowledge management*,

Fengjie, A., Fei, Qiao & Xin, C. (2004) 'Knowledge sharing and web-based knowledge-sharing platform', *IEEE International Conference on E-commerce Technology for Dynamic E-business*. IEEE, pp. 278-281.

Fernández-Marcos, Tatiana de la Fuente, Cristina Santacreu & José (2018) 'Test–retest reliability and convergent validity of attention measures'. *Applied Neuropsychology: Adult*, 25 (5), pp. 464-472.

Fernandez, Irma, Becerra, Gonzalez, Avelino & Sabherwal, R. (2004) 'Knowledge Management–Challenges, Solutions and Technologies'. *Ney Jersey: Pearson Education*,

Fernandez, S. (2008) 'Examining the effects of leadership behavior on employee perceptions of performance and job satisfaction'. *Public Performance & Management Review*, 32 (2), pp. 175-205.

Ferraresi, A. A., Quandt, C. O., dos Santos, S. A. & Frega, J. R. (2012) 'Knowledge management and strategic orientation: leveraging innovativeness and performance'. *Journal of knowledge management*,

Fiedler, F. E. (1978) 'The contingency model and the dynamics of the leadership process', *Advances in experimental social psychology.* Elsevier, pp. 59-112.

Field, A. (2009) 'Discopering Statistics Using SPSS, Thrid Edition'.[in 3rd edn. Sage Publications. (Accessed:Field, A.

Field, A. (2013) *Discovering statistics using IBM SPSS statistics.* 4th edn. sage.

Fields, D. L. (2007) 'Determinants of follower perceptions of a leader's authenticity and integrity'. *European Management Journal*, 25 (3), pp. 195-206.

Filius, Rene, de Jong, A, J. & Roelofs, E. C. (2000) 'Knowledge management in the HRD office: a comparison of three cases'. *The Journal of Workplace Learning*, 12 (7), pp. 286-295.

Floyd, F. J. & Widaman, K. F. (1995) 'Factor analysis in the development and refinement of clinical assessment instruments'. *Psychological assessment*, 7 (3), pp. 286.

Fornell, C. & Larcker, D. F. (1981) 'Evaluating structural equation models with unobservable variables and measurement error'. *Journal of marketing research*, 18 (1), pp. 39-50.

Freel, M. S. (2000) 'Barriers to product innovation in small manufacturing firms'. *International Small Business Journal*, 18 (2), pp. 60-80.

Frost, A. (2014) 'A Synthesis of Knowledge Management Failure Factors'.

Frost, N., Nolas, S. M., Brooks-Gordon, B., Esin, C., Holt, A., Mehdizadeh, L. & Shinebourne, P. (2010) 'Pluralism in qualitative research: The impact of different researchers and qualitative approaches on the analysis of qualitative data'. *Qualitative research*, 10 (4), pp. 441-460.

Gandolfi, F. & Stone, S. (2018) 'Leadership, leadership styles, and servant leadership'. *Journal of Management Research*, 18 (4), pp. 261-269.

Gaynor, G. H. (2002) *Innovation by design: what it takes to keep your company on the cutting edge.* PublicAffairs.

Gehlhar, M. J., Regmi, A., Stefanou, S. E. & Zoumas, B. L. (2009) 'Brand leadership and product innovation as firm strategies in global food markets'. *Journal of Product & Brand Management*, 18 (2), pp. 115 - 126.

Ghanem, H. (2013) 'The role of micro and small enterprises in Egypt's economic transition'. *Global Economy and Development program at the brooking institution*, 55,3 (1-25),

Gilbert, M. & Cordey-Hayes, M. (1996) 'Understanding the process of knowledge transfer to achieve successful technological innovation'. *Technovation*, 16 (6), pp. 301-312.

Giltinane, C. L. (2013) 'Leadership styles and theories'. *Nursing standard*, 27 (41),

Goleman, Daniel, Boyatzis, R. E. & McKee, A. (2013) *Primal leadership: Unleashing the power of emotional intelligence.* Harvard Business Press.

Grant, R. M. (1996) 'Toward a knowledge-based theory of the firm'. *Strategic management journal*, 17 (S2), pp. 109-122.

Gratton, L. & Truss, C. (2003) 'The three-dimensional people strategy: Putting human resources policies into action'. *Academy of Management Perspectives*, 17 (3), pp. 74-86.

Greenleaf, R. K. (1973) 'The servant as leader'.[in Center for Applied Studies Cambridge, Mass. (Accessed:Greenleaf, R. K.

Greenleaf, R. K. (1998) *The power of servant-leadership: Essays.* Berrett-Koehler Publishers.

Greenleaf, R. K. (2002) *Servant leadership: A journey into the nature of legitimate power and greatness.* Paulist Press.

Greenleaf, R. K. (2011) 'What is servant leadership'.[in. (Accessed:Greenleaf, R. K.

Griffith, D. A. & Yalcinkaya, G. (2018) 'Global product launch: a perspective on past, present, and future research', *Handbook of Research on New Product Development.* Edward Elgar Publishing.

Grint, K. (2000) *The arts of leadership.* OUP Oxford.

Grint, K. (2005) *Leadership: Limits and possibilities.* Macmillan International Higher Education.

Gunday, G., Ulusoy, G., Kilic, K. & Alpkan, L. (2011) 'Effects of innovation types on firm performance'. *International Journal of Production Economics*, 133 (2), pp. 662-676.

Haggie, K. & Kingston, J. (2003) 'Choosing your knowledge management strategy'. *Journal of knowledge Management practice*, 4 (4), pp. 1-20.

Hair, J. F., Anderson, R. E., Babin, B. J. & Black, W. C. (2010) *Multivariate data analysis: A global perspective (Vol. 7).* 7th edn. Upper Saddle River, NJ: Pearson.

Hale, J. R. & Fields, D. L. (2007) 'Exploring servant leadership across cultures: A study of followers in Ghana and the USA'. *Leadership*, 3 (4), pp. 397-417.

Hamad, H. (2014) *Antecedents of business-to-business e-commerce adoption and its effect on competitive advantage in manufacturing small and medium-*

sized enterprises: A comparative study of United States of America and Egypt. Plymouth University.

Hamel, G. (2006) 'The why, what, and how of management innovation'. *Harvard business review*, 84 (2), pp. 72.

Hammond, M. M., Neff, N. L., Farr, J. L., Schwall, A. R. & Zhao, X. (2011) 'Predictors of individual-level innovation at work: A meta-analysis'. *Psychology of Aesthetics, Creativity, and the Arts*, 5 (1), pp. 90.

Haned, N., Le Bas, C., Mothe, C. & Nguyen, U. (2012) 'Firm technological innovation persistence: Organizational innovation matters'. *GATE Groupe d'Analyse et de Théorie Économique-WP*, 1218

Hannah, S. T., Avolio, B. J., Luthans, F. & Harms, P. D. (2008) 'Leadership efficacy: Review and future directions'. *The Leadership Quarterly*, 19 (6), pp. 669-692.

Hanse, J. J., Harlin, U., Jarebrant, C., Ulin, K. & Winkel, J. (2016) 'The impact of servant leadership dimensions on leader–member exchange among health care professionals'. *Journal of nursing management*, 24 (2), pp. 228-234.

Hansen, M. T. (1999) 'The search-transfer problem: The role of weak ties in sharing knowledge across organization subunits'. *Administrative Science Quarterly*, 44 (1), pp. 82-111.

Hariri, Hasan, Monypenny, Richard & Prideaux, M. (2016) 'Teacher-perceived principal leadership styles, decision-making styles and job satisfaction: how congruent are data from Indonesia with the Anglophile and Western literature?'. *School Leadership & Management*, 36 (1), pp. 41-62.

Hartono, H. & Halim, E. (2014) 'The Impact of Knowledge Management and Entrepreneur's Knowledge on Innovation and Firm Performance'. *The Winners*, 15 (2), pp. 108-114.

Hashim, K. F. & Tan, F. B. (2015) 'The mediating role of trust and commitment on members' continuous knowledge sharing intention: A commitment-trust theory perspective'. *International Journal of Information Management*, 35 (2), pp. 145-151.

Henriques, I. & Sadorsky, P. (2007) 'Environmental technical and administrative innovations in the Canadian manufacturing industry'. *Business Strategy and the Environment*, 16 (2), pp. 119-132.

Hersey, Paul, Blanchard, K. H. & Johnson, D. E. (2007) *Management of organizational behavior.* vol. 9. Prentice hall Upper Saddle River, NJ.

Hersey, P. & Blanchard, K. H. (1976) 'Life cycle theory of leadership'. *Multidisciplinary readings in educational leadership*, 23 (5), pp. 188-199.

Hill, C. W. & Rothaermel, F. T. (2003) 'The performance of incumbent firms in the face of radical technological innovation'. *Academy of management review*, 28 (2), pp. 257-274.

Hislop, Donald, Bosua, Rachelle & Helms, R. (2018) *Knowledge management in organizations: A critical introduction.* Oxford University Press.

Hoecht, A. & Trott, P. (2006) 'Innovation risks of strategic outsourcing'. *Technovation*, 26 (5-6), pp. 672-681.

Hoon Song, J., Kolb, J. A., Hee Lee, U. & Kyoung Kim, H. (2012) 'Role of transformational leadership in effective organizational knowledge creation practices: Mediating effects of employees' work engagement'. *Human Resource Development Quarterly*, 23 (1), pp. 65-101.

Hooper, D., Coughlan, J. & Mullen, M. R. (2008) 'Structural equation modelling: Guidelines for determining model fit'. *Electronic journal of business research methods*, 6 (1), pp. 53-60.

House, R. J. (1996a) 'Path-goal theory of leadership: Lessons, legacy, and a reformulated theory'. *The Leadership Quarterly*, 7 (3), pp. 323-352.

House, R. J. (1996b) 'THEORY OF LEADERSHIP : LESSONS , LEGACY , AND A REFORMULATED THEORY'. 7 pp. 323-352.

Huiban, J.-P. & Bouhsina, Z. (1998) 'Innovation and the quality of labour factor: an empirical investigation in the French food industry'. *Small Business Economics*, 10 (4), pp. 389-400.

Hülsheger, R, U., Anderson, Neil, Salgado & F, J. (2009) 'Team-level predictors of innovation at work: a comprehensive meta-analysis spanning three decades of research'. *Journal of applied psychology*, 94 (5), pp. 1128.

Hume, C. & Hume, M. (2015) 'The critical role of internal marketing in knowledge management in not-for-profit organizations'. *Journal of Nonprofit & Public Sector Marketing*, 27 (1), pp. 23-47.

Hwang, Yujong, Lin, Hui & Shin, D. (2018) 'Knowledge system commitment and knowledge sharing intention: The role of personal information management motivation'. *International Journal of Information Management*, 39 pp. 220-227.

Ibara, E. C. (2014) 'Professional development of principals: A path to effective secondary school administration in Nigeria'. *Africa Education Review*, 11 (4), pp. 674-689.

Ipe, M. (2003) 'Knowledge sharing in organizations: A conceptual framework'. *Human Resource Development Review*, 2 pp. 337–359.

Ismail, M. B. & Yusof, Z. M. (2008) 'Knowledge sharing models: Do they really fit public organizations?', *2008 International Symposium on Information Technology*. IEEE, pp. 1-9.

Ivan, L. (2012) 'Sex role identity, nonverbal sensitivity and potential leadership style'. *Procedia-Social and Behavioral Sciences*, 46 pp. 1720-1729.

Jad, S. M. M., Geravandi, S., Mohammadi, M. J., Alizadeh, R., Sarvarian, M., Rastegarimehr, B., Afkar, A., Yari, A. R., Momtazan, M. & Valipour, A. (2017) 'The relationship between knowledge of leadership and knowledge management practices in the food industry in Kurdistan province, Iran'. *Data in brief*, 15 pp. 155-159.

Jansen, Justin JP, Vera, Dusya & Crossan, M. (2009) 'Strategic leadership for exploration and exploitation: The moderating role of environmental dynamism'. *The Leadership Quarterly*, 20 (1), pp. 5-18.

Janson, A. & McQueen, R. J. (2007) 'Capturing leadership tacit knowledge in conversations with leaders'. *Leadership & organization development journal*,

Janson, A., Mcqueen, R. J., Janson, A. & Mcqueen, R. J. (2011) 'Capturing leadership tacit knowledge in conversations with leaders Capturing leadership tacit knowledge in conversations with leaders'.

Jaskyte, K. (2011) 'Predictors of administrative and technological innovations in nonprofit organizations'. *Public Administration Review*, 71 (1), pp. 77-86.

Javidan, M., Stahl, G. K., Brodbeck, F. & Wilderom, C. P. (2005) 'Cross-border transfer of knowledge: Cultural lessons from Project GLOBE'. *Academy of Management Perspectives*, 19 (2), pp. 59-76.

Jermier, J. M. (1996) 'The path-goal theory of leadership: A subtextual analysis'. *The Leadership Quarterly*, 7 (3), pp. 311-316.

Jinjarak, Y. & Wignaraja, G. (2016) 'An Empirical Assessment of the Export—Financial Constraint Relationship: How Different are Small and Medium Enterprises?'. *World development*, 79 pp. 152-163.

Jocumsen, G. (2004) 'How do small business managers make strategic marketing decisions?'. *European journal of marketing*,

Johnson, Martin, Long, T. & White, A. (2001) 'Arguments for 'British Pluralism'in qualitative health research'. *Journal of advanced nursing*, 33 (2), pp. 243-249.

Johnson, P. & Clark, M. (2006) 'Mapping the terrain: an overview of business and management research methodologies'. *Business and management research methodologies. London: Sage*,

Jones, L. & Bennett, C. (2012) *Leadership in health and social care: An introduction for emerging leaders.* Lantern Press.

Kale, P. & Singh, H. (2007) 'Building firm capabilities through learning: the role of the alliance learning process in alliance capability and firm-level alliance success'. *Strategic management journal*, 28 (10), pp. 981-1000.

Kamaşak, R. & Bulutlar, F. (2010) 'The influence of knowledge sharing on innovation'. *European Business Review*,

Keller, R. T. (2006) 'Transformational leadership, initiating structure, and substitutes for leadership: a longitudinal study of research and development project team performance'. *Journal of applied psychology*, 91 (1), pp. 202.

Kelley, T. L. (1927) 'Interpretation of educational measurements'.

Khalefa, M. (2018) *Internationalisation and performance of small and medium enterprises in the wood and furniture in Damietta Governante, Egypt*. University of Birmingham.

Kibbe, M. R. (2019) 'Leadership theories and styles', *Leadership in Surgery.* Springer, pp. 27-36.

Kim, L., Nelson, R. R. & Nelson, R. R. (2000) *Technology, learning, and innovation: Experiences of newly industrializing economies.* Cambridge University Press.

Kim, S. & Ju, B. (2008) 'An analysis of faculty perceptions: Attitudes toward knowledge sharing and collaboration in an academic institution'. *LIBRARY & INFORMATION SCIENCE RESEARCH*, 30 pp. 282-290.

Kline, R. (2011) 'Ebooks Corporation: Principles and practice of structural equation modeling'. *Methodology in the social sciences. 3rd edition. New York: Guilford Press*,

Kock, A., Gemünden, H. G., Salomo, S. & Schultz, C. (2011) 'The mixed blessings of technological innovativeness for the commercial success of new products'. *Journal of Product Innovation Management*, 28 (s1), pp. 28-43.

Kock, N. (2019) 'Factor-based structural equation modeling with WarpPLS'. *Australasian Marketing Journal (AMJ)*, 27 (1), pp. 57-63.

Kodama, M. (2005) 'New knowledge creation through leadership-based strategic community — a case of new product development in IT and multimedia business fields'. 25 pp. 895-908.

Koenig, M. E. D. (2012) 'What is KM ? Knowledge Management Explained'.

Kogut, B. & Zander, U. (1992) 'Knowledge of the firm, combinative capabilities, and the replication of technology'. *Organization science*, 3 (3), pp. 383-397.

Krafft, C., Assaad, R., Rahman, K. W. & Cumanzala, M. (2020) 'How Do Small Formal and Informal Firms in the Arab Republic of Egypt Compare?'.

Kumar, B., Thiagarajan, D., Maniiarasan, D., Prasanth, J., Abilesh, G. & Srinivasan, D. (2013) 'Enhancement in higher education with knowledge management'. *International Journal of Science, Engineering and Technology Research*, 2 (3), pp. 569-573.

Lacity, M. & Willcocks, L. (2014) 'Business process outsourcing and dynamic innovation'. *Strategic Outsourcing: An International Journal*, 7 (1), pp. 66-92.

Ladkin, D. & Taylor, S. S. (2010) 'Enacting the 'true self': Towards a theory of embodied authentic leadership'. *The Leadership Quarterly*, 21 (1), pp. 64-74.

Lam, A. (2011) 'Innovative organisations: Structure, learning, and adaptation'.

Laub, J. (2003) 'From paternalism to the servant organization: Expanding the Organizational Leadership Assessment (OLA) model'. *The International Journal of Servant-Leadership*, 1 (1), pp. 155-186.

Laub, J. (2004) 'Defining servant leadership: A recommended typology for servant leadership studies', *Proceedings of the Servant Leadership Research Roundtable*. pp. 607-621.

Laursen, K. & Salter, A. (2006) 'Open for innovation: the role of openness in explaining innovation performance among UK manufacturing firms'. *Strategic management journal*, 27 (2), pp. 131-150.

Le Bars, A., Mangematin, V. & Nesta, L. (1998) 'Innovation in SME's: the missing link', *High-Technology Small Firms Conference*. pp. 307-324.

Le, P. B. & Lei, H. (2019) 'Determinants of innovation capability: the roles of transformational leadership, knowledge sharing and perceived organizational support'. *Journal of knowledge management*,

Leavy, B. (2005) 'A leader's guide to creating an innovation culture'. *Strategy & Leadership*,

Lee, C. K. & Al-Hawamdeh, S. (2002) 'Factors impacting knowledge sharing'. *Journal of Information & Knowledge Management*, 1 (01), pp. 49-56.

Leonard, D. & Sensiper, S. (1998) 'The role of tacit knowledge in group innovation'. *California management review*, 40 (3), pp. 112-132.

Levin, D. Z. & Cross, R. (2004) 'The Strength of Weak Ties You Can Trust: The Mediating Role of Trust in Effective Knowledge Transfer'. *Management science*, 50 (11), pp. 1477-1490.

Lewin, K. (1944) 'A research approach to leadership problems'. *The Journal of Educational Sociology*, 17 (7), pp. 392-398.

Li, G., Shang, Y., Liu, H. & Xi, Y. (2014) 'Differentiated transformational leadership and knowledge sharing: A cross-level investigation'. *European Management Journal*, 32 (4), pp. 554-563.

Li, T. & Calantone, R. J. (1998) 'The impact of market knowledge competence on new product advantage: conceptualization and empirical examination'. *Journal of marketing*, 62 (4), pp. 13-29.

Lichtenthaler, U. & Ernst, H. (2012) 'The performance implications of dynamic capabilities: The case of product innovation'. *Journal of Product Innovation Management*, 10

Liden, R. C., Wayne, S. J., Zhao, H. & Henderson, D. (2008) 'Servant leadership: Development of a multidimensional measure and multi-level assessment'. *The Leadership Quarterly*, 19 (2), pp. 161-177.

Liebowitz, J. (2001) 'Knowledge management and its link to artificial intelligence'. *Expert systems with applications*, 20 (1), pp. 1-6.

Liebowitz, J. (2006) 'Conceptualizing and implementing knowledge management', *Management of knowledge in project environments.* Routledge, pp. 17-34.

Liedholm, C. E. & Mead, D. C. (2013) *Small enterprises and economic development: the dynamics of micro and small enterprises.* Routledge.

Lin, C. P. (2007a) 'To share or not to share: Modeling knowledge sharing using exchange ideology as a moderator'. *Personnel Review*,

Lin, H.-F. (2007b) 'Effects of extrinsic and intrinsic motivation on employee knowledge sharing intentions'. *Journal of information science*, 33 (2), pp. 135-149.

Liu, Y. & DeFrank, R. S. (2013) 'Self-interest and knowledge-sharing intentions: the impacts of transformational leadership climate and HR practices'. *The International Journal of Human Resource Management*, 24 (6), pp. 1151-1164.

Loon, M. & Chik, R. (2019) 'Efficiency-centered, innovation-enabling business models of high tech SMEs: Evidence from Hong Kong'. *Asia Pacific Journal of Management*, 36 (1), pp. 87-111.

Lopez-Saez, P., Navas-Lopez, J. E., Martín-de-Castro, G. & Cruz-Gonzalez, J. (2010) 'External knowledge acquisition processes in knowledge-intensive clusters'. *Journal of knowledge management*, 14 (5), pp. 690-707.

Loulakis, M. & Rowland, T. (2003) 'Ethics in Construction: Challenges and Dilemmas''. *International Risk Management Institute (USA)*, 18

Lovelace, K. (2001) 'Multidisciplinary top management teamwork: effects on local health department performance'. *Journal of Public Health Management and Practice*, 7 (1), pp. 21-29.

Lumsden, L., Nelson, J., Todd, C., Scroggie, M., McNabb, E., Raadik, T., Smith, S., Acevedo, S., Cheers, G. & Jemison, M. (2013) 'A new strategic approach to biodiversity management–research component'. *Arthur Rylah Institute for Environmental Research unpublished client report for the Department of Environment and Primary Industries, Melbourne*,

Lunenburg, F. (2013) 'LEADERSHIP VERSUS MANAGMENT: A KEY DISTINCTION—At LEAST IN THEORY'. *Main Issues Of Pedagogy And Psychology*, 3 (3), pp. 15-18.

Lussier, A. (2011) *Management fundamentals: Concepts, applications, skill development.* Cengage Learning.

Lussier, R. & Achua, C. (2012) 'Leadership: Theory, Application, & Skill Development'.

Lussier, R. & Achua, C. (2014) 'Leadership: Theory, Application, Skill Development'.

Lussier, R. N. & Achua, C. F. (2015) *Leadership: Theory, application, & skill development.* Nelson Education.

Lynn, G. S., Reilly, Richard R & Akgun, A. E. (2000) 'Knowledge management in new product teams: practices and outcomes'. *IEEE transactions on Engineering Management*, 47 (2), pp. 221-231.

Lyon, D. W. & Ferrier, W. J. (2002) 'Enhancing performance with product-market innovation: the influence of the top management team'. *Journal of Managerial issues*, pp. 452-469.

MacCallum, R. C., Browne, M. W. & Sugawara, H. M. (1996) 'Power analysis and determination of sample size for covariance structure modeling'. *Psychological methods*, 1 (2), pp. 130.

Mackenzie, N. & Knipe, S. (2006) 'Research dilemmas: Paradigms, methods and methodology'. *Issues in educational research*, 16 (2), pp. 193-205.

MacLeod, M. & Davidson, E. (2007) 'Organizational storytelling and technology innovation', *2007 40th Annual Hawaii International Conference on System Sciences (HICSS'07)*. IEEE, pp. 248c-248c.

Maftennson, M. (2000) 'A critical review of knowledge management as a tool'. *Journal of knowledge management*, 4 (3), pp. 204-216.

Mahdi, Omar R, Almsafir, Khalid, M. & Yao, L. (2011) 'The role of knowledge and knowledge management in sustaining competitive advantage within organizations: A review'. *African Journal of Business Management*, 5 (23), pp. 9912.

Mahembe, B. & Engelbrecht, A. S. (2013) 'A confirmatory factor analytical study of a servant leadership measure in South Africa'. *SA Journal of Industrial Psychology*, 39 (2), pp. 1-8.

Mahmoud Mourad, P. W. (2020) 'Egypt hails new 'furniture city' but many craftsmen unconvinced'. *BUSINESS NEWS*, FEBRUARY 24

Mansour, T. G. I., , k. H. E., , M. A. A., S., a. S. & El-Ghan, A. (2018) 'The Role of Small and Medium Enterprises in Economic Development, Case of Egypt'. *The International Journal of Business Management and Technology*, 2 (5),

Martens, J. (2013) 'Stories of innovation : roles , perspectives , and players'.

Mathew, V. (2010) 'Service delivery through knowledge management in higher education'. *Journal of knowledge Management practice*, 11 (3), pp. 1-14.

May, T. & Perry, B. (2017) 'Knowledge for just urban sustainability'. *Local Environment*, 22 (sup1), pp. 23-35.

Mayadunne, S. & Park, S. (2016) 'An economic model to evaluate information security investment of risk-taking small and medium enterprises'. *International Journal of Production Economics*, 182 pp. 519-530.

McCarthy, S. F. (2012) 'Developing an Australian code of construction ethics'. *Construction Economics and Building*, 12 (2), pp. 100-100.

McCloskey, D. N. (2013) 'Tunzelmann, Schumpeter, and the hockey stick'. *Research policy*, 42 (10), pp. 1706-1715.

McDermott, R. (1999) 'Why information technology inspired but cannot deliver knowledge management'. *California management review*, 41 (4), pp. 103-117.

McMillan, C. (2010) 'Five competitive forces of effective leadership and innovation'. *Journal of Business Strategy*,

Meeus, M. T. & Edquist, C. (2006) 'Introduction product en process innovation', *Innovation, science and institutional change.* Oxford University Press, pp. 24-37.

Melenhorst, Anne-Sophie, Rogers, A, W. & Bouwhuis, D. G. (2006) 'Older adults' motivated choice for technological innovation: Evidence for benefit-driven selectivity'. *Psychology and aging*, 21 (1), pp. 190.

Mesmer-Magnus, J. R., DeChurch, L. A., Jimenez-Rodriguez, M., Wildman, J. & Shuffler, M. (2011) 'A meta-analytic investigation of virtuality and information sharing in teams'. *Organizational behavior and human decision processes*, 115 (2), pp. 214-225.

Miller, D., Fern, M. J., Cardinal & B, L. (2007) 'The use of knowledge for technological innovation within diversified firms'. *Academy of management journal*, 50 (2), pp. 307-325.

Mingers, J. (2001) 'Combining IS research methods: towards a pluralist methodology'. *Information systems research*, 12 (3), pp. 240-259.

Mishra, P., Pandey, C. M., Singh, U., Gupta, A., Sahu, C. & Keshri, A. (2019) 'Descriptive statistics and normality tests for statistical data'. *Annals of cardiac anaesthesia*, 22 (1), pp. 67.

Mokyr, J. (2016) *A culture of growth: the origins of the modern economy.* Princeton University Press.

Moosmayer, D. C. & Koehn, A. (2011) 'The moderating role of managers' uncertainty avoidance values on the performance impact of radical and incremental innovation'. *International Journal of Business Research*, 11 (6), pp. 32-39.

Morgan, D. L. (2014) 'Pragmatism as a paradigm for social research'. *Qualitative inquiry*, 20 (8), pp. 1045-1053.

Mothe, Caroline, Nguyen-Thi & Uyen T Nguyen-Van, P. (2015) 'Assessing complementarity in organizational innovations for technological innovation: the role of knowledge management practices'. *Applied economics*, 47 (29), pp. 3040-3058.

Mumford, T. V., Campion, M. A. & Morgeson, F. P. (2007) 'The leadership skills strataplex: Leadership skill requirements across organizational levels'. *The Leadership Quarterly*, 18 (2), pp. 154-166.

Musa, H. & Chinniah, M. (2016) 'Malaysian SMEs development: Future and challenges on going green'. *Procedia-Social and Behavioral Sciences*, 224 (2016), pp. 254-262.

Musen, M. (1992) 'Dimensions of knowledge sharing and reuse'. *Computers and biomedical research, an international journal*, 25 pp. 435-467.

Nair, Anil, Ahlstrom, David & Filer, L. (2007) 'Localized advantage in a global economy: The case of Bangalore'. *Thunderbird International Business Review*, 49 (5), pp. 591-618.

Naqshbandi, M. M. & Jasimuddin, S. M. (2018) 'Knowledge-oriented leadership and open innovation: Role of knowledge management capability in France-based multinationals'. *International Business Review*, 27 (3), pp. 701-713.

Naudé, Wim, Szirmai, Adam & Goedhuys, M. (2011) *Innovation and entrepreneurship in developing countries.* UNU.

Nawaz, Z. & Khan, I. (2016) 'Leadership theories and styles: A literature review'. *Leadership*, 16 (1), pp. 1-7.

Nemati, Raza, A., Khan, Khurram & Iftikhar, M. (2010) 'Impact of innovation on customer satisfaction and brand loyalty, a study of mobile phones users in Pakistan'. *European Journal of Social Sciences*, 16 (2), pp. 299-306.

'New Cities in Egypt'. (2018). [Online]. Available at: http://newcities.gov.eg/know_cities/Damietta/default.aspx.

Newell, A. (1982) 'The knowledge level'. *Artificial Intelligence*, 18 (1), pp. 87-127.

Niglas, K. (2010) 'The multidimensional model of research methodology: An integrated set of continua'. *Handbook of mixed methods in social and behavioral research*, 2 pp. 215-236.

Nonaka, Ikujiro Von Krogh, Georg Voelpel & Sven (2006) 'Organizational knowledge creation theory: Evolutionary paths and future advances'. *Organization studies*, 27 (8), pp. 1179-1208.

Nonaka, I. (1994) 'A dynamic theory of organizational knowledge creation'. *Organization science*, 5 (1), pp. 14-37.

Nonaka, I. & Konno, N. (1998) 'The concept of "Ba": Building a foundation for knowledge creation'. *California management review*, 40 (3), pp. 40-54.

Nonaka, I. & Takeuchi, H. (1995) *The knowledge-creating company: How Japanese companies create the dynamics of innovation.* Oxford university press.

Nonaka, K. (1998) 'The concept of Ba: building A foundation for knowledge creation'. *California management review*, 40 pp. 40-54.

Northouse, P. G. (2012) 'Leadership: Theory and Practice'. *Sage Publications Ltd (CA)*,

Noruzy, A., Dalfard, V. M., Azhdari, B., Nazari-Shirkouhi, S. & Rezazadeh, A. (2013) 'Relations between transformational leadership, organizational learning, knowledge management, organizational innovation, and organizational performance: an empirical investigation of manufacturing firms'. *The International Journal of Advanced Manufacturing Technology*, 64 (5-8), pp. 1073-1085.

OBG (2020) *SMEs key to sustainable growth of Egypt's industry.* Available at: https://oxfordbusinessgroup.com/overview/outsized-impact-support-small-and-medium-sized-enterprises-increasingly-recognised-key-sustainable.

Oddande, T. A. W. (2008) *Organizational conditions for innovation: a multiperspective approach to innovation in a large industrial company*.

Oecd Oslo, M. (2005) 'Proposed guidelines for collecting and interpreting technological innovation data'. *Manual Oslo", Eurostat*,

Oyemomi, O., Liu, S., Neaga, I., Chen, H. & Nakpodia, F. (2019) 'How cultural impact on knowledge sharing contributes to organizational performance: Using the fsQCA approach'. *Journal of Business Research*, 94 pp. 313-319.

Page, D. & Wong, T. P. (2000) 'A conceptual framework for measuring servant leadership'. *The human factor in shaping the course of history and development*, pp. 69-110.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N. & Hoagwood, K. (2015) 'Purposeful sampling for qualitative data collection and analysis in mixed method implementation research'. *Administration and policy in mental health and mental health services research*, 42 (5), pp. 533-544.

Parris, D. & Peachey, J. (2012) 'Building a legacy of volunteers through servant leadership: A cause-related sporting event'. *Nonprofit Management and Leadership*, 23 (2), pp. 259-276.

Pasternack, A, B., Viscio, J, A. & Frank, A. (1999) *The centerless corporation: A new model for transforming your organization for growth and prosperity.* Simon & Schuster.

Patterson, K. A. (2003) *Servant leadership: A theoretical model*. Regent University.

Paulsen, N., Callan, V. J., Ayoko, O. & Saunders, D. (2013) 'Transformational leadership and innovation in an R & D organization experiencing major change'.

Paulsen, N., Maldonado, D., Callan, V. J. & Ayoko, O. (2009) 'Charismatic leadership, change and innovation in an R&D organization'. *Journal of Organizational Change Management*,

Pavitt, K. (2005) 'Innovation processes', *The Oxford handbook of innovation.*

Peacock, R. W. (2004) *Understanding small business: Practice, theory and research.* Scarman Publishing.

Pennings, J. M. & Harianto, F. (1992) 'Technological networking and innovation implementation'. *Organization science*, 3 (3), pp. 356-382.

Pérez-Luño, Ana Alegre, Joaquín, Valle-Cabrera & Ramón (2019) 'The role of tacit knowledge in connecting knowledge exchange and combination with innovation'. *Technology Analysis & Strategic Management*, 31 (2), pp. 186-198.

Piccolo, R. F. & Colquitt, J. A. (2006) 'Transformational leadership and job behaviors: The mediating role of core job characteristics'. *Academy of management journal*, 49 (2), pp. 327-340.

Pitt, C. A. (2007) *Leading innovation and entrepreneurship: an action research study in the Australian red meat industry*.

Polanyi, M. (1967) 'The tacit dimension'. *London, Routledge.*,

Polanyi, M. (1969) 'On body and mind'. *The New Scholasticism*, 43 (2), pp. 195-204.

Polanyi, M. (2007) 'Michael polanyi and tacit knowledge'.[in. (Accessed:Polanyi, M.

Politis, J. D. (2002) 'Transformational and transactional leadership enabling (disabling) knowledge acquisition of self-managed teams: the consequences for performance'. *Leadership & organization development journal*,

Popa, B. M. (2012) 'The relationship between leadership effectiveness and organizational performance'. *Journal of Defense Resources Management (JoDRM)*, 3 (1), pp. 123-127.

Rachmawati, A. W. & Lantu, D. C. (2014) 'Servant leadership theory development & measurement'. *Procedia-Social and Behavioral Sciences*, 115 pp. 387-393.

Reed, N, B., Klutts, A. M. & Mattingly, T. J. (2019) 'A Systematic Review of Leadership Definitions, Competencies, and Assessment Methods in Pharmacy Education'. *American Journal of Pharmaceutical Education*, 83 (9),

Rezaei, M., Shamsaei, F., Mohammadian, I. & Van Vyve, M. (2012) 'A heuristic method to schedule training programs for Small and Medium Enterprises'. *European journal of Operational research*, 217 (3), pp. 600-608.

Ritala, Paavo, Hurmelinna & Laukkanen, P. (2013) 'Incremental and radical innovation in coopetition—The role of absorptive capacity and appropriability'. *Journal of Product Innovation Management*, 30 (1), pp. 154-169.

Romijn, H. & Albaladejo, M. (2002) 'Determinants of innovation capability in small electronics and software firms in southeast England'. *Research policy*, 31 (7), pp. 1053-1067.

Rosenbusch, Nina, Brinckmann, Jan & Bausch, A. (2011) 'Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs'. *Journal of business Venturing*, 26 (4), pp. 441-457.

Rowold, J. & Schlotz, W. (2009) 'Transformational and transactional leadership and followers' chronic stress'. *Leadership Review*, 9 (1), pp. 35-48.

Russell, R. F. & Stone, A. G. (2002) 'A review of servant leadership attributes: Developing a practical model'. *Leadership & organization development journal*,

Ryan, G. (2018) 'Introduction to positivism, interpretivism and critical theory'. *Nurse researcher*, 25 (4), pp. 41-49.

Sadeghi, A. & Rad, F. (2018) 'The role of knowledge-oriented leadership in knowledge management and innovation'. *Management Science Letters*, 8 (3), pp. 151-160.

Sandulli, D, F., Baker, P. M. & López-Sánchez, J. I. (2013) 'Can small and medium enterprises benefit from skill-biased technological change?'. *Journal of Business Research*, 66 (10), pp. 1976-1982.

Santos, Gilberto, Mendes, Fátima & Barbosa, J. (2011) 'Certification and integration of management systems: the experience of Portuguese small and medium enterprises'. *Journal of cleaner production*, 19 (17-18), pp. 1965-1974.

Sarkar, Roghayeh Keshavaz Mostaghimi, Mahmoud Reza Akbari & Mohsen (2016) 'Investigate the Role of Knowledge-Oriented Leadership in Innovation and Knowledge Management Practices'. *International Business Management*, 10 (11), pp. 2143-2149.

Sarkheyli, A., Alias, R. A., Ithnin, N. & Esfahani, M. D. (2013) 'Dimensions of knowledge sharing quality: an empirical investigation'. *J. Res. Innov. Inf. Syst*, 3 pp. 9-18.

Sarros, C, J., Cooper, K, B. & Santora, J. C. (2008) 'Building a climate for innovation through transformational leadership and organizational culture'. *Journal of Leadership & Organizational Studies*, 15 (2), pp. 145-158.

Sarros, J. C., Cooper, B. K., Santora, J. C., Sarros, J. C. & Cooper, B. K. (2011) 'Leadership vision , organizational culture , and support for innovation in not-for-profit and for-profit organizations'.

Saunders, Mark, Lewis, Philip Thornhill & Adrian (2018) *Research Methods For Business Students.* ed. Limited, P.E., sixth edn.

Schreiber, A. T., Schreiber, G., Akkermans, H., Anjewierden, A., Shadbolt, N., de Hoog, R., Van de Velde, W., Shadbolt, N. R. & Wielinga, B. (2000) *Knowledge engineering and management: the CommonKADS methodology.* MIT press.

Schriesheim, Chester A Castro, Stephanie L Tracy & Xiaohua Dechurch, L. A. (2006) 'An investigation of path-goal and transformational leadership theory predictions at the individual level of analysis'. 17 pp. 21-38.

Schuhmacher, Monika, Kuester, Sabine & Hultink, E. J. (2018) 'A ppetizer or M ain C ourse: E arly M arket vs. M ajority M arket G o-to-M arket S trategies for R adical I nnovations'. *Journal of Product Innovation Management*, 35 (1), pp. 106-124.

Schumpeter, J. A. (1942) 'Capitalism, Socialism, and Democracy'. *University of Illinois at Urbana-Champaign's Academy for Entrepreneurial Leadership Historical Research Reference in Entrepreneurship*,

Schumpeter, J. A. (1991) *Essays: On entrepreneurs, innovations, business cycles, and the evolution of capitalism.* Transaction Publishers.

Schwartz, D. G. (2007) 'Integrating knowledge transfer and computer-mediated communication: categorizing barriers and possible responses'. *Knowledge Management Research & Practice*, 5 (4), pp. 249-259.

Seba, Ibrahim, Rowley, Jennifer & Delbridge, R. (2012) 'Knowledge sharing in the Dubai police force'. *Journal of knowledge management*,

Seidler-de Alwis, Ragna, Hartmann, Evi & Gemünden, H. G. (2004) 'The role of tacit knowledge in innovation management', *Competitive Paper submitted to the 20th Annual IMP Conference in Copenhagen, 2th-4th September*. Citeseer.

Seidler-de Alwis, R. & Hartmann, E. (2008) 'The use of tacit knowledge within innovative companies: knowledge management in innovative enterprises'. *Journal of knowledge management*,

Sekaran, U. & Bougie, R. (2011) 'Business Research Methods: A skill-building approach'. *Chichester: John Wiley& Sons Ltd*,

Sendjaya (2003) 'Development and validation of servant leadershipbehaviour scale'.

Senge, P. (2006) 'Systems citizenship: The leadership mandate for this millennium'. *Leader to Leader*, 2006 (41), pp. 21-26.

Sharratt, M. & Usoro, A. (2003) 'Understanding knowledge-sharing in online communities of practice'. *Electronic Journal on Knowledge Management*, 1 (2), pp. 187-196.

Shaw, J. & Newton, J. (2014) 'Teacher retention and satisfaction with a servant leader as principal'. *Education*, 135 (1), pp. 101-106.

Shih, Hsi-An, Chiang, Yun-Hwa & Chen, T.-J. (2012) 'Transformational leadership, trusting climate, and knowledge-exchange behaviors in Taiwan'. *The International Journal of Human Resource Management*, 23 (6), pp. 1057-1073.

Sial, A., Zulfiqar, S., Ali Kousar, S. & Habid, S. (2014) 'Impact of servant leadership on knowledge sharing intensions among employees: Study of higher education commission of Pakistan'. *European Journal of Business and Innovation Research*, 2 (1), pp. 1-11.

Sik-wah Fong, P. & Chu, L. (2006) 'Exploratory study of knowledge sharing in contracting companies: A sociotechnical perspective'. *Journal of construction engineering and management*, 132 (9), pp. 928-939.

Sikorski, G. (2016) *Empowering proxy—A Glaserian grounded theory study of servant-leaders' use of social power*. Doctoral dissertation. Retrieved from ProQuest Dissertations and Thesis ….

Sikorski, G. W. (2017) 'What Is It Like to Work for a Servant Leader?', *Servant leadership and followership.* Springer, pp. 289-312.

Simonin, B. L. (1999) 'Ambiguity and the process of knowledge transfer in strategic alliances'. *Strategic management journal*, 20 (7), pp. 595-623.

Singh, A. & Masuku, M. (2014) 'Sampling Techniques & Determination of Sample Size in Applied Statistics Research: an Overview'. 2 (11), pp. 1-22.

Singh, S. K. (2011) 'Organizational innovation as competitive advantage during global recession'. *Indian Journal of Industrial Relations*, pp. 713-725.

Smith, G, K., Collins, J, C. & Clark, K. D. (2005) 'Existing knowledge, knowledge creation capability, and the rate of new product introduction in high-technology firms'. *Academy of management journal*, 48 (2), pp. 346-357.

Smith, P. A., Bakker, M., Leenders, R. T. A., Gabbay, S. M., Kratzer, J. & Van Engelen, J. M. (2006) 'Is trust really social capital? Knowledge sharing in product development projects'. *The Learning Organization*,

Soken, N. H. & Barnes, B. K. (2014) 'What kills innovation? Your role as a leader in supporting an innovative culture'. *Industrial and Commercial Training*,

Sokoll, S. (2014) 'Servant leadership and employee commitment to a supervisor'. *International Journal of Leadership Studies*, 8 (2), pp. 88-104.

Song, Chanhoo, Park, Ryan, K. & Kang, S.-W. (2015) 'Servant leadership and team performance: The mediating role of knowledge-sharing climate'. *Social Behavior and Personality: an international journal*, 43 (10), pp. 1749-1760.

Sorescu, A. B. & Spanjol, J. (2008) 'Innovation's effect on firm value and risk: Insights from consumer packaged goods'. *Journal of marketing*, 72 (2), pp. 114-132.

Souza, C. (2012) 'Fostering inter-team knowledge sharing effectiveness in agile software development'. *Inst. Math. Statist., Univ. São Paulo, São Paulo, Brazil, Tech. Rep. RT-MAC-2012-02*,

Spears, L. (1996) 'Reflections on Robert K. Greenleaf and servant-leadership'. *Leadership & organization development journal*,

Srivastava, M. K. (2007) *Friends or neighbors? The effects of inter-firm networks and clusters on technological innovations in the uS Semiconductor industry*. Virginia Tech.

Stamm, A., Dantas, E., Fischer, D., Ganguly, S. & Rennkamp, B. (2009) *Sustainability-oriented innovation systems: Towards decoupling economic growth from environmental pressures?* Discussion Paper.

Stanley, D. (2017) 'Clinical Leadership in Nursing and Healthcare: Values into Action'.[in John Wiley & Sons. (Accessed:Stanley, D.

Stefanovitz, Pavanelli, J., Nagano, Seido, M. & Santos, F. C. A. (2010) 'Influence of the technological innovation degree on knowledge creation: Evidence from a Brazilian firm'. *African Journal of Business Management*, 4 (5), pp. 631-643.

Steiger, J. H. (2007) 'Understanding the limitations of global fit assessment in structural equation modeling'. *Personality and Individual differences*, 42 (5), pp. 893-898.

Stevenson, A. (2010) *Oxford dictionary of English.* Oxford University Press, USA.

Stewart, T. (2012) 'Knowledge sharing'. *Behaviour & Information Technology*, 31 (11), pp. 1055-1056.

Stock, R. M., Totzauer, Florian, Zacharias & A, N. (2014) 'A closer look at cross-functional R&D cooperation for innovativeness: Innovation-oriented leadership and human resource practices as driving forces'. *Journal of Product Innovation Management*, 31 (5), pp. 924-938.

Stogdill, R. M. (1974) *Handbook of leadership: A survey of theory and research.* Free Press.

Stone, A Gregory, Russell, F, R. & Patterson, K. (2004) 'Transformational versus servant leadership: A difference in leader focus'. *Leadership & organization development journal*,

Storey, C. & Kelly, D. (2002) 'Innovation in services: the need for knowledge management'. *Australasian Marketing Journal (AMJ)*, 10 (1), pp. 59-70.

Subramaniam, M. & Youndt, M. A. (2005) 'The influence of intellectual capital on the types of innovative capabilities'. *Academy of management journal*, 48 (3), pp. 450-463.

Supar, N., Ibrahim, A. A., Mohamed, Z. A., Yahya, M. & Abdul, M. (2005) 'Factors affecting knowledge sharing and its effects on performance: a study of three selected higher academic institutions', *International conference on knowledge management (ICKM)*.

Swanwick, T. & McKimm, J. (2011) 'What is clinical leadership… and why is it important?'. *The clinical teacher*, 8 (1), pp. 22-26.

Szulanski, G. (1996) 'Exploring internal stickiness: Impediments to the transfer of best practice within the firm'. *Strategic management journal*, 17 (S2), pp. 27-43.

Tan, B.-I., Wong, C.-H., Lam, C.-H., Ooi, K.-B. & Ng, F. C.-Y. (2010) 'Assessing the link between service quality dimensions and knowledge sharing: Student perspective'. *African Journal of Business Management*, 4 (6), pp. 1014.

Tarkkonen, L. & Vehkalahti, K. (2005) 'Measurement errors in multivariate measurement scales'. *Journal of Multivariate Analysis*, 96 (1), pp. 172-189.

Tatlah, I. & Iqbal, M. (2012) 'Leadership Styles and School Effectiveness : Empirical Evidence from Secondary Level'. *Procedia - Social and Behavioral Sciences*, 69 pp. 790-797.

Tavakol, M. & Dennick, R. (2011) 'Making sense of Cronbach's alpha'. *International journal of medical education*, 2 pp. 53.

Teece, D. J. (2008) *Technological know-how, organizational capabilities, and strategic management: business strategy and enterprise development in competitive environments.* World Scientific.

Tripsas, M. & Gavetti, G. (2000) 'Capabilities, cognition, and inertia: Evidence from digital imaging'. *Strategic management journal*, 21 (10-11), pp. 1147-1161.

Tsai, W. (2001) 'Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance'. *Academy of management journal*, 44 (5), pp. 996-1004.

Tuan, L. T. (2016) 'How servant leadership nurtures knowledge sharing: The mediating role of public service motivation'. *International Journal of Public Sector Management*,

Tudor, Tiron, A., Zaharie, Monica & Osoian, C. (2014) 'Innovation development needs in manufacturing companies'. *Procedia Technology*, 12 pp. 505-510.

Un, Annique, C., Cuervo-Cazurra, Alvaro & Asakawa, K. (2010) 'R&D collaborations and product innovation'. *Journal of Product Innovation Management*, 27 (5), pp. 673-689.

Usoro, A., Sharratt, M. W., Tsui, E. & Shekhar, S. (2007) 'Trust as an antecedent to knowledge sharing in virtual communities of practice'. *Knowledge Management Research & Practice*, 5 (3), pp. 199-212.

Usunier, J.-C. (1998) *International and cross-cultural management research.* Sage.

Uzohue, C. E., Yaya, J. A. & Akintayo, O. A. (2016) 'A review of leadership theories, principles, styles and their relevance to management of health science libraries in Nigeria'. *Journal of Educational Leadership and Policy*, 1 (1), pp. 17-26.

Van Den Hooff, Bart Schouten, Alexander P Simonovski & Stojan (2012) 'What one feels and what one knows: the influence of emotions on attitudes and intentions towards knowledge sharing'. *Journal of knowledge management*,

Van Den Hooff, B. & De Ridder, J. A. (2004) 'Knowledge sharing in context: the influence of organizational commitment, communication climate and CMC use on knowledge sharing'. *Journal of knowledge management*,

Van der Voet, J. (2014) 'The effectiveness and specificity of change management in a public organization: Transformational leadership and a bureaucratic organizational structure'. *European Management Journal*, 32 (3), pp. 373-382.

Van Dierendonck, D. & Nuijten, I. (2011) 'The servant leadership survey: Development and validation of a multidimensional measure'. *Journal of business and psychology*, 26 (3), pp. 249-267.

Vargas, M. (2015) 'Determinant factors for small business to Achieve innovation, High performance and competitiveness: organizational learning and leadership style'. *Social and behavioral Sciences*, 169 pp. 43-52.

Vega, Arturo, Brown, D. & Chiasson, M. (2012) 'Open innovation and SMEs: exploring policy and the scope for improvements in university-based public programmes through a multidisciplinary lens'. *International Journal of Entrepreneurial Behaviour and Research*,

Vickers, P. & Offredy, M. (2010) 'The web program: Writing a research proposal'.[in. (Accessed:Vickers, P. & Offredy, M.

Villamizar Reyes, Margarita, M., Castañeda Zapata & Ignacio, D. (2014) 'Relation between organizational climate and its dimensions and knowledge-sharing behavior among knowledge workers'. *International Journal of Psychological Research*, 7 (2), pp. 64-75.

Vogt, Florian Hall, Sue Marteau & M, T. (2007) 'General practitioners' beliefs about effectiveness and intentions to recommend smoking cessation services: qualitative and quantitative studies'. *BMC Family Practice*, 8 (1), pp. 39.

Von Krogh, Georg, Nonaka, Ikujiro, Rechsteiner & Lise (2012) 'Leadership in organizational knowledge creation: A review and framework'. *Journal of management studies*, 49 (1), pp. 240-277.

Vroom, V. H. & Jago, A. G. (2007) 'The role of the situation in leadership'. *American psychologist*, 62 (1), pp. 17.

Waltz, E. (2003) *Knowledge management in the intelligence enterprise.* Artech House.

Wang, Juanru, Yang, Jin & Xue, Y. (2017) 'Subjective well-being, knowledge sharing and individual innovation behavior'. *Leadership & organization development journal*,

Wang, S. & Noe, R. A. (2010) 'Knowledge sharing: A review and directions for future research'. *Human resource management review*, 20 (2), pp. 115-131.

Wang, Y. & Poutziouris, P. (2010) 'Leadership styles, management systems and growth: Empirical evidence from UK owner-managed SMEs'. *Journal of enterprising culture*, 18 (03), pp. 331-354.

Wenger, E. (1998) 'Communities of practice: Learning as a social system'. *Systems thinker*, 9 (5), pp. 2-3.

West, A, M., Sacramento, A, C. & Fay, D. (2006) 'Creativity and innovation implementation in work groups: The paradoxical role of demands'. *Creativity and innovation in organizational teams*, pp. 137-159.

West, M. A. & Farr, J. L. (1990) *Innovation and Creativity at Work: Psycological and Organizational Strategies.* John Wiley.

Westhead, P. & Storey, D. (1996) 'Management training and small firm performance: why is the link so weak?'. *International Small Business Journal*, 14 (4), pp. 13-24.

Wijethunge, W. & Pushpakumari, M. (2014) 'The relationship between strategic planning and business performance: an empirical study of manufacturing SMEs in Western province in Sri Lanka'.

Wilson, J. (2014) *Essentials of business research: A guide to doing your research project.* Sage.

Winston, B. & Fields, D. (2015) 'Seeking and measuring the essential behaviors of servant leadership'. *Leadership & organization development journal*,

Witherspoon, C. L., Bergner, J., Cockrell, C. & Stone, D. N. (2013) 'Antecedents of organizational knowledge sharing: a meta-analysis and critique'. *Journal of knowledge management*,

Wong, P. T. & Davey, D. (2007) 'Best practices in servant leadership'. *Servant Leadership Research Roundtable, School of Global Leadership and Entrepreneurship, Regent University*, 7 (1), pp. 1.

Wong, P. T. & Page, D. (2003) 'Servant leadership: An opponent-process model and the revised servant leadership profile', *Proceedings of the Servant Leadership Research Roundtable*. pp. 1-11.

World Bank. (2020) Doing Businness 2020: Economy Profile: Egypt, Arab. Rep. Doing Business Washington, DC: World Bank.

. Available.

Wu, Wei-Li, Lee & Yi-Chih (2017) 'Empowering group leaders encourages knowledge sharing: integrating the social exchange theory and positive organizational behavior perspective'. *Journal of knowledge management*,

Xue, Yajiong, Bradley, John, Liang & Huigang (2011) 'Team climate, empowering leadership, and knowledge sharing'. *Journal of knowledge management*,

Yin, J., Ma, Z., Yu, H., Jia, M. & Liao, G. (2019) 'Transformational leadership and employee knowledge sharing: Explore the mediating roles of psychological safety and team efficacy'. *Journal of knowledge management*,

Yin, R. K. (2014) *Case study research: Design and methods (applied social research methods).* Sage publications Thousand Oaks, CA.

Yoshida, D. T., Sendjaya, S., Hirst, G. & Cooper, B. (2014) 'Does servant leadership foster creativity and innovation ? A multi-level mediation study of identi fi cation and prototypicality'. *Journal of Business Research*, 67 pp. 1395-1404.

Yukl, G. (2010) *Leadership in organizations, Upper Saddler River.* New Jersey: Person. 7rd edition edn. Prentice Hall.

Yukl, G., Mahsud, R., Hassan, S. & Prussia, G. E. (2013) 'An improved measure of ethical leadership'. *Journal of Leadership & Organizational Studies*, 20 (1), pp. 38-48.

Zaborek, P. (2009) 'Qualitative and quantitative research methods in management science'. *Journal of Physical and Logistics Management*, 34 (7), pp. 565-578.

Zacher, H. & Rosing, K. (2015) 'Ambidextrous leadership and team innovation'. *Leadership & organization development journal*,

Zack, M. H. (1999) 'Managing codified knowledge'. *Sloan management review*, 40 (4), pp. 45-58.

Zaied, A. N. H. (2012) 'Barriers to e-commerce adoption in Egyptian SMEs'. *International Journal of Information Engineering and Electronic Business*, 4 (3), pp. 9.

Zamzam, R. (2018) *Barriers to entry: Challenges facing youth entrepreneurs as they establish their small and medium enterprises (SMEs) in Egypt*. The American University in Cairo.

Zander, I. & Sölvell, Ö. (2000) 'Cross-border innovation in the multinational corporation: A research agenda'. *International Studies of Management & Organization*, 30 (2), pp. 44-67.

Zhang, Yenming, Lin, Tzu-Bin & Foo, S. F. (2012) 'Servant leadership: A preferred style of school leadership in Singapore'. *Chinese Management Studies*,

Zheng, T. (2017) 'A literature review on knowledge sharing'. *Open Journal of Social Sciences*, 5 (03), pp. 51.

Zhou, Kevin, Zheng, T. & Li, C. B. (2012) 'How knowledge affects radical innovation: Knowledge base, market knowledge acquisition, and internal knowledge sharing'. *Strategic management journal*, 33 (9), pp. 1090-1102.

Zhou, K. Z. & Wu, F. (2010) 'Technological capability, strategic flexibility, and product innovation'. *Strategic management journal*, 31 (5), pp. 547-561.

Zhu, Chunling, Zhang & Fangliang (2020) 'How does servant leadership fuel employee innovative behavior? A moderated mediation framework'. *Asia Pacific Journal of Human Resources*, 58 (3), pp. 356-377.

Appendix A: Questionnaire

Survey questionnaire

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Investigating: The impact of servant leadership style on innovation in SMEs in Gamsah and New Dameitta region in Egypt: the mediating role of knowledge sharing

Dear participant

I am a PhD student at Plymouth University, UK. This survey is a part of the studying which aims to investigate the impact of servant leadership style on innovation through the mediating role of knowledge sharing in small and medium enterprises (SMEs) in Gamsah and New Dameitta in Egypt.

Servant leadership (SL): is a leadership style when the leaders aim to serve their followers and their organisations.

Knowledge sharing (KS): is the process of donating and collecting knowledge inside and outside the organisation.

Innovation (INN): refers to developing existing product or implanting new products. It can be in the product or in the process of producing the product.

Your participation is valuable and important for the project. I would be grateful if you would spend a few minutes to complete this questionnaire. Please complete and return the questionnaire as soon as possible.

Your participation in this questionnaire is voluntary and please be assured that your answers will be kept strictly confidential. You have the right to withdraw at any time and the data will be destroyed.

If you have any question, please don't hesitate to contact me, I will be happy to reply to you. I thank you again for your cooperation.

Sincerely Yours,

Amira Elgenidi

Doctoral Candidate of School of Management

Section 1: Servant leadership

Please use the following scale to describe the leaders in your company: 1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree and 5 = strongly agree.

No	Statement	Scale				
		1	2	3	4	5
1	Is open about his/her values and beliefs					
2	Invokes respectfulness					
3	Displays selflessness for the betterment of the team.					
4	Able to encourage the followers					
5	Interacts with people in a humane manner					
6	Considers the followers' needs					
7	Takes charge and is accountable for the consequences when a problem arises					
8	The team is happy to work under his/her leadership					
9	Clarifies the goals of the company to the followers					
10	Displays optimism about the future of the group					
11	Positively encourages the team when undertaking tasks					
12	Has confidence in the followers					
13	Encourages thinking outside the box					
14	Makes time for training and developing the team					
15	Takes each follower's individual needs into consideration					
16	Takes each follower's individual ability into consideration					

17	Ables to recognise individual's weaknesses and works to develop them					
18	Ensures the strengths of the followers are utilised and developed					
19	Supports followers when they are facing problems					
20	Able to forgive mistakes and remain supportive					
21	Considers ethical consequences of any decisions					
22	Is a visionary leader					
23	Emphasises the importance of team-building					
24	Encourages followers to look at the problem with a new outlook					
25	Is open about new ideas when making important decision					

Section 2: Knowledge sharing

Please use the following scale to describe knowledge sharing in your company: 1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree and 5 = strongly agree.

No	Statement	Scale				
		1	2	3	4	5
1	Sharing information with colleagues is normal in my department					
2	Sharing information with colleagues is normal in other departments					
3	When I gain new information, I share it with colleagues in other departments					
4	I share with my colleagues the information that I am a specialist in.					
5	I inform colleagues when I have information about problems within the company					
6	I share new information with colleagues in my department to help them with the work					
7	I share new information with colleagues in my department to help them with the work					
8	Colleagues in other departments are happy to share information with me					
9	When asked, I am happy to share information with colleagues in my company					
10	When asked, colleagues in my department are happy to share skills with me					
11	When asked I am happy to share my skills with colleagues in my department					
12	When asked, I am happy to share my skills with colleagues in other departments					
13	When asked, I am happy to share useful information with my colleagues in my department					
14	When asked, my colleagues happy to share information about any problem in the company					

15	When asked, colleagues don't mind sharing their professional skills with others					

Section 3: Innovation

Please use the following scale to describe innovation in your company: 1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree and 5 = strongly agree.

No	Statement	Scale				
		1	2	3	4	5
1	The company emphasises the importance of development and research					
2	The company is constantly developing its business methods					
3	New services and programs are developed and made available to the staff					
4	Services and courses are made available to a variety of different employee groups that are not usually served by the company					
5	New training schemes are being developed for members of staff					
6	The company stresses the importance of team-work and cooperation between its members of staff					
7	The company strives to improve its quality of service /product by developing new technology					
8	Staff are encouraged to be more innovative using incentives such as bounces, promotions etc					
9	The company uses multimedia effectively					
10	The company is constantly improving it facilities (e.g. computers)					

Section 4: Personal information

Please tick where appropriate:

1) Gender:
   a) male □
   b) Female □
2) Marital status:
   a) Single □
   b) Married □
   c) Divorced/ widowed □
3) Age:
   a) 20 – 30 □
   b) 31 – 40 □
   c) 41 – 50 □
   d) 51 – 60 □
   e) ≥ 61 □
4) Tenure:
   a) ≤ 10 □
   b) 11 – 15 □
   c) 16 – 20 □
   d) 21 – 25 □
   e) ≥ 25 □
5) Academic qualifications:
   a) Bachelor's □
   b) High Diploma □
   c) Master □
   d) PhD □
   e) Other □
6) Job:
   a) Manager □
   b) Deputy general manager □
   c) Other □

Many thanks for completing this questionnaire.

Appendix B: Reliability

Scale: SL, KS and INN

Reliability Statistics	
Cronbach's Alpha	N of Items
.961	50

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CO1	193.15	317.906	.589	.960
CO2	193.20	317.488	.603	.960
CO3	193.38	321.758	.308	.961
CO4	193.36	320.862	.505	.961
CO5	193.40	319.294	.473	.961
CO6	193.50	321.916	.307	.961
CO7	193.36	318.508	.507	.961
PO8	193.49	318.203	.562	.960
PO9	193.26	315.187	.640	.960
PO10	193.17	317.958	.531	.961
PO11	193.27	318.685	.545	.961
PO12	193.22	316.615	.600	.960
PO13	193.39	321.780	.432	.961
PO14	193.61	308.114	.727	.960
PO15	193.49	310.605	.745	.960
PO16	193.42	311.584	.723	.960
PO17	193.41	321.296	.361	.961
PO18	193.23	316.496	.526	.961
PO19	193.26	313.524	.646	.960
PO20	193.43	315.021	.627	.960
TO21	193.41	319.392	.528	.961
TO22	193.23	324.218	.274	.961
TO23	193.30	321.227	.446	.961
TO24	193.32	319.577	.514	.961
TO25	193.38	322.532	.434	.961
PDI26	193.38	306.791	.763	.959
PDI27	193.38	317.194	.588	.960
PDI28	193.53	314.145	.576	.960
PDI29	193.49	319.036	.436	.961
PDI30	193.33	312.758	.681	.960
PCI31	193.35	317.205	.568	.960

PCI32	193.33	317.542	.539	.961
PCI33	193.31	315.985	.554	.960
PCI34	193.38	313.633	.614	.960
PCI35	193.32	314.821	.637	.960
KD36	193.31	317.662	.522	.961
KD37	193.52	312.739	.702	.960
KD38	193.65	317.414	.474	.961
KD39	193.40	310.527	.703	.960
KD40	193.95	321.648	.184	.963
KD41	193.50	313.859	.696	.960
KD42	193.43	309.519	.729	.960
KD43	193.60	315.132	.680	.960
KC44	193.47	311.533	.699	.960
KC45	193.50	312.156	.726	.960
KC46	193.23	314.735	.590	.960
KC47	193.46	313.044	.686	.960
KC48	193.50	311.170	.744	.960
KC49	193.67	317.467	.550	.960
KC50	193.66	317.067	.589	.960

Scale: SL

Case Processing Summary			
		N	%
Cases	Valid	210	100.0
	Excluded[a]	0	.0
	Total	210	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics	
Cronbach's Alpha	N of Items
.927	25

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CO1	95.97	68.229	.620	.923
CO2	96.02	68.191	.615	.923
CO3	96.20	69.676	.358	.927
CO4	96.18	69.575	.547	.924
CO5	96.22	68.395	.551	.924
CO6	96.33	69.571	.376	.927
CO7	96.18	67.938	.595	.923
PO8	96.31	68.157	.617	.923
PO9	96.08	66.764	.688	.922
PO10	95.99	67.914	.594	.923
PO11	96.09	68.111	.633	.923
PO12	96.05	67.596	.630	.923
PO13	96.21	69.834	.493	.925
PO14	96.44	64.649	.666	.922
PO15	96.31	65.076	.747	.921
PO16	96.24	66.041	.675	.922
PO17	96.23	69.481	.416	.926
PO18	96.06	68.207	.483	.925
PO19	96.09	66.691	.619	.923
PO20	96.25	67.070	.633	.923
TO21	96.24	68.957	.555	.924
TO22	96.06	70.667	.371	.927
TO23	96.13	69.835	.470	.925
TO24	96.14	68.755	.577	.924
TO25	96.20	70.410	.472	.925

Scale: KS

Case Processing Summary			
		N	%
Cases	Valid	210	100.0
	Excluded[a]	0	.0
	Total	210	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics	
Cronbach's Alpha	N of Items
.923	15

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
KD36	53.40	43.964	.555	.920
KD37	53.61	42.096	.743	.915
KD38	53.74	43.209	.577	.920
KD39	53.48	41.476	.713	.915
KD40	54.03	45.200	.192	.939
KD41	53.58	42.158	.789	.914
KD42	53.51	40.758	.780	.913
KD43	53.68	42.754	.760	.915
KC44	53.56	41.722	.726	.915
KC45	53.59	41.880	.768	.914
KC46	53.32	42.879	.618	.918
KC47	53.55	42.431	.697	.916
KC48	53.59	42.110	.711	.916
KC49	53.75	43.527	.636	.918
KC50	53.75	43.529	.659	.918

Scale: INN

Case Processing Summary			
		N	%
Cases	Valid	210	100.0
	Excluded[a]	0	.0
	Total	210	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics	
Cronbach's Alpha	N of Items
.887	10

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PDI26	35.76	15.532	.735	.868
PDI27	35.77	18.046	.537	.882
PDI28	35.91	17.198	.541	.882
PDI29	35.87	18.113	.451	.887
PDI30	35.71	16.578	.719	.869
PCI31	35.74	17.687	.596	.878
PCI32	35.71	17.602	.600	.878
PCI33	35.70	17.074	.636	.875
PCI34	35.76	16.565	.685	.871
PCI35	35.70	16.802	.734	.868