The Islamic University – Gaza
Postgraduate Studies
Faculty of Commerce
Business Administration Department

"The Influence of Knowledge Sharing on the Level of Innovation" A Field Study for Managers at the Palestinian Ministries in the Gaza Strip

" تأثير مشاركة المعرفة على مستوى الإبداع الإداري "
دراسة ميدانية على المدراء في الوزارات الفلسطينية في قطاع غزة

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نتيجة الحكم على أطروحة ماجستير

بناءً على موافقة عمادة الدراسات العليا بالجامعة الإسلامية بغزة على تشكيل لجنة الحكم على أطروحة الباحث/ **منير حمتو ديب الغره** لنيل درجة الماجستير في **كلية *التجارة*/ قسم إدارة الأعمال** وموضوعها:

"The Influence of Knowledge Sharing on the Level of Innovation A Field Study for Managers at the Palestinian Ministries in the Gaza Strip"

وبعد المناقشة العلنية التي تمت اليوم الاثنين 24 شعبان 1432 هـ، الموافق 2011/07/25م الساعة الثانية عشرة ظهراً، اجتمعت لجنة الحكم على الأطروحة والمكونة من:

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د. أكرم إسماعيل سمور	مناقشاً داخلياً	.....

وبعد المداولة أوصت اللجنة بمنح الباحث درجة الماجستير في **كلية *التجارة*/ قسم** إدارة الأعمال.

واللجنة إذ تمنحه هذه الدرجة فإنها توصيه بتقوى الله ولزوم طاعته وأن يسخر علمه في خدمة دينه ووطنه.

والله ولي التوفيق ،،،

عميد الدراسات العليا

د. زياد إبراهيم مقداد

ABSTRACT

The aim of this research is to investigate the influence of knowledge sharing on the level of innovation at the Palestinian Ministries in the Gaza Strip. The researcher used the descriptive analytical method and utilized both primary and secondary sources. A structured questionnaire including (63) close ended questions was used for this study. The study population consisted of all manager at the Palestinian ministries in the Gaza strip with grades General Director (A4), Deputy Director (A), Unit managers (B) and Unit manager (C) they were (777) managers. The study sample was a stratified random sample, Out of the (350) questionnaires distributed, (270) questionnaires were returned and analyzed, with response rate (77.14%). Sample size was 34% from the study population.

The study revealed that the Palestinian Ministries in the Gaza Strip enjoy a satisfactory level of innovation. But these Ministries don't have a fair and efficient reward system to encourage innovation and knowledge sharing practices. Organizational structure does not encourage innovation and promotion of work. The stock of knowledge at the Palestinian ministries is available and accessible, Managers at the Palestinian ministries seem satisfied with the practices of knowledge sharing. There is a significant relationship between CITs and the level of innovation. Finally the multiple regression model explained (65.0%) of the variation in the level of innovation is explained by Knowledge Applicability and Knowledge Availability.

Recommendations included that the ministries of the Gaza strip need to build an environment and culture to support knowledge sharing behavior. Organizational structural changes need to be studied in addition to incentives and rewards system. Establishing knowledge management system to support the processes of knowledge creation, storage, sharing and application is recommended. Recommendations to improve innovation by specific areas such as "Organizing for creativity" and "Developing a creative capability" are also included.

ملخص الدراسة

هدفت هذه الدراسة للتعرف على تأثير مشاركة المعرفة على مستوى الإبداع الإداري من خلال دراسة ميدانية للمدراء العاملين في الوزارات الفلسطينية في قطاع غزة. استخدم الباحث المنهج الوصفي التحليلي وتم الاعتماد على مصادر البيانات الثانوية والأولية وتم استخدام استبانة مكونة من (63) فقرة كأداة رئيسية في جمع البيانات من عينة الدراسة. يتكون مجتمع الدراسة الأصلي من جميع المدراء في الوزارات الفلسطينية في قطاع غزة والذين يحملون الدرجات التالية مدير عام بدرجة (A4)، نائب مدير عام بدرجة (A)، مدير دائرة بدرجة (B) ومدير دائرة بدرجة (C) وعددهم (777) مدير. وتم اختيار عينة طبقية عشوائية وقد تم توزيع (350) استبانة تم استرداد منها (270) استبانة جميعها اعتبرت صالحة للتحليل وبذلك كان معدل الاستجابة (77.14%). وبلغ حجم العينة نسبة 34% من المجتمع الأصلي للدراسة.

أظهرت الدراسة أن الوزارات الفلسطينية في قطاع غزة تتمتع بمستوى مقبول من الإبداع ، ولكن نظام الحوافز والمكافآت في الوزارات غير مناسب لتحسين مستوى الإبداع ودعم ممارسات مشاركة المعرفة. كما أن الهيكل التنظيمي في هذه الوزارات لا يدعم الإبداع. يعتبر المخزون المعرفي لدى الوزارات الفلسطينية متاحا وسهل الوصول إليه من قبل المدراء للاستفادة منه في أداء مهام العمل. كما أظهرت نتائج الدراسة أن المدراء يمارسون مفهوم مشاركة المعرفة أثناء ممارسة أعمالهم في الوزارات. كما أشارت النتائج وجود علاقة بين أنظمة الاتصالات وتكنولوجيا المعلومات وبين مستوى الإبداع الإداري. وأخيرا لقد أشار تحليل الانحدار المتعدد إلى قدرة التنبؤ برفع مستوى الإبداع الإداري من خلال متغيرين اثنين وهما إتاحة المعرفة وتطبيق المعرفة وبلغت القدرة التفسيرية نسبة(65%).

قدمت الدراسة العديد من التوصيات كان من أهمها أن الوزارات الفلسطينية بحاجة إلى تبني ثقافة الإبداع وتعزيزها من خلال توفير البيئة التنظيمية المناسبة وتشجيع ممارسة مفهوم مشاركة المعرفة. أوصت الدراسة أيضا بدراسة إجراء بعض التعديلات على الهيكل التنظيمي إضافةً إلى نظام الحوافز والمكافآت ، و هناك توصية بتأسيس نظام إدارة المعرفة القائم على أسس تكنولوجية وذلك لاستغلال التكنولوجيا الحديثة في عملية إدارة المعرفة (جمع وتخزين ومشاركة وتطبيق المعرفة) وأخيرا فقد أوصت الدراسة بضرورة العمل على تحسين مستوى الإبداع في بعض الأبعاد المختلفة التي تناولتها الدراسة مثل بُعد (التنظيم من أجل الإبداع) وبُعد (بناء القدرات الإبداعية).

DEDICATION

I dedicate this work to my family with tremendous love, thanks and gratitude.

To the soul of my father

To my loving mother

To my dear wife who did her best to help me to achieve this work

To my sons (Abdelkareem and Adam)

To my dear daughters (Shams, Farah and May)

To my brothers and sisters

To all friends

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LIST OF ABBREVIATIONS

Abbrev.	Denotation
(A4)……	Grade of General Director
(A)……..	Grade of Deputy Director
(B)……..	Grade of Unit manager
(C)……..	Grade of Unit manager
CITs……...	(Communication and Information Technologies)
MOH……..	Ministry Of Health
STC……	Soudi Telecom Context
PNA……..	Palestinian National Authority

CHAPTER ONE

INTRODUCTION

1.1 Preface:

In an era of globalization, deregulation, increasing competition, new technologies and e-commerce, organizations are finding it harder to compete. In this dynamic and changing environment, one way to achieve growth and sustain performance is to innovate (Higgins, 1996).

Human activity is inconceivable without knowledge. The scope of knowing and types of knowledge are as wide and varied as all the varieties of human pursuits. Without creating, accumulating, sharing, and applying knowledge, no human civilization could have existed. (Chimay et al., 2005: p10)

The global business environment has amplified the importance of the unique knowledge that organizations possess (Singh et al., 2006). This has established knowledge management as the foundation to competitive advantages and is viewed as a primary competitive success factor (Ritter and Choi, 2000)

To enhance competitiveness and meet their goals, organizations need to ensure that their employees share their knowledge. Increased sharing of knowledge raises the likelihood of new knowledge being created, tending to support valuable innovation (Nonaka and Takeuchi, 1995).

In order to remain on top and maintain a competitive edge, companies must have a good strategy to retain, develop, organize, transfer, and utilize their resources. This requires systematic knowledge management, which has a significant influence on a firm's strategy formulation and implementation. (Grant, 1996).

1.2 Background:

Palestinian ministries in the Gaza Strip face significant challenges, as result to the political, social and security situation. These ministries were divided into two parts; (Gaza government) and (Ramallah government). This situation has increased the burden on managers in the ministries of the Gaza strip. As a result to these challenges, the need for innovation increased. Therefore, the innovation capability of these ministries depends very closely on its managers knowledge, as well as on its ability to share this knowledge.

However, innovation and knowledge management are complementary and lie in the heart of any organization. Furthermore, without innovative managers competitive advantage could not be achieved, also any good idea could not be disseminated without knowledge sharing. So knowledge sharing is essential for creativity and innovation.

1.3 Research problem :

It is vital for managers to understand that they must explore, exploit and utilize the combination of knowledge available in these ministries to improve their ability of innovation and creativity by the process of knowledge sharing.

So this study investigates the influence of knowledge sharing on the level of innovation for managers at the Palestinian ministries in the Gaza strip.

1.4 Study objective :

The main objective is to investigate the influence of knowledge sharing on the level of innovation. This include the following sub-objectives:

1- To investigate the extent of knowledge sharing in the ministries of the Gaza Strip.
2- To assess the level of innovation at the Palestinian ministries of the Gaza Strip.
3- To explore the relationship between knowledge sharing and innovation in the ministries of the Gaza strip.
4- To draw conclusions and recommendations that may help decision makers in improving managers ability to innovate.

1.5 Study variables :

1.5.1 Independent Variable: Knowledge Sharing. The researcher represents knowledge sharing through the following dimensions:

1- Knowledge Availability

2- Knowledge Accessibility

3- Knowledge Applicability

4- CITs (Communication and Information Technologies)

1.5.2 Dependent Variable:

Dependent variable is the level of innovation which will be measured by the Centrim Innovation Model. The model comprises six main sectors as follows

1- Directing a creative business.

2- Developing a creative capability.

3- Building a creative culture.

4- Managing learning for new ideas.

5- Organizing for creativity.

6- Taking wise decisions.

1.6 Study Hypothesis :

To investigate the influence of knowledge sharing on innovation, the following hypothesis are stated as follows:

1.6.1 First main hypothesis:

There is a significant relationship between knowledge sharing and the level of innovation for managers at the ministries in the Gaza strip.

This hypothesis includes four sub- hypothesis as the following:

1- There is a significant relationship between knowledge availability and the level of innovation.
2- There is a significant relationship between knowledge accessibility and the level of innovation.
3- There is a significant relationship between knowledge applicability and the level of innovation.
4- There is a significant relationship between CITs (Communication and Information Technologies) and the level of innovation .

1.6.2 Second main hypothesis:

There is no significant differences among respondents regarding the influence of knowledge sharing on the level of innovation attributed to the following personal variables (Age, Experience, Qualification, Grade, Gender and Job title).

1.6.3 Third main hypothesis: " Multiple Regression Model "

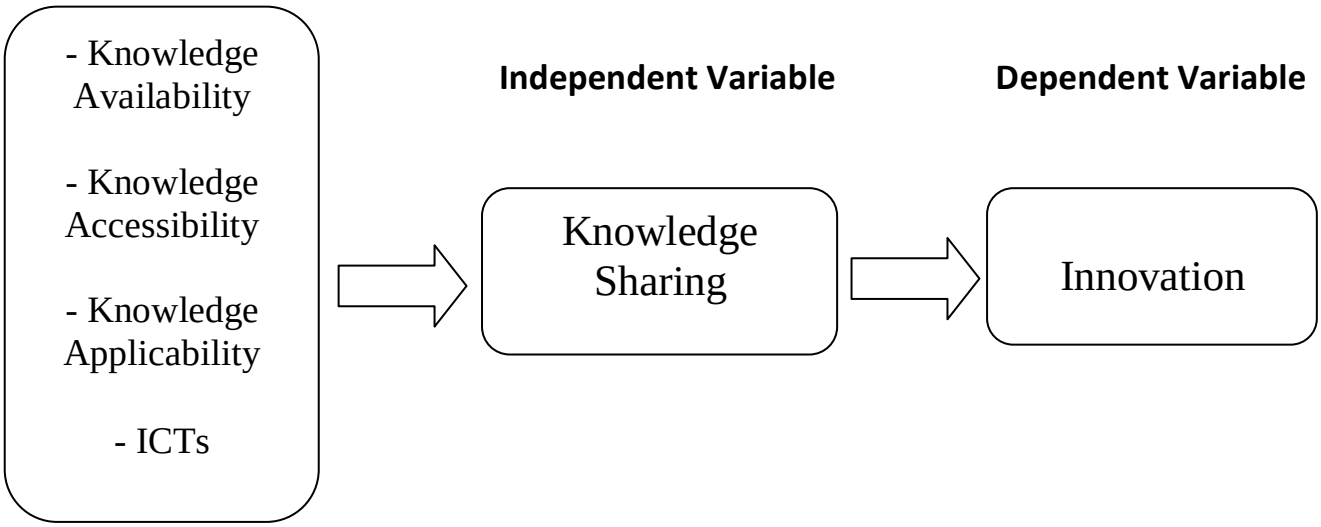
The level of innovation in the Palestinian ministries is explained by Knowledge applicability and Knowledge Availability.

1.7 Study Importance:

In spite of the plethora of innovation research, less attention has been paid to investigate its relationship with knowledge sharing. Moreover, to the researcher knowledge the concept of knowledge sharing within the Palestinian ministries have never been scientifically researched before. This research attempts to shed lights into this relationship and help in filling the "literature gap" in this field .

The study will also help in providing better understanding to managers about the importance of knowledge sharing and its role in sustaining and developing creative organizations.

Figure (1.1)
Study Variables



Source : adapted by researcher

1.8 Operational Definitions:

1.8.1 Knowledge Management: It is normally perceived as management intention to create, transfer, and interpret new knowledge within the existing knowledge to improve decision making and increase innovation of the organization (Brown and Duguid, 2000).

1.8.2 Knowledge Sharing: Knowledge sharing is defined as a process where individuals mutually exchange their implicit (tacit) and explicit knowledge to create new knowledge (Kamasak and Bulutlar, 2009).

1.8.3 Innovation: Innovation is defined as an "intentional introduction and application of new products, processes, procedures, or ideas that are designed to significantly benefit the individual, the group, the organization or wider society" (Kamasak and Bulutlar, 2009).

1.8.4 Knowledge Availability: The extent of knowledge availability in creating and implementing new ideas.

1.8.5 Knowledge Accessibility: It means the extent of openness of knowledge for use

1.8.6 Knowledge Applicability: Readiness to apply knowledge effectively.

1.9 The Centrim Innovation Model :

The Centrim Innovation Model developed in the University of Brighton covers both technological and organizational aspects of innovation (Bessant and Francis, 1999). This model has been widely applied to evaluate innovation in a variety of organizational contexts. The model comprises six main sectors; each is subdivided into three segments as follows:

- **Directing a creative business:**
    - Management support for new ideas.

- Business plan showing when changes are needed.
- Speed of change when superior methods are available.

- **Developing creative capability:**
  - Individuals with creative ideas.
  - Capabilities needed for success.
  - Change efficiency.
- **Building a creative culture:**
  - Encouraging staff to take initiative.
  - Objectives for new ideas.
  - Mutual support for new ideas.
- **Managing learning for new ideas:**
  - External comparisons for new idea sources.
  - Availability of experienced people.
  - Staff updating with best Practice learning.
- **Organizing for creativity:**
  - New product introduction efficiency.
  - Support for new ideas from the top.
  - Organizational structure to support creativity.
- **Taking wise decisions:**
  - Resources to develop ideas.
  - Consideration of ideas before decisions are made.
  - Plan for development.

1.10 Thesis Outline:

The study consists of seven chapters:

- Chapter 1 (Introduction), includes a brief description of the situation in the Palestinian ministries in the Gaza strip. It also includes a statement of the problem, research hypothesis ,objectives, importance of the study and outline of the thesis.
- Chapter 2 (Knowledge Sharing), includes a brief discussion of relevant area in Knowledge management, Knowledge Sharing and innovation.
- Chapter 3 (Innovation), discusses relevant areas of innovation, including its types levels and phases. Drivers, enablers and obstacles of innovation are also discussed with special emphasis on the relationship between innovation and Knowledge Sharing. The Centrim Model, on which part of the questionnaire was based, was included in this chapter.
- Chapter 4 (previous studies), presents relevant studies and research papers in the fields of innovation, Knowledge Sharing and characteristics of the Arab and Palestinian managers.
- Chapter 5 (Methodology), includes research design, Study population and sample, the instrument "questionnaire" , piloting, data collection, data entry and analysis.
- Chapter 6 (Findings and Discussion), includes percentages, significance and correlation tables relating to questionnaire's data, study constructs and hypotheses.
- Chapter 7 (Conclusions and Recommendations), includes conclusions and the recommendations of the study.
- References
- Annexes

CHAPTER TWO

KNOWLEDGE MANAGEMENT & KNOWLEDGE SHARING

2.1 Introduction:

This chapter consists of four main topics. The first discusses the concept of knowledge in general including its importance, history and development. The second topic discusses the concept of knowledge management including its definition, types, aims and fundamental elements for knowledge management. In the third topic, the concept of knowledge sharing will be discussed in some details including background , definitions, the importance , key factors affecting knowledge sharing Moreover strategies promote knowledge sharing will be clarified in addition to Barriers to Knowledge Sharing . In the fourth topic, two interrelated subjects have been discussed , one of them is dealing with the role of knowledge management in innovation while the second is dealing with the nature of knowledge management in innovation .

2.2 Introduction to knowledge management:

Knowledge is one of the most valuable assets of business and an important competitive factor. It evolves continuously as the individual and the organizations adapt to influences from external and the internal environment. Knowledge sharing is the process where individuals mutually exchange both tacit and explicit knowledge, and jointly create a new knowledge. This process is essential in translating individual knowledge into organizational knowledge (Rivera-Vazquez, and et al, 2009).

Resources for which firms compete are increasingly likely to be knowledge rather than the ownership of land and access to capital (Dunford, 2000).

The competition based on knowledge and innovation as an effective strategy is highly valued by companies. Therefore, knowledge and innovation are considered as the crucial sources for sustaining the competitive advantage of a company (Jing Xu, et al, 2010).

2.3 History:

knowledge management has deep roots as the concept of knowledge and workers was first introduced by Peter Drucker. However, it was Karl Wiig who pioneered the term “knowledge management” in 1986 during a United Nation’s speech and introduced an in depth Knowledge management practices (Wiig, 1993).
Karl Wiig continued his research by examining the basis for knowledge management ; how individuals and companies produce, symbolize, and employ knowledge; and particular methods and pragmatic approaches to the management of knowledge (Holsapple, 2003).

Knowledge management in the twenty-first century has risen from practitioner and consultancy knowledge and has only recently become a subject for academic study today knowledge management can be confused with information systems by some commentators and human resource management by others. In reality, it has roots in a wide variety of disciplines such as philosophy, business management, anthropology, information science, psychology and computer science (jashapara, 2004).

2.4 Data, Information, Knowledge and Wisdom:

2.4.1 Data:

The dictionary definition of data is known facts or things used as a basis of inference or reckoning . Another is: facts given from which others may be inferred (jashapara, 2004).

2.4.2 Information:

The dictionary definition of information is " something told "or " the act of informing or telling ". However this doesn’t help us distinguish between data and information. Information could be considered as systematically organized data (Meadows, 2001). The notion of systematic implies the ability to predict or make inferences from the data assuming it is based on some system (jashapara, 2004, p.15).

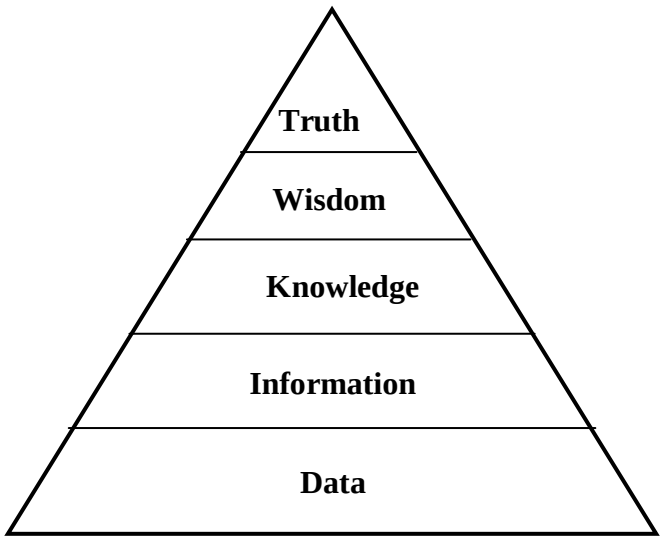
2.4.3 knowledge:

In a practical sense knowledge could be considered as actionable information . Actionable information allows us to make better decisions and provide an effective input to dialogue and creativity in organizations. This occurs by providing information at the right place, at the right time and in the appropriate format (Tiwana, 2000). Knowledge allows us to act more effectively than information or data and equips us with a greater ability to predict future outcomes (jashapara, 2004, p.16).

2.4.4 wisdom:

Wisdom and truth have been shown to have higher qualities than knowledge in the hierarchy of figure(2.1). These terms are even more elusive than knowledge. Wisdom is the ability to act critically or practically in a given situation. It is based on ethical judgment related to an individuals belief system. Wisdom is often captured in famous quotes, proverbs and sayings (jashapara, 2004, p.18).

Figure (2.1)



Source: (Jashapara, 2004, p.17).

2.5 Types Of Knowledge:

knowledge is generally distinguished by two forms: tacit and explicit (Polanyi, 1966):

2.5.1 Tacit knowledge. Tacit knowledge has a variety of definitions: practical expertise, hard to explain (Teece, 1998), intangible information residing within individuals demonstrated by actions and includes personal beliefs, perspectives, and values, conveyed only by watching and doing, innately understood and used (Zack, 1999), embedded in specific actions, skills, and activities (Nonaka, 1994). Consequently, separating, warehousing and distributing the entire knowledge within a human cannot be done (Davenport and Donald, 1999).

2.5.2 Explicit knowledge. Explicit knowledge is based on broad research and is considered more tangible but based in tacit knowledge that has been codified, distributed, and evidenced by verbal statements, mathematics, specifications, and operational manuals which can be characterized as data, contained in language or coding knowledge previously warehoused, clearly articulated (Zack, 1999), clarified, coded, and distributed using symbols or common language (Alavi and Leidner, 2001).
Explicit knowledge is easily articulated or reduced to writing, is often impersonal and formal in nature, and frequently takes the form of documents, reports, ‘‘white papers’’, catalogues, presentations, patents, formulas, etc.(Nonaka and Konno, 1998) .
In contrast, tacit knowledge (e.g. abilities, developed skills, experience, undocumented processes, ‘‘gut-feelings’’, etc.) is highly personal and difficult to reduce to writing. Tacit knowledge is rooted in an individual’s experience and values (Nonaka and Konno, 1998). This type of knowledge may play an important role in the strategic planning performance of managers and professional staff (Bennett, 1998).

The two knowledge forms are interlinked and holistically represent organizational resources and assets as tacit knowledge is the basis for identifying, acquiring, interpreting, and distributing explicit knowledge (Fahey and Prusak, 1998).

2.6 knowledge management:

Knowledge management has become an emerging discipline that has gained enormous popularity among academics, consultants and practitioners. It has been argued that it is no longer the traditional industrial technologies or craft skills that drive competitive performance but instead knowledge that has become the key asset to drive organizational survival and success (jashapara, 2004).

2.6.1 knowledge management definition:

Many knowledge management definitions exist. For the purpose of this study, only selected definitions will be focused on. Gloet and Terziovski (2004) describe knowledge management as the formalization of and access to experience, knowledge, and expertise that create new capabilities, enable superior performance, encourage innovation, and enhance customer value. The authors also describe knowledge management as an umbrella term for a variety of interlocking terms, such as knowledge creation, knowledge valuation and metrics, knowledge mapping and indexing, knowledge transport, storage and distribution and knowledge sharing (plessis, 2007). Knowledge management has been also defined as the " effective learning processes associated with exploration, exploitation and sharing of human knowledge (tacit and explicit) that use appropriate technology and cultural environments to enhance an organizations intellectual capital and performance" (jashapara, 2004 p. 12). But Xerox corporation illustrates " knowledge management is the discipline of creating a thriving work and learning environment that fosters the continuous creation, aggregation, use and re-use of both organizational and personal knowledge in the pursuit of new business value" (Cross, 1998, p.11).

From the above definitions it can be said that knowledge management concerned with the exploration and exploitation of existing knowledge in order to create new knowledge by the activities of gathering, storage, distribution and applying of knowledge.

2.6.2 Fundamental Elements of Knowledge Management:

The existing knowledge management literature identifies the essential ingredients of knowledge management as people, processes and IT. People are a foundation element as they are responsible for actually creating, sharing and applying knowledge within the organization. The processes associated with knowledge management serve to obtain, create, organize, and distribute knowledge. And the IT or technology segment warehouses and makes the knowledge available to users. Each element discussed below is dependent upon the other for effectiveness (Fong and Cao, 2004).

2.6.2.1 People:

People are responsible for selecting others to share with, deciding the topic, choosing the method, and finally utilizing the knowledge. So, the ultimate success of any knowledge management program rests on the individual's acceptance and willingness to share with others. Sharing knowledge can create a positive environment of reciprocity where the giver can anticipate receiving equal knowledge in the future, gain respect as an expert and personal fulfillment and satisfaction (Davenport and Prusak, 1998). However, obstacles to sharing may include a fear of collaborating with the wrong people and simply being used without recognition or reward. The foundation for establishing a knowledge sharing culture is trust at both the personal and organizational levels coupled with an environment that encourages and compensates sharing while rejecting and even punishing non participants (Empson, 2000).

2.6.2.2 Processes:

Uncovering, obtaining, interpreting, organizing, and sharing knowledge with the right parties, then motivating people to utilize it is a continuous journey (Fong and Cao, 2004). Nonaka and Takeuchi (1995) feel knowledge and its management is dynamic and a constant process of accumulation and exploitation of undiscovered knowledge.

2.6.2.3 Technology:

Although technology has little connection to knowledge, its data warehousing and communication enable individuals, irrespective of their geographical, location, to quickly and easily share knowledge using communication methods such as e-mail,

groupware, internet, videoconferencing, and intranets. Technology enable firms to distribute knowledge quickly and smoothly throughout the organization (Alavi and Leidner, 1999).

2.6.3 Aims of Knowledge Management:

Although the theories or perspectives differ from one another they appear to have two common characteristics. Firstly, as Davenport and Prusak (1998) claim, most of the knowledge management approaches have one of three aims:

1. To make knowledge visible and show the role of knowledge in an organization, mainly through maps, yellow pages, and hypertext tools.
2. To develop a knowledge-intensive culture by encouraging and aggregating behaviors such as knowledge sharing (as opposed to hoarding) and proactively seeking and offering knowledge; and
3. To build a knowledge infrastructure-not only a technical system, but a web of connections among people given space, time, tools, and encouragement to interact and collaborate.

Secondly, irrespective of the point, place or situation it occurs, what is significant in management of knowledge is that it encourages acquiring and creating new knowledge. This is a continual process where people or organizations can (re)create new knowledge by using the knowledge that is already created. It also promotes integration and empowers employees to constantly improve their work. Most of all, knowledge management improves decision making, engenders learning, facilitates collaboration and networking and also encourages and promotes innovation (Liyanage C. and etal 2009).

But Arthur Andersen Business Consulting (1999) suggested that knowledge management should have the following goals:

- Improve the economic methods and methodologies meeting demands for innovation as well as enhanced efficiency in the operation.
- Create products featuring innovative qualities by using creativity and which also improve the market adaptability.
- Be aware of knowledge that can reduce costs.
- Enhance the sharing of the organization knowledge in order to improve the problem solving capability within the company; and
- Increase the efficiency by improving the competitiveness.

2.6.4 Knowledge creating culture:

In a dynamic environment, organizations face a series of unexpected problems and unforeseen situations, which are difficult to control by one individual in the organization. Yet by coordinating the pattern of interaction between its members, technologies, and culture, an organization can work with complex and novel situations (Hutchins, 1991). Weick and Roberts (1993) refer to these interaction patterns as the "collective mind" of the organization. That also means that none of the members in the organization possesses all the relevant knowledge in accomplishing complex tasks; however, it is interaction between people, technologies, and techniques that support an organization in accomplishing complex and novel tasks. Therefore, one of the critical tasks of the management is to coordinate different packets of knowledge through information exchange and sharing.

2.7 Knowledge Sharing

2.7.1 Introduction:

Knowledge sharing has become a key concern to organizations, not only because of the growing importance of the value of knowledge work, but also because of the increasing recognition that tacit ‘‘noncodified’’ knowledge is of more value than explicit ‘‘codified’’ knowledge to the innovation process (Marouf, L. 2007). The exchange of knowledge and the development of a collective knowledge management system enhance organizational learning, which in turn leads to innovation and creative imitation (Kim and Lee 2006).

One area where organizations may be able to increase their innovative performance is knowledge sharing created through interactions among individuals. The value of knowledge sharing is also related to the fact that organizational knowledge is a unique asset difficult to imitate (Sapienza and Lombardino, 2006). Knowledge sharing is therefore believed to enhance the creation of knowledge, potentially enabling new innovative products to be developed at greater speed. However, knowledge sharing does not come about easily. Knowledge sharing is strongly dependent on the setting, various personal beliefs, and the actions and practices among the individuals involved (Lilleoere and Hansen "No date"). Knowledge sharing is a practice that has become increasingly important to organizations as most organizations are now believed to operate in a ‘‘knowledge economy’’ (Drucker, 1993). It is important for organization to consider the conditions and environments that facilitate new knowledge creation. If an organization wants to increase performance of knowledge creation and also leverage knowledge, then knowledge transfer is necessary (Hansen et al., 2005).

Knowledge sharing was characterized by ‘‘activities of transferring or disseminating knowledge from one person, group or organization to another’’ (Lee, 2001). Knowledge sharing practices coordinate organizational knowledge bases with knowledge workers and vice versa (Nonaka and Konno, 1998). Knowledge sharing takes place when organizational members share organization-related information, ideas, suggestions and expertise with each other (Bartol and Srivastava, 2002).

2.7.2 Knowledge Sharing Definition:

Knowledge Sharing has been defined and described in many ways, Kamasak and Bulutlar defined Knowledge sharing as " a process where individuals mutually exchange their implicit (tacit) and explicit knowledge to create new knowledge" (Kamasak and Bulutlar, 2009). Knowledge Sharing has also been defined as " The dissemination of information and knowledge throughout the organization (Ling et al., 2009). It has been described as " the act of disseminating and making available knowledge that is already known, and knowledge utilization is where learning is integrated into the organisation (Tiwana, 2002). Senge (1998) suggested that Knowledge Sharing is " a transfer process where individual competencies are developed through sharing and learning from others" He, however, argues that Knowledge sharing occurs when an individual is willing to assist as well as to learn from others in the development of new competencies. To ‘‘learn’’ means to ‘‘digest’’, to ‘‘absorb’’, and to ‘‘apply’’ (Senge, 1998). Christensen (2007) says that Knowledge sharing is defined as " Being about identifying existing and accessible knowledge, in order to transfer and apply this knowledge to solve specific tasks better, faster and cheaper than they would otherwise have been solved (Christensen, 2007). Davenport and Prusak (1998) emphasized that Knowledge transfer is " The process in which a unit of an organization is impacted by the experience or the know-how of another unit. It is described as the activities that are concerned with the generation, use, application and exploitation of knowledge, and other capabilities outside the organization environments (Davenport and Prusak, 1998). Further more, knowledge sharing is "The process through which one unit is affected by the knowledge and expertise of another unit" (Friesl et al,. 2011). Knowledge transfer refers to the process of communicating knowledge from one agent to another. This takes place between individuals and/or groups and within the organization in general (Fiddler, 2000).

Knowledge sharing can be conceptualized in various ways ranging from the exploration of new knowledge through renewed combinations of existing knowledge to the exploitation of existing knowledge (Szulanski, 1996), (Uzzi and Lancaster, 2003). Knowledge sharing can also be seen as a process of knowledge exchange. It has been argued that the motivation for these different exchanges is related to the expectation of receiving something in return (Fiske, 1991). Grant (1996) also argues that knowledge

sharing is about ensuring that existing knowledge is distributed within or across organizational boundaries.

The above definitions of knowledge sharing implies that it is necessary for organizations:

- To be able to *explore and exploite* their knowledge assets.
- To *create* new knowledge through *utilization* of existing knowledge.
- To *develop* individual competences through learning from others.
- To *re-use* their knowledge for differing applications and differing users; this implies *making knowledge available* where it is needed within the organization;
- To *create a culture* that encourages knowledge sharing and re-use.
- To *making* knowledge accessible when its needed to solve specific tasks.
- To *distribute* the existing knowledge within the organization in order to *apply* it and *create* new knowledge.

2.7.3 Building a knowledge-sharing culture:

DeLong and Mann (2003) posited employees tend to share knowledge if they feel emotionally committed to the organization's vision and mission. Management actions can have a large influence on increasing employee engagement and affect the knowledge-sharing culture within the organization. Visible and engaged management support may enhance a knowledge-sharing culture. Management may influence employees by establishing a reason to care, a feeling employees are a part of something bigger than they are. Foundational to effective leadership is the establishment and communication of the organizational vision. As expressed by one panelist, ''People need to feel like they are valued and 'part' of the company. If they can feel that they are part of something greater than their own job or position, they may be more likely to pass on information''.(McNichols, 2010).

2.7.4 Key Factors for Knowledge Sharing:

If organizations aim to enjoy knowledge sharing advantages, they will have to consider a number of key factors. Information technology (IT) is considered as one of the decisive factors in knowledge sharing. A number of reasons count for this such as the growing recognition of knowledge work, the ever-increasing complexity of jobs and also the speed of changes occurring around us (Huysman and Wulf, 2006).

Another factor that seems to have a considerable impact on knowledge sharing is organizational climate. To some practitioners, creating a knowledge sharing culture is one of the main concerns when devising a knowledge management program (Reid, 2003). Without a proper atmosphere in organizations, other attempts to share knowledge might be pointless. A meager social climate in an organization might lessen the level of engagement in knowledge sharing (Tohidinia, 2009).

In addition, the lack of an aspiring culture to communicate and explore new ideas may become a major barrier to knowledge sharing (Sun and Scott, 2005). Concerned about these kinds of setbacks, managers try to provide favorable climate for knowledge sharing. In addition, managers play some other important roles: they grant extrinsic rewards, provide IT facilities and involve in knowledge auditing (Tsui, 2005).

But even when organizations provide technological facilities and demand employees to share their knowledge, in most cases, employees are the ones who finally decide whether to share their knowledge or not (Constant et al., 1994). Although motivation and expertise might account for individual participation in knowledge sharing (Wang and Lai, 2006) it is not always easy to predict when and why employees share their knowledge (Duguid, 2005). Thus, individual factors are also among those key elements that need to be considered while studying knowledge sharing behavior (Tohidinia, 2009).

2.7.5 Formal and informal knowledge sharing:

In this study, the concept of knowledge sharing will be described as a continuum with, at the two extremes: formal knowledge sharing; and informal knowledge sharing.

2.7.5.1 Formal knowledge sharing:

Formal knowledge sharing comprises all the forms of knowledge sharing that are institutionalized by management. These are resources, services and activities, which are designed by the company or organized with the aim of knowledge sharing or of learning from each other "organizational learning" (Taminiau, and et al., 2009). According to Nonaka (1994) formal exchange mechanisms, such as procedure, formal language, and the exchange of handbooks will ensure that people will exchange and combine their explicit knowledge. Other examples of formal knowledge sharing are meetings and organized brainstorm sessions. A culture, which makes sure that explicit knowledge is shared does not preclude the sharing of implicit knowledge. An example is an in-house training with an emphasis on observation.

2.7.5.2 Informal knowledge sharing:

With regard to informal knowledge sharing the literature often refers to informal networks and informal communication (Awazu, 2004). (Argote et al. 2003) claim that business relations between colleagues, and friendship relationships (close ties) between the members, will enlarge the possibility of knowledge exchange. (Von Krogh et al. 2000) state that trust and openness in the business culture are preconditions for knowledge exchange. (Sturdy et al., 2006) describe the importance of informal settings such as lunches, drinks and dinners. These informal meetings have proven to facilitate smooth knowledge exchange between consultants and their clients.

Informal knowledge sharing will be defined as all forms of knowledge sharing which exist alongside all the institutionalized forms of knowledge sharing. It relates to resources, services and activities, which are used to facilitate knowledge exchange, but are not necessary designed for that purpose. Examples of knowledge sharing are the conversations and exchange of ideas at the coffee machine, dinners, lunches, and when commuting together to work or to a client (Taminiau, and et al., 2009).

2.7.6 Strategies to promote Knowledge Sharing:

A review of the literature on Knowledge Sharing strategies found the following commonly used strategies:

- ***Communities of practice:*** This refers to "groups of people who do some sort of work together (on line or in person) to help each other by sharing tips, ideas and best practices" (Faul and Kemly, 2004).

- ***Knowledge networks:*** This refers to "a more formal and structured team based collaboration that focuses on domains of knowledge that are critical to the organization which is part of their standardized job" (UNFPA, 2003).

- ***Retrospect:*** This refers to "an in-depth discussion that happens after completion of an event, project or an activity to basically capture lessons learnt during the entire activity" (Faul and Kemly, 2004). At the end of the session, a documented review of the project process is created. The main idea behind this meeting is to share feedback with decision makers, improve support from the team and ultimately enhance team building.

- ***Story telling*:** This refers to a story telling session whereby the person who attends an event or training session is given the opportunity to disseminate the information /knowledge gained to others within the organization (Faul and Kemly, 2004).

- ***Rewards for Knowledge Sharing*:** According to a study by Cornelia and Kugel (2004) monetary rewards have an immediate effect on motivation to share knowledge but at the same time bear the risk of spoiling users. However, monetary incentives can be used to start a knowledge management system and to incentivize users from time to time. Yet, in the long-term users should be incentivized non-monetarily for sharing their knowledge.

- ***Linkage with performance appraisal:*** Nobody disputes the fact that what gets measured gets done. People do not do what you tell them, but what you measure them for. If people know that one aspect of the performance management is linked

to Knowledge Sharing, they will certainly like to ensure that they do not get a low ranking on this dimension (Jain, 2005).

- ***Training:*** A regular training on themes like trust building, collaboration building, team building can go a long way in overcoming barriers related to lack of trust, faith, and fear. Presence of top management during these sessions may further leave a positive impact on the participants (Jain, 2005).

2.7.7 Barriers to Knowledge Sharing:

Knowledge sharing barriers are categorized by (Riege, 2005) into three main domains; individual, organizational and technological.

2.7.7.1 Potential individual barriers:

- general lack of time to share knowledge, and time to identify colleagues in need of specific knowledge.
- apprehension of fear that sharing may reduce or jeopardize people's job security.
- Low awareness and realization of the value and benefit of possessed knowledge to others.
- dominance in sharing explicit over tacit knowledge such as know-how and experience that requires hands-on learning, observation, dialogue and interactive problem solving.
- use of strong hierarchy, position-based status, and formal power.
- insufficient capture, evaluation, feedback, communication, and tolerance of past mistakes that would enhance individual and organizational learning effects.
- differences in experience levels.
- lack of contact time and interaction between knowledge sources and recipients.
- poor verbal/written communication and interpersonal skills.
- age differences.
- gender differences.
- lack of social network.
- differences in education levels.

- taking ownership of intellectual property due to fear of not receiving just recognition and accreditation from managers and colleagues.
- lack of trust in people because they may misuse knowledge or take unjust credit for it.
- lack of trust in the accuracy and credibility of knowledge due to the source.
- differences in national culture or ethnic background; and values and beliefs associated with it (language is part of this).

2.7.7.2 Potential organizational barriers:

- integration of knowledge management strategy and sharing initiatives into the company's goals and strategic approach is missing or unclear.
- lack of leadership and managerial direction in terms of clearly communicating the benefits and values of knowledge sharing practices.
- shortage of formal and informal spaces to share, reflect and generate new knowledge.
- lack of a transparent rewards and recognition systems that would motivate people to share more of their knowledge.
- existing corporate culture does not provide sufficient support for sharing practices.
- knowledge retention of highly skilled and experienced staff is not a high priority.
- shortage of appropriate infrastructure supporting sharing practices.
- deficiency of company resources that would provide adequate sharing opportunities.
- external competitiveness within business units or functional areas and between subsidiaries can be high.
- communication and knowledge flows are restricted into certain directions (e.g. top-down).
- physical work environment and layout of work areas restrict effective sharing practices.
- internal competitiveness within business units, functional areas, and subsidiaries can be high.
- hierarchical organization structure inhibits or slows down most sharing practices.
- size of business units often is not small enough and unmanageable to enhance contact and facilitate ease of sharing.

2.7.7.3 Potential technology barriers:

- lack of integration of IT systems and processes impedes on the way people do things;
- lack of technical support (internal or external) and immediate maintenance of integrated IT systems obstructs work routines and communication flows;
- unrealistic expectations of employees as to what technology can do and cannot do;
- lack of compatibility between diverse IT systems and processes ;
- mismatch between individuals' need requirements and integrated IT systems and processes restricts sharing practices;
- reluctance to use IT systems due to lack of familiarity and experience with them;
- lack of training regarding employee familiarization of new IT systems and processes; and
- lack of communication and demonstration of all advantages of any new systems over existing ones.

2.8 The Role of Knowledge Management in Innovation.

2.8.1 Drivers of the application of knowledge management in innovation:

According to the literature there are three main drivers of the application of knowledge management in innovation.

- ***First*:** Basic driver for knowledge management's role in innovation in today's business environment is to create, build and maintain competitive advantage through utilization of knowledge and through collaboration practices. Knowledge management can facilitate such collaboration. Close collaborative relationships can provide access to the processes other organizations use that could be applied in different contexts. Acquiring knowledge and skills through collaboration is considered to be an effective and efficient way of successful innovation. (Cavusgil et al., 2003).

- ***Second*** Driver of the role of knowledge management in innovation is that knowledge is a resource used to reduce complexity in the innovation process, and

managing knowledge as resource will consequently be of significant importance. Innovation is extremely dependent on the availability of knowledge and therefore the complexity created by the explosion of richness and reach of knowledge has to be recognized and managed (Adams and Lamont, 2003).

- ***Third*** Driver of applying knowledge management to the benefit of the innovation process is the integration of knowledge both internal and external to the organization, thus making it more available and accessible. Knowledge integration implies that timely insights can be made available to be drawn at the appropriate juncture for sense making, i.e. knowledge can be exchanged, shared, evolved, refined and made available at the point of need. (Baddi and Sharif, 2003).

In conclusion, it can be said that knowledge management systems have a distinctive contribution in the development of sustainable competitive advantage through innovation. Whilst information and knowledge management systems alone do not possess the qualities required to provide organizations with sustainable competitive advantage, the bundling of knowledge management systems with other firm resources and core competencies is the key to developing and maintaining sustainable competitive advantage through product and process innovation. In such a position, knowledge management systems play a major role in the conversion of learning capabilities and core competencies into sustainable advantage by enabling and revitalizing organizational learning and resource development processes (Adams and Lamont, 2003).

2.8.2 The nature of the role of knowledge management in innovation:

Knowledge and knowledge management fulfill a myriad functions in the innovation realm.

- ***The first*** Major role that knowledge management plays in innovation is enabling the sharing and codification of tacit knowledge. Tacit knowledge sharing is critical for organizations' innovation capability (Cavusgil et al., 2003).

- ***The second*** Major role that knowledge management plays in the innovation process is related to explicit knowledge. Although explicit knowledge does not play such a

dominant role as tacit knowledge in the innovation process due to the fact that explicit knowledge about innovations is easily accessible to competitors, explicit knowledge is also an important component of innovation (Plessis, 2007).

- ***The third*** Major role that knowledge management plays in innovation is through the enabling of collaboration. The author defines collaboration as the ability of customers, suppliers and employees to form knowledge sharing communities within and across organizational boundaries, that can work together to achieve a shared business objective, resulting in benefits to all community members. Collaboration, both internal and external to the organization, plays an especially significant role in transfer of tacit knowledge and building collective know-how. The stronger the relationship between collaboration partners, the greater the extent of the tacit knowledge transfer (Cavusgil et al., 2003).

- ***The fourth*** Major role that knowledge management plays in the innovation process is managing various activities in the knowledge management lifecycle, which consists of the phases of creation, gathering, sharing, leveraging of knowledge. Knowledge management plays a significant role in ensuring the integration of knowledge in the organization through provision of structure and organizational context, which enables knowledge sharing and leverage (Plessis, 2007).

- ***The fifth*** Major role that knowledge management plays in the innovation environment is through the creation of a culture conducive for knowledge creation and sharing as well as collaboration. According to (Scarbrough, 2003) knowledge management's cultural contribution to innovation lie in its overlap with human resource management issues such as competence building. The author adds knowledge creation, sharing and leverage build employee skills that are particularly relevant to the innovation process.

2.9 ICTs: (Information and Communication Technologies)

Gold et al (2001) stated that information technology is an infrastructure capability as it facilitates knowledge flow and eliminates barriers to communication within an organization. He also identified information technology, organizational structure, and culture as infrastructure capabilities, and acquisition, conversion, application and protection as process capabilities.

Information Systems can support knowledge sharing providing help in acquiring, storing, distributing and applying knowledge, as well as in supporting processes for creating new knowledge, and integrating it into the organization (Laudon and Laudon, 2006). Computer-based Information Systems with storage and retrieval technologies can contribute then to enhance organizational memory. To enhance knowledge sharing among people and organizations, Information Systems supporting knowledge-based processes have to be guided by an understanding of the nature and types of the organizational knowledge. Under an organizational perspective computer-based Information Systems promise to increase and enhance the effectiveness of organizational knowledge by embedding knowledge into organizational routines (Alavi and Leidner, 2001).

2.10 Representing the independent variable: "Knowledge Sharing"

(Yasin,2007) stated that the intensity of knowledge sharing may appear in the following areas:

- ***Knowledge availability:*** The extent of knowledge availability in creating and implementing new ideas.
- ***Knowledge accessibility:*** It means the extent of openness of knowledge for use.
- ***Knowledge applicability:*** Readiness to apply knowledge effectively.

So the researcher tends to represent the independent variable "knowledge sharing" by these dimensions, initial construct for each of these dimensions were derived from the extant literature, and then further described herein.

Knowledge transfer through interfirm collaborations, a process by which a firm makes its knowledge stock available to other firm (Inkpen and Crossan, 1995). Adams and Lamont (2003), Claimed that innovation is extremely dependent on the availability of knowledge and therefore the complexity created by the explosion of richness and reach of knowledge has to be recognized and managed. Moreover, plessis, (2007), stated that Knowledge management ensures the availability and accessibility of both tacit and explicit knowledge used in the innovation process using knowledge organization and retrieval skills and tools. Singley and Anderson (1989), claimed that knowledge applicability defined such as transfer knowledge at an individual level as: "how knowledge acquired in one situation applies in another. Finally, Bouty (2000) similarly found situational key decision factors for inter-organizational knowledge sharing among researchers:

- Possibility
- availability; and
- exchangeability.

Moffett et al. (2004) indicated that the correct function of IT within knowledge management should be as an integrator of communications technology to support knowledge creation, transfer, sharing and collaboration. In recent years, researches has been carried out to address the utilization of the intranet and internet not only as a repository of unstructured information but also as a powerful tool to enable effective information and knowledge accessibility and communication, supporting collaborative projects and offering the opportunity to create new knowledge

So the researcher added the fourth dimension (ICTs) in order to reflect the importance role of ICTs in the process of knowledge sharing at the Palestinian ministries.

CHAPTER THREE

INNOVATION

3.1 Introduction:

In the fast changing business world of today, innovation has become the mainstay of every organization. The nature of global economic growth has been changed by the speed of innovation, which has been made possible by rapidly evolving technology, shorter product lifecycles and a higher rate of new product development. Organizations have to ensure that their business strategies are innovative to build and sustain competitive advantage. (plessis, 2007).

This chapter presents the theoretical basis of what innovation means, by reviewing the literature which illustrate development of the concept, including its definitions, types, phases, levels, enablers, obstacles and key factors affecting the innovation process. Moreover, The relationship between innovation and knowledge sharing will be also clarified.

3.2 Defining innovation:

The term innovation originates from the Latin word “innovare”, meaning “to make something new”. However, “novelty is very much in the eye of the beholder” (Sarri, etal, 2010). Innovation is defined in many different ways, Herkema (2003) defines innovation as a knowledge process aimed at creating new knowledge geared towards the development of commercial and viable solutions. Innovation is a process wherein knowledge is acquired, shared and assimilated with the aim to create new knowledge, which embodies products and services. Herkema (2003) also states that innovation is the adoption of an idea or behavior that is new to the organization. The innovation can be a new product, a new service or a new technology. Innovation is related to change, which can be radical or incremental (Herkema 2003). Innovation has also been defined as the generation, acceptance and implementation of new ideas, processes, products or services (Thompson, 1965). It can be described as the implementation of discoveries and interventions and the process by which new

outcomes, whether products, systems or processes, come into being (Gloet and Terziovski, 2004). Amabile et al, (1996), defined innovation as "the successful implementation of creative ideas within the organization". Clegg and et al, (2008) emphasized that Innovation is the creation of either anew process(process innovation) or new product or service (product/service innovation) that has an impact on the way the organization operates. But West and Farr (1990), defined innovation as an "intentional introduction and application of new products, processes, procedures, or ideas that are designed to significantly benefit the individual, the group, the organization or wider society. El-Farra, (2007) stated that innovation is: (1) the renewal and improvement of the range of products and services and the related markets; (2) the founding of new methods of production, supply and distribution; and (3) the introduction of changes in management, work organization, and the working conditions and skills of the workforce.

From the above definitions it can be said that:

- Innovation is a very complex phenomenon with vary and multiple dimensions.
- Innovation is producing some thing new and unprecedented.
- Innovation is a ready tendency inherent in some people.
- Innovation is to develop or invent something new it is the opposite of imitation, simulation and ruminate about the ordinary.
- Innovation is the act which aims to achieve the newness and novel.
- Innovation is the set of procedures, processes and behaviors that lead to improving the organization climate and culture and activation of creative performance through motivating employees to solve problems and make decisions in a mire creative and unusual way of thinking.
- Innovation is an intellectual ability varies from person to another, it may appear on the individual form, group or organization.
- Innovation is the new way of delivering quality to the customer.
- Innovation is the generation, acceptance and implementation of new ideas.
- Innovation is related to change, which can be radical or incremental .

In this study the researcher see innovation as " The combination of capabilities that enable individuals to produce a new, distinct, and viable idea, in order to solve problems or to develop an existing system, so as to ensure achievement of objectives efficiently and effectively ".

3.3 Phases of innovation:

Innovation maybe viewed as three fairly distinct phases which are often viewed to be sequential but in reality are iterative and often run concurrently. ***The first*** is the idea generation phase which is typically the fuzzy front end. A lot of the ideas from this stage typically do not proceed onto the second stage, because often numerous problems show up, ranging from feasibility to compatibility with strategic direction. At ***the second stage*** most frequently encountered is the structured methodology phase which typically consists of some type of stage-gate system. Most large companies deploy some variation of a structured methodology. The stage-gate system consists of hoops which the new idea must pass in order to demonstrate its feasibility and compatibility with the organization's objectives. ***The third stage*** is commercialization. This phase consists of actually making the idea an operational feasibility. In other words, the product is produced so as to allow extraction of value from all that has been created in the earlier phases (Ahmad, 1998).

According to (Van de ven etal, 1999) the innovation journey can be differentiated in three main periods: initiation, development , and implementation. These periods are covered in the following subsections.

The initiation period: Innovations are usually initiated through a gestation period of several years in which apparently coincidental events happen that, looking back, set the stage for innovation. This period levels the playing field to emerge. Thin internal or external shocks trigger concentrated efforts to initiate innovation these shocks lead to a concentration of attention from diverse stakeholders. Plans are developed to gain resources internally and to create legitimacy externally.

The development period: as soon as development begins, the initial idea splits up into multiple ideas that proceed in different directions. In this stage, setbacks and mistakes are common as unexpected changes erode the basic assumption the innovation was built on. Also criteria to assess the achievements of the project differ between resource controllers and innovation managers. People who are committed to the idea tend to see progress and new opportunities where external agents see only hesitation and dead ends.

Moreover, staff changes frequently occur in the development period. Management evaluation requires great subtlety if it is to capture these elements of the innovation process. It is rare to incorporate all the organizational competencies that successful appraisal of innovation requires in the initiation period.

The implementation period: The implementation and adoption of the innovation are achieved by integrating the new with that which is old, established and already known, fostering a fit within a local context and situation. Evolution and integration, not revolution and transformation, seem to be the keys to success.

Finally, innovations reach their goal they are either released or dumped as top management and investors assess whether the innovation was a failure or a success (Clegg et al, 2008).

3.4 Ten key areas of innovation opportunity:

There are ten specific areas where innovation can produce huge results. We can innovate in any one area, but when we do, our innovation will invariably impact other areas as well. When we anticipate these interrelated needs, we can prepare more effectively. The ten areas are as follows:

1. Management development.
2. Strategy development.
3. Employee development.
4. Product and service development.
5. Process development.
6. Tool and technology development.
7. Supplier development.
8. Market development.
9. Distribution development.
10. Brand development.

These are primary areas of opportunity for the successful and vibrant organization. For an organization aspiring to innovation, each represents key capabilities wherein unusual skills may produce profitable innovations (Bean and Radford, 2002 p. 92-94).

3.5 Innovation levels and types :

There are two key aspects of innovation: the degree of innovation and the scope of innovation. The degree of innovation is differentiated into radical and incremental innovation. Radical innovation is a dramatic breakthrough in a new product, new market, or new technology (Green et al., 1995). Incremental innovation modifies current products, services, or technology to improve and upgrade function and performance. In contrast, innovation range refers to the assortment of innovative activities applied by a manufacturer (O'Regan and Ghobadian, 2005). Green et al, (1995), also indicated that innovation is a multi-dimensional concept where manufacturers focus on product, process, and service to implement gradual modification (e.g. product line expansion, current function, and minor adjustments in operation activities). Weera wardena (2003), considered innovation to be modification of product, process, service, organizational systems, and marketing systems in order to create customer value. The scope of innovation capability consists of technical innovation and administrative innovation (Damanpour, 1991). Technical innovations include products, marketing, services, and the technology used to produce products, product sales, or render services directly related to the basic work activity of an organization. Administrative innovation pertains to organizational structure and administrative processes, indirectly related to the basic work activity of the organization and is more directly related to its management (Damanpour and Evan, 1984).

Innovation can be classified according to the scope into five types: product innovation, process innovation, marketing innovation, service innovation, and administrative innovation (Lin etal, 2010).

(1) Product innovation. It is the development and introduction of a new product to the market or the modification of existing products in terms of function, quality consistency, or appearance (Liao et al., 2007).

(2) Process innovation. It involves creating and improving the method of production, and the adoption of new elements (e.g. input materials, task specifications, information flow, and equipment) to the firm's production process (Damanpour, 1996).

(3) Marketing innovation. It refers to market research, price-setting strategy, market segmentation, advertising promotions, retailing channels, and marketing information systems (Weerawardena, 2003).

(4) Service innovation. It refers to manufacturers' engagement in various innovation activities to enhance customer satisfaction, including after-sale services, warranty policy, maintenance routines, and order placement systems (Gopalakrishnan and Damanpour, 1997).

(5) Administrative innovation. It refers to changes in organizational structure or administrative processes, such as the recruitment of personnel, the allocation of resources, and the structuring of tasks, authority, and rewards (Gopalakrishnan and Damanpour, 1997).

Additionally, Some researchers differentiate between organizational innovation and technological innovation as types of innovation.

- **Organizational innovation:**

Organizational innovation (Damanpour, 1991) is involved when an organization adopts innovations, be it the implementation of a new technology, method, practices, or external relations. Organizational innovations also include the implementation of new methods for distributing responsibilities and decision making among staff for the division of work within and between firm activities and organizational units. It also covers new concepts for the structuring of activities, such as implementation of an organizational model that integrates the initiatives to manage the organization's knowledge into its workers' daily activities (Davenport & Prusak, 2000). In this case, these organizational innovations reflect deeply how innovation can and actually do manifest in the process of the strategy formulation when the firm decides to adopt knowledge management. Furthermore, it is not difficult to imagine that social learning is important in organizational innovation. The idea is that one individual learns from another by means of observational modeling (Rogers, 2003). This is often the case in knowledge transfer initiatives through a mentoring scheme. In many cases, social

learning eases the process when an organization adopts and familiarizes itself with an innovation and needs to adjust its organizational features.

- **Technological innovation:**

Technological innovation is reflected when, for example, an organization implements knowledge management systems. This system is usually ICT-based systems which support the processes of knowledge creation, storage, distribution and application, also known as knowledge management systems. The instances, among others, are electronic mail (e-mail) and document management system (Becerra-Fernandez et al., 2004). and collaboration tools like Wiki technology that enable its users to easily edit pages online in a browser (Ebersbach et al., 2006). Seamless knowledge management -related systems integration can also potentially foster knowledge management implementation in organizations (Alavi and Leidner, 1999). To achieve this, a reliable ICT infrastructure is critical to knowledge management systems deployment.

In conclusion: innovation is a common feature dominate an individual life in all its aspects, it is not be limited to the areas of technological inventions or scientific discoveries, but also in the creation of a new philosophy, a new product, a new system, and a new way to resolve problems and challenges facing individual and community. Innovation has multiple levels, any person can be practice innovation in his special life as will as in his work. Therefore, it is very important to develop innovative and creative capabilities for managers to be able to find a new ideas and solutions and to solve different problems, especially with the complexity of the nature of the work of managers.

3.6 Leadership and innovation:

Leading edge organizations consistently innovate, and do so with courage. It is the task of organizational leaders to provide the culture and climate that nurtures and acknowledges innovation at every level. Notwithstanding the fact that leadership is critically important, it is nevertheless insufficient on its own to build a culture of continuous improvement and innovation. To build a culture of innovation, many

innovation champions must be identified, recruited, developed, trained, encouraged and acknowledged throughout the organization.

Characteristics that distinguish highly innovative firms against less innovative companies are as follows:

- Top management commits both financial and emotional support to innovation, and they promote innovation through champions and advocates for innovation.
- Top management has to ensure that realistic and accurate assessments of the markets are made for the planned innovation. Highly innovative firms are close to the end users, and are accurately able to assess potential demand.
- Top management ensures that innovation projects get the necessary support from all levels of the organization.
- Top management ensures that structured methodology/systems are set in place so that each innovation goes through a careful screening process prior to actual implementation.

The above suggests that senior management play a pivotal role in enhancing or hindering organizational innovation. If senior management are able to install all of the above types of procedures and practices then they effectively seed a climate conducive to innovation (Ahmed, 1998).

3.7 Drivers of innovation:

The primary drivers of innovation include (Hamel, 1996):

- Financial pressures to decrease costs, increase efficiency, do more with less.
- Increased competition.
- Shorter product life cycles.
- Value migration.
- Stricter regulations.
- Industry and community needs for sustainable development.
- Increased demand for accountability.
- Community and social expectations and pressures (giving back to the community, doing good, etc.).
- Demographic, social, and market changes.
- Rising customer expectations regarding service and quality.

- Greater availability of potentially useful new technologies coupled with the need to keep up or exceed the competition in applying these new technologies.
- The changing economy.

Innovation is motivated by changes in external and internal environmental conditions, customers, competitors, suppliers and employees. The ability to adapt to changes in the environment is the main key to success, much more than factors such as company size. Although cost reduction has been a major driver of innovation, other drivers are also important. Regulatory drivers have become more important in the last several decades. In addition, companies increasingly feel they must promote their image and this has become a major driver of environmental and sustainable development innovations. A good image can help promote both customer loyalty and a company's growth strategy. Hamel sees important recent change in both (a) the drivers of innovation and (b) the importance of radical business concept innovation for organization survival. Basically, he argues that a dramatic change in the overall economy has occurred and that this economic environment no longer protects established mainstream businesses. He further argues that organizations must develop an innovation competency if they are to survive: radical business concept innovation must become a core component of this competency.

3.8 Structure and innovation :

Some innovations do not require massive organizational changes while others can only succeed if the organization undergoes a major transformation. Radical, especially discontinuous radical, innovations are likely to require major organizational change and can be most prone to failure but these are also likely to produce the greatest benefits. Although most research appears to agree that innovation is influenced by social processes, research in this area has taken a back seat. Generally it can be said that innovation is enhanced by organic structures rather than mechanistic structures. Innovation is increased by the use of highly participative structures and cultures (e.g. high performance-high commitment work systems) (Burnside, 1990).

3.8.1 Organic structures promote innovation through:

- Freedom from rules.
- Participation and informality.
- Many views aired and considered.
- Face to face communication; little red tape.
- Inter-disciplinary teams; breaking down departmental barriers.
- Emphasis on creative interaction and aims.
- Outward looking; willingness to take on external ideas.
- Flexibility with respect to changing needs.
- Non-hierarchical.
- Information flow downwards as well as upwards (Ahmed, 1998).

3.8.2 While mechanistic structures hinder innovation through

- Rigid departmental separation and functional specialization;
- Hierarchical;
- Bureaucratic;
- Many rules and set procedures;
- Formal reporting;
- Long decision chains and slow decision making;
- Little individual freedom of action;
- Communication via the written word;
- Much information flow upwards; directives flow downwards (Ahmed, 1998).

3.9 Innovation and Communication :

An organizational culture that supports open and transparent communication based on trust will have appositive influence on promoting creativity and innovation (Barret, 1997). Teaching personnel that disagreement is acceptable since it offers the opportunity to expose paradoxes , conflict and dilemmas can promote openness in communication. At the same time personnel must feel emotionally safe to be able to act creatively and innovatively and should therefore to be able to trust one another, which in turn is promoted by open communication. An open-door communication policy, including open communication between individuals, teams, and departments to gain new perspectives, is therefore necessary to create a culture supportive of creativity and innovation (Samaha, 1996).

3.10 Innovation and organizational culture:

Successful organizations have the capacity to absorb innovation into the organizational culture and management processes of the organization (Syrett and Lammiman, 1997). According to Tushman and O'Reilly (1997), organization culture lies at the heart of innovation. They, along with others believe that culture influences creativity and innovation in a number of ways including socialization processes and the value proposition communicated through structures, policies, and day-to-day artifacts and practices and procedures.

The basic elements of culture influence innovation in two ways, through socialization (Rich Harris, 1998) and through basic values, assumptions and beliefs (Tesluk et al., 1997) that become the guide for behaviors. Thus, a culture supporting innovation engage behaviors that would value creativity, risk taking, freedom, teamwork, be value seeking and solutions oriented, communicative, instill trust and respect, and be quick on the uptake in making decisions. One would expect these behaviors to be desirable and normal, and ones that should be embedded in the corporate fabric (Lock and Kirkpatrick, 1995). Similarly, one would expect such a culture to reject practices and behaviors that hinder innovation such as rigidity, control, predictability, and stability (Jassawalla and Sashittal, 2003).

3.11 Innovation And Organizational Climate:

The climate of the organization is realized by its members through the organization's practices, procedures and rewards systems deployed and is indicative of the way the business runs itself on a daily and routine basis.

Climates are created by numerous elements coming together to reinforce employee perceptions. Additionally, management create climate not by what they say but by their actions. It is through visible actions over time rather than through simple statements that employees begin to cement perceptions. It is only when employees see things happening around them, and to things that push them towards innovation, that they begin to internalize the values of innovation. At innovative companies, the whole system of organizational function is geared-up to emphasize innovation (who gets hired, how they are rewarded, how the organization is designed and laid out, what processes are given priority and resource back-up, and so on) (Ahmed, 1998).

Schneider *et al.*,(1996), define four dimensions of climate:

- **Nature of interpersonal relationships**

Is there trust or mistrust?

Are relationships reciprocal and based on collaboration, or are they competitive?

Does the organization socialize newcomers and support them to perform, or does it allow them to achieve and assimilate simply by independent effort?

Do the individuals feel valued by the company?

- **Nature of hierarchy**

Are decisions made centrally or through consensus and participation?

Is there a spirit of teamwork or is work more or less individualistic?

Are there any special privileges accorded to certain individuals, such as management staff?

- **Nature of work**

Is work challenging or boring?

Are jobs tightly defined and produce routines or do they provide flexibility?

Are sufficient resources provided to undertake the tasks for which individuals are given responsibility?

- **Focus of support and rewards**

  What aspects of performance are appraised and rewarded?

  What projects and actions/behaviors get supported?

  Is getting the work done (quantity) or getting the work right (quality) rewarded?

3.12 Enablers and obstacles of innovation:

The presence of innovation drivers and/or the need to innovate will not necessarily result in innovation. Innovation is difficult, particularly radical and/or discontinuous innovation. The capacity to innovate, especially to produce radical and discontinuous innovations, is seen by an increasing number of scholars and practitioners as the new competitive competency of organizations. Most researchers and theorists agree that the organizations can be designed to have a structure, a culture, and processes that are conducive to innovation (Jonach and Sommerlatte, 1999).

As innovation has become a more pressing concern for companies in almost every sector of the economy, the literature has increasingly explored the factors that enable or hinder an organization's capacity to innovate. Factors have been identified at each of the following levels: (Nafie, 2006).

- Individual.
- Organization.
- Environment.

3.12.1 The Individual Level

Successful enterprises and effective corporate entrepreneurship need not only ideas but also people. While considerable attention is given to the product development side of innovation, it is a matter of debate whether the same degree of attention is always given to the people side, and the identification and development of people with entrepreneurial potential. Many workers agree that it is not enough to focus only on transformation of ideas into viable new products as it is equally important to focus on transformation of people with good ideas into effective entrepreneurs (Thompson, 2004).

3.12.1.1 Personality traits for innovation

People play a role in organizational culture. Organizations need to consider the type of employees that can most effectively drive innovation. A core of reasonably stable personality traits characterize creative individuals. Some of these are listed as follow (Woodman and Schoenfeldt, 1990):

- High valuation of aesthetic qualities in experience
- Broad interests
- Attraction to complexity
- High energy
- Independence of judgment
- Intuition
- Self-confidence
- Ability to accommodate opposites
- Firm sense of self as creative
- Persistence
- Curiosity
- Energy
- Intellectual honesty
- Internal locus of control (reflective/introspective).

3.12.1.2 Personal motivational factors affecting innovation

At the individual level numerous motivation-related factors have been identified as drivers of creative production. The key ones are presented below:

- ***Intrinsic versus extrinsic motivation:***

Intrinsic motivation is a key driver of creativity (Amabile, 1990). In fact extrinsic interventions such as rewards and evaluations appear to adversely affect innovation

motivation because they appear to redirect attention from "experimenting" to following rules. Contrarily, in order to be creative, individuals need freedom to take risks, play with ideas and expand the range of considerations from which solutions may emerge.

- ***Challenging individuals:***

Open ended, non-structured tasks stimulate higher creativity than narrow jobs. This occurs due to the fact that people respond positively when they are challenged and provided sufficient scope to generate novel solutions. It appears that it is not the individual who lacks creative potential but it is the organizational expectations that cause an adverse effect upon the individual's tendency to innovate (Shalley and Oldham, 1985).

- ***Skills and knowledge:***

Creativity is affected by relevant skills such as expertise, technical skills, talent etc. However such domain-related skills can have both positive as well as negative consequences. Positively, knowledge enhances the possibility of creating new understanding. Negatively, high domain-relevant skills may narrow the search encouragement to learnt routines and thereby constrain fundamentally new perspectives. This can lead to functional "fixedness", (Schneider et al, 1996).

3.12.2 The Organizational Level

Organizations must have effective, efficient, and speedy systems and processes for the following:

- Environmental scanning, identifying discontinuities, surveying customer needs, encouraging new ideas to be advanced by staff members, and innovation activist and other forms of training.
- Other means of promoting knowledge absorption and sharing, such as the ability to communicate across organizational boundaries, communities of practice, enterprise level knowledge systems, and problem identification and problem solving processes.
- Deconstructing the dominant mental models regarding business mission, market scope, relevant products and services, target customers and questioning existing biases regarding the kinds of profit boosters that can be exploited, the core

competencies that are most important, pricing strategies, bundling options, and partnering opportunities.

- Sustained, innovative strategizing and strategy implementation.
- On-going classification, screening, and prioritization of new ideas.
- Managing the innovation stream—the number of ideas being pursued at a given time and their developmental stages.
- Effective innovation project management.
- Effective innovation utilization, transfer, diffusion—the culmination of innovation is to transfer the innovation to those who will exploit it through successful commercialization and, as needed, promoting its adoption into organizational practice and/or individual life styles.
- Effective change management.
- Promoting a broad definition of business boundaries, fluid organizational boundaries, and a wide and open market for ideas/talent (Baker, K., 2005).

3.12.3 The Environmental Level

Factors at the environmental level are now getting greater attention. These include: the level of competition and extent of customer options, geographical co-location, inter-organizational associations and communities of practice, partnerships and alliances, the regulatory context, and the extent of customer and stakeholder engagement. The external environmental context is now receiving greater attention and inter-organizational collaborations have now become a major topic in the innovation literature. The ways organizations can take advantage of the environment to encourage and sustain innovation and the ways they can use innovation to buffer themselves from environmental threats are areas that need to be further developed. Hamel suggests that an innovation competency requires both an internal and external organizational perspective. To develop an innovation competency, the organization must (Hamel, 2000):

- Have a fluid notion of organizational boundaries and an open market for talent: It is not necessary to create all innovations internally. Partnerships can be a useful strategy to promote innovation.
- Transform organizational strategy: Typical strategic planning does not often encourage radically innovative business models and strategies. Innovation cannot be

held to a scheduled strategic planning timeline; it should be ongoing. Also, strategy should not be restricted to the same set of top level decision-makers as innovative strategy does not necessarily come from the top.

- Create an open market for capital investment and rewards. Innovative companies appear to rely heavily on personalized intrinsic awards. Less innovative companies tend to place almost exclusive emphasis on extrinsic awards. Extrinsic rewards promote competitive behaviors which disrupt workplace relationships, inhibit openness and learning, discourage risk-taking, and can effectively undermine interest in work itself. Nevertheless, it has to be stated that extrinsic rewards have to be present at a base level in order to ensure that individuals are at least comfortable with their salaries. Strategic thinking must not only be encouraged but also sponsored and rewarded. An organization must motivate strategic thinking and be able to quickly assess, select, and support potentially useful innovations.
- Manage the risk: Strategy should be sufficiently varied to allow for organizational flexibility. Most innovation ideas will not be successful, so care should be taken before considering funding any one's innovative idea. The strategy should be to fund a number of ideas and to choose low-risk experimentation. Project risk must be distinguished from portfolio risk—the risk of any new project will be high but if there are enough innovation projects, the portfolio risk will be manageable.
- Create a culture and a structure that promotes innovation. Executives need to open up innovation opportunities to all staff and engage customers, suppliers, competitors, and complementary organizations to develop new approaches to generating new wealth. Being innovative does not only refer to the process of creating a new product from the beginning to the end; it can also refer to the capacity of the organization to quickly adopt externally developed innovations. However, companies that wait until new innovations have been widely implemented and have a proven track record are not typically considered innovative.
- Integrated socio-technical system: Highly innovative companies appear to place equal emphasis on the technical side as well as the social side of the organization. In other words, they look to nurture technical abilities and expertise and promote a sense of sharing, cooperation and togetherness.

Hence the researcher see that innovation is an integrated process between the individuals , the organization and the environment. Management considered the main factor affecting the innovation process.

3.13 Management factors involved in nurturing innovation:

Bean and Radford, (2002) discussed several points specifically related to nurturing and fostering innovation that are worthy of more attention. These factors will briefly discussed as follow:

- ***Personal understanding of the process of innovation:***

If you have little interest in or regard for the process of innovation, then it is unreasonable to presume you can lead and manage innovation to superior results. How can you manage something you don't understand ? so managers must understand what innovators do, how they do it, and how innovation contributes to company success.

- ***Continuous learning and study:***

Continuous learning is hallmark of every great executive. Maybe there was a time when senior management could coast along on skills and knowledge acquired long ago, but if that was ever true it certainly is not now. Managers who sharpen their skills continuously can be confident they will remain valuable contributors.

- ***Curiosity:***

The managers who is always interested in new things and new ways will invariably find it easier to develop and maintain a closer relationship with innovators in their organization.

- ***Openness:***

the innovative organization thrives on openness – openness to the new and novel, openness to criticism and suggestion, and openness to learning from everyone and anyone. A manager who is open to new possibilities and to hearing from others is much more able to foster such an attitude in those working under her.

- ***Leadership:***

leadership implies an interest or even a passion for progress and for useful ideas. Continual improvement of organizational capabilities and competitive prowess is achieved through leadership. Leading an innovative organization certainly calls for even more of these qualities (Bean and Radford, 2002 p.57).

3.14 Firm survival and innovation:

Innovation has been identified as an important factor in firm survival. Companies in high technology industries depend critically on the continued succession of new product innovations for survival. Continuous innovation in such industries is difficult to achieve; to survive, the firm must meet customer demands for rapid incremental improvement (Utterback 1996).

The relationship between the age of the organization and firm survival has been researched extensively with conflicting theories (Sorensen and Stuart 2000). For example a prominent theory known as the "liability of newness" positions that survival chances increase as organizations age. Yet a more complicated relationship has been identified: whereby mortality rates for young firms are low, and then the mortality rate rises with age (Hannan 1998). However, despite extensive research into organizational aging and firm survival, little research has looked at the link between organization age, innovation and survival (Sorensen and Stuart 2000).

Company size may also be a factor in determining a firm's need to innovate. A study found no general relationship between innovation and turnover growth, unless industry type and company size were identified. For example small manufacturing firms that were innovative had high turnover growth, yet larger firms in the same industry did not (Hall and Tozer 2000).

3.15 The centrim innovation model :

The Centrim Innovation Model developed in the University of Brighton covers both technological and organizational aspects of innovation (Bessant and Francis, 1999). This model has been widely applied to evaluate innovation in a variety of organizational contexts. The model comprises six main sectors; each is subdivided into three segments as follows:

- **Directing a creative business:**
    - Management support for new ideas.
    - Business plan showing when changes are needed.
    - Speed of change when superior methods are available.
- **Developing creative capability:**
    - Individuals with creative ideas.
    - Capabilities needed for success.
    - Change efficiency.
- **Building a creative culture:**
    - Encouraging staff to take initiative.
    - Objectives for new ideas.
    - Mutual support for new ideas.
- **Managing learning for new ideas:**
    - External comparisons for new idea sources.
    - Availability of experienced people.
    - Staff updating with best Practice learning.
- **Organizing for creativity:**
    - New product introduction efficiency.
    - Support for new ideas from the top.
    - Organizational structure to support creativity.
- **Taking wise decisions:**
    - Resources to develop ideas.
    - Consideration of ideas before decisions are made.
    - Plan for development.

3.16 Knowledge management and innovation:

Knowledge management plays an invaluable role in innovation, (plessis, 2007). defines the value proposition of knowledge management in the innovation process as follows:

- Knowledge management assists in creating tools, platforms and processes for tacit knowledge creation, sharing and leverage in the organization, which plays an important role in the innovation process.
- Knowledge management assists in converting tacit knowledge to explicit knowledge, This adds a lot of value to the organization as it is known what knowledge is available
- Knowledge management allows collaboration across functional boundaries within organizations, but also across organizational boundaries through online collaboration forums as well as organizational tools and platforms such as intranets and extranets. These collaboration forums are extremely valuable as they ensure the codification of knowledge utilized as input to the innovation process.
- knowledge management provides accessibility to the knowledge and provides identification of collaborators in the knowledge sharing and innovation process, thus building up a reference of expertise and where it resides in the organization. It also ensures that knowledge external to the organization relevant to the organization's innovation processes is available and accessible.
- Knowledge management ensures the availability and accessibility of both tacit and explicit knowledge used in the innovation process using knowledge organization and retrieval skills and tools, such as taxonomies. It can also make tacit knowledge more accessible through directories that identify individuals' areas of expertise in the organization.
- Knowledge management ensures the flow of knowledge used in the innovation process. Through the provision of collaboration forums and knowledge management processes, knowledge required for the innovation process can flow easily across functional boundaries as well as across organizational boundaries to facilitate internal and external collaboration.
- knowledge management can ensure the integration of the corporate knowledge base. This enables staff members to have an integrated view of what knowledge is

available, where it can be accessed, and also what the gaps in the knowledge base are. This is extremely important in the innovation process.

- Knowledge management assists in building competencies required in the innovation process. Through knowledge accessibility and knowledge flow, staff members are able to increase their skills levels and knowledge both formally and informally. An increase in skills can improve the quality of innovation.
- knowledge management ensures that a wider base of knowledge is available to employees than only the knowledge they use in their day-to-day activities. Employees therefore have a wider frame of reference of the context in which they work and will therefore be able to innovate more efficiently.
- Knowledge management also provides a culture of knowledge sharing and accessibility of knowledge, creating an environment conducive to skills and competency building, which aids innovation.
- Knowledge management assists in steady growth of the knowledge base through gathering and capturing of explicit and tacit knowledge this in turn feeds the innovation process through creation of a much broader knowledge base that is available as resource for the innovation process.

3.17 Innovation in the Palestinian ministries:

The Palestinian ministries were established in 1994 after the formation of Palestinian National Authorities (PNA). However, PNA is relying highly on donors in covering expenses either in regular activities or development. Nonetheless, the Palestinian ministries were marked with over employment, corruption and low productivity(Zanoon, 2006).

El-Farra, (2007). Investigated the level of innovation for managers in these ministries , the finding of his research were that the Palestinian ministries from management viewpoint enjoy a satisfactory level of innovation, but these ministries do not encourage the flow of new ideas. The rules and regulations are hinder the work and directors don't encourage direct communication with their subordinates. Further, the Palestinian ministries don't organize for creativity or taking wise decisions. Decisions are made at top management with little delegation.

CHAPTER FOUR

PREVIOUS STUDIES

4.1 Introduction:

In this chapter, the previous studies done in the field of knowledge sharing and innovation will be viewed. This is very important to assure understanding of the whole concepts. Here, the relevant studies that the researcher could reached, will be presented and included in two groups under the following headings:

1- Palestinian and Arabic studies

2- International studies

4.2 Palestinian and Arab studies:

4.2.1 (Khalaf M., 2010):

"The Relationship Between Transformational Leadership and Managerial Creativity (descriptive study on academic heads of departments at the Islamic University of Gaza)"

The research aimed at answering the main question:

What's the relationship between the Possession of academic leaders of transformational leadership and developing Managerial Creativity for heads academic departments at the Islamic University of Gaza?

This study is a descriptive analytical one. The study showed that the Practice of transformational leadership by academic leaders in The Islamic University of Gaza is high, and heads of academic departments enjoy a high level of creativity. The main recommendations The University management need to pay Attention to encourage creativity and creating a creative environment, the University Management must focus on the development of leaders of the change.

4.2.2 (Al-Ejlah T., 2009):

"Organizational Innovation and its Relationship With Performance for Managers at the Palestinian Ministries in the Gaza Strip"

This study aimed to examine the relationship between organizational innovation and the performance for managers at the Ministries of the Gaza strip. The study design was descriptive analytical method and a questionnaire was designed for the purpose of this study. The study showed that managers at the Palestinian Ministries in the Gaza Strip have the creative personality traits with high degree. Organizational variables contribute with varying degrees in creating a creative environment. The level of innovation for managers at the Palestinian ministries is acceptable. The study recommended that the Palestinian ministries should establish new departments interesting in creativity "ideas bank". Creative and talented managers should be detected and encouraged.

4.2.3 (EL-Jaabary, 2008):

"The Role of High Management in Achieving Organizational Creativeness at the National Organizations in South West Bank, from their Point of View"

This study aimed to realize and recognize the role of the high management in achieving organizational creativeness at national organizations, from their point of view. The study took place in south of west Bank in 2007.

This study is a descriptive analytical one and applied on random sample consisted of (115) principals or deputies of national organizations.

The study concluded a number of results. The considerable ones: Most principals of national organizations perfectly realize the organizational creativeness concept, regardless of gender, the experience, the educational qualifications, the age or position of the society. and that enhancing confidence at staff and awarding financial incentives represent a greater consideration in trend of staff towards organizational creativeness.

The study recommended to carry out further studies on organizational creativeness. To pay attention to organizational creativeness in field of university education as well as school- education. Moreover, holding training courses and lectures on creativeness.

4.2.4 (EL-Farra M., 2007):

" Level Of Managerial Innovation At The Palestinian Ministries"

This research aimed to investigate the level of managerial innovation at the Palestinian ministries. The different variables which influence innovation were examined. These variables include, directing a creative business, developing creative capability, building a creative culture, managing learning for new ideas, organizing for creativity and taking wise decisions. Descriptive analytical methods were utilized. In addition, a stratified random sample of 400 persons was used.

The research revealed that the Palestinian ministries, from management viewpoint, enjoy a satisfactory level of innovation. However, Palestinian ministries do not encourage the flow of new ideas. In addition, the research revealed significant correlation between innovation and building a creative culture and environment.

This research recommended that employees should be selected and recruited on the basis of their competencies and they must be encouraged systematically to develop their skills. In addition, the Palestinian ministries should enhance the innovation environment and encourage creativity.

4.2.5 (Nafie B., 2006):

"Investigation Of The Relationship Between Strategic Thinking and Innovativeness Of The Management At The Ministry Of Health In The Gaza Strip"

The aim of this study is to investigate the relationship between strategic thinking and innovation in the Palestinian Ministry of Health (MoH) in Gaza Strip. Descriptive analytical methods were utilized. A structured questionnaire was specially designed for this study.

The study revealed that the MOH is weakly innovative. MOH directors scored high in most sectors of strategic thinking and there is a strong correlation between innovation and strategic thinking. There are strong correlations between innovation and culture and innovation and environment. The same applies to correlations between strategic thinking and culture and strategic thinking and environment. The MOH culture is not supportive of innovation and the MOH environment is totally not supportive.

The study recommended that the MOH management need to build an environment and culture to support innovation. Organizational structural changes need to be carried out. This needs adopting a flat organic structure to support innovation.

Arabic studies:

4.2.6 (Al-Adaileh R. and Al-Atawi M., 2011):

"Organizational culture impact on knowledge exchange: Saudi Telecom context"

The purpose of this study is to investigate the impact of some organizational culture attributes on the knowledge exchange process within the context of the Saudi Telecom Company (STC) as a representation of the Saudi context.

A descriptive correlation design was used. A web survey was used to collect data from 378 employees working on STC using Random Number. The sample was selected using an e-mailing list.

This study showed that some organizational culture factors (teamwork and customer orientation) have high level of importance from the perspectives of STC's employees while Supervision, openness to change, innovation, and involvement, morale, trust and information flow have medium level of importance from the perspectives of STC's employees.

This study suggested some recommendations include: Knowledge sharing and exchanging has to be a domestic culture on STC by building this culture using deferent techniques like training, meeting, building communities of practices and so on. Innovation, information flow, trust, supervision, and rewards system are important cultural attributes that should be considered for successful knowledge management initiative.

4.2.7 (El Harbi S. Anderson A.R. and Amamou M., 2011):

"Knowledge sharing processes in Tunisian small ICT firms"

The purpose of this paper is to examine how knowledge and information is shared by small information and communication technology firms in Tunisia.

The paper employs a comparative case study approach. This was intended to collect data that describe processes and also to elicit information about the reasons for these processes. Data were collected in face-to-face extended interviews with the entrepreneurs and their employees.

It appears that information exchange systems within case companies are not well developed. The flows of information are very unbalanced. Sharing of information requires a great deal of trust in the system but also, and importantly, recognition that sharing brings mutual benefits. Given the early stages of development in Tunisia the conditions for sharing may not yet be in place.

4.2.8 (Ahmad N. and Daghfous A., 2010):

"Knowledge sharing through inter-organizational knowledge networks: Challenges and opportunities in the United Arab Emirates"

The purpose of this paper is to analyze the business sector in the United Arab Emirates based on their level of involvement in knowledge-sharing activities with external sources, internal organizational innovations, and the barriers and benefits of joining knowledge networks.

An exploratory investigation is done by in-depth interviews with the employees of five local and eight multinational companies in the United Arab Emirates.

This paper shows that the concept of knowledge management is still not well received in the companies that we interviewed. It is viewed as a capital-intensive investment that requires more than just the availability of human capital and the requisite infrastructure. All of the local companies interviewed seem to be aware of the importance of various best practices, but they still consider knowledge management as a secondary approach to organizational success. They seem satisfied with the available knowledge. They do not show significant interest and focus on implementing new techniques or methods to create and generate new knowledge.

4.2.9 (Ayyoub N., 2000)

Factors Influencing The Innovative Managerial Behavior Of The Managers In The Saudi Commercial Banks.

The purpose of this study is to assess the innovativeness of the managers in the Saudi commercial banks and to investigate the correlation between their innovativeness and the work environment, inter-relationships, educational level and length of experience. This is a descriptive cross sectional study which involved a sample of 317 commercial Saudi banks' managers. A structure questionnaire was used to collect data.

The study confirms positive correlation between innovative behavior and appropriate environment, good relationship with the top manager and cooperation with other managers. Innovativeness seems to correlate positively with the educational level and the length of experience of the manager. Finally innovativeness of the manager is clearly dependent on his personal abilities and is affected by his educational and experience levels.

4.2.10 (Awamleh N.A.H.K., 1994)

"**Managerial Innovation In The Civil Service In Jordan**, **A Field Study**"

The study purpose is the examination of the relationship between managerial innovation (dependent variable) and sex, age, education, organizational level, and length of service as independent variables. This study aimed to (1) detect managerial attitudes towards innovation, (2) analyze problems related to managerial innovation. This is a descriptive case study whose the sample included 293 managers in the civil service in Jordan. It employed two complementary approaches to achieve its objectives namely descriptive-analytical and field survey methodologies.

The study showed a negative yet weak relationship between innovation and age, organizational level, and length of service. It also showed a positive yet weak relationship between innovation and education and sex. The most significant obstacles to innovation were those related to organizational climate rather than those related to societal environment or managers themselves.

4.3 International studies:

4.3.1 (Xue Y. Bradley J. and Liang H., 2011):

"Team climate, empowering leadership, and knowledge sharing"

The purpose of this research is to investigate the impact of team climate and empowering leadership on team members' knowledge-sharing behavior. A research model was developed based on prior knowledge management studies. Survey data were collected from 434 college students at a major US university, who took courses that required team projects.

This study shows that the impact of these two factors (team climate and empowering leadership) are complementary – they can work together to cultivate individuals' knowledge sharing attitude and lead to more knowledge sharing behavior. The study also showed that both team climate and empowering leadership have two pathways to influence knowledge sharing – internal and external. Internally, they sway individuals' subjective attitude which in turn increases knowledge sharing. Externally, social pressures from team climate or facilitating conditions from empowering leadership can be created to directly encourage knowledge sharing.

This study draws special attention to team design in organizations. In order to promote knowledge sharing, managers need to cultivate a nurturing team environment in addition, empowering leadership skills should be emphasized when selecting or evaluating team leaders.

4.3.2 (Tohidinia Z. and Mosakhani M., 2010):

"Knowledge sharing behavior and its predictors"

This paper aims to evaluate the influence of different factors on knowledge donation and collection. Based on the widely accepted theory of planned behavior, researchers tried to develop a comprehensive model. The model covered different individual and organizational factors. Responses to a total of 502 questionnaires were considered, the study showed that, organizational climate, individual perceptions and also IT had a positive impact on knowledge sharing behavior. hence, managers should plan to support an encouraging atmosphere within organizations; this can in turn promote knowledge sharing behaviors. Moreover, research results indicate that individual factors had a great impact on knowledge donation and collection. Hence, if managers and practitioners tend to involve their organizational members in knowledge sharing activities, they should investigate "individual barriers" and try to remove them. Finally, since ICT can contribute to intelligent behaviors of employees and their organizations as a whole the availability and capability of IT facilities should also be considered.

4.3.3 (Reychav I. and Weisberg J., 2010):

"Bridging intention and behavior of knowledge sharing"

This study seeks to present an innovative scale that sheds light on the ways in which intentions to share explicit and tacit knowledge impact actual knowledge-sharing behavior. It compares employees' intentions to share explicit and tacit knowledge and the actual sharing of this knowledge.

The sample was drawn from two hi-tech companies in Israel working in the telecommunications field that make cellular networks. 285 questionnaires were distributed, 278 completed questionnaires the response rate 98 percent.

The findings suggest that to manage knowledge effectively, companies need to implement methods to encourage knowledge sharing behaviors in two main ways. The first involves explicit knowledge, and is related to the capability to help create, store, and use explicitly documented knowledge mainly by using IT. The second relates to tacit knowledge sharing through exchanges that can help turn intention to knowledge sharing into actual behavior of through interpersonal interactions that occur when implementing knowledge management systems.

The study establishes a validation of a model suggesting that an employee who is willing to share ‘‘expensive’’ (tacit) knowledge, is also likely to be willing to share ‘‘cheap’’ (explicit) knowledge in order to be able to obtain potential benefits from the organization.

4.3.4 Kamas R. and Bulutlar F.,(2010).

"The influence of knowledge sharing on innovation"

The purpose of this paper is to explore the effects of knowledge sharing on innovation. Two forms of knowledge sharing are examined, knowledge donating and knowledge collecting. In particular, the effects of knowledge donating and collecting on achievement of exploratory and exploitative innovation.

A questionnaire was designed to measure the relationship between knowledge sharing and innovation. Data which were collected from 246 middle and top-level managers in Turkey was explored by multiple regression analysis.

The results showed that knowledge collecting has a significant effect on both exploitative and exploratory innovation. On the other hand, knowledge donating inside had a significant effect on both exploitative and exploratory innovation. However, knowledge donating outside the department did not have any kind of impact on any of the innovation strategies. Knowledge collecting has been observed to affect all types of innovation. It is obvious that being one of the dimensions of knowledge sharing, knowledge collecting requires actively consulting with colleagues to learn from them.

4.3.5 (Taminiau Y., 2009):

" Innovation In Management Consulting Firms Through Informal Knowledge Sharing"

The purpose of this paper is to describe the main obstacles for innovation in Dutch consultancy firms by focusing on the strength of informal knowledge sharing as

an avenue for innovation. This paper is the result of an empirical study based on in-depth interviews with 29 consultants in the Netherlands. The results showed that the process of innovation can be problematic in consultancy firms. Consultants do simply not find the time to innovate, since they are mainly rewarded for client related work. In order to innovate consultants need to share knowledge with clients, colleague consultants and their experienced superiors. The knowledge sharing routes the consultant can use as described in this paper are: codified, formal knowledge and informal knowledge sharing. This paper claims that the most fruitful route to innovation is informal knowledge sharing.

4.3.6 (Alwis R.S. and Hartmann E., 2008):

"The use of tacit knowledge within innovative companies: knowledge management in innovative enterprises".

The purpose of this research is to examine the use of tacit knowledge within innovative organizations. It addresses what organizations can do to promote knowledge sharing in order to improve successful innovation. The use of tacit knowledge is assessed with special emphasis on its significance and implications in the innovation process. The research shows that tacit knowledge plays an important role in all stages of the innovation process. It is obvious that in the early phases of the innovation process, (idea discovery and generation), the degree of intangibility is high. It can therefore be assumed that tacit knowledge and its transfer in the early phases of the innovation process plays a more important role. The research also shows that with appropriate tacit knowledge management, upcoming problems are solved in a flexible manner and that in all phases of the innovation process, (from idea discovery up to market entry and ongoing utilization), proper transfer of tacit knowledge is of great significance for the success of innovation.

4.3.7 (Chang S.C. and Lee M.S,. 2008):

"The linkage between knowledge accumulation capability and organizational innovation"

The main purpose of this paper is to explore the effect of knowledge accumulation capability on organizational innovation. This study also attempts to find if interaction between external environment or organizational culture and knowledge accumulation ability will influence organizational innovation.

A quantitative research design was employed. This research randomly selected 1,000 firms, A total of 1,000 questionnaires were delivered and filled out by the firm's manager or the business owner. A total of 137 questionnaires were returned. A total of 129 valid questionnaires.

This paper revealed that the better the expansion capability of knowledge obtainment, the more it will benefit the performance of administrative and technical innovation. External environment and organization knowledge accumulation will result in a mutual interaction to influence the organizational innovation. If an organization has a high capability of knowledge accumulation, regardless of the changes in external environment people have to face, then they can take better advantage of the knowledge they already possess in response to any changes in the external environment, and they will demonstrate a better performance in both administrative innovation and technical innovation. Organizational culture and organization knowledge accumulation will result in a mutual interaction to influence organizational innovation. If organizations have a high capability of knowledge accumulation, no matter the organizational cultures are high or low culture types, they can demonstrate better performance on both administrative and technical innovation.

4.3.8 (Lin M.J and Chen C.J., 2008):

"Integration and knowledge sharing: transforming to long-term competitive advantage"

The purpose of this study is to examine the influence of internal integration and external integration on three types of shared knowledge (shared knowledge of internal capabilities, customers, and suppliers) and whether more leads to superior firm innovation capability and product competitive advantage.

The researcher use the concepts of organizational integration, shared knowledge, firm innovation capability, and new product competitive advantage to investigate how teams can be more successful in developing new products and building long-term strategic advantage.

The sample companies were originally obtained from the list of The 2000 Largest Corporations in Taiwan, Of the 926 questionnaires distributed, 245 completed questionnaires were returned for data analysis, resulting in a response rate of 26.5%

The results show that internal integration and external integration significantly influence shared knowledge of internal capabilities, customers and suppliers among new product

development team members. The results also indicate that team members' shared knowledge enable the firm to improve innovation capability and new product competitive advantage. This study emphasizes the importance of the firm's integration to utilize and share knowledge of internal capabilities, customers and suppliers effectively. Besides, the relationships among internal/external integration, shared knowledge, firm innovation capability and product competitive advantage may provide a clue regarding how firms can manage integrations and promote knowledge-sharing culture to sustain their firm innovation capability and product competitive advantage.

4.3.9 (Kalling T., 2007):

"The lure of simplicity: learning perspectives on innovation"

The purpose of this paper is to identify and discuss obstacles to innovation, by using organizational learning and knowledge management theory. To enhances understanding of what may drive innovation?

The method applied follows the case study approach. A total of 86 managers and employees were interviewed in one large multinational corporation within the paper packaging sector, to unveil their experience from specific attempts at being innovative and from the general climate of innovation within the company.

The case shows that there is poor communication and knowledge sharing channels in the vertical and horizontal dimensions and too high degree of decentralization which makes innovation difficult. the empirical findings support that understanding the significance of the organizational context, particularly the structure and control of the line organization, the interface between the line and the R&D organization is important. Findings also indicate that Knowledge and experience do not travel within the organization because of the decentralized structure and limited slack, so there is no point in enabling joint efforts to solve problems.

4.3.10 (Sondergaard S. Kerr M. and Clegg C., 2007):

"Sharing knowledge: contextualizing socio-technical thinking and practice"

This study aimed to explore the impact of a strategic change on knowledge sharing within an organization. This study investigate a case study from a socio-technical perspective and draw out a number of factors perceived to impact knowledge sharing.

Knowledge sharing facilitators and barriers were examined in a UK owned multinational engineering organization. A total of 20 semi-structured interviews were conducted and analyzed using a combination of matrix and template analysis.

The main findings of this study that, there appears to be a strong link between organizational structure and knowledge sharing. This case study supports the view that knowledge management is a social rather than a technical process and that the core task that organizations should be concerned with in managing knowledge, as well as making organizational knowledge accessible. Three factors (geographical location, individual motivation, and trust) were viewed as double-edged factors suggesting that the manner in which these are managed by the organization will have a negative or positive impact on knowledge sharing. This study also suggest that an organization's knowledge management strategy, should be integrated with business strategy.

4.3.11 (Yang J-T., 2007):

"The impact of knowledge sharing on organizational learning and effectiveness"

The purpose of this study is to explore the relationship among organizational effectiveness, organizational learning and knowledge sharing implementation.

The questionnaires were distributed to 1,200 participants across nine international tourist hotels in Taiwan. Of the returned surveys, 499 were fully completed, excluding 47 unusable. The response rate after deducting the unusable questionnaires was 41.6% results shown in this study indicate that there is significant relationship between the dependent variable of organizational effectiveness and independent variables of organizational learning and knowledge sharing.

The study concludes that both knowledge sharing and organizational learning can positively influence and significantly contribute to organizational effectiveness. The more the individual intellectual capital is transferred to organizational assets, the greater the degree of strength of organizational capabilities, (i.e. its effectiveness) will become. That is to say, appropriate transfer of individual knowledge would result in knowledge appreciation, and consequently, enhance the outcomes of organizational learning and thereby organizational effectiveness.

4.3.12 (Alexandre A., 2006):

"Cultural Influences On Knowledge Sharing Through Online Communities Of Practice"

The purpose of this study is to explore cultural factors influencing knowledge sharing strategies in virtual communities of practice. a qualitative research design was employed. Data collection was based on in-depth interviews. The researchers assumed that such factors as degree of collectivism, competitiveness, in-group orientation, attention paid to power and hierarchy, and culture-specific preferences for communication modes, would explain differences in knowledge seeking and sharing patterns. The results showed that these factors had different levels of importance among employees in the three participating countries. Modesty requirements as well as a high degree of competitiveness among employees were found to be serious barriers to information sharing in China, but not in Russia and Brazil. Perceived differences in power and hierarchy seemed to be less critical in all three countries than initially assumed.

4.3.13 (Ismail M., 2005):

"Creative Climate And Learning Organization Factors: Their Contribution Towards Innovation".

This study explores the effects of two independent variables, creative climate and learning organization, on innovation separately and simultaneously in local organizations and multinational corporations (MNCs) in Malaysia.

This is a descriptive cross sectional study which involved a sample of 18 private organizations selected at random from a list of 165 organizations across various core businesses.

The results indicated that both learning culture and creative climate contributed 58.5% to the explanation of the observed variances in the innovation construct. The learning organization culture separately was found to have a significantly stronger relationship with innovation than did the organizational creative climate. This implied a larger contribution from the learning organization variable towards innovation.

The two creative climate factors “Challenge” and “Debates” and two learning factors which were “Strategic Leadership” and “Team Learning” have considerable significant influences on innovation in the MNCs, The local organizations were in general lacking in the presence of creative climate compared to the MNCs.

4.3.14 (Merx-Chermin M. and Nijhof W.J., 2005):

"Factors Influencing Knowledge Creation And Innovation In An Organization"

The Purpose of this study is to gain a better understanding of the factors that influence the innovative power of organizations and develop an innovation process model. This is an exploratory study that was conducted at Océ Technologies in The Netherlands. The case study consisted of a qualitative and a quantitative stage and comprised a selection of two innovation projects separated in time.

The most important factors in the creation of new knowledge seem to be knowledge sharing and reflective learning on the job. The rotation of valuable employees seems to be one of the most effective strategies for knowledge sharing and dissemination. It is crucial for organizations that want to increase their "innovation power" to pay attention to the process of the "innovation spiral" in an organization, and especially during the development of their managers.

4.3.15 (Borins S., 2002):

"Leadership And Innovation In The Public Sector"

This study considers the nature and role of leadership in public management innovation. The study used the results of both case studies and quantitative analysis to explore the relationship between leadership and innovation in the public sector. It shows that there exists a strong link between innovation and leadership in the public sector. Effective political leadership in a crisis requires decision making that employs a wide search for information, broad consultation, and examination of a wide range of options. Quantitative results from public sector innovation awards indicate that bottom-up innovation occurs much more frequently than conventional wisdom would indicate. Political leaders and agency heads can create a supportive climate for bottom-up innovation by consulting staff, instituting formal awards and informal recognition for innovators, promoting innovators and protecting innovators from control-oriented central agencies.

4.3.16 (Koskinen K.U. and Vanharanta H. 2002):

"The role of tacit knowledge in innovation processes of small technology companies"

The goal of this paper is to illustrate the role of tacit knowledge in innovation processes. This paper reports on a conceptual analysis of the role of tacit knowledge in

innovation processes. It focus on foundations of tacit knowledge, how tacit knowledge is acquired and transferred, and how it is utilized in the innovation functions of small technology companies.

This study shows that tacit knowledge can play an important role in the innovation processes of small technology companies. This is especially the case when consideration is focused on the beginning of the innovation process, namely on invention and product development. In these phases of innovation non-bureaucratic organization structure, informal interaction between the people involved, and a coaching type of leadership style, which are all often typical of small technology companies, are good facilitators for tacit knowledge utilization. However, the crucial point is not the amount of tacit knowledge owned by the people involved, but the utilization of it. Another implication would seem to be that the innovation process, can be facilitated by engaging technology companies and their customers in interactive learning and effective sharing of tacit knowledge.

4.4 Comments on Previous Studies:

In particular there are many studies conducted on innovation in Palestine such as (Nafie 2006), (ELFarra 2007), (EL-Jaabary, 2008), (Al-Ejlah 2009), and (Khalaf 2010). But the concept of knowledge sharing in the Palestinian ministries had never been researched before. In essence this is the first local study attempt to linkage the concept of knowledge sharing with the concept of innovation and examine the relationship between two concepts.

The most important issue in this study that the researcher tend to represent the concept of knowledge sharing by three dimensions., (knowledge availability, knowledge accessibility and knowledge applicability). These dimensions had never been used before in representing knowledge sharing.

In addition to ICTs dimension which added by the researcher and focused on technological aspects in organizations from two perspectives, (1) the extent to which ICTs available for managers to use when performing there tasks. And (2) the extent to which managers possess skills and competencies to use ICTs.

This is what makes this study unique and distinguish it from the previous studies.

CHAPTER FIVE

RESEARCH METHODOLOGY

5.1 Introduction:

This chapter describes the method used in this research. It includes population and sampling, questionnaire design and content, questionnaire distribution, response rate, pilot study, and the validity and reliability of the questionnaire.

5.2 Research Method:

This study followed the analytical descriptive method, as it is considered the most used in business and social studies. This section presents the method used to carry out the study and answer the research questions. Primary and secondary data were used to perform this study (see the details section 5.7).

5.3 Period of study:

The study was carried out during the period from the beginning of February 2011 to July 2011. Data collection was carried out during the last three weeks of May 2011.

5.4 Study Population:

The study population includes all managers at the Palestinian ministries of the Gaza Strip with grades (A4, A, B, and C). They represent (General Director A4), (Deputy Director A), (Unit managers with grades B and C). The study population consists of (777) managers from the (22) ministries in the Gaza Strip (see Table 5.1)

5.5 Study Sample:

The sample used in this research is a stratified random sample. For the purpose of the study, the target population was stratified into four strata, as shown in the following table (5.1).

Table (5.1): Research population and sample

Grade	The size of target population	Sample / population	Sample size	Actual sample
General Director A4	71	0.091	24	34
Deputy Director A	66	0.085	22	24
Unit manager B	69	0.088	23	32
Unit manager C	571	0.73	188	180
Total	777	1.00	257*	270

Source: Based on Statistical Office of the General Personnel Council 2010. (see appendix "5")

* (see appendix "4")

5.6 Response rate:

Out of the 350 questionnaires distributed, 270 questionnaires were returned. Analyzed, with response rate of 77.14%.

5.7 Data collection procedures:

5.7.1 The Primary Source (The Questionnaire):

A structured questionnaire including close ended questions was specially designed for this study (Appendix "1"). The questionnaire consists of three sections:

I- The first section covered socio-demographic details

II- The second section included 38 questions designed to measure innovation according to the Centrim innovation model described in chapter 3.

III- The third section included 25 questions designed to measure knowledge sharing. The questions covered four dimensions:

1- knowledge availability,

2- knowledge accessibility,

3- knowledge applicability and.,

4- "ICTs" Information and Communication Technologies

The respondents were asked to indicate their agreement with any particular item on a 10-point scale ranging from strongly disagree (1) to strongly agree (10).

5.7.2 The Secondary Sources:

To introduce the theoretical literature of the subject, the researcher used books, periodicals, published papers, and articles related to the study title. In addition, internet, web sites and electronic links.

5.8 Content validity of the questionnaire:

Content related validity examines the extent to which the method of measurement includes all the major elements relevant to the construct being measured. Two methods were used to achieve this type of validity:

5.8.1 The Experts Validation:

The questionnaire was evaluated by eight experts in the field, Five from the Islamic University and three from Al-Azhar University. As a result of this review; some questions were modified and Ten questions were deleted.

5.8.2 Pilot Study

Pilot study was conducted to assess reliability of the questionnaire. Fifty managers were chosen randomly from the study population and were asked to fill the questionnaire. Forty five questionnaires were returned and used for assessment the validation and reliability.

5.9 Validity of Questionnaire

Validity refers to the degree to which an instrument measures what it is supposed to be measuring. Validity has a number of different aspects and assessment approaches. Statistical validity is used to evaluate instrument validity, which include internal validity and structure validity.

5.9.1 Internal Validity:

Internal validity of the questionnaire is the first statistical test that used to test the validity of the questionnaire. It is measured by a scouting sample, which consisted of 45 questionnaires through measuring the correlation coefficients between each paragraph in one field and the whole filed.

Table (5.2) clarifies the correlation coefficient for each paragraph of the **Directing a creative business** and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

Table (5.2) Correlation coefficient of each paragraph of Directing a creative business and the total of this field

No.	Paragraph	Pearson Correlation Coefficient	P-Value (Sig.)
1.	The Ministry provides support for creating new ideas	0.539	0.000*
2.	I encourage staff to put forward new ideas related to the work	0.784	0.000*
3.	I encourage the rejection of what is wrong, even if it was common and acceptable	0.688	0.000*
4.	I do my best to keep abreast of developments relating to the area of work	0.624	0.000*
5.	I deal flexible with change as soon as possible	0.624	0.000*
6.	Methods of work in your department are changes whenever its needed	0.772	0.000*
7.	I could overcome obstacles in work and make the necessary changes easily	0.506	0.000*

* Correlation is significant at the 0.05 level

Table (5.3) clarifies the correlation coefficient for each paragraph of the **Developing creative capability** and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

Table (5.3) Correlation coefficient of each paragraph of Developing creative capability and the total of this field

No.	Paragraph	Pearson Correlation Coefficient	P-Value (Sig.)
1.	I encourage staff to update their professional knowledge	0.627	0.000*
2.	The Ministry aims to attract individuals with special skills and high level of expertise	0.680	0.000*
3.	You prefer to rotate in different departments to gain experience rather than working in one department	0.598	0.000*
4.	I acquire the capacities and skills needed to keep pace with development and change	0.766	0.000*
5.	I try to develop new methods in doing work	0.785	0.000*
6.	I encourage the development of future plans for development and change	0.664	0.000*
	The ministry interested in encouraging new ideas to develop embodied skills of the staff	0.484	0.000*

* Correlation is significant at the 0.05 level

Table (5.4) clarifies the correlation coefficient for each paragraph of the **Building a creative culture** and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

Table (5.4) Correlation coefficient of each paragraph of Building a creative culture and the total of this field

No.	Paragraph	Pearson Correlation Coefficient	P-Value (Sig.)
1.	I generalize any new productive ideas produced by staff	0.643	0.000*
2.	I commend the staff member Work who achieves creative	0.852	0.000*
3.	I encourage staff with new ideas and informed them	0.845	0.000*
4.	I allow staff attempting to apply new and innovative ways in work	0.910	0.000*
5.	I'm working on finding ways and mechanisms to help increase the confidence of the staff themselves	0.765	0.000*
6.	I give the staff adequate time and freedom to express their opinions and suggestions without restrictions	0.857	0.000*

* Correlation is significant at the 0.05 level

Table (5.5) clarifies the correlation coefficient for each paragraph of the **Managing learning for new ideas** and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

Table (5.5) Correlation coefficient of each paragraph of Managing learning for new ideas and the total of this field

No.	Paragraph	Pearson Correlation Coefficient	P-Value (Sig.)
1.	The ministry Interested in the sessions and training programs for staff development	0.768	0.000*
2.	I urge the staff to participate in courses and training programs	0.858	0.000*
3.	There is an effective relationship and communication between your department and teaching centers and information sources	0.823	0.000*
4.	I try new and good ideas and never judge it before	0.843	0.000*
5.	I see that change is a natural phenomenon	0.714	0.000*
6.	I encourage staff to move away from routine	0.726	0.000*

* Correlation is significant at the 0.05 level

Table (5.6) clarifies the correlation coefficient for each paragraph of the **Organizing for creativity** and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

Table (5.6) Correlation coefficient of each paragraph of Organizing for creativity and the total of this field

No.	Paragraph	Pearson Correlation Coefficient	P-Value (Sig.)
1.	The organizational structure of the ministry encourages innovation and promotion of work	0.712	0.000*
2.	You have enough independence in making decisions related to promoting work in your department	0.845	0.000*
3.	I stay open communication channels with staff	0.841	0.000*
4.	There are informal meetings with staff to discuss problems relating to the work	0.846	0.000*
5.	I encourage building of social relations between staff and with them	0.765	0.000*
6.	incentives and rewards System in the ministry is concerned greatly with creative individuals	0.579	0.000*

* Correlation is significant at the 0.05 level

Table (5.7) clarifies the correlation coefficient for each paragraph of **Taking wise decisions** and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

Table (5.7) Correlation coefficient of each paragraph of Taking wise decisions and the total of this field

No.	Paragraph	Pearson Correlation Coefficient	P-Value (Sig.)
1.	I consulted experts and professionals in decision-making process	0.562	0.000*
2.	I prefer to collect and analyze all data and information before decision making	0.903	0.000*
3.	I have the ability to take important decisions and assume responsibilities	0.808	0.000*
4.	I place solutions to the problems that I face on each end	0.905	0.000*
5.	I give staff the freedom to identify, track, and discuss problems	0.905	0.000*
6.	Decisions in your department are taken collectively	0.633	0.000*

* Correlation is significant at the 0.05 level

Table (5.8) clarifies the correlation coefficient for each paragraph of the **Knowledge Availability** and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

Table (5.8) Correlation coefficient of each paragraph of Knowledge Availability and the total of this field

No.	Paragraph	Pearson Correlation Coefficient	P-Value (Sig.)
1.	The Ministry provides the necessary information to solving problems and performing work in new ways	0.652	0.000*
2.	The Ministry is keeping to create a cooperative climate between staff	0.777	0.000*
3.	I provide others, with my knowledge to use it in performing their work	0.498	0.000*
4.	the ministry concerned with knowledge sharing between staff	0.794	0.000*
5.	Incentive systems in the ministry include rewards for the employees who share their knowledge	0.735	0.000*
6.	The Ministry concerned with updating of staff knowledge through sharing, using and developing knowledge	0.863	0.000*
7.	The ministry concerned with holding sessions, seminars and workshops to transfer and disseminate knowledge among the staff	0.852	0.000*

* Correlation is significant at the 0.05 level

Table (5.9) clarifies the correlation coefficient for each paragraph of the **Knowledge Accessibility** and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

Table (5.9) Correlation coefficient of each paragraph of Knowledge Accessibility and the total of this field

No.	Paragraph	Pearson Correlation Coefficient	P-Value (Sig.)
1.	Knowledge flowing among staff easily to help the development of their skills	0.725	0.000*
2.	The Ministry providing the appropriate communication means with experts to benefit from their experience	0.841	0.000*
3.	The Ministry collecting and storing knowledge and providing it for managers to benefit them easily when needed	0.839	0.000*
4.	I benefit from the knowledge of experienced and efficient people in the ministry	0.724	0.000*
5.	I collaborate with my colleagues at work to exchange and use knowledge in solving problems	0.414	0.002*
6.	The Ministry provides databases and electronic journals for use in work	0.724	0.000*

* Correlation is significant at the 0.05 level

Table (5.10) clarifies the correlation coefficient for each paragraph of the **Knowledge Applicability** and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

Table (5.10) Correlation coefficient of each paragraph of Knowledge Applicability and the total of this field

No.	Paragraph	Pearson Correlation Coefficient	P-Value (Sig.)
1.	I apply my knowledge in solving problems and performing tasks	0.856	0.000*
2.	I'm developing my creative abilities by the systematic use of knowledge	0.855	0.000*
3.	I employ my knowledge to achieve the ministry goals	0.823	0.000*
4.	I join in work teams to develop my skills and benefit from the experience of others	0.857	0.000*
5.	I'm concerned with applying research in my field to contribute the development of work	0.781	0.000*
6.	I can solve problems in an innovative ways	0.871	0.000*

* Correlation is significant at the 0.05 level

Table (5.11) clarifies the correlation coefficient for each paragraph of the **CITs (Communication and Information Technologies)** and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to be measure what it was set for.

Table (5.11) Correlation coefficient of each paragraph of CITs (Communication and Information Technologies) and the total of this field

No.	Paragraph	Pearson Correlation Coefficient	P-Value (Sig.)
1.	I can benefit from the databases provided by the Ministry	0.668	0.000*
2.	The ministry connecting staff with the internal network "Intranet"	0.899	0.000*
3.	I can via the Intranet share knowledge with others	0.915	0.000*
4.	The Ministry disseminating e-culture among staff and encourage to use it	0.933	0.000*
5.	I use e-mail to share knowledge with colleagues at work to solve problems and develop skills	0.865	0.000*
6.	There are in your department modern and advanced technological tools to use them in knowledge sharing (such as computer, internal and external Internet ....)	0.750	0.000*

* Correlation is significant at the 0.05 level

5.9.2 Structure Validity of the Questionnaire:

Structure validity is the second statistical test that used to test the validity of the questionnaire structure by testing the validity of each field and the validity of the whole questionnaire. It measures the correlation coefficient between one filed and all the fields of the questionnaire that have the same level of liker scale.

Table (5.12) Correlation coefficient of each field and the whole of questionnaire

No.	Field	Pearson Correlation Coefficient	P-Value (Sig.)
1.	Directing a creative business.	0.807	0.000*
2.	Developing creative capability.	0.763	0.000*
3.	Building a creative culture.	0.840	0.000*
4.	Managing learning for new ideas.	0.735	0.000*
5.	Organizing for creativity.	0.824	0.000*
6.	Taking wise decisions.	0.781	0.000*
7.	**The level of innovation**	0.938	0.000*
8.	Knowledge Availability	0.830	0.000*
9.	Knowledge Accessibility	0.803	0.000*
10.	Knowledge Applicability	0.843	0.000*
11.	CITs (Communication and Information Technologies)	0.575	0.000*
12.	**Knowledge sharing**	0.899	0.000*

* Correlation is significant at the 0.05 level

Table (5.12) clarifies the correlation coefficient for each filed and the whole questionnaire. The p-values (Sig.) are less than 0.05, so the correlation coefficients of all the fields are significant at $\alpha = 0.05$, so it can be said that the fields are valid to be measured what it was set for to achieve the main aim of the study.

5.10 Reliability of the Research:

The reliability of an instrument is the degree of consistency which measures the attribute; it is supposed to be measuring (Polit & Hunger,1985). The less variation an instrument produces in repeated measurements of an attribute, the higher its reliability. Reliability can be equated with the stability, consistency, or dependability of a measuring tool. The test is repeated to the same sample of people on two occasions and then compares the scores obtained by computing a reliability coefficient (Polit & Hunger, 1985).

5.10.1 Cronbach’s Coefficient Alpha:

This method is used to measure the reliability of the questionnaire between each field and the mean of the whole fields of the questionnaire. The normal range of Cronbach’s coefficient alpha value between 0.0 and + 1.0, and the higher values reflects a higher degree of internal consistency. The Cronbach’s coefficient alpha was calculated for each field of the questionnaire.

Table (5.13) shows the values of Cronbach's Alpha for each filed of the questionnaire and the entire questionnaire. For the fields, values of Cronbach's Alpha were in the range from 0.760 and 0.957. This range is considered high; the result ensures the reliability of each field of the questionnaire. Cronbach's Alpha equals 0.968 for the entire questionnaire which indicates an excellent reliability of the entire questionnaire.

Table (5.13) Cronbach's Alpha for each filed of the questionnaire and the entire questionnaire

No.	Field	Cronbach's Alpha
1.	Directing a creative business.	0.762
2.	Developing creative capability.	0.760
3.	Building a creative culture.	0.897
4.	Managing learning for new ideas.	0.871
5.	Organizing for creativity.	0.837
6.	Taking wise decisions.	0.883
7.	**The level of innovation "Dependent Variable"**	0.957
8.	Knowledge Availability	0.863
9.	Knowledge Accessibility	0.797
10.	Knowledge Applicability	0.913
11.	CITs (Communication and Information Technologies)	0.916
	Knowledge sharing "Independent Variables"	0.941
	All paragraphs of the questionnaire	0.968

5.10.2 Split Half Method:

This method depends on finding Pearson correlation coefficient between the means of odd questions and even questions of each field of the questionnaire. Then, correcting the Pearson correlation coefficients can be done by using Spearman Brown correlation coefficient of correction. Table (5.14) clarifies the correlation coefficient for each field of the questionnaire. The correlation coefficients of all field are significant at $\alpha = 0.05$, so it can be said that the fields are consistent and valid to be measure what it was set for.

Table (5.14) Spearman Brown correlation coefficient for each filed of the questionnaire and the entire questionnaire

No.	Field	Correlation Coefficient	Spearman-Brown Correlation Coefficient
1.	Directing a creative business.	0.803	0.893
2.	Developing creative capability.	0.806	0.894
3.	Building a creative culture.	0.888	0.941
4.	Managing learning for new ideas.	0.898	0.946
5.	Organizing for creativity.	0.739	0.850
6.	Taking wise decisions.	0.847	0.917
7.	**The level of innovation**	0.952	0.976
8.	Knowledge Availability	0.883	0.938
9.	Knowledge Accessibility	0.788	0.881
10.	Knowledge Applicability	0.930	0.964
11.	CITs (Communication and Information Technologies)	0.863	0.927
12.	**Knowledge sharing**	0.939	0.969
13.	**All paragraphs of the questionnaire**	0.969	0.984

Thereby, it can be said that the researcher proved that the questionnaire was valid, reliable, and ready for distribution for the population sample.

5.11 Statistical analysis Tools

The researcher would use qualitative data analysis methods. The Data analysis will be made utilizing (SPSS 15). The researcher would utilize the following statistical tools:

1) Kolmogorov-Smirnov test of normality
2) Cronbach's Alpha for Reliability Statistics
3) Pearson correlation coefficient for Validity
4) Frequency and Descriptive analysis
5) Parametric Tests (One-sample T test, Independent Samples T-test , Analysis of Variance)
6) Regression Model Analysis

- *T-test* is used to determine if the mean of a paragraph is significantly different from a hypothesized value 6 (Approximately the middle value of numerical scale 1-10). If the P-value (Sig.) is smaller than or equal to the level of significance, $\alpha = 0.05$, then the mean of a paragraph is significantly different from a hypothesized value 6. The sign of the Test value indicates whether the mean is significantly greater or smaller than hypothesized value 6. On the other hand, if the P-value (Sig.) is greater than the level of significance, $\alpha = 0.05$, then the mean a paragraph is insignificantly different from a hypothesized value 6.
- The *Independent Samples T-test* is used to examine if there is a statistical significant difference between two means among the respondents toward the influence of knowledge sharing on the level of innovation for managers at the Palestinian ministries in the Gaza strip due to Sex and Job Title.
- The *One- Way Analysis of Variance (ANOVA)* is used to examine if there is a statistical significant difference between several means among the respondents toward the influence of knowledge sharing on the level of innovation for managers at the Palestinian ministries in the Gaza strip due to Grade, Experience, Age, Qualification

CHAPTER SIX

ANALYSIS, FINDINGS AND DISCUSSION

6.1 Introduction:

This chapter presents discussions of the results of the three dimensions of the questionnaire. Dimension 1 included personal characteristics. The other two dimensions included ten fields. Six of these fields are included in dimension 2 of the questionnaire (the level of Innovation) while four dimensions are included in dimension 3 (knowledge sharing). Discussions also cover the research hypotheses and its sub hypothesis. At the end of the discussions, conclusions and recommendations were made.

6.2 Test of Normality for Each Field:

Table (6.1) shows the results for Kolmogorov-Smirnov test of normality. From Table (6.1), the p-value for each field is greater than 0.05 level of significance, then the distribution for each field is normally distributed. Consequently, Parametric tests will be used to perform the statistical data analysis.

Table (6.1):Test of Normality

Field	Kolmogorov-Smirnov	
	Statistic	P-value
Directing a creative business.	0.634	0.817
Developing creative capability.	0.833	0.491
Building a creative culture.	0.979	0.293
Managing learning for new ideas.	0.981	0.291
Organizing for creativity.	0.871	0.434
Taking wise decisions.	0.868	0.439
The level of innovation "Dependent Variable"	0.867	0.439
Knowledge Availability	0.722	0.674
Knowledge Accessibility	0.564	0.908
Knowledge Applicability	0.659	0.779
CITs (Communication and Information Technologies)	0.873	0.431
Knowledge sharing "Independent Variables"	0.479	0.976

6.3 Descriptive Analysis of Research Sample

6.3.1 Grade:

Table (6.2) Distribution of sample according to Grade:

Grade	Frequency	Percent
General Director (A4)	34	12.6
Deputy Director (A)	24	8.9
Unit manager (B)	32	11.9
Unit manager (C)	180	66.7
Total	270	100.0

Table (6.2). shows the distribution of the study sample according to Grade. 12.6% of the respondents were general directors (A4), 8.9% were deputy directors (A), 11.9% heads of departments(B) and 66.7% heads of departments (C). this reflects the structure of research population.

6.3.2 Experience:

Table (6.3) Distribution of sample according to sample Experience

Experience	Frequency	Percent
Less than 5 years	53	19.6
5 - Less than 10 years	61	22.6
10 - Less than 15 years	64	23.7
15 years and more	92	34.1
Total	270	100.0

Table (6.3) shows the distribution of study sample according to years of experience. It showed that about 57.8% of the sample with experience 10 years and above. This is an advantage in increasing ministries capabilities, innovation and increase the stock of knowledge at these ministries.

6.3.3 Age:

Table (6.4) Distribution of sample according to age

Age	Frequency	Percent
Less than 30 years	26	9.6
30 - Less than 40 years	99	36.7
40 - Less than 50 years	82	30.4
50 years and more	63	23.3
Total	270	100.0

Table(6.4) shows the distribution of study sample according to age. 9.6% less than 30 years, 36.7% in their fourth, 30.4% in their fifty and 23.3% more than fifty years . As shown, around 46.3% from managers were young (less than 40). This may be considered a good indicator that the ministries should utilize youth capabilities to improve level of innovation and productivity.

Qualification :

Table (6.5) Distribution of sample according to Qualification

Qualification	Frequency	Percent
Diploma	17	6.3
Bachelor	189	70.0
Master	64	23.7
Total	270	100.0

Table (6.5) shows that 6.3% from the sample there's qualification are diploma, 70% from the sample qualification are bachelor, 23.7% from the sample qualification are master which is a high indicator of the skills they possess. These results indicate that the educational level of managers is high, which may help them in performing their tasks in an innovative manner.

Gender:

Table (6.6) Distribution of sample according to Gender

Gender	Frequency	Percent
Male	234	86.7
Female	36	13.3
Total	270	100.0

Table (6.6) shows the distribution of the study sample according to gender. 86.7% of the sample are males while 13.3% are females. It may be that there are fewer numbers of highly qualified women in Gaza Strip as compared to men, and that for social and cultural reasons; women are less keen on competing for top managerial positions.

Job Title:

Table (6.7) Distribution of sample according to Job Title

Job Title	Frequency	Percent
Managerial	208	77.0
Technical	62	23.0
Total	270	100.0

Table (6.7) shows the distribution of the study sample according to job title. 77% from the sample working in managerial jobs, 23% in technical jobs. Both jobs require innovative capabilities to sustain and achieve competitive advantage.

Tables (6.3 to 6.7) showed personal characteristics of the study sample, it clarified the distribution of sample according to experience, age, qualification, gender and job title. Personal characteristics showed that Palestinian ministries have managers with long years of experience, in term of age it showed that around 46.3% from managers were young (less than 40), and with regard to qualification it showed that the educational level of managers is high, in term of gender it showed that the great majority of managers are male this is may due to social and cultural attitudes to the Palestinian society. Finally in term of job title it showed that the great majority of job

titles are managerial jobs this indicates that ministries must pay more attention to the concept of managerial innovation.
However, it can be said that personal characteristics for managers at the Palestinian ministries considered a good indicators which must be utilized to improve and increase the level of innovation.

6.4 Analyzing Research Dimensions

6.4.1 Innovation dimensions

To investigate the level of innovation at the Palestinian ministries in the Gaza Strip the six dimensions of the innovations will be examined as followed:

6.4.1.1 Directing a creative business:

Questions in this field are designed to test whether the ministries of the Gaza strip direct their business and employees towards innovation.
Table (6.8) shows the following results:

The mean of paragraph 4 “I do my best to keep abreast of developments relating to the area of work” equals (84.0%), Test-value = 31.05, and P-value = 0.000, which means that the respondents agreed to this paragraph.

The mean of paragraph 1 “The Ministry provides support for creating new ideas” equals (62.6%), Test-value = 2.33, and P-value = 0.010 which means that the respondents agreed to this paragraph.

The overall mean of the field “Directing a creative business” equals (77.7%), Test-value = 28.25, and P-value=0.000 which means that the respondents agreed to field of "Directing a creative business"

Table (6.8): Means and T-Test values for "Directing a creative business"

NO.	Field	Mean	Proportional mean (%)	T-Test value	P-value (Sig.)	Rank
1.	The Ministry provides support for creating new ideas	6.26	62.6	2.33	0.010*	7
2.	I encourage staff to put forward new ideas related to the work	8.04	80.4	23.46	0.000*	4
3.	I encourage the rejection of what is wrong, even if it was common and acceptable	8.07	80.7	18.50	0.000*	3
4.	I do my best to keep abreast of developments relating to the area of work	8.40	84.0	31.05	0.000*	1
5.	I deal flexible with change as soon as possible	8.20	82.0	29.43	0.000*	2
6.	Methods of work in your department are changes whenever its needed	7.74	77.4	17.74	0.000*	5
7.	I could overcome obstacles in work and make the necessary changes easily	7.71	77.1	20.27	0.000*	6
	All paragraphs of the filed	**7.77**	**77.7**	**28.25**	**0.000***	

* The mean is significantly different from 6

In summary, this field shows that the ministries provide support for creating new ideas. Managers encourage staff for creating new ideas, rejection of what is wrong; do their best in order to developing the work and they deal flexible with changes. Methods of work in these ministries are change whenever its needed. In general it can be said that the ministries of the Gaza strip direct their employees toward innovation.

The finding of this field shows an agreement with the findings of (EL-Farra, 2007). He revealed that the ministries of the Gaza strip scored high in directing business for creativity. The paragraph (1) the Ministry provides support for creating new ideas shows the lowest score among all paragraphs this result agreed with (Nafie, 2006). She found that the MOH culture and environment is not supportive to innovation. Ahmad (2010) on the other hand stated that companies in the United Arab Emirates do not show significant interest and focus on implementing new techniques or methods to create and generate new knowledge.

6.4.1.2 Developing creative capability:

Questions in this field are designed to test whether ministries develop the creative capabilities of its employees.

Table (6.9) shows the following results:

The mean of paragraph 4 "I acquire the capacities and skills needed to keep pace with development and change" equals (83.2%), Test-value = 30.78, and P-value = 0.000 which means that the respondents agreed to this paragraph.

The mean of paragraph 2 "The Ministry aims to attract individuals with special skills and high level of expertise" equals (66.0%), Test-value = 5.09, and P-value = 0.000 which means that the respondents agreed to this paragraph.

The mean of the filed "Developing creative capability" equals (76.3%), Test-value = 25.75, and P-value=0.000 which means that the respondents agreed to field of "Developing creative capability "

Table (6.9): Means and T-Test values for "Developing creative capability"

NO.	Field	Mean	Proportional mean (%)	T-Test value	P-value (Sig.)	Rank
1.	I encourage staff to update their professional knowledge	8.24	82.4	29.05	0.000*	2
2.	The Ministry aims to attract individuals with special skills and high level of expertise	6.60	66.0	5.09	0.000*	7
3.	You prefer to rotate in different departments to gain experience rather than working in one department	7.17	71.7	8.61	0.000*	5
4.	I acquire the capacities and skills needed to keep pace with development and change	8.32	83.2	30.78	0.000*	1
5.	I try to develop new methods in doing work	7.92	79.2	23.13	0.000*	4
6.	I encourage the development of future plans for development and change	8.21	82.1	26.72	0.000*	3
7.	The Ministry interested in encouraging new ideas to develop embodied skills of the staff	6.96	69.6	9.37	0.000*	6
	All paragraphs of the filed	**7.63**	**76.3**	**25.75**	**0.000***	

* The mean is significantly different from 6

In summary, this field shows that the senior managers in the ministries of the Gaza strip carry out their duties to the best of their capabilities, they encourage staff to update their professional knowledge, they prefer to rotate in different departments to gain experience and capture new knowledge, they try to develop new methods in doing work, they encourage the development of future plans for development and change. In addition they agreed that the ministry aims to attract individuals with special skills and high level of expertise, and the ministry interested in encouraging new ideas to develop embodied skills of the staff. In general it can be said that the ministries of the Gaza strip interested in developing the creative capabilities of their staff.

This study agreed with the findings of EL-Farra (2007). He revealed that Palestinian ministries success in developing creative capabilities. Chang (2008) on the other hand revealed that If organizations have a high capability of knowledge accumulation, they can demonstrate better performance on both administrative and technical innovation. Nafie (2006) indicated an overall success of the MOH in developing creative capabilities within its establishments. Furthermore, Merx-Chermin (2005) stated that it is crucial for organizations to increase their "innovation power" by paying more attention to development of their managers.

6.4.1.3 Building a creative culture:

Questions in this field are designed to test whether the ministries build a creative culture within its establishments.

Table (6.10) shows the following results:

The mean of paragraph 2 "I commend the staff member who achieves a creative work" equals (86.8%), Test-value = 34.54, and P-value = 0.000 which means that the respondents agreed to this paragraph.

The mean of paragraph 1 "I generalize any new productive ideas produced by staff" equals (79.6%), Test-value = 22.81, and P-value = 0.000 which means that the respondents agreed to this paragraph.

The mean of the filed "Building a creative culture" equals (83.7%), Test-value = 35.06, and P-value=0.000 which means that the respondents agreed to field of "Building a creative culture"

Table (6.10): Means and T-Test values for "Building a creative culture"

NO.	Field	Mean	Proportional mean (%)	T-Test value	P-value (Sig.)	Rank
1.	I generalize any new productive ideas produced by staff	7.96	79.6	22.81	0.000*	6
2.	I commend the staff member who achieve creative work	8.68	86.8	34.54	0.000*	1
3.	I encourage staff with new ideas and informed them	8.57	85.7	33.21	0.000*	2
4.	I allow staff attempting to apply new and innovative ways in work	8.39	83.9	30.71	0.000*	3
5.	I'm working on finding ways and mechanisms to help increase the confidence of the staff themselves	8.30	83.0	29.91	0.000*	5
6.	I give the staff adequate time and freedom to express their opinions and suggestions without restrictions	8.32	83.2	24.97	0.000*	4
	All paragraphs of the filed	**8.37**	**83.7**	**35.06**	**0.000***	

* The mean is significantly different from 6

In summary, this field shows that the ministries managers generalize any new ideas for the staff, they also encourage staff for achieving creative work, they encourage staff with new ideas and informed them, they allow staff attempting to apply new and innovative ways in work, they working to finding new ways and mechanisms to increase the confidence of the staff themselves, and they give the staff adequate time and freedom to express their opinions. It can be said that the ministries of the Gaza strip concerned with building a creative culture within its establishments.

This findings agreed with the findings of EL-Farra (2007). His findings showed that the Palestinian ministries success in building a creative culture. Nafie (2006) also showed that MOH success in building a creative culture. However (Chang, 2008)

emphasized that Organizational culture will result in a mutual interaction to influence organizational innovation. Ismail (2005) revealed that the learning organization culture have a significantly stronger relationship with innovation than did the organizational creative climate.

6.4.1.4 Managing learning for new ideas:

Questions in this field are designed to test whether the ministries of the Gaza strip encourage their staff to continuous learning for developing and creating new ideas.

Table (6.11) shows the following results:

The mean of paragraph 5 "I see that change is a natural phenomenon" equals (83.9%), Test-value = 26.24, and P-value = 0.000 which means that the respondents agreed to this paragraph.

The mean of paragraph 3 "There is an effective relationship and communication between your department and teaching centers and information sources" equals (71.2%), Test-value = 11.04, and P-value = 0.000 which means that the respondents agreed to this paragraph.

The mean of the filed "Managing learning for new ideas" equals (78.8%), Test-value = 27.36, and P-value=0.000 which means that the respondents agreed to field of "Managing learning for new ideas"

Table (6.11): Means and T-Test values for "Managing learning for new ideas"

NO.	Field	Mean	Proportional mean (%)	T-Test value	P-value (Sig.)	Rank
1.	The ministry Interested in the sessions and training programs for staff development	7.55	75.5	13.66	0.000*	5
2.	I urge the staff to participate in courses and training programs	8.29	82.9	25.92	0.000*	3
3.	There is an effective relationship and communication between your department and teaching centers and information sources	7.12	71.2	11.04	0.000*	6
4.	I try new and good ideas and never judge it before	7.62	76.2	18.51	0.000*	4
5.	I see that change is a natural phenomenon	8.39	83.9	26.24	0.000*	1
6.	I encourage staff to move away from routine	8.30	83.0	26.64	0.000*	2
	All paragraphs of the filed	**7.88**	**78.8**	**27.36**	**0.000***	

* The mean is significantly different from 6

In summary this field shows that the ministries interested in the sessions and training programs for staff development, managers in these ministries encourage staff to participate in courses and training programs, they agree that there is an effective relationship and communication between ministries and teaching centers and information sources, they give chance to attempt applying new and good ideas and never judge it before, they agree that change is a natural phenomenon, and they encourage staff to move away from routine. It can be said that the ministries of the Gaza strip Managing learning for new ideas.

This is similar to the findings of EL-Farra (2007). Which showed that the Palestinian ministries encourage its employees to develop new ideas. Moreover, this finding is supported by Nafie (2006) study which showed that the MOH encourages its employees to develop new ideas. Ismail (2005) revealed that the learning organization culture have a significantly stronger relationship with innovation than did the organizational creative climate. Yang (2007) stated that organizational learning can positively influence and significantly contribute to organizational effectiveness.

6.4.1.5 Organizing for creativity:

Questions in this field are designed to test whether the ministries encourage organizing work and staff for creativity.

Table (6.12) shows the following results:

The mean of paragraph 5 "I encourage building of social relations between staff and with them" equals (81.6%), Test-value = 21.43, and P-value = 0.000 which means that the respondents agreed to this paragraph.

The mean of paragraph 6 "incentives and rewards System in the ministry is concerned greatly with creative individuals" equals (53.1%), Test-value = -5.06, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is negative, so the mean of this paragraph is significantly smaller than the hypothesized value 6. Which means that the respondents disagreed to this paragraph.

The mean of the filed "Organizing for creativity" equals (70.7%), Test-value = 14.62, and P-value=0.000 which means that the respondents agreed to field of "Organizing for creativity"

Table (6.12): Means and T-Test values for "Organizing for creativity"

NO.	Field	Mean	Proportional mean (%)	T-Test value	P-value (Sig.)	Rank
1.	The organizational structure of the ministry encourages innovation and promotion of work	6.38	63.8	3.49	0.000*	5
2.	You have enough independence in making decisions related to promoting work in your department	6.79	67.9	6.89	0.000*	4
3.	I stay open communication channels with staff	8.14	81.4	25.62	0.000*	2
4.	There are informal meetings with staff to discuss problems relating to the work	7.66	76.6	15.87	0.000*	3
5.	I encourage building of social relations between staff and with them	8.16	81.6	21.43	0.000*	1
6.	Incentives and rewards system in the ministry is concerned greatly with creative individuals	5.31	53.1	-5.06	0.000*	6
	All paragraphs of the filed	**7.07**	**70.7**	**14.62**	**0.000***	

* The mean is significantly different from 6

In summary this field shows that the ministries organizational structure encourage innovation and promotion of work, managers in these ministries have enough independence in making decisions and promoting work, they stay open communication channels with staff, they agreed that there are informal meetings with staff to discuss problems relating to the work, they encourage building of social relations between staff and with them. But managers have a negative views regarding to incentives and rewards system in the ministries. In general it can be said that the ministries of the Gaza strip organizing work and staff toward creativity. But this is a weak positive sig. so, it needs further attention to be paid to this dimension.

This finding is not supported by the study of EL-Farra (2007) which found that the Palestinian ministries revealed weak organizing for creativity. In addition managers don't support new ideas or reward it. His findings are supported by Nafie (2006) which showed that the MOH does not organize work and people for creativity.

However, some paragraphs within this sector had low scores. *(Paragraph 1&6)* which related to organizational structure and reward system in the ministries, Al-Adaileh and Al-Atawi (2011). emphasized that effective reward system can develop the knowledge sharing culture and achieve valuable knowledge exchange. Nafie (2006) also showed that organizational structural changes need to be carried out to support innovation in MOH. EL-Jaabary (2008) emphasized that enhancing awarding financial incentives represent a greater consideration in trend of staff towards organizational creativeness.

6.4.1.6 Taking wise decisions:

Questions in this field are designed to test the degree of wise decision taking within the ministries of the Gaza strip.

Table (6.13) shows the following results:

The mean of paragraph 3 "I have the ability to take important decisions and assume responsibilities" equals (84.9%), Test-value = 34.52, and P-value = 0.000 which means that the respondents agreed to this paragraph.

The mean of paragraph 6 "Decisions in your department are taken collectively" equals (76.4%), Test-value = 16.57, and P-value = 0.000 which means that the respondents agreed to this paragraph.

The mean of the filed "Taking wise decisions" equals (80.5%), Test-value = 31.83, and P-value=0.000 which means that the respondents agreed to field of "Taking wise decisions"

Table (6.13): Means and T-Test values for "Taking wise decisions"

NO.	Field	Mean	Proportional mean (%)	T-Test value	P-value (Sig.)	Rank
1.	I consulted experts and professionals in decision-making process	7.77	77.7	18.57	0.000*	5
2.	I prefer to collect and analyze all data and information before decision making	8.14	81.4	24.43	0.000*	3
3.	I have the ability to take important decisions and assume responsibilities	8.49	84.9	34.52	0.000*	1
4.	I place solutions to the problems that I face on each end	8.23	82.3	30.34	0.000*	2
5.	I give staff the freedom to identify, track, and discuss problems	8.01	80.1	24.22	0.000*	4
6.	Decisions in your department are taken collectively	7.64	76.4	16.57	0.000*	6
	All paragraphs of the filed	**8.05**	**80.5**	**31.83**	**0.000***	

* The mean is significantly different from 6

In summary this field shows that managers in the ministries of the Gaza strip consulted experts and professionals in decision-making process, they prefer to collect and analyze data and information before decision making, they have the ability to take important decisions, they suggest solutions to the problems that they face on each end, and they give staff the freedom to identify, track, and discuss problems. Managers also agreed that decisions in their department are taken collectively.

In general it can be said that decisions in the ministries of the Gaza strip are taken wisely this finding is not supported by the study of EL-Farra (2007) which found that decisions in the Palestinian ministries are not wisely made. Nafie (2006) also showed that MOH managers do not enjoy enough independence in decision making.

6.4.1.7 All Dimensions of the level of innovation:

Table (6.14) shows the following results:

The mean of all paragraphs of the fields of the level of innovation (77.9%), Test-value =, and P-value=0.000 which means that the respondents agreed to all paragraphs of the fields of the level of innovation.

Table (6.14): Means and T-Test values for "all paragraphs of the fields of the level of innovation"

Field	Mean	Proportional mean (%)	T-Test value	P-value (Sig.)
Directing a creative business	7.77	77.7	28.25	0.000*
Developing a creative capability	7.63	76.3	25.75	0.000*
Building a creative culture	8.37	83.7	35.06	0.000*
Managing learning for new ideas	7.88	78.8	27.36	0.000*
Organizing for creativity	7.07	70.7	14.62	0.000*
Taking wise decisions	8.05	80.5	31.83	0.000*
All paragraphs of the fields of the level of innovation	7.79	77.9	32.25	0.000*

*The mean is significantly different from 6

Table (6.14) shows that the ministries of the Gaza strip . direct their staff and business toward innovation, developing a creative capabilities for the staff, building a creative culture, managing learning for new ideas, organizing for creativity and taking wise decisions. It is clear that there is an acceptable level of innovation in the ministries of the Gaza strip where mean 7.79, percentage 77.9%. However, table(6.14) revealed that the dimension "organizing for creativity" is the lowest between all dimensions where mean 7.07, percentage 70,7%.This is similar to the findings of EL-Farra (2007) and Nafie (2006). Which indicate that the ministries of the Gaza strip should organize their activities for creativity, taking in consideration organizational structure, communication channels, informal meetings, building social relations and modifying incentives and rewards system in order to encourage staff for creativity and innovation.

Particularly, the researcher noted that all paragraphs which reflected the role of ministries in innovation are the lowest about respondents answers these paragraphs such as the ministry provides support for creating new ideas where mean 6.26, percentage 62.6%, the ministry aims to attract individuals with special skills and high level of expertise mean 6.60, percentage 66%, the ministry interested in encouraging new ideas to develop embodied skills of the staff mean 6.96, percentage 69.6%, the organizational structure of the ministry encourages innovation and promotion of work mean 6.38, percentage 63.8%, incentives and rewards system in the ministry is concerned greatly with creative individuals where mean 5.31, percentage 53.1%. which indicate that ministries of the Gaza strip should take in consideration the above issues to increase the level of innovation.

6.4.2 DIMENSIONS OF KNOWLEDGE SHARING

6.4.2.1 Knowledge Availability:

Questions in this field are designed to test the degree of Knowledge Availability within the ministries of the Gaza strip.

Table (6.15) shows the following results:

The mean of paragraph 3 "I provide others, with my knowledge to use it in performing their work" equals (81.7%), Test-value = 25.59, and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this paragraph is significantly greater than the hypothesized value 6 . Which means that the respondents agreed to this paragraph.

The mean of paragraph 6 "The Ministry concerned with updating of staff knowledge through sharing, using and developing knowledge" equals (59.1%), Test-value = -0.69, and P-value = 0.245 which is greater than the level of significance $\alpha = 0.05$. Then the mean of this paragraph is insignificantly different from the hypothesized value 6. Which means that the respondents (Do not know, neutral) to this paragraph.

The mean of paragraph 5 "Incentive systems in the ministry include rewards for the employees who share their knowledge" equals (48.0%), Test-value = -8.99,

and P-value = 0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is negative, so the mean of this paragraph is significantly smaller than the hypothesized value 6. Which means that the respondents disagreed to this paragraph.

The mean of the filed "Knowledge Availability" equals (65.1%), Test-value = 5.64, and P-value=0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of this field is significantly greater than the hypothesized value 6. Which means that the respondents agreed to field of "Knowledge Availability"

Table (6.15): Means and T-Test values for "Knowledge Availability"

NO.	Field	Mean	Proportional mean (%)	T-Test value	P-value (Sig.)	Rank
1.	The Ministry provides the necessary information to solving problems and performing work in new ways	6.67	66.7	6.41	0.000*	4
2.	The Ministry is keeping to create a cooperative climate between staff	6.73	67.3	6.63	0.000*	3
3.	I provide others, with my knowledge to use it in performing their work	8.17	81.7	25.59	0.000*	1
4.	the ministry concerned with knowledge sharing between staff	6.79	67.9	6.88	0.000*	2
5.	Incentive systems in the ministry include rewards for the employees who share their knowledge	4.80	48.0	-8.99	0.000*	7
6.	The Ministry concerned with updating of staff knowledge through sharing, using and developing knowledge	5.91	59.1	-0.69	0.245	6
7.	The ministry concerned with holding sessions, seminars and workshops to transfer and disseminate knowledge among the staff	6.47	64.7	3.68	0.000*	5
	All paragraphs of the filed	**6.51**	**65.1**	**5.64**	**0.000***	

* The mean is significantly different from 6

In summary this field shows that ministries of the Gaza strip provide the necessary information to solving problems and performing work, they also keeping to create a cooperative climate between staff, the ministries concerned with knowledge

sharing between staff, as will as concerned with holding sessions, seminars and workshops to transfer and disseminate knowledge among the staff. Managers in these ministries provide others, with their knowledge. But respondents disagreed regarding to the paragraph "Incentive systems in the ministry include rewards for the employees who share their knowledge" and they have neutral view to the paragraph "the ministry concerned with updating of staff knowledge through sharing, using and developing knowledge". In general it can be said that the stock of knowledge in the ministries of the Gaza strip is available for managers to use. This result showed a weak positive practice to knowledge availability. However, further attention need to be paid to knowledge availability.

This result is supported to the results of Ahmed, (2010) which showed that the concept of Knowledge Management is still not well received in the companies of the United Arab Emirates but they seem satisfied with the available of knowledge.

El Harbi and et al, (2011) showed that the flows of information is very unbalanced in technology firms in Tunisia. Reychav (2010) on the other hand suggested that to manage knowledge effectively, companies need to encourage knowledge sharing behaviors by creating, storing and using knowledge.

6.4.2.2 Knowledge Accessibility:

Questions in this field are designed to test the degree of Knowledge Accessibility within the ministries of the Gaza strip.

Table (6.16) shows the following results:

The mean of paragraph 5 “I collaborate with my colleagues at work to exchange and use knowledge in solving problems” equals (79.0%), Test-value = 22.47, and P-value = 0.000 which means that the respondents agreed to this paragraph.

The mean of paragraph 6 “The Ministry provides databases and electronic journals for use in work” equals (62.0%), Test-value = 1.43, and P-value = 0.077 which is greater than the level of significance $\alpha = 0.05$. Then the mean of this paragraph is insignificantly different from the hypothesized value 6. which means that the respondents (Do not know, neutral) to this paragraph.

The mean of paragraph 3 "The Ministry collecting and storing knowledge and providing it for managers to benefit them easily when needed" equals (63.7%), Test-value = 3.17, and P-value = 0.001 which means that the respondents agreed to this paragraph.

The mean of the filed "Knowledge Accessibility" equals (67.8%), Test-value = 8.97, and P-value=0.000 which means that the respondents agreed to field of "Knowledge Accessibility"

Table (6.16): Means and T-Test values for "Knowledge Accessibility"

NO.	Field	Mean	Proportional mean (%)	T-Test value	P-value (Sig.)	Rank
1.	Knowledge flowing among staff easily to help the development of their skills	6.47	64.7	4.40	0.000*	3
2.	The Ministry provides the appropriate communication means with experts to benefit from their experience	6.46	64.6	3.95	0.000*	4
3.	The Ministry collecting and storing knowledge and providing it for managers to benefit them easily when needed	6.37	63.7	3.17	0.001*	5
4.	I benefit from the knowledge of experienced and efficient people in the ministry	7.29	72.9	12.75	0.000*	2
5.	I collaborate with my colleagues at work to exchange and use knowledge in solving problems	7.90	79.0	22.47	0.000*	1
6.	The Ministry provides databases and electronic journals for use in work	6.20	62.0	1.43	0.077	6
	All paragraphs of the filed	**6.78**	**67.8**	**8.97**	**0.000***	

* The mean is significantly different from 6

In summary this field shows that the ministries open communication channels with experts to benefit from their experience, they also collect and store knowledge in order to provide it for managers to benefit it easily when it is needed, managers in these ministries can benefit from the knowledge of experienced and efficient people,

they also collaborate with colleagues at work to exchange and use of knowledge, they also agreed that Knowledge is flowing among staff easily, but managers have neutral view regarding to the ministry provides databases and electronic journals for use in work. In general it can be said that knowledge within the ministries is accessible. But this score considered a weak positive which indicate that further improvement need to be made to Knowledge Accessibility.

This result supported to the view of Sondergaard, (2007) which suggested that core task that organizations should be concerned with is managing knowledge, as well as making organizational knowledge accessible. Yang (2007) showed that the more the individual intellectual capital is transferred to organizational assets, the greater the degree of strength of organizational capabilities will become.

6.4.2.3 Knowledge Applicability:

Questions in this field are designed to test the degree of Knowledge Applicability within the ministries of the Gaza strip.

Table (6.17) shows the following results:

The mean of paragraph 1 "I apply my knowledge in solving problems and performing tasks" equals (82.5%), Test-value = 26.82, and P-value = 0.000 which means that the respondents agreed to this paragraph.

The mean of paragraph 5 "I'm concerned with applying research in my field to contribute the development of work" equals (67.0%), Test-value = 5.75, and P-value = 0.000 means that the respondents agreed to this paragraph.

The mean of the filed "Knowledge Applicability" equals (77.7%), Test-value = 23.98, and P-value=0.000 which means that the respondents agreed to field of "Knowledge Applicability"

Table (6.17): Means and T-Test values for "Knowledge Applicability"

NO.	Field	Mean	Proportional mean (%)	T-Test value	P-value (Sig.)	Rank
1.	I apply my knowledge in solving problems and performing tasks	8.25	82.5	26.82	0.000*	1
2.	I'm developing my creative abilities by the systematic use of knowledge	8.04	80.4	26.00	0.000*	3
3.	I employ my knowledge to achieve the ministry goals	8.21	82.1	26.65	0.000*	2
4.	I join in work teams to develop my skills and benefit from the experience of others	7.86	78.6	20.64	0.000*	4
5.	I'm concerned with applying research in my field to contribute the development of work	6.70	67.0	5.75	0.000*	6
6.	I can solve problems in an innovative ways	7.55	75.5	16.71	0.000*	5
	All paragraphs of the filed	**7.77**	**77.7**	**23.98**	**0.000***	

* The mean is significantly different from 6

In summary this field shows that managers in the ministries can apply their knowledge in performing tasks, they developing their creative capabilities by the systematic use of knowledge, they employ knowledge to achieve ministry goals, they concerned with applying research in the field of work to contribute in the development process and they can solve problems in an innovative ways. The overall paragraphs indicated that knowledge in the ministries of the Gaza strip is applicable. Koskinen and Vanharanta (2002) stated that informal interaction between employees is a good facilitator for tacit knowledge utilization. However, the crucial point is not the amount of tacit knowledge owned by people, but the utilization of it.

6.4.2.4 CITs (Communication and Information Technologies):

Questions in this field are designed to test the degree to which the use of CITs in Knowledge sharing within the ministries of the Gaza strip.

Table (6.18) shows the following results:

The mean of paragraph 6 "There are in your department modern and advanced technological tools to use in knowledge sharing (such as computer, internal

and external Internet ....)" equals (78.7%), Test-value = 14.99, and P-value = 0.000 which means that the respondents agreed to this paragraph.

The mean of paragraph 5 "I use e-mail to share knowledge with colleagues at work to solve problems and develop skills" equals (66.7%), Test-value = 4.36, and P-value = 0.000 which means that the respondents agreed to this paragraph.

The mean of the filed CITs equals (72.8%), Test-value = 11.48, and P-value=0.000 which means that the respondents agreed to field of CITs

Table (6.18): Means and T-Test values for "CITs (Communication and Information Technologies)"

NO.	Field	Mean	Proportional mean (%)	T-Test value	P-value (Sig.)	Rank
1.	I can benefit from the databases provided by the Ministry	7.46	74.6	12.35	0.000*	2
2.	The ministry connecting staff with the internal network "Intranet"	7.42	74.2	9.73	0.000*	3
3.	I can via the Intranet share knowledge with others	7.05	70.5	7.37	0.000*	5
4.	The Ministry disseminating e-culture among staff and encourage to use it	7.25	72.5	9.18	0.000*	4
5.	I use e-mail to share knowledge with colleagues at work to solve problems and develop skills	6.67	66.7	4.36	0.000*	6
6.	There are in your department modern and advanced technological tools to use in knowledge sharing (such as computer, internal and external Internet ....)	7.87	78.7	14.99	0.000*	1
	All paragraphs of the filed	**7.28**	**72.8**	**11.48**	**0.000***	

- The mean is significantly different from 6

In summary this field shows that managers can benefit from the databases provided by the ministry, they use e-mail to share knowledge with colleagues at work to solve problems and develop skills, they agreed that ministries connecting staff with the internal network "Intranet", they also agreed that ministries disseminating e-culture among staff and encourage to use it, they agreed that there are modern and

advanced technological tools to use in knowledge sharing (such as computer, internal and external Internet) in their ministries. In general it can be said that ministries of the Gaza strip use CITs in knowledge sharing.

This result supported the findings of Tohidinia and Mosakhani (2010) which stated that IT had a positive impact on knowledge sharing behavior. Reychav and Weisberg (2010) also showed that companies need to encourage knowledge sharing behaviors by using IT. In addition to Nafie (2006) which indicated that in MOH departments, there are modern equipments and technology needed for efficient performance.

6.4.2.5 All dimensions of Knowledge sharing:

Table (6.19) shows the following results:

The mean of all paragraphs of the fields of Knowledge sharing equals (70.6%), Test-value =13.97, and P-value=0.000 which is smaller than the level of significance $\alpha = 0.05$. The sign of the test is positive, so the mean of all paragraphs of the fields of Knowledge sharing is significantly greater than the hypothesized value 6. Which means that the respondents agreed to all paragraphs of the fields of Knowledge sharing.

Table (6.19): Means and T-Test values for "All paragraphs of the fields of Knowledge sharing"

Field	Mean	Proportional mean (%)	T-Test value	P-value (Sig.)
Knowledge Availability	6.51	65.1	5.64	0.000*
Knowledge Accessibility	6.78	67.8	8.97	0.000*
Knowledge Applicability	7.77	77.7	23.98	0.000*
CITs (Communication and Information Technologies)	7.28	72.8	11.48	0.000*
All paragraphs of the fields of Knowledge sharing	**7.06**	**70.6**	**13.97**	**0.000***

*The mean is significantly different from 6

Table (6.19) shows that knowledge is available in the ministries of the Gaza strip for managers to use in performing their tasks and developing their skills, knowledge also accessible in these ministries which mean that managers can reach easily to the stock of knowledge available in their ministries, mangers also can apply any new ideas or new knowledge in their work. In addition CITs is available for managers to use. Particularly, it can be said that managers at the ministries of the Gaza strip practice the concept of knowledge sharing within their ministries.

This result not supported to EL-Harbi (2011) which showed that the conditions for knowledge sharing may not yet be in place in technology firms in Tunisia. Ahmed (2010) indicated that the concept of knowledge management is still not well received in companies in the UAE. On the other hand Xue (2011) suggested that in order to promote knowledge sharing, managers need to cultivate a nurturing team environment. Further, Taminiau (2009) claimed that in consultancy firms, the most fruitful route to innovation is informal knowledge sharing. Finally Merx-Chermin (2005) suggested that knowledge sharing seems to be one of the most important factors in the creation of new knowledge. He also showed that the rotation of valuable employees seems to be one of the most effective strategies for knowledge sharing.

6.5 Hypothesis Testing:

To investigate the influence of knowledge sharing on the level of innovation, the following hypothesis are stated as follows:

6.5.1 First main hypothesis:

There is a significant relationship between knowledge sharing and the level of innovation for managers at the ministries in the Gaza strip.

This hypothesis includes four sub- hypothesis as the following:

There is a significant relationship between knowledge Availability and the level of innovation.

Table (6.20) shows that the correlation coefficient between knowledge availability and the level of innovation equals 0.575 and the p-value (Sig.) equals 0.000. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. which means that there exists a significant relationship between knowledge availability and the level of innovation.

Table (6.20) Correlation coefficient between knowledge availability and each field of the level of innovation

Field	Pearson Correlation Coefficient	P-Value (Sig.)
Directing a creative business.	0.461	0.000*
Developing creative capability.	0.518	0.000*
Building a creative culture.	0.347	0.000*
Managing learning for new ideas.	0.475	0.000*
Organizing for creativity.	0.656	0.000*
Taking wise decisions.	0.410	0.000*
The level of innovation	**0.575**	**0.000***

* Correlation is statistically significant at 0.05 level

This result supported by the finding of Reychav (2010) He concluded that to manage knowledge effectively, companies need to encourage knowledge sharing behaviors by creating, storing and using knowledge. (Adams and Lamont, 2003) emphasized that innovation is extremely dependent on the availability of knowledge therefore knowledge has to be recognized and managed.

There is a significant relationship between knowledge accessibility and the level of innovation.

Table (6.21) shows that the correlation coefficient between knowledge accessibility and the level of innovation equals 0.579 and the p-value (Sig.) equals 0.000. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. which means that there exists a significant relationship between knowledge accessibility and the level of innovation.

Table (6.21) Correlation coefficient between knowledge accessibility and each field of the level of innovation

Field	Pearson Correlation Coefficient	P-Value (Sig.)
Directing a creative business.	0.475	0.000*
Developing creative capability.	0.525	0.000*
Building a creative culture.	0.326	0.000*
Managing learning for new ideas.	0.489	0.000*
Organizing for creativity.	0.661	0.000*
Taking wise decisions.	0.409	0.000*
The level of innovation	**0.579**	**0.000***

* Correlation is statistically significant at 0.05 level

This result supported the findings of Sondergaard, (2007) which emphasized that core task that organizations should be concerned with is to making organizational knowledge accessible. Moreover, Baddi and Sharif, (2003) also stated that from the drivers of applying knowledge management to the benefit the innovation process is making knowledge more available and accessible. This result also in agreement with plessis, (2007), which indicated that knowledge management can benefit the innovation process by making knowledge more accessible through directories that identify individuals' areas of expertise in the organization.

There is a significant relationship between knowledge applicability and the level of innovation.

Table (6.22) shows that the correlation coefficient between knowledge applicability and the level of innovation equals 0.776 and the p-value (Sig.) equals 0.000. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. which means that there exists a significant relationship between knowledge applicability and the level of innovation.

Table (6.22) Correlation coefficient between knowledge applicability and each field of the level of innovation

Field	Pearson Correlation Coefficient	P-Value (Sig.)
Directing a creative business.	0.637	0.000*
Developing creative capability.	0.652	0.000*
Building a creative culture.	0.657	0.000*
Managing learning for new ideas.	0.635	0.000*
Organizing for creativity.	0.632	0.000*
Taking wise decisions.	0.684	0.000*
The level of innovation	**0.776**	**0.000***

* Correlation is statistically significant at 0.05 level

This result is supported the view of Koskinen and Vanharanta (2002) which stated that the crucial point is not the amount of tacit knowledge owned by people, but the utilization of it. Moreover Merx-Chermin (2005) emphasized that one the most important factors in the creation of new knowledge is reflective learning on the job. Which means applying the owned knowledge and making it in use.

There is a significant relationship between CITs (Communication and Information Technologies) and the level of innovation .

Table (6.23) shows that the correlation coefficient between CITs and the level of innovation equals 0.455 and the p-value (Sig.) equals 0.000. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. that's means there exists a significant relationship between CITs and the level of innovation.

Table (6.23) Correlation coefficient between CITs (Communication and Information Technologies) and each field of the level of innovation

Field	Pearson Correlation Coefficient	P-Value (Sig.)
Directing a creative business.	0.417	0.000*
Developing creative capability.	0.399	0.000*
Building a creative culture.	0.266	0.000*
Managing learning for new ideas.	0.350	0.000*
Organizing for creativity.	0.490	0.000*
Taking wise decisions.	0.344	0.000*
The level of innovation	**0.455**	**0.000***

* Correlation is statistically significant at 0.05 level

This result emphasized the view of Tohidinia and Mosakhani (2010), which stated that IT had a positive impact on knowledge sharing behavior. Reychav and Weisberg (2010) also showed that companies need to encourage knowledge sharing behaviors by using IT.

6.5.1.5 There is a significant relationship between knowledge sharing and the level of innovation for managers at the ministries in the Gaza strip.

Table (6.24) shows that the correlation coefficient between knowledge sharing and the level of innovation equals 0.690 and the p-value (Sig.) equals 0.000. The p-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. Which means that there exists a significant relationship between knowledge sharing and the level of innovation.

Table (6.24) Correlation coefficient between knowledge sharing and each field of the level of innovation

Field	Pearson Correlation Coefficient	P-Value (Sig.)
Directing a creative business.	0.577	0.000*
Developing creative capability.	0.607	0.000*
Building a creative culture.	0.451	0.000*
Managing learning for new ideas.	0.564	0.000*
Organizing for creativity.	0.718	0.000*
Taking wise decisions.	0.528	0.000*
The level of innovation	**0.690**	**0.000***

* Correlation is statistically significant at 0.05 level

This result supported the findings of Koskinen and Vanharanta (2002) which showed that tacit knowledge can play an important role in the innovation processes. This result also supported the finding of Chang and Lee (2008) which showed that The better the expansion capability of knowledge obtainment, the more it will benefit administrative innovation. Moreover this finding showed an agreement with the findings of Kamas and Bulutlar (2010) which indicated that knowledge collecting and knowledge donating has a significant effect on both exploitative and exploratory innovation. The result also supported the findings of Taminiau (2009) which claimed that the most fruitful route to innovation is informal knowledge sharing. Alwis and Hartmann (2008) revealed that tacit knowledge plays an important role in all stages of the innovation process. Lin and Chen (2008) On the other hand indicated that team members' shared knowledge enable the firm to improve innovation capability.

6.5.2 Second main hypothesis:

There is no significant statistical difference at significant level (α=0.05) among respondents regarding the influence of knowledge sharing on the level of innovation attributed to the following personal variables (Grade, experience , Age, Qualification and Gender)

6.5.2.1 There is no significant statistical difference at significant level (α=0.05) among respondents regarding the influence of knowledge sharing on the level of innovation attributed to Grade.

Table (6.25) shows that the p-value (Sig.) is smaller than the level of significance $\alpha = 0.05$ for the fields "Developing creative capability, Building a creative culture, Knowledge Applicability, and Knowledge sharing", then there is significant difference among respondents regarding the influence of knowledge sharing on the level of innovation toward these fields due to Grade. Which means that the Grade has an effect on these fields.

Table (6.25) shows that the p-value (Sig.) is greater than the level of significance $\alpha = 0.05$ for the other fields, then there is insignificant difference among respondents' answers regarding the influence of knowledge sharing on the level of innovation toward these fields due to Grade. Which means that the Grade has no effect on these fields.

These findings don't support the findings of Nafie (2006) which showed no significant difference in innovation attributed to "Job position". EL-Farra (2007) also found that there is no significant difference in the level of innovation among different managerial ranks. Al-Ejlah (2009) on the other hand showed that there is a significant difference in the level of innovation attributed to grade.

Table (6.25): ANOVA test of the fields and their p-values for Grade

No.	Field	Test Value	Sig.
1.	Directing a creative business.	1.317	0.269
2.	Developing creative capability.	3.058	0.029*
3.	Building a creative culture.	3.365	0.019*
4.	Managing learning for new ideas.	1.888	0.132
5.	Organizing for creativity.	2.407	0.068
6.	Taking wise decisions.	0.552	0.647
7.	**The level of innovation**	2.495	0.060
8.	Knowledge Availability	1.683	0.171
9.	Knowledge Accessibility	2.196	0.089
10.	Knowledge Applicability	4.143	0.007*
11.	CITs (Communication and Information Technologies)	2.339	0.074
12.	**Knowledge sharing**	3.282	0.021*

* The mean difference is significant a 0.05 level

Table (6.26) shows the mean for each field for Grades.

For the fields "Developing creative capability and Building a creative culture", the means for respondents with grade "General Director (A4)" of these fields are higher than other grade groups.

This finding is probably explained by that managers with grade (A4) are considered from top management class this position gives them the abilities to "Developing creative capability and Building a creative culture" more than managers with other grades.

This finding is similar to that of Al-Ejlah (2009) who found there is a significant difference in the level of innovation attributed to grade, he found that managers with grade (A4,A) were higher than others in their perception of innovation.

- For the fields " Knowledge Applicability and Knowledge sharing", the means for respondents with grade " Deputy Director (A)" of these fields are higher than other grade groups. This may due to the fact that Deputy Director play moderator role between top and medium levels so this grad could share and transfer knowledge more than other grades.

Table (6.26): Mean for each field of Grade

No.	Fields	Means			
		General Director (A4)	Head of Department (B)	Deputy Director (A)	Head of Department (C)
1.	Directing a creative business.	8.09	7.68	7.67	7.74
2.	Developing creative capability.	8.13	7.54	7.58	7.56
3.	Building a creative culture.	8.87	8.31	8.60	8.26
4.	Managing learning for new ideas.	8.16	8.04	8.11	7.76
5.	Organizing for creativity.	7.52	6.88	7.29	6.99
6.	Taking wise decisions.	8.26	7.99	8.07	8.01
7.	**The level of innovation**	8.17	7.72	7.87	7.72
8.	Knowledge Availability	6.95	6.27	6.76	6.43
9.	Knowledge Accessibility	7.22	6.69	7.19	6.66
10.	Knowledge Applicability	8.22	7.84	8.26	7.61
11.	CITs (Communication and Information Technologies)	7.73	7.28	7.96	7.11
12.	**Knowledge sharing**	7.51	6.96	7.52	6.93

6.5.2.2 There is no significant statistical difference at significant level (α=0.05) among respondents regarding the influence of knowledge sharing on the level of innovation attributed to experience

Table (6.27) shows that the p-value (Sig.) is greater than the level of significance $\alpha = 0.05$ for each fields, then there is insignificant difference among respondents' answers regarding the influence of knowledge sharing on the level of innovation toward these fields due to experience. Which means that the personal experience has no effect on these fields.

This result is similar to the findings of Al-Ejlah (2009) and EL-Farra (2007) which showed that there is no significant difference in the level of innovation attributed to years of experience. Nafie (2006) also showed in her results that there is no significant difference in the level of innovation attributed to years of experience in MOH. Ayyoub (2000) on the other hand found a positive correlation between innovation and length of experience. EL-Jaabary (2008) revealed that Most principals

of national organizations perfectly realize the organizational creativeness concept, regardless experience.

Table (6.27): ANOVA test of the fields and their p-values for experience

No.	Field	Test Value	Sig.
1.	Directing a creative business.	0.582	0.627
2.	Developing creative capability.	1.463	0.225
3.	Building a creative culture.	0.101	0.959
4.	Managing learning for new ideas.	1.285	0.280
5.	Organizing for creativity.	1.109	0.346
6.	Taking wise decisions.	0.041	0.989
7.	**The level of innovation**	**0.603**	**0.613**
8.	Knowledge Availability	0.221	0.882
9.	Knowledge Accessibility	0.361	0.782
10.	Knowledge Applicability	0.552	0.648
11.	CITs (Communication and Information Technologies)	0.386	0.763
12.	**Knowledge sharing**	**0.143**	**0.934**

6.5.2.3 There is no significant statistical difference at significant level (α=0.05) among respondents regarding the influence of knowledge sharing on the level of innovation attributed to "Age"

Table (6.28) shows that the p-value (Sig.) is smaller than the level of significance $\alpha = 0.05$ for the fields "Knowledge Accessibility and Knowledge Applicability", then there is significant difference among respondents regarding the influence of knowledge sharing on the level of innovation toward these fields due to Age. Which means that the Age has an effect on Knowledge Accessibility and Knowledge Applicability.

Table (6.28) shows that the p-value (Sig.) is greater than the level of significance $\alpha = 0.05$ for the other fields, then there is insignificant difference among respondents regarding the influence of knowledge sharing on the level of innovation

toward these fields due to Age. Which means that the Age has no effect on these fields.

Table (6.28) shows that the Age has no effect on all dimensions representing the level of innovation. This result is in agreement with EL-Jaabary (2008) which showed that Most principals of national organizations perfectly realize the organizational creativeness concept, regardless of age. Awamleh (1994) on the other hand showed a negative yet weak relationship between innovation and age. Al-Ejlah (2009), found that there is no significant difference in innovation attributed to age.

Table (6.28): ANOVA test of the fields and their p-values for Age

No	Field	Test Value	Sig.
1.	Directing a creative business.	0.756	0.520
2.	Developing creative capability.	0.992	0.397
3.	Building a creative culture.	0.488	0.691
4.	Managing learning for new ideas.	1.130	0.337
5.	Organizing for creativity.	2.627	0.051
6.	Taking wise decisions.	1.021	0.384
7.	**The level of innovation**	**1.152**	**0.329**
8.	Knowledge Availability	0.963	0.411
9.	Knowledge Accessibility	3.178	0.025*
10.	Knowledge Applicability	2.812	0.040*
11.	CITs (Communication and Information Technologies)	0.932	0.426
12.	**Knowledge sharing**	**1.855**	**0.138**

* The mean difference is significant a 0.05 level

Table (6.29) shows the mean for each field for age .

For the fields " Knowledge Accessibility and Knowledge Applicability ", the mean for respondents with age of "50 years and more" is higher than other age groups.

Which indicate that managers with age more than 50 years are willing to make knowledge accessible and applying knowledge in the job more than others. This finding is probably explained by that managers in their fifties have higher stock of knowledge, and in this age they prefer to transfer this knowledge to others, moreover the level of competition in this age is less than the situation in young age.

Table (6.29): Mean for each field of Age

No.	Fields	Means			
		Less than 30 years	30 – Less than 40 years	40 - Less than 50 years	50 years and more
1.	Directing a creative business.	7.54	7.73	7.81	7.88
2.	Developing creative capability.	7.65	7.49	7.72	7.73
3.	Building a creative culture.	8.32	8.32	8.33	8.52
4.	Managing learning for new ideas.	7.98	7.72	7.91	8.03
5.	Organizing for creativity.	6.89	6.86	7.18	7.35
6.	Taking wise decisions.	7.81	8.00	8.04	8.22
7.	**The level of innovation**	**7.70**	**7.68**	**7.83**	**7.94**
8.	Knowledge Availability	6.62	6.33	6.52	6.72
9.	Knowledge Accessibility	6.79	6.45	6.93	7.10
10.	Knowledge Applicability	7.37	7.66	7.78	8.10
11.	CITs (Communication and Information Technologies)	7.54	7.17	7.14	7.56
12.	**Knowledge sharing**	**7.06**	**6.87**	**7.08**	**7.34**

6.5.2.4 There is no significant statistical difference at significant level (α=0.05) among respondents regarding the influence of knowledge sharing on the level of innovation attributed to "Qualification"

Table (6.30) shows that the p-value (Sig.) is greater than the level of significance $\alpha = 0.05$ for each fields, then there is insignificant difference among respondents regarding the influence of knowledge sharing on the level of innovation toward these fields due to Qualification. Which means that Qualification has no effect on these fields.

This finding is probably attributed to the fact that the great majority of research sample are homogeneous in the level of education, 93.7% of research sample hold Bachelor degree or more. This result is in an agreement with EL-Farra (2007)

which found that there is no significant difference in level of innovation attributed to the level of qualification. Nafie (2006) also showed no significant difference in innovation attributed to The level of qualification. In addition to Al-Ejlah (2009) which found that there is no significant difference in the level of innovation attributed to the level of education. On the other hand Ayyoub (2000) found a positive correlation between innovation and educational level. Awamleh (1994) also found a positive yet weak relationship between innovation and qualification.

Table (6.30): ANOVA test of the fields and their p-values for Qualification

No.	Field	Test Value	Sig.
1.	Directing a creative business.	0.410	0.664
2.	Developing creative capability.	0.206	0.814
3.	Building a creative culture.	1.589	0.206
4.	Managing learning for new ideas.	0.596	0.552
5.	Organizing for creativity.	1.539	0.216
6.	Taking wise decisions.	2.381	0.094
7.	**The level of innovation**	**0.862**	**0.424**
8.	Knowledge Availability	0.476	0.622
9.	Knowledge Accessibility	1.123	0.327
10.	Knowledge Applicability	0.365	0.695
11.	CITs (Communication and Information Technologies)	0.131	0.878
12.	**Knowledge sharing**	**0.538**	**0.584**

6.5.2.5 There is no significant statistical difference at significant level (α=0.05) among respondents regarding the influence of knowledge sharing on the level of innovation attributed to "Gender".

Table (6.31) shows that the p-value (Sig.) is greater than the level of significance $\alpha = 0.05$ for each fields, then there is insignificant difference among respondents regarding the influence of knowledge sharing on the level of innovation toward these fields due to gender. Which means that gender has no effect on these fields.

So it can be said that there is no significant difference regarding the influence of knowledge sharing on the level of innovation attributed to "Gender". This finding

is probably attributed to the fact that the great majority of research sample are homogeneous, 86.7% of research sample were male.

This result is not supported the finding of Awamleh (1994) which showed a positive yet weak relationship between innovation and sex. But Al-Ejlah (2009) on the other hand found that there is no significant difference in the level of innovation attributed to sex. EL-Jaabary (2008) showed that Most principals of national organizations perfectly realize the organizational creativeness concept, regardless of gender.

Table (6.31): Independent Samples-Test of the fields and their p-values for gender

No	Field	Test value	P-value(Sig.)
1.	Directing a creative business.	0.013	0.990
2.	Developing creative capability.	-0.376	0.707
3.	Building a creative culture.	0.203	0.839
4.	Managing learning for new ideas.	-0.688	0.492
5.	Organizing for creativity.	-1.179	0.239
6.	Taking wise decisions.	-0.815	0.416
7.	**The level of innovation**	**-0.570**	**0.569**
8.	Knowledge Availability	-1.072	0.285
9.	Knowledge Accessibility	0.125	0.900
10.	Knowledge Applicability	-1.601	0.113
11.	CITs (Communication and Information Technologies)	-0.710	0.478
12.	**Knowledge sharing**	**-0.786**	**0.433**

6.5.2.6 There is no significant statistical difference at significant level (α=0.05) among respondents regarding the influence of knowledge sharing on the level of innovation attributed to Job Title.

Table (6.32) shows that the p-value (Sig.) is greater than the level of significance $\alpha = 0.05$ for each fields, then there is insignificant difference among respondents' answers regarding the influence of knowledge sharing on the level of innovation toward these fields due to Job Title. Which means that the personal trait Job Title has no effect on these fields.

So it can be said that there is no significant difference regarding the influence of knowledge sharing on the level of innovation attributed to "Job Title" this result is similar to that of Al-Ejlah (2009) which found no significant difference in the level of innovation attributed to job title.

Table (6.32): Independent Samples-Test of the fields and their p-values for Job Title

No.	Field	Test value	P-value(Sig.)
1.	Directing a creative business.	-0.223	0.824
2.	Developing creative capability.	1.772	0.077
3.	Building a creative culture.	-0.615	0.539
4.	Managing learning for new ideas.	0.187	0.851
5.	Organizing for creativity.	0.275	0.783
6.	Taking wise decisions.	-1.179	0.240
7.	**The level of innovation**	**0.077**	**0.939**
8.	Knowledge Availability	0.018	0.986
9.	Knowledge Accessibility	0.282	0.778
10.	Knowledge Applicability	-0.734	0.464
11.	CITs (Communication and Information Technologies)	-1.511	0.132
12.	**Knowledge sharing**	**-0.608**	**0.544**

6.6 Building the Regression Model

6.6.1 Multiple Regression Analysis

The multiple regression analysis was conducted using the stepwise regression method. In this method each variable is entered in sequence and its value assessed. If adding the variable contributes to the model then it is retained, but all other variables in the model are then re-tested to see if they are still contributing to the success of the model. If they no longer contribute significantly they are removed. Thus, this method ends up with the smallest possible set of predictor variables included in the model. An advantage of using this method is that it results in the smallest number of predictors in the model when there is large number of variables (Brace, Kemp, & Snelgar, 2000).

R is a measure of the correlation between the observed value and the predicted value of the dependent variable. In this study, this would be the correlation between the level of innovation reported by managers and the predicted level of innovation by the four predictor variables (independent variable). R Square (R2) is the square of this measure of correlation and indicates the proportion of the variance in the dependent variable which is accounted for by the model. The significance of R2 is determined by the F-test, which is the same as testing the significance of the regression model as a whole. If the probability of obtaining a large value of (F) < 0.05 then the model would be considered to be significantly better than would be expected by chance and it can be concluded that there is a linear relationship between the dependent variable and the independent variable. Before conducting the multiple regression, assumptions of the Regression Model (Ordinary Least Squares (OLS) Assumptions) were tested and found satisfied (Appendix "E").

Therefore, the OLS assumptions are satisfied.

6.6.1.1 Third main hypothesis:

The level of innovation in the Palestinian ministries is explained by Knowledge applicability and Knowledge Availability.

The researcher use Stepwise regression, and obtain the following results:
Multiple correlation coefficient R =0.808 , R-Square = 0.653, and adjusted R-Square = 0.650. This means 65.0% of the variation in The level of innovation is explained by Knowledge Applicability and Knowledge Availability.

Table (6.33) shows the Analysis of Variance for the regression model. Sig. = 0.000, so there is a significant relationship between the dependent variable The level of innovation and the independent variables (Knowledge Applicability and Knowledge Availability).

Table (6.33) ANOVA for Regression

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	145.074	2	72.537	247.049	.000*
Residual	77.221	263	.294		
Total	222.295	265			

* The relationship is statistically significant at 0.05 level

Table (6.34) shows the regression coefficients and their P-values (Sig.). Each of the independent variables is statistically significant since the P-value (Sig.) is smaller than 0.05. In addition, based on the standardized coefficients, the most significant independent variable is Knowledge Applicability, then Knowledge Availability.

Table (6.34): The Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	2.921	.222		13.154	.000*
Knowledge Applicability	.492	.032	.648	15.556	.000*
Knowledge Availability	.161	.026	.260	6.233	.000*

*The variable is statistically significant at 0.05 level

6.6.2 The regression equation is:

Level of innovation = 2.921 + .492 * (Knowledge Applicability) + .161 * (Knowledge Availability)

In summary the regression model of two independent variables significantly predicts the influence of knowledge sharing on the level of innovation (R2=0.653).

The two variables significantly contributed to the model: Knowledge Applicability and Knowledge Availability. While Knowledge Applicability (B=0.492) was the most significant variable in predicting the level of innovation.

- **Knowledge Applicability:** This result is supported the view of Koskinen and Vanharanta (2002) which stated that the crucial point is not the amount of tacit knowledge owned by people, but the utilization of it. Moreover Merx-Chermin (2005) emphasized that one the most important factors in the creation of new knowledge is reflective learning on the job.

- **Knowledge Availability:** This result is supported the view of (Adams and Lamont, 2003) which emphasized that Innovation is extremely dependent on the availability of knowledge and therefore the complexity created by the explosion of richness and reach of knowledge has to be recognized and managed. (Baddi and Sharif, 2003) also revealed that applying knowledge management to the benefit of the innovation process is the integration of knowledge both internal and external the organization, thus making it more available and accessible.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction:

The aim of this study was to investigate the influence of knowledge sharing on the level of innovation for managers at the Palestinian ministries in the Gaza Strip.
In this chapter, the conclusions and the recommendations of the study will be discussed.

7.2 Conclusions:

In light of the findings that were presented in chapter six the following conclusions can be drawn:

- The Palestinian ministries in the Gaza strip have innovative features and practices that show an overall success in "Directing their staff and business toward innovation", "Developing a creative capabilities", "Building a creative culture", "Managing learning for new ideas", "Organizing for creativity" and "Taking wise decisions". Which means that these ministries enjoy a satisfactory level of innovation.
- The Palestinian ministries don't have a fair and efficient reward system to encourage innovation and knowledge sharing practices. Its organizational structure does not encourage innovation and promotion of work.
- The stock of knowledge at the Palestinian ministries is available and accessible which means that managers can use and reach the knowledge owned by others easily.
- Managers at the Palestinian ministries seem satisfied with the practices of knowledge sharing.
- There is a significant relationship between CITs and the level of innovation. And In the Palestinian ministries there are modern equipments and CITs tools needed for manager to benefit them in performing their tasks.

- There is no significant statistical difference among respondents answers regarding the influence of knowledge sharing on the level of innovation attributed to personal variables (gender, experience, Qualification or job title) .
- There is a significant difference among respondents' answers regarding the influence of knowledge sharing on the level of innovation toward Knowledge Accessibility and Knowledge Applicability due to age, managers in fifties scored more than other age groups.
- There is a significant difference among respondents' answers regarding the influence of knowledge sharing on the level of innovation toward "Developing creative capability, Building a creative culture, Knowledge Applicability, and Knowledge sharing" attributed to "Grade" where managers with grade (A4) were the highest score in the fields of Developing creative capability and Building a creative culture. While managers with grade (A) scored the highest in the fields of Knowledge Applicability, and Knowledge sharing.
- All paragraphs which reflected the role of the ministries in innovation are the lowest about respondents answers, these paragraphs such as the ministry provides support for creating new ideas, the ministry aims to attract individuals with special skills and high level of expertise, the ministry interested in encouraging new ideas to develop embodied skills of the staff, the organizational structure of the ministry encourages innovation and promotion of work, incentives and reward system in the ministry is concerned greatly with creative individuals. And finally, the ministry rewarded employees who sharing their knowledge. Which indicate that ministries of the Gaza strip should take in consideration the above issues to increase the level of innovation.
- The study showed that 57.8% of the respondents are having not less than ten years of experience this is good that respondents have enough years of experience, they will help to get more innovative and creativity.
- The study model explained 65.0% of the variation in the level of innovation which is explained by Knowledge Applicability and Knowledge Availability.
- There is a significant relationship between knowledge sharing and the level of innovation.

7.3 Recommendations:

Innovation is extremely dependent on the availability of knowledge and therefore the complexity created by the explosion of richness and reach of knowledge has to be recognized and managed (Adams and Lamont, 2003).The following recommendations may help managers at the Palestinian ministries to deal more effectively with these two dimensions.

- It is recommended that ministries of the Gaza strip should organize their activities for creativity, taking in consideration organizational structure, communication channels, informal meetings, building social relations and modifying incentives and rewards system in order to encourage staff for knowledge sharing and innovation.

- In order to develop an innovation competency it is vital to motivate employees to propose creative ideas, encouraging staff to take initiative and foster a positive social interaction culture.

- Top management is recommended to further show its support to knowledge sharing behaviors by creating, storing and using knowledge.

- There is a need to develop a knowledge-intensive culture by encouraging and aggregating behaviors such as knowledge sharing, engenders learning, facilitates collaboration and social relations.

- In order to promote knowledge sharing behaviors, ministries of the Gaza strip need to cultivate a nurturing team environment.

- To increase the level of innovation it is recommended that ministries of the Gaza strip should encourage managers to reflect learning and their knowledge on the job. In addition to determine the means to capture, transfer and leverage knowledge effectively.

- Establishing knowledge management systems. This system is usually ICT-based systems which support the processes of knowledge creation, storage, sharing and application. In addition to building an effective communication instruments such as online forum for employee to exchange information and share knowledge, to achieve this, a reliable ICT infrastructure is essential.

- Palestinian ministries must holding more training programs and courses that enable staff to collect and possess greater amount of knowledge.

7.4 Recommendations for Further Research:

The study revealed that there is a need for further research on some aspects of knowledge sharing and on innovation, so the researcher suggest more research about how to develop an organizational culture supporting knowledge sharing, especially with a focus on strategies to promote knowledge sharing. Another suggestion for further research is to look at enablers and constrains regarding to innovation and knowledge sharing, such as cultural constrains, structural barriers and reward system, further studies should shed light into these areas in order to provide answers to how these constraints can be addressed. Finally, there seems to a need for more research on the role of ICTs and electronic tools regarding knowledge sharing.

The following are suggested titles for future research in the Palestinian context:

- Cultural Factors Influencing Knowledge Sharing Strategies.
- Knowledge Sharing Enablers and Barriers at the Palestinian Ministries.
- Team Collaboration and Innovation in Organizations "The Role of ICTs ".

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APPENDIX (1)

THE QUESTIONNAIRE IN ARABIC

بسم الله الرحمن الرحيم

الأخ الفاضل .. حفظه الله،،

السلام عليكم ورحمة الله وبركاته .،،

نضع بين أيديكم مجموعة من الأسئلة تمثل استبانه لدراسة بحثية بعنوان :

" تأثير مشاركة المعرفة على مستوى الإبداع الإداري "

(دراسة ميدانية على المدراء في الوزارات الفلسطينية في قطاع غزة)

وذلك استكمالاً لمتطلبات الحصول على درجة الماجستير في إدارة الأعمال من الجامعة الإسلامية بغزة، لذا الرجاء التكرم بالإجابة على أسئلة الاستبانة المرفقة وذلك بإبداء الرأي بكل دقة وموضوعية لكل عبارة من عبارات الاستبانة بما ترونه مناسباً، علماً بأن المعلومات المقدمة لن تُستخدم إلا لأغراض البحث العلمي فقط.

شاكرين لكم حسن تعاونكم معنا

الباحث

منير حمتو الغرة

الاستبيان

الجزء الأول : البيانات الشخصية:

برجاء التكرم بالإجابة على الأسئلة التالية بكل دقة وذلك بوضع إشارة (X) في مربع الإجابة التي تناسبك :

١ -الدرجة:

☐ وكيل مساعد(A2) ☐ مدير عام (A4) ☐ مدير دائرة (B)

☐ مدير عام (A3) ☐ نائب مدير عام (A) ☐ مدير دائرة (C)

٢ -عدد سنوات الخدمة :

☐ اقل من ٥ سنوات ☐ من ٥ سنوات إلى اقل من ١٠ سنوات

☐ من ١٠ سنوات إلى اقل من ١٥ سنة ☐ من ١٥ سنة فأكثر

٣ -العمر:

☐ اقل من ٣٠ سنة ☐ من ٣٠ إلى اقل من ٤٠ سنة

☐ من ٤٠ إلى اقل من ٥٠ سنة ☐ من ٥٠ سنة فأكثر

٤ -المؤهل العلمي:

☐ دبلوم سنتين بعد الثانوية العامة فما دون ☐ بكالوريوس

☐ ماجستير ☐ دكتوراه

٥ -الجنس:

☐ ذكر ☐ أنثى

٦ -نوع الوظيفة:

☐ مدير إداري ☐ مدير فني

الجزء الثاني : خاص بالإبداع Innovation

يرجى وضع تقديراً من (1 – 10) بحيث كلما اقتربت الدرجة من 10 دل على الموافقة العالية على ما ورد في العبارة والعكس صحيح.

أولاً : توجيه المنظمة نحو الإبداع Directing a creative business		
م.	البيان	التقدير من 1 – 10
.1	توفر الوزارة الدعم الكافي لتبني الأفكار الجديدة	
.2	أشجع الموظفين على طرح أفكار جديدة تتعلق بالعمل	
.3	أشجع الرفض لما هو خاطئ ولو كان شائعا ومقبولا	
.4	أعمل على مواكبة التطورات التي تتعلق بمجال العمل	
.5	أتعامل مع التغيير بالمرونة وبالسرعة الممكنة	
.6	يحدث التغيير في طرق وأساليب العمل في دائرتك كلما دعت الحاجة إلى ذلك	
.7	أتمكن من التغلب على معوقات العمل و إحداث التغيرات اللازمة بسهولة	
ثانياً : تطوير القدرات والإمكانيات الإبداعية Developing a creative capability		
.8	أحث الموظفين على التحديث المستمر للمعلومات في مجالات تخصصهم	
.9	تحرص الوزارة على استقطاب الأفراد ذوي المهارات الخاصة والخبرات العالية	
.10	أفضل العمل في إدارات متعددة في الوزارة لاكتساب مهارات مختلفة على البقاء في إدارة واحدة	
.11	أحرص على امتلاك القدرات والمهارات اللازمة لمواكبة التطوير والتغيير	
.12	أقوم بتجريب أساليب عمل جديدة رغبة في التطوير	
.13	أشجع على وضع الخطط المستقبلية للتطوير والتغيير	
.14	تهتم الوزارة بتشجيع الأفكار الجديدة و تطوير القدرات الكامنة لدى الموظفين	
ثالثاً :تطوير ثقافة إبداعية في المؤسسة Building a creative culture		
.15	أقوم بتعميم أية أفكار جديدة بناءة يقدمها الموظفين	
.16	أثني على الموظف الذي يحقق انجاز مبدع	
.17	أشجع ذوي الأفكار الجديدة وأظهرهم	
.18	أسمح للموظفين بمحاولة تطبيق طرق جديدة مبتكرة في العمل	
.19	أعمل على إيجاد وسائل وآليات تساعد في زيادة ثقة الموظفين بأنفسهم	
.20	أعطي الموظفين الحرية والوقت الكافيين للتعبير عن آرائهم ومقترحاتهم دون قيود	
رابعاً :إدارة التعلم لتطوير أفكار جديدة Managing learning for new ideas		
.21	تهتم الوزارة بعقد الدورات والبرامج التدريبية لتطوير مهارات الموظفين	
.22	أحث الموظفين على المشاركة في الدورات والبرامج التدريبية	

23.	احرص على التواصل المستمر مع مراكز التعليم والمعلومات الخارجية	
24.	أجرب الأفكار الجديدة البناءة ولا احكم عليها مسبقا	
25.	أرى أن التغيير ظاهرة طبيعية	
26.	أشجع الموظفين للابتعاد عن الروتين	
خامساً : التنظيم الفعال من أجل الإبداع		**Organizing For Creativity**
27.	الهيكل التنظيمي في الوزارة يشجع على الابتكار والتطوير	
28.	يوجد لديك الاستقلالية الكافية في اتخاذ القرارات التطويرية في دائرتك	
29.	أعمل على توفير قنوات اتصال مفتوحة مع الموظفين	
30.	أقوم بلقاءات غير رسمية مع الموظفين لمناقشة المشاكل المتعلقة بالعمل	
31.	أشجع بناء العلاقات الاجتماعية بين الموظفين ومعهم	
32.	نظام الحوافز والمكافآت في الوزارة يهتم بشكل كبير بالمبدعين	
سادسًا : صناعة القرارات الحكيمة		**Taking wise decisions**
33.	استشير الخبراء والمختصين عند عملية اتخاذ القرار	
34.	أفضل جمع وتحليل كافة البيانات والمعلومات المتعلقة بالمشكلة قبل اتخاذ القرار	
35.	لدي القدرة على اتخاذ القرارات الهامة وتحمل مسئولياتها	
36.	أضع الحلول للمشكلات التي أواجهها كل على حدا	
37.	أعطي الحرية للموظفين في تحديد المشكلات وتعقبها ومناقشتها	
38.	يتم اتخاذ القرارات المتعلقة بالعمل بشكل جماعي	

الجزء الثالث: المشاركة بالمعرفة Knowledge Sharing

أولا: إتاحة المعرفة للاستخدام		**Knowledge Availability**
39.	توفر الوزارة المعلومات اللازمة لحل المشكلات وأداء العمل بطرق جديدة	
40.	تحرص الوزارة على خلق جو تعاوني بين العاملين	
41.	أزود الآخرين بما امتلكه من معرفة للاستفادة منها في أداء مهامهم	
42.	تهتم الوزارة بتسهيل عملية تبادل المعرفة بين العاملين	
43.	أنظمة الحوافز في الوزارة تتضمن مكافأة للموظفين الذين يتبادلون المعرفة	
44.	تحرص الوزارة على التحديث المستمر للمعرفة المتوفرة لدى العاملين من خلال نقلها واستخدامها وتطويرها	
45.	تهتم الوزارة بعقد دورات وندوات وورش عمل لنقل ونشر المعرفة بين العاملين في الوزارة	
ثانيا: سهولة الوصول إلى المعرفة		**Knowledge Accessibility**
46.	تتدفق المعرفة بين العاملين بسهولة ويسر بما يساعد على تطوير مهاراتهم	
47.	تحرص الوزارة على توفير وسائل الاتصال والتواصل المناسبة مع ذوي الخبرات والكفاءات	

	للاستفادة من خبراتهم	
48.	تحرص الوزارة على جمع وتخزين المعرفة وتوفيرها للمدراء للاستفادة منها وقت الحاجة بسهولة ويسر	
49.	أستفيد من المعرفة المتوفرة لدى ذوي الخبرة والكفاءة في الوزارة.	
50.	أتعاون مع زملائي في العمل بتبادل المعرفة واستخدامها في حل المشكلات	
51.	توفر الوزارة الاشتراك بقواعد بيانات ومجلات الكترونية للاستفادة منها في العمل	
ثالثا: تطبيق المعرفة Knowledge Applicability		
52.	أطبق المعرفة المتوفرة لدي في حل المشكلات وأداء مهام العمل	
53.	أنمي قدراتي الإبداعية من خلال الاستخدام المنظم للمعرفة	
54.	أوظف المعرفة المكتسبة لتحقيق أهداف الوزارة	
55.	أشارك في فرق العمل لتطوير المهارات والاستفادة من خبرات الآخرين	
56.	**أعمل على إجراء الأبحاث التطبيقية في مجال عملي للمساهمة في تطوير العمل**	
57.	أتمكن من حل المشكلات بطرق مبتكرة	
رابعا: استخدام الاتصالات وتكنولوجيا المعلومات Information and Communication Technologies		
58.	أستفيد من قواعد البيانات التي توفرها الوزارة	
59.	تربط الوزارة بين العاملين عبر الشبكة الداخلية " الانترانت "	
60.	أتمكن عبر شبكة الانترانت من تبادل المعرفة مع الآخرين	
61.	تحرص الوزارة على نشر الثقافة الالكترونية بين الموظفين وتشجع على استخدامها	
62.	استخدم البريد الالكتروني لتبادل المعرفة مع زملائي في العمل واللازمة لحل المشكلات وتطوير المهارات	
63.	تتوفر في دائرتك الأدوات التكنولوجية الحديثة والمتطورة لاستخدامها في مشاركة المعرفة (مثل جهاز حاسوب، شبكة انترنت داخلية وخارجية ....)	

وتفضلوا بقبول فائق الاحترام والتقدير

APPENDIX (2)

THE QUESTIONNAIRE IN ENGLISH

PART I

PERSONAL DATA

1. Grade:

☐ General Director (A4) ☐ Deputy Director (A)

☐ Head of Department (B) ☐ Head of Department (C)

2. Experience:

☐ Less than 5 years ☐ 5-less than 10

☐ 10 - less than15 ☐ 15 and more

3. Age:

☐ Less than 30 ☐ 30 - less than 40

☐ 40- less than 50 ☐ 50 and older

4. Qualification :

☐ Diploma ☐ Bachelor

☐ Master ☐ Doctorate

5. Sex:

☐ Male ☐ Female

6. Job Title:

☐ Managerial ☐ Technical

Set an estimate answer from 1-10, 1 indicates a weak answer while 10 indicates a strong answer.

Part II Innovation

1. Directing a creative business		
No.	Question	**1 - 10**
1	The Ministry provides support for creating new ideas	
2	I encourage staff to put forward new ideas related to the work	
3	I encourage the rejection of what is wrong, even if it was common and acceptable	
4	I do my best to keep abreast of developments relating to the area of work	
5	I deal flexible with change as soon as possible	
6	Methods of work in your department are changes whenever its needed	
7	I could overcome obstacles in work and make the necessary changes easily	
2. Developing a creative capability		
8	I encourage staff to update their professional knowledge	
9	The Ministry aims to attract individuals with special skills and high level of expertise	
10	You prefer to rotate in different departments to gain experience rather than working in one department	
11	I acquire the capacities and skills needed to keep pace with development and change	
12	I try to develop new methods in doing work	
13	I encourage the development of future plans for development and change	
14	The ministry interested in encouraging new ideas to develop embodied skills of the staff	

3. Building a creative culture		
15	I generalize any new productive ideas produced by staff	
16	I commend the staff member who achieves creative work	
17	I encourage staff with new ideas and informed them	
18	I allow staff attempting to apply new and innovative ways in work	
19	I'm working on finding ways and mechanisms to help increase the confidence of the staff themselves	
20	I give the staff adequate time and freedom to express their opinions and suggestions without restrictions	
4. Managing learning for new ideas		
21	The ministry Interested in the sessions and training programs for staff development	
22	I urge the staff to participate in courses and training programs	
23	There is an effective relationship and communication between your department and teaching centers and information sources	
24	I try new and good ideas and never judge it before	
25	I see that change is a natural phenomenon	
26	I encourage staff to move away from routine	
5. Organizing For Creativity		
27	The organizational structure of the ministry encourages innovation and promotion of work	
28	You have enough independence in making decisions related to promoting work in your department	
29	I stay open communication channels with staff	
30	There are informal meetings with staff to discuss problems relating to the work	

31	I encourage building of social relations between staff and with them	
32	incentives and rewards System in the ministry is concerned greatly with creative individuals	
6. Taking wise decisions		
33	I consulted experts and professionals in decision-making process	
34	I prefer to collect and analyze all data and information before decision making	
35	I have the ability to take important decisions and assume responsibilities	
36	I place solutions to the problems that I face on each end	
37	I give staff the freedom to identify, track, and discuss problems	
38	Decisions in your department are taken collectively	

Part III Knowledge Sharing

1. Knowledge Availability		
39	The Ministry provides the necessary information to solving problems and performing work in new ways	
40	The Ministry is keeping to create a cooperative climate between staff	
41	I provide others, with my knowledge to use it in performing their work	
42	the ministry concerned with knowledge sharing between staff	
43	Incentive systems in the ministry include rewards for the employees who share their knowledge	
44	The Ministry concerned with updating of staff knowledge through sharing, using and developing knowledge	
45	The ministry concerned with holding sessions, seminars and workshops to transfer and disseminate knowledge among the staff	
2. Knowledge Accessibility		
46	Knowledge flowing among staff easily to help the development of their skills	
47	The Ministry providing the appropriate communication means with experts to benefit from their experience	

48	The Ministry collecting and storing knowledge and providing it for managers to benefit them easily when needed	
49	I benefit from the knowledge of experienced and efficient people in the ministry	
50	I collaborate with my colleagues at work to exchange and use knowledge in solving problems	
51	The Ministry provides databases and electronic journals for use in work	
3. Knowledge Applicability		
52	I apply my knowledge in solving problems and performing tasks	
53	I'm developing my creative abilities by the systematic use of knowledge	
54	I employ my knowledge to achieve the ministry goals	
55	I join in work teams to develop my skills and benefit from the experience of others	
56	I'm concerned with applying research in my field to contribute the development of work	
57	I can solve problems in an innovative ways	
4. Information and Communication Technologies		
58	I can benefit from the databases provided by the Ministry	
59	The ministry connecting staff with the internal network "Intranet"	
60	I can via the Intranet share knowledge with others	
61	The Ministry disseminating e-culture among staff and encourage to use it	
62	I use e-mail to share knowledge with colleagues at work to solve problems and develop skills	
63	There are in your department modern and advanced technological tools to use them in knowledge sharing (such as computer, internal and external Internet ....)	

APPENDIX (3)

QUESTIONNAIRE REFEREES

قائمة باسماء محكمين الاستبانة

م.	الاسم	مكان العمل
1	أ.د. نهاية التلباني	جامعة الأزهر بغزة
2	د. رشدي وادي	الجامعة الإسلامية بغزة
3	د. سامي أبو الروس	الجامعة الإسلامية بغزة
4	د. يوسف بحر	الجامعة الإسلامية بغزة
5	د. سمير صافي	الجامعة الإسلامية بغزة
6	د.وسيم الهابيل	الجامعة الإسلامية بغزة
7	أ.د.مروان الاغا	جامعة الأزهر بغزة
8	د.خليل حجاج	جامعة الأزهر بغزة

APPENDIX (4)

Equation used for determining sample size to study population

Sample size determination:

Here are the formulas used to determine the Sample Size:

Sample Size

$$n = \frac{Z^2 \times p \times (1-p)}{c^2} \quad \textbf{(1)}$$

Where:

Z = Z value (e.g. 1.96 for 95% confidence level)
p = percentage picking a choice, expressed as decimal (.5 used for sample size needed)
c = confidence interval (margin of error), expressed as decimal (e.g., .05 = ±5)

Correction for Finite Population

$$n^* = \frac{n}{1+\frac{n-1}{N}} = \frac{nN}{N+n-1} \quad \textbf{(2)}$$

Where: N = Population size

Using Equation (1), the sample size is:

$$n = \left(\frac{1.96}{2\times 0.05}\right)^2 \cong 384$$

Suppose that the population size is 777, the corrected sample size using equation (2) is:

$$n_{\text{المعدّل}} = \frac{384\times 777}{777+384-1} \cong 257$$

Therefore, the appropriate sample size is at least 257

http://www.surveysystem.com/sscalc.htm

APPENDIX (5)

Distribution for managers at the Palestinian ministries regarding to Grade

No.	Ministry name	A4	A	B	C	Total
1	Ministry of Education and Higher Education	4	5	3	57	69
2	Ministry of Health	15	10	37	193	255
3	Ministry of Religious Affairs	3	3	5	21	32
4	Ministry of Finance	2	14	1	54	71
5	Ministry of the Interior	10	8	1	61	80
6	Ministry of Social Affairs	2	2	4	16	24
7	Ministry of Agriculture	1	1	5	24	31
8	Ministry of Communications and Information Technology	2	0	2	16	20
9	Ministry of National Economy	4	1	0	23	28
10	Ministry of Labor	2	1	3	15	21
11	Ministry of Youth and Sports	6	2	0	12	20
12	Ministry of Transport and Communications	2	2	0	10	14
13	Ministry of Public Works and Housing	2	7	3	13	25
14	Ministry of Local Government	6	7	1	19	33
15	Ministry of Justice	4	0	0	13	17
16	Ministry of Prisoners Affairs	1	1	1	5	8
17	Ministry of Tourism and antiquities	1	0	0	1	2
18	Ministry of Planning	1	1	2	2	6
19	Ministry of Information	0	1	0	5	6
20	Ministry of Culture	0	0	0	5	5
21	Ministry of Foreign Affairs	1	0	1	3	5
22	Ministry of Women's Affairs	2	0	0	3	5
	Total	**71**	**66**	**69**	**571**	**777**

Source: Based on Statistical Office of the General Personnel Council on December 15th, 2010.

Appendix (6)

ORDINARY LEAST SQUARE ASSUMPTION

(MULTIPLE REGRESSION ANALYSIS)

Assessing the Assumptions of the Regression Model (Ordinary Least Squares (OLS) Assumptions)

a. The Residuals have constant variance

Figure () plots the standardized residuals versus fitted values. The plot shows that there is no systematic pattern, then we conclude that the standardized residuals have constant variance.

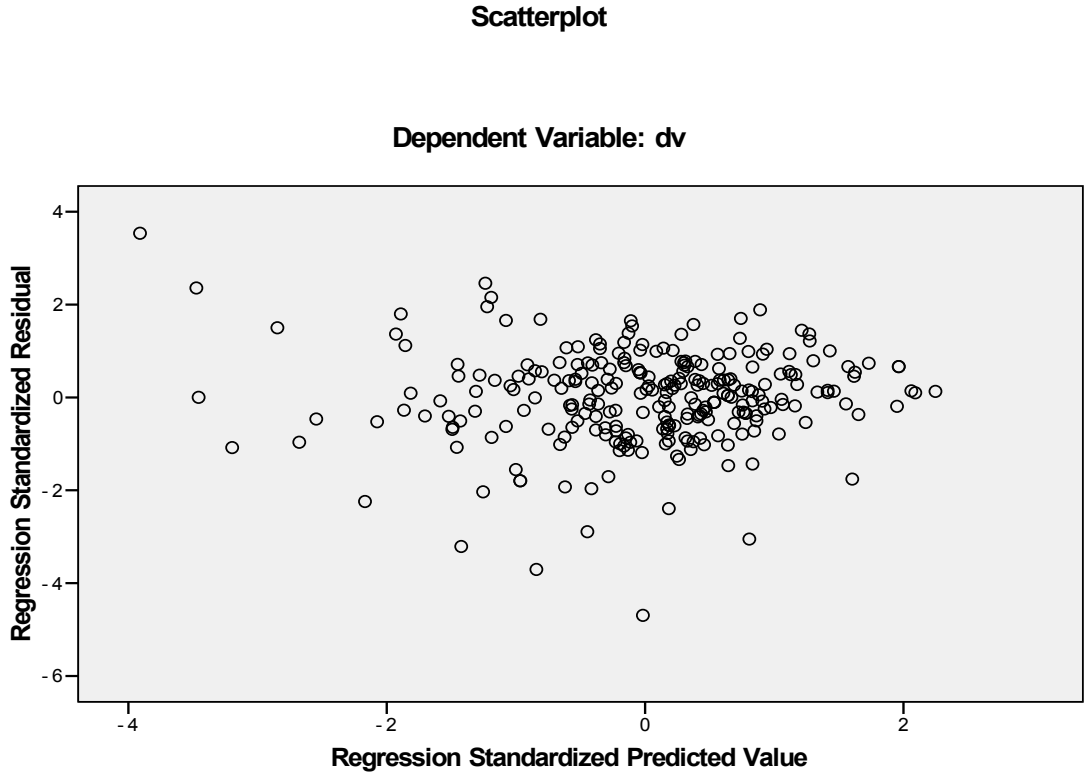
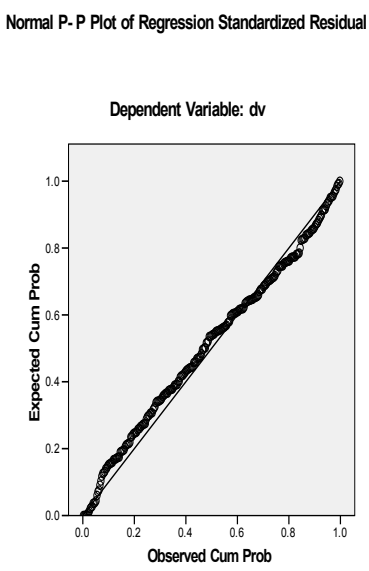


Figure (): Standardized Residuals versus Fitted Values

b. The Residuals are normally distributed.

Figures (?) and (?) shows the Normal Probability plot and histogram of the residuals. The plot shows that the points fall very close to the normal line, and the histogram shows the standardized residuals are bell-shaped. This means the residuals are normally distributed.



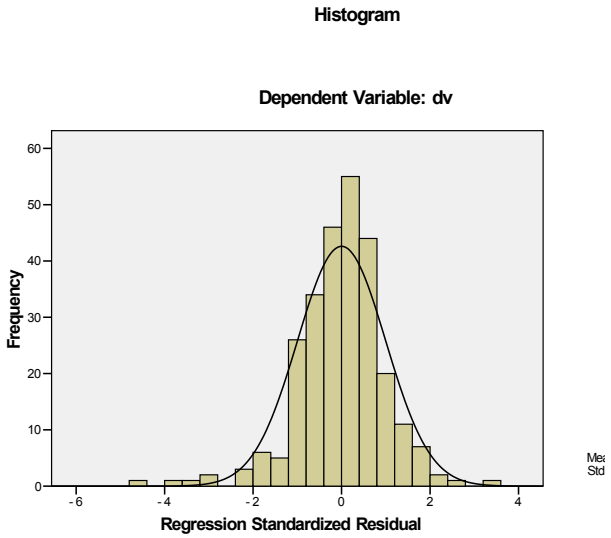


FIGURE (): NORMAL P-P PLOT OF REGRESSION STANDARDIZED RESIDUAL

FIGURE (): HISTOGRAM OF REGRESSION STANDARDIZED RESIDUAL

c. The disturbances are independent.

We use Durbin-Watson test to check If the disturbances are independent, the test statistic (DW) is scaled so that it is around 2 if no autocorrelation is present and near 0 if it is very strong.
DW= 2.028, by using Durbin-Watson table, d_L*=1.63*, d_U = 1.72, since DW is greater than d_U , we conclude there is no serious autocorrelation

d. Multicollinearity

We use Variance Inflation factor (VIF) to check the Multicollinearity among the independent variables. Multicollinearity exists if VIF is greater than 10. Table () shows that the value of VIF for each independent variable is smaller than 10, so the problem of Multicollinearity does not exist

Table (): VIF results

Variable	Collinearity Statistic
	VIF
Knowledge Applicability	1.315
Knowledge Availability	1.315