T.C.

ISTANBUL AYDIN UNIVERSITY

INSTITUTE OF SOCIAL SCIENCES

REQUIREMENTS OF KNOWLEDGE MANAGEMENT IMPLEMENTATION IN ISTANBUL FOUNDATION UNIVERSITIES

MSc. THESIS

FADY M. F. ABUGHAZI

Department of Business

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Thesis Advisors: Assist. Prof. Dr. Uğur ŞENER.

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İSTANBUL AYDIN ÜNİVERSİTESİ
SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜ

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Not: Öğrencinin Tez savunmasında **Başarılı** olması halinde bu form **imzalanacaktır**. Aksi halde geçersizdir.

To my great Family,,

FOREWORD

I thank **Allah** the Lord of the worlds who created and guided. So all admiration and gratitude go to **Allah** for giving me the patience, strength and courage to complete my study.

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May, 2017 **Fady M. F. ABUGHAZI**

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ABBREVIATIONS

KM	: Knowledge management
KMS	: Knowledge management system
R&D	: Research and development
OECD	: Organization for Economic Co-operation and Development
HP	: Hewlett-Packard Company
MLQ	: Multifactor Leadership Questionnaire
IT	: Information Technology
OS	: Organizational Structure
IS	: Information Services
IAU	: Istanbul Aydin University
MIS	: Management Information Services
SECI	: Socialization, Externalization, Combination, Internalization

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BİLGİ YÖNETİMİ UYGULAMASININ GEREKSİNİMLERİ: İSTANBUL VAKIF ÜNİVERSİTELERİ

ÖZET

Bu çalışma İstanbul Aydın Üniversitesi'nde bilgi yönetimi uygulamalarını araştırmaktadır. Araştırmacı betimsel analitik yaklaşımı kullanmış ve araştırmanın popülasyonunu İstanbul Aydın Üniversitesi'ndeki akademik personel ve idari personel oluşturmuştur. Anket veri toplama aracı olarak kullanılmıştır. Veri toplama işlemi iki yoldan tamamlanmıştır. İlk olarak, araştırmacı bir çevrimiçi anket tasarlamış ve üniversitenin e-poataları tarafından çalışan personele gönderilmiştir ve (30) çalışan personel çevrimiçi ankete cevap vermıştır. Araştırmacı, üniversitenin personeline anket formları dağıtılmıştır. (290) (%86.5) oranında (251) anket formu toplanmıştır. Araştırmanın sonuçlarına göre; bilgi yönetimi İstanbul Aydın Üniversitesi'nin hedeflerine ulaşmasına yardımcı oluyor ve bilgi yönetiminin uygulanması ile bilgi yönetimi gereklilikleri arasında (örgüt yapısı,liderlik bilgi teknolojisi) olumlu bir ilişki var.

Sonuçlar, İstanbul Aydın Üniversitesi'ndeki bilgi yönetimi (organizasyonel yapı, dönüşümsel liderlik ve bilgi teknolojisi) gereklilikleri arasında olumlu ilişkiyi göstermıştır. Bilgi teknolojisi (3.83) ortalama ile birinci sırada yer alırken, bunu (3.34) ortalama ile örgütsel yapı izlemiştir. Liderlik (3.10) ortalama ile üçüncü sıradadır. Bilgi Yönetimi ve organizasyon yapısı alanlarının uygulanmasında, katılımcıların, pozisyon nedeniyle bilgi yönetiminin uygulanması gereksinimleri ile ilgili olarak anlamlı istatistiksel farklılıkları olduğu tespit edilmiştir. Ayrıca, liderlik ve bilgi teknolojisi alanlarındaki konuma bağlı olarak yanıtlarda anlamlı istatistiksel farklılıkların olmadığı ve aynı zamanda cinsiyet ve yaş tecrübelerinden dolayı yanıtlarda önemli istatistiksel farklılıkların bulunmadığı ortaya konulmuştur.

Bu araştırma, üniversitenin bilgi yönetimi alanında bir dizi seminer, konferans, atölye çalışması eğitim kursu ve konferans düzenlemeye dikkat edilmesi ve bilgi yönetimi bilgi paylaşım kültürü kazandırması gibi tavsiyelerde bulunmaktadır. İstanbul Aydın Üniversitesi, Bilgi yönetiminde yaratıcılık süreçleri geliştirmeyi, yeni yaratıcı fırsatları izleyerek ve bunlardan en iyisini seçerek değerlendirmelidir. Ayrıca, bilgi yönetimi faaliyetleri çalışanlar arasındaki rekabet için bir temel oluşturmalıdır.

Anahtar Kelimeler: *bilgi, bilgi yönetimi,vakıf üniversitesi*

REQUIREMENTS OF KNOWLEDGE MANAGEMENT IMPLEMENTATION IN ISTANBUL FOUNDATION UNIVERSITIES

ABSTRACT

This study aims to explore the requirements of knowledge management implementation in Istanbul Aydin University in Turkey. The descriptive analytical approach is used by the researcher and the population of the study was the employees in Istanbul Aydin University. The questionnaire was used as a tool for data collection. The collection of data is completed by two ways. First, the researcher designs an online questionnaire and it was sent by the university's emails to the staff working and (30) of staff working members answered the online questionnaire. As well as, the researcher distributed (290) questionnaires to the university's staff and collected (251) questionnaire at the rate of (%86.5). The main conclusions that study reached is that: knowledge management assists Istanbul Aydin University to achieve their goals, and that there is a positive relationship between the implementation of knowledge management and the requirements of knowledge management (organizational structure, leadership, information technology) in Istanbul Aydin University.

The results showed the positive relationship between the requirements of knowledge management (organizational structure, transformational leadership and information technology) and the implementation of knowledge management in Istanbul Aydin University. Information technology took the first place with a mean that equals (3.83) followed by an organizational structure with a mean that equals (3.34) and then leadership with a mean that equals (3.10). The study detected that there are significant statistical differences in the implementation of knowledge management and organizational structure fields between the answers of the respondents concerning the requirements of implementing knowledge management due to the position. The study also detected that there are no significant statistical differences in the responses due to the position in the leadership and information technology fields, and as well that there are no significant statistical differences in the responses due to gender, years of experience.

The study accomplished many recommendations, such as that the university should pay attention to hold a series of seminars, conferences, workshops, training courses and lectures in the field of knowledge management to raise awareness and culture of knowledge management and exchange of information and experiences in this field. The university should rely on developing creativity processes in knowledge management and making this as part of its day working, by following up the new creative opportunities, and then evaluating and choosing the best of them. The university also should make the

practice of knowledge management activities as a basis for the competition among employees.

Keywords: *knowledge, knowledge management, vakıf üniversiteleri*

1. INTRODUCTION

Knowledge is progressively being acknowledged as the new imperative strategy for organizations, and the capability to manage knowledge is becoming progressively more critical in today's knowledge economy. The creation and propagation of knowledge have become increasingly significant factors in competitiveness. The emergence of the KM definition started with Peter Drucker's famous quote (1993): "The basic economic resource is no longer natural resources, nor labor, nor capital. It is and will be knowledge"(Drucker, 1993).

KM as an organizational innovation has been with us for more than a decade. As a discipline, it has reached a state of maturity where we can now discern the principles, practices, and tools that make it unique. As a discourse, it has engendered new concepts and categories for us to make sense of the many important ways that organizations use knowledge to create value (Dalkir, 2005).Thomas H. Davenport defined KM as "KM is the process of capturing, distributing, and effectively using knowledge." KM is becoming increasingly important and effective in various sectors of society(Koenig, 2012).

Knowledge sharing is considered the most significant resource for assuring a continuous survival, existence and success for the organizations. This study explains and discusses the most important subjects that help the success of KM implementation. At first, the researcher explains what is knowledge and the different types of it, and the procedures to create a useful and worthy knowledge. And next, the researcher starts to explain what is KM, why it is so important for the organization, how a successful KM organizations look like and what are the requirement for the organizations to be successful in KM implementation.

In this context, so many variables could affect the success of KM implementation. This study discusses the different dimensions that affect the implementation of KM such as the organizational structure, leadership and information technology and also discuss the relationship of these dimensions with KM and how they affect KM. These three variables or dimensions could affect significantly the implementation of KM.

The most important managerial function is organizational structure. It describes the important individual's roles and responsibilities. And also describes the way to manage the knowledge in the organization. The researcher discusses the importance of organizational structure to KM and how it really important to apply a good organizational.

In a successful KM organizations, leaders play a vital role to manage the flow of knowledge. The researcher takes the transformational leaders as a sample to a leader who is the best cooperative in the implementations of KM .what is the transformational leadership, how it relates to the implementation to KM and how the best knowledge leaders look like and what are their skills; all of these questions will be discussed by the researchers later in this study.

Knowledge sharing needs tools to be shared by, information technology is an effective tool to ease and simplify the knowledge sharing. The changing of the dealing with the business works from the written papers and folders to the data processing made an importance for the existence of KM. In this study, the conceptions of information technology will be explained and also the role of information technology in the implementation of KM in organizations and how information technology tools help to facilitate the knowledge sharing.

Universities are becoming important players in this respect. The universities, in general, contain an organizational structure to control and organize the different departments of the university, leaders to lead the educational process forward and information technology tools to ease the educational process. Universities are considered the typical foundation to be studied in this research. In this study, the researcher examines how IAU should manage their knowledge portfolios and the needed requirement to imply KM. So this research studies one of the foundation universities in Istanbul city. Also, the researcher will review all of KM definitions after that the researcher will consider one of the definitions to follow

through the research, and distinguish between the differentiation of knowledge, data and information.

2. LITERATURE REVIEW

In this section of the study, the researcher will discuss the main literature subjects which are the knowledge management, organizational structure, leadership and information technology.

2.1 Knowledge Management

Everyone manages. Managing our time, career, finance, relationship and life consider a managerial behavior. However, the complexity increases when the concepts of managing or being a manager are applied to the organization(Darr, 2010). The practice of management can be traced to the twentieth century, in spite of the importance of management in all business and humanitarian activities, but there is no clear agreement among experts and researchers in the field of management on the standard definition.

Dr. Frederick Winslow Taylor defines scientific management as “Proper knowledge of what you want men to do and make sure that they do it in the best and the cheapest way”. This definition explains two important points .First, the works conducted through others, second the efficiency in the performance of these actions are necessary.

In this section of the study, the researcher will discuss the different definitions of the knowledge and KM terms according to the opinion of other researchers. As well as, the differentiation of the concept of knowledge over than the definitions of data, information and wisdom. This sections also discuss the KM’s purposes, principles and the requirements to apply KM in the organizations. Finally, the researcher will also expound the KM’s models like Wiig, SECI and Bukowitz & Williams models.

2.1.1 The conception of knowledge

Before beginning to learn about the concept of knowledge, it is necessary to identify the roots of knowledge, which consists of data, information, knowledge and wisdom.

- **Data**: a set of facts, messages or signals and opinions that need to be processed.
- **Information**: is data that has been processed to achieve a specific goal that leads taking a decision.
- **Knowledge**: is the information that collected appropriately, such that its intent is to be useful. Or it is a group of information and ideas and different intellectual results that reflect the facts of relationships or models, whether it is a public phenomenon negotiable and simulation or implied appear in the form of the actions and behavior of individuals in the administration, so that they are viable for the purposes of scientific or a process to implement all the procedures that related to cognitive processes.
- **Wisdom**: considers the highest levels of knowledge. It is the capability to make the right and correct decisions and judgments. It is an intangible quality gained through our experiences in life.

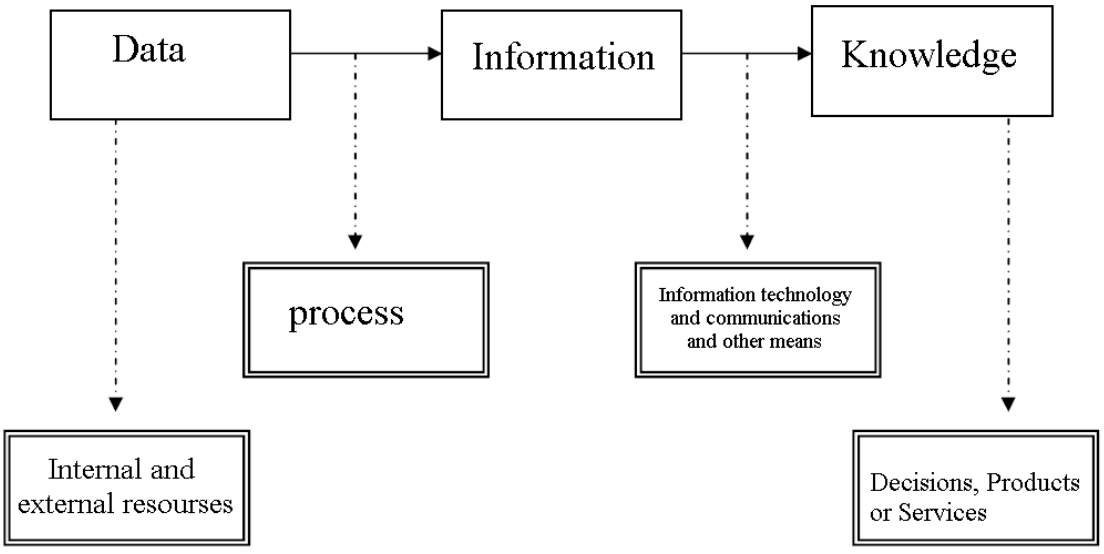

Figure 2.1 The relationship between data, information and knowledge

There is no longer a dispute to regard knowledge as an investment resource and a strategic commodity and a source of national income and the scope for the labor force by employing all the information techniques and communication. Accordingly, the developed organization are measured by the progress made in the knowledge generation which reflects on the constant developing of the organization through the substantial changes due to the research and development processes which associated with the increase of knowledge.

There are several definitions for the knowledge for many researchers:

- A dynamic human process of justifying personal belief towards the truth(I Nonaka, 2006).
- A set of structural connectivity patterns. Its contents have proven to be viable for the achievement of goals(Meyer & Sugiyama, 2007).
- Is a type of instruction or recipe that sets out how a good or service can be produced(Blakeley, Lewis, Mills, Lewis, & Mills, 2005).
- Huber (1991) and Nonaka (1994) define Knowledge as: it is a justified personal belief that increases an individual's capacity to take effective action(Alavi & Leidner, 1999).

The Researcher defines the Knowledge as "The final outcome of the use of information by researchers, workers, decision makers and users who turn information into knowledge".

2.1.2 Types of knowledge

Knowledge does not have a specific form and cannot all be placed in one form. According to the work of Nonaka (1994) and Polanyi (1966) suggested two types of organizational knowledge. These types of knowledge are tacit knowledge and explicit knowledge(Ikujiro Nonaka, Byosiere, Borucki, & Konno, 1994).

- **Explicit knowledge**: refers to arranged knowledge that can be transmitted and communicated in formal, systematic language. They are typically certified from official recourses and accessible and well documented(Gupta, Iyer, & Aronson, 2000). The explicit knowledge can be recorded and captured and later to be

accessed by others. This type can be exchanged between others by books, lectures, Scientific-technical formula, or manually.

- **Tacit knowledge**: it is hard to formalize which is attained through queries and discussions. It is rooted in the human mind and comprised of cognitive and technical elements(Ikujiro Nonaka et al., 1994).Cognitive elements refer to an experiences, skills and individual's mental models that are used to form working models of the world. The working models consisting of schemata, viewpoints, beliefs, and paradigm are used to help individuals to define and perceive the world. In contrast, the technical elements consist of concrete crafts, know-how, and skills that apply to the specific context(Md. Nor, 2006).

In addition to the difference between explicit and tacit knowledge as, explicit knowledge can be encoded and then stored within a concept is called "institutional memory", and after that it should be available and accessible for workers in the organization and may be to others that the organization deals with them as well, whilst the tacit knowledge is individual owned by specialists and is often difficult to deliver it to others.

2.1.3 Procedures to create knowledge

Knowledge can be formed by the availability and the integration of its elements, and the most important elements are according to N. Akram (2006):

- **Information**: it could be internal from the organization itself and reflects the results of its experiments, or external reflects other institutions' or researchers' experiments. Information is randomly available and is often misleading and changing very quickly. So you should find a way to identify the correct information and which is required and try to turn it into knowledge(Akram, 2006).
- **Information seeker and knowledge generator**: information usually flows through the communication systems, and the researchers individually or as a group picks the information up, each according to his ability and diligence. So the flow of information should be organized by its types, and to whom it must be reached(Akram, 2006).

- **Forming Knowledge**: by providing the correct information, and receiving it by a specialized team, and the existence of an actual need to apply this knowledge in the development of an idea, product or solution of a problem, then the knowledge can be formed. Regardless of the accuracy of the information, it does not mean anything to the non-specialist team who is not directly involved in resolving the issue that related to what information is available for(Akram, 2006).

2.1.4 Characteristics of knowledge

Several characteristics of knowledge have been described:

- **Transferable**: it can move from place to another; explicit knowledge can easily be distributed via networks to many people.
- Rely on past experience, memory, expertise, opportunities, knowledge transfer mechanisms.
- **Cumulative**: the knowledge is changeable, by adding new knowledge to the old ones.
- **Well-organized**: the generated knowledge organized in a manner that allows the recipient to easily access and select the intended portion.
- **Acquirable**: organizations play a major role in legally transforming the possessed knowledge into patents or trade secrets.
- The obtained knowledge will be useful only if it is applied.

2.1.5 KM history

KM is an old and new term at the same time. The philosophers have begun to write on this subject for thousands of years, but the using of the knowledge term at workplaces is relatively new. In 1999, it was the first time to introduce the term of personal KM; it refers to KM at the individual level(Wright, 2005). In the enterprise, early collections of case studies acknowledged the importance of KM dimensions of process, measurement, and strategy(Reinhardt, Morey, Maybury, Thuraisingham, & Thuraisingham, 2001). Subsequently, KM cohered with other developments such as the creative developments in the services industry, and the emergence of the Internet and e-commerce and the concepts of participation to manage individuals.

The development of KM can take the form of successive stages, there are three stages of the development of KM:

- **The first stage of KM** (Information Technology): The first stage of KM was compelled mostly by information technology. It has been defined using an equestrian metaphor as "by the internet out of intellectual capital". This concept delivered the framework and the justification, the seed, and the availability of the internet provided the tool. As described overhead, the community of consulting jumped at the new capabilities delivered by the Internet. Firstly, they are using it for themselves, comprehending that if they effectively shared knowledge through their organization, then they could avoid reinventing the wheel, underbid their competitors, and make more profit. The first use of the term KM appears to have been at McKinsey[1](Koenig, 2012). They quickly comprehended that they had a compelling new product. The first conference on KM was organized by Young and Ernst in 1992 in Boston(Prusak, 2001).
- **The second stage of KM** (corporate culture and human resources): The second stage of KM emerged when it became obvious that simply providing new technology was not enough to enable information and knowledge sharing effectively. Cultural and human dimensions needed to be addressed. It became apparent that the implementation of KM would involve changes in the corporate culture, in many cases rather significant changes(Koenig, 2012).

  The 1998 Conference Board on KM was a good marker of the shift from the first to the second stage of KM, there was for the first time a noticeable contingent of attendees from the departments of human resources(Koenig, 2012).

- **The third stage of KM** (taxonomy and content management): This stage developed from the awareness of the importance of content, and especially the awareness of the importance of content retrievability, and therefore of the importance of the description, structure, and arrangement of that content. A track

[1] McKinsey & Company is a worldwide management consulting firm.

on Content Management appeared for the first time, and by the 2001 KM World Conference(Koenig, 2012).

2.1.6 The conception of KM

The definition of KM concept varies according to the changing of the entrances of the concept, as well as the changes of the disciplines and the backgrounds of researchers and writers in this field. This contrast is also due to the breadth of KM concept or the rapid changes of the concept. The most important definitions of KM as follows:

- It is a science that boosts an integrated approach to evaluating, restoring, identifying, capturing, and sharing all of an organization's information assets. These assets may include documents, databases, procedures, strategies, policies, and prior experiences (Koenig, 2012).
- A collection of organizational design and organizational structures, processes, technologies, applications and operational principles that assist the workers in knowledge significantly influence and power the ability, talent and creativity that they have to provide a value for their business (Yew Wong & Aspinwall, 2005).
- It is a method in which organizations verbalize ways to archive and recognize its own knowledge within the organization that is resulted from the staffs of different faculties or departments and sometimes, even from other organizations that share the same area of concentration or interests (Firestone & McElroy, 2003).
- It is a process that simplifies knowledge sharing and begins learning as a continuous process at the organization. Thus, KM and learning go side by side in organizations (López, Peón, & Ordás, 2004).
- An expertise management form which derives from the tacit knowledge, making it accessible for a particular goal to develop the performance of the organization (Broadbent, 1998).

The researcher procedurally defines KM as the exploitation of skills and expertise to facilitate the generation and sharing of knowledge among the members of the organization through group working and seeking for the necessary information to achieve the objectives of the organization.

2.1.7 The importance of KM

Most of the managers realize that KM is the most useful organizational sources to them, and this is what Lew Platt "Former chief executive of Hewlett-Packard" called at his most famous quote: “If only HP knew what HP knows, we would be three times more productive”(INMAGIC, 2013). This quotation summarizes the challenges facing the management of organizations that seeking to create a value added from the knowledge available to them.

The importance of KM is it transformed from information management to KM. Information management considered technological systems is the most important elements of the production in the organizations, while KM considers human resources the most important elements that deal with information and information technology and relate it with their creative capacities.

We could point the importance of KM as a follow:

- Helps the organization to empower employee’s skills and performance, which leads to efficiency and effectiveness in achieving goals.
- Increase the competitiveness of the organization and make it an asset to face competitors.
- Helps the organization to raise the level of business growth.
- Knowledge is nothing less than a wealth or asset for the organization. Wherefore it helps to make some significant decisions in an easier way.

Therefore, we can determine the significant reasons of the importance of KM for the universities in general as the following:

- Large numbers of associate members with their needs for fast connections.
- The diversity and interdependence of universities’ activities.
- The diversity and interdependence of entities require fast and accurate follow-up; such as the classroom, laboratories, and the communications system.
- Standardization of administrative work style within the university.
- Reduce database duplication that can be accessed only by authorized staff according to the needs of the university base.

2.1.8 KM purposes

The practices of KM include a range of activities and efforts that aim to achieve multiple objectives, and in order to achieve the desired organizational goals, it should adopt an integrated KM system, and this should be as following:

- Provide the organization with sufficient knowledge to build a solid infrastructure to satisfy the organization objectives.
- The ability to provide an adequate and necessary knowledge to achieve effective leadership.
- The ability to provide the organization with an adequate and necessary knowledge for the development and improvement processes.
- Able to convert knowledge processes to contribute effectively in improving and developing and delivering new products and services.
- Ability to determine the type and nature of the intellectual capital and needed knowledge to achieve the organization's mission and goals, and then achieving a competitive advantage that able to operate successfully in the competitive environment.

According to other KM researchers, we can figure what KM aim to achieve:

- Gather knowledge sources, thereafter store the knowledge and prepare it for re-use.
- Collect the largest intellectual capital to develop solutions for the problems that face the organization.
- Create an environment that encourages the organization's individuals to share knowledge and to raise the level of knowledge of others.
- Determine the significant knowledge and how to get and protect it.
- Create a value for organization's works through planning, quality management, staff development, customer management and evaluation of production.

2.1.9 KM principles

Lee & Choi (2003) studies, the determinants of KM, ensure a set of principles for KM and the most important are:

- **Collaboration**: could be defined as the degree to which individuals in a group actively help one another in their work.
- **Trust**: could be defined as maintaining mutual confidence and faith in each other in expressions of behaviors and intention.
- **Learning**: could be defined as the degree to which it is encouraged in organizations.
- **Centralization**: refers to the locus of control and decision authority within an organization.
- **Formalization**: refers to the degree to which working relationships and decisions are governed by formal rules, procedures and standard policies.
- **IT support**: refers to the degree to which KM is supported by the use of IT support.
- **Organizational creativity**: is the ability to create useful and valuable services, procedures, products or ideas by individuals working together in a complex social system.

2.1.10 KM processes

The processes of KM work sequentially and complementary with each other. In this section, a regular framework of KM will be presented to understand knowledge systems. In this framework, knowledge systems are divided into four sets of knowledge processes:

2.1.10.1 Knowledge creation and generation process

A great amount of information and data is created by organizations in their daily business activities. The organization should have a managerial system for the newly created knowledge, so it can be reused to solve new difficulties or leveraged to value-add to other business activities. Knowledge could be generated through the challenge of creativity and hard research. And also knowledge is created by individuals. Accordingly, the process of generating organizational knowledge focuses on expanding the knowledge generated

through individuals and then clarifying it to others through dialogues and experience sharing.

2.1.10.2 Knowledge storage and retrieval process

Whenever new knowledge is created, you have to know first if the knowledge could be stored and collected or not. If the knowledge has been decided to be important making it offered by a knowledge store, then a package of knowledge needs to be designed, the knowledge needs to be classified to it and the package needs to be integrated to the stored knowledge(Kucza, 2001).

Knowledge storage process refers to the importance of organizational memory. Organizations face a major threat as a result of the loss of knowledge that held by individuals who are leaving for one reason or another. Therefore, the storage of knowledge becomes very important for the continuation of organizations to achieve their goals and develop its services.

2.1.10.3 Knowledge sharing process

The sharing of knowledge refers to ensure that the right person was received the appropriate knowledge at the appropriate time and to the largest number of people working in the organization. Thus, there must be ways to transfer knowledge from one level to another that ensuring knowledge sharing without any obstacle such as telephone, chat, and group discussion on the internet.

2.1.10.4 Knowledge application

The application of knowledge refers to the transfer of knowledge to the executive processes to develop and create the organizational ability. Grant (1996) describes the information integration by three techniques: directives, organizational routines, and self-contained task teams.

- Directives are the knowledge conversion from particular standards, requirements and procedures to explicit knowledge which enables the individuals to learn and understand the particular knowledge.

- Routines refer to integrating individuals' task performance and particular knowledge with the development of protocols, specifications and patterns which decrease the necessities of communication.
- Self-contained task teams refer to the process of problem-solving for the teams of individuals by using their personal ability and knowledge when the specification of the routines in organizations and directives and are not applicable as a result of the complexity and uncertainty of the task.

2.1.11 Features of the organization of KM

According to the other researchers' results, there are so many features for the organizations that operate the concept of KM:

- Using the scientific research methods and other systemic methods as a basis for planning, thinking and decision-making.
- Ensuring the development of knowledge from various internal and external sources, and the continuous updating of the available knowledge. Then contact with the most important sources of knowledge which is related to the organization's activities and objectives.
- Using the available knowledge appropriately in setting goals and objectives. Planning for future programs and trends. Implementing the duties and tasks at all levels, then monitoring the performance and evaluating the achievements.
- Concerning in a value added knowledge which helps to improve the abilities and skills.
- The high-speed rate of processes of creativity, innovation and the development of products and services. Workers looking to actively participate in submitting their proposals and innovations which increase the competitiveness capacity of the organization.

2.1.12 KM requirements

KM works within a regulatory framework environment contains many elements and variables. However, there are three variables interact with each other and affect the process of KM. That means these variables may be supportive for KM to achieve organizational

efficiency, and also they may be an obstacle for KM. These variables are the organizational structure, information technology and leadership.And these variables will be discussed in detail in the next chapters.

2.1.13 KM models

Those who are interested in KM talked about several KM models which make these models as a guide for the organizations that want to build a KM system. We can say that any model or KM system must have some basic characteristics in order to achieve the desired goals, and the most important characteristics are:

- Comprehensibility.
- Flexibility.
- Efficient leadership.
- Agreement and harmony with the objectives of the organization and its strategic plans and activities.
- Ability to provide the organization with the necessary knowledge.
- Availability of qualified human resources for KMS.

However, the most important KM models are:

2.1.13.1 Wiig KM model:

Wiig (1993) offered his KM model with a principle which represents that, knowledge can be useful if it is well ordered. The useful dimensions that are noted in Wiig's KM model, as the following:

- Perspective and purpose.
- Connectedness.
- Congruency.
- Completeness.

Completeness indicates to check how much appropriate knowledge is available from a given source. The knowledge source may be explicit or implicit resources. Connectedness indicates to define how well the relation between different knowledge objects is.

Congruence refers to the relational links and values between the objects are consistent. Perspective and purpose is a phenomenon through we know something but from a specific point of view for a particular purpose(Mangipudi, 2009)

Wiig KM model is one of the important KM models which is in existence today. This model helps the practitioners managing knowledge based on the knowledge type.

2.1.13.2 SECI model

Ikujiro Nonaka and Hirotaka Takeuchi theory of organizational knowledge creation. This theory is the most widely accepted KM model which has four styles for the conversion of knowledge:

- Explicit to tacit (Internalization).
- Tacit to tacit (Socialization).
- Tacit to explicit (Externalization).
- Explicit to explicit (Combination).

The SECI process of knowledge creation is referred as a spiral model of knowledge creation. This model concentrates on the challenges that organizations face to comprehend the dynamic nature of knowledge creation and to create knowledge effectively.

2.1.13.3 Bukowitz & Williams model

Bukowitz and Williams describe KM process framework that summarizes “how organizations generate, expand and maintain a strategically correct stock of knowledge to make value”.

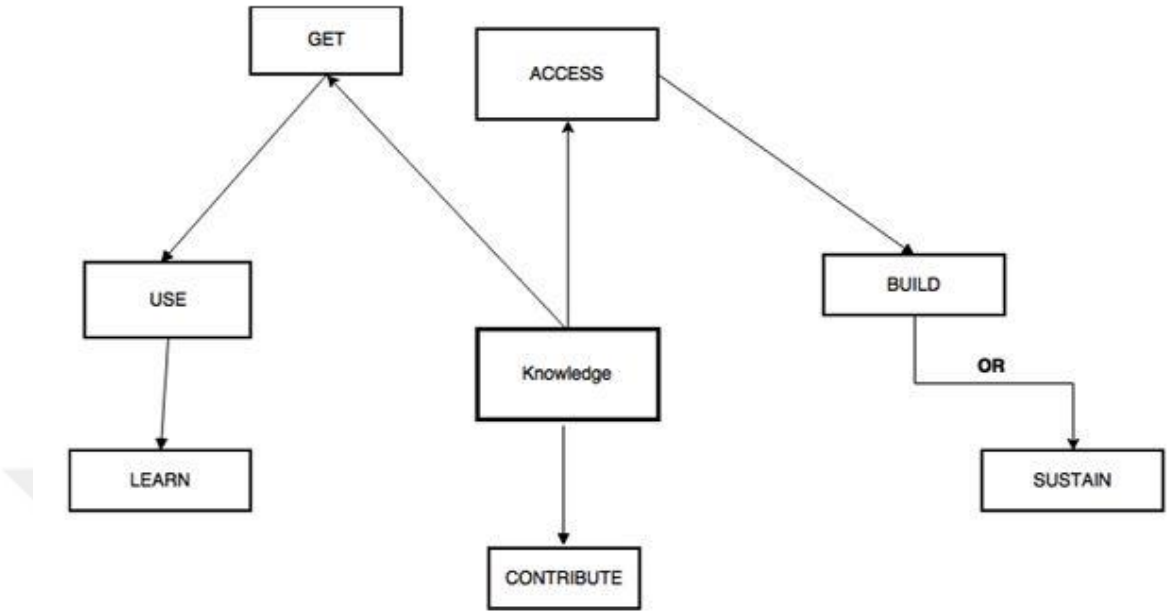

Figure 2.2 The KM Process Framework by Bukowitz and Williams

In this framework, knowledge comprises knowledge relationships, communications infrastructure, repositories, functional skill sets information technologies, environmental responsiveness, process know-how, external sources and organizational intelligence.

These stages aim at more long-range processes of matching intellectual capital to strategic needs.

- **Get Stage**: is the initial stage, it consists of looking for required information in order to make decisions, solve problems, or innovate.
- **Use stage**: is the second stage, and it deals with how to combine information in new and interesting ways in order to boost the innovation of organization. The spotlight is mainly on individuals and then on groups.
- **The learn stage**: refers to the formal process of learning from experiences as a means of creating competitive. Learning in the organization is important because it helps the transition step between the implementation of ideas and the creation of new ones.
- **The contribute stage of the KM cycle**: relates with encouraging employees to post what they have learned to the communal knowledge base (like a repository).

By this way, knowledge can be visible and available to the entire organization when it needed.

2.2 Organizational Structure

Organizing is the most important managerial function. It enables to connect organization separated elements to one whole. The organizational structure represents the organization's backbone; it defines responsibilities, rights and roles of individual organizational elements departments, technology, and people. Organizational structure's Character predetermines organization's behavior and its elements, and the way how it reacts to external and internal incentives. Every type of organizational structure has different advantages and disadvantages(Mládková, 2011). In this sections, the researcher will discuss these advantages and disadvantages of organizational structure. And also the researcher will explain the concepts of organizational structure and what it is important for applying KM. The researcher will also pass to explain the different types of organizational structure and how these structures are or are not useful for KM implementation.

2.2.1 The concept of organizational structure

Most of the organizations want to succeed in their industrial markets. So they are required to look for ways how to take advantage of their knowledge as much as possible. Taking into consideration that not all of implemented KM activities are successful. Organizational structure's character is one of the factors that influence success or failure of KM activities(Mládková, 2011).

The definition of Organizational Structure is "a system used to determine a hierarchy in an organization". It classifies each job, its function and where it should be reported to inside the organization. The reason to develop this structure is to launch how an organization assists and operates an organization in attaining its objectives to make a future growth. An organizational chart is used to illustrate the organizational structure(Friend, 2016). And also organizational structure is defined by Robbins (1990)

and Ghani et al. (2002) as the formal distribution of work roles and administrative mechanism to integrate and control work activities(Lee & Grover, 1999).

2.2.2 The importance of organizational structure for KM

KM activities depend on the prevailing behavioral culture in the organization and its organizational structure. And also the administrative staff and their mentality may limit the chances of the formation of an interaction between individuals and units. However, those factors affect knowledge sharing and the creation of new knowledge. Most of the hierarchical organizational structure is also built on the bureaucracy basis that is characterized by inflexibility in the transfer of knowledge. Administrative commands require the transformation of knowledge through formal channels which limit the flow of knowledge sharing. In order to apply the knowledge and make it more suitable for use in the organization activities, then the organization must provide an organizational structure that allows knowledge sharing.

On the other hand, A. Alali (2012) pointed out that KM depends on the organizational structure of the organization. And that's highlighted the importance of the flexibility of the organizational structure that impacts on the behaviors of employees and the relationship between employer and employees which is based on cooperation and trust. That’s why KM needs the decentralization at work. So there are many dimensions influence the organizing of KM, including(Alali, 2012):

- The form of the hierarchical structure of the organization affects the individuals in the working place and their relationships among them.
- It is possible for organizational structures to support activating KM within the organization.
- Making the organizational structures more horizontally consider one of the means of activating KM.
- Switching the formal management practices to the practices that are more compatible with the requirements of KM. such as; the switching of the existing regulation of isolated work patterns to a pattern of group working(Abdlwahab, 2006).

2.2.3 Features of good organizational structure for KM

The good organizational structure will facilitate the sharing of knowledge in the organization and ease the achieving of any organizational goals. Wherefore making an organizational structure that efficiently and effectively achieves the requirements of the administrative visions. And according to Alrahahla (2010), the good organizational structure should be characterized by following:

- **Balance**: This includes the principle of balanced relations between the authorized powers and responsibilities that granted to the individual, as well as the balance in the scope of supervision and the communication between departments. and the most important is the adoption of the principle of the unity of orders that issued by various administrative levels.
- **Simple and flexible**: the principle of flexibility requires the available organizational structures to be designed to accommodate the new regulatory adjustments depending on the internal and external variables required to build an effective organizational structure.
- **Continuity**: This principle refers to the need to adopt discreet scientific rules in building organizational structures. as well as the accuracy in the diagnosis of reality and future changes without making future substantial changes to the organizational structure.

2.2.4 Organizational structures and KM

According to what is stated in the previous sections, the most appropriate organizational structures for the implementation of KM in organizations are structures that help to develop the spirit of teamwork, which is characterized by flexibility, so as to ensure the continuity and sharing of knowledge at all levels of the organization.

KM is discipline prior task of which is to improve the working for the organization through knowledge. KM can be made successful by the organization when they know their needed knowledge. Even though some of best of the practices of KM can be transferred among organizations, internal and external situation of the organization should be taken seriously and KM activities should be adjusted to it(Mládková, 2011).

The type of organizational structure is critical factors that influence the success of the organization with any KM activities. The researcher adopts Nonaka and Takeuchi (1995) classification of organizational structures. They wrote about three types of organizational structures: bottom-up structures, top-down structures and combined structures (they also refer to combined structures as middle up down model)(Mládková, 2011).

2.2.4.1 Top-down organizational structure and KM

This type is a hierarchical structure of the organization that followed the standard of the division of labor. Top managers are the power owners and decision makers. The creation of the basic of objectives, concepts and ideas is held by top managers and then they distribute them as duties and tasks to lower levels of the organization. The employee's role is limited. They just have to accomplish the tasks that are given by top managers(Mládková, 2011).

Despite this type of structures may be effective in the accumulation, exploitation, and implementation of the new knowledge, they limit KM activities. The channels of knowledge are opened only in the top-down path and only simple explicit knowledge can be used effectively in this structure. The lower horizontal levels and the cooperation of individual hierarchical levels do not communicate in sharing knowledge and are also limited. A bottom-up knowledge flow is challenging. The knowledge is damaged by Hierarchical borders. The context of knowledge is lost and it will be explained differently by the different departments. This type also restricts, even more, the flow of tacit knowledge. As it is known tacit knowledge exists only in the individuals' heads and is shared and owned in specialized parts of departments(Mládková, 2003).

Knowledge market pathologies and dysfunctions are supported by the top-down organizational structures. Managers don't know where knowledge is localized, whether it is or it is not in their organization. The organization overlooks the knowledge maps. Knowledge is irregularly spread around the organization and workers who need it could not access to it. In this type of structures, people head for competing with their colleagues. Knowledge turns out to be a power which prohibits altruism and mutual benefit. People naturally share the knowledge they own only with the trusted people. The sharing of Knowledge with strangers is too unsafe and risky(Mládková, 2011).

A market of knowledge with dysfunctions drives to a market of knowledge with pathologies. Knowledge barriers, artificial knowledge shortage and monopolies are the most common of them(Davenport & Prusak, 1998). Monopoly cements exclusive knowledge control in the organization and provides the owner of knowledge the power over others. The availability of knowledge depends on the existence of the knowledge's owner at the organization. So monopoly of knowledge stands as a part of the philosophy of top down organizational structure. The higher level a worker is in the hierarchy of the structure the more knowledge he or she has. The Top-down organizational structure restricts the sharing of the knowledge. The worker of higher level employs his knowledge to form a task and then pass it on the lower level workers. The lower level workers are not supposed to know the knowledge that headed to the formation of their tasks; they are supposed to accomplish the tasks. Knowledge monopolist tends to fix other people problems but does not tend to participate their knowledge with them(Mládková, 2011).

Brain drain is another problem in organizations. Organizations lose workers who have significant knowledge because they do not know that their workers own it. People in organizations with the top down structure often hesitate to receive the developed knowledge by workers on a lower level than is theirs. It is called knowledge market barriers(Mládková, 2011).

2.2.4.2 Bottom-up organizational structures and KM

The structures bottom up are flat organizational structures, flexible, have less organizational levels and enable organizations to build and make direct relationships with their customers. In this structure, people work more self-sufficiently. The making of decisions is related to the knowledge(Mládková, 2003).

The model of bottom up is centered on strong relationships and teamwork and autonomy. The middle or bottom level are mostly the owners of knowledge in organizations. Top managers have limited power to affect workers. And also top managers set principles, give rules in organizations. The managers at middle level are liable for making the suitable working environment and responsible for leading the worker in lower levels. Trust building is the most important role of managers, because if people do not trust each other then there will be no knowledge sharing(Mládková, 2011).

Structures of Bottom-up support work with knowledge dimensions; these structures are useful especially with the tacit knowledge that is naturally participated in communities and teams. But unfortunately, there are barriers between departments in organizations that shackle sharing and participating of knowledge.

Once managers discover how to remove barriers between teams and departments, the structure of bottom-up might support knowledge market development. Because this is not so easy, the organizations that use structures of bottom-up also experience knowledge market pathologies and dysfunctions, asymmetries and monopolies of knowledge. This type of structures do not offer an environment for systemically recording knowledge and use it again in the organization.

Structures of bottom up have a higher chance for KM than structures of top-down but also the structures of bottom up still are not perfect.

2.2.4.3 Combined organizational structures and KM

This type of organizational structures stands as a combination of the structures of bottom up and top down for example task force and bureaucracy. The organization of task force presents flexibility, it is functional and adaptable; workers are able to take part more in the processes of decision making. But Bureaucracy can be used more efficiently in the accumulation, exploitation, and implementation of new knowledge. Combined structures are considered as a hybrid structure, so organizations can use the benefits of the advantages of bottom-up and top-down structures and crush the disadvantages(Mládková, 2011).

In combined structures, knowledge is important for all employees and they should cooperate on the horizontal and vertical levels. Combined organizational structures allow making and spending the full possible of different relationships in the organization and completely support its KM activities(Mládková, 2003).

Combined structure contains three types of layers. First, the vertical layer and it is liable for the organization’s management. In this layer routine, normal operations are achieved by formal, hierarchical bureaucratic organization. Second, the horizontal layer and it is liable for creating the organization’s major values. It is also liable for the creation,

distribution and using of knowledge (both explicit and tacit). And it consists of project groups who use knowledge from the vertical layer. The third layer, the knowledge layer or the library, and it is liable for recording and archiving knowledge. It contains all explicit and tacit knowledge of the organization. All of the employees in the organization are compelled to record the knowledge that they own in IT databases, documents, filling systems, etc.(Mládková, 2011).

Once the team achieved its task, and after they finish their task the individuals record their newly gained skills and knowledge in the third layer (knowledge layer) and then the team waits for the chance to begin another project. In some organizations, they can enter the vertical layer. Communication and the relation among whole layers should be coordinated and well managed(Mládková, 2003)

The combined structures philosophy points that all employees in the organization are important and they have to cooperate on both levels the horizontal and vertical. The combined organizational structure giving the chance for making and using the all different relationships in the organization which leads to a healthy, fast and functional knowledge market(Mládková, 2011).

The middle managers have important roles in the combined organizational structure, they are liable for communication and KM in the organization. Combined organizational structure is the most ideal organizational structure for innovative and optimum exploitation of knowledge in the organization(Mládková, 2003).

2.2.5 Centralization and decentralization

Centralization and Decentralization are contrasted concepts, both of them are the basis for organizational structure concepts and they related to the delegation and distribution of authority in the organization.

In centralization, the decisions are made from the top while in decentralization the decisions are made from a lower level in the organization(Eriksson, Karl, & Bonnedahl, 2013). In the simplest sense, the decentralization means the extent of the top manager's desire to delegate some of his authority over individuals or different administrative levels

which allow these parties to participate in the decision making process and other administrative issues in the organization.

Organizations are seeking to full use of the advantages of decentralization and reducing of absolute centralization support the implementation of KM. And the benefits of using decentralization in organizations as following(Qaryouti, 2006):

- Makes top managers concern more about strategical issues rather over the tiny detailed issues.
- It is a motivational style for worker which makes them feel their importance through their exercise of authority in whole or part.
- It provides the opportunity to learn about the particular circumstances of each decision directly.
- The emergence of new ideas and innovative solutions due to the increase of the employee's enthusiasm in various administrative levels and their desire and interest in solving the problems they face.
- Helps the subordinates to increase their experience and then take advantage of their talents and abilities in achieving the organization's goals and prepare them for senior positions.

In summary for what was written above, the researcher finds that the decentralization depends on the human resources with expertise and experience in order to achieve the organization's goals. Decentralization follows the principle of shared decision-making by a group work and the exchange of knowledge. All of these make a big chance to exercise KM activities through the creation, sharing and application of knowledge.

2.3 Leadership

The changing of information systems is a challenge that is faced by almost every modern organization. Nowadays, no one can imagine the speed of the flow of information that happened in a few years ago. The current direction toward information impacts the leadership process by speeding up the inputs, claiming personal and rapid product transformation, all of this in a climate that constructs competition over the responding

time to the demands of customers. In a short future, the leadership function will be affected by the current information flow and revolution. So in this section, the researcher will discuss the concepts and definitions of leadership and transformational leadership and why leadership is important to implement KM. As well as, the researcher will discuss the relationship between the transformational leadership and KM and what are the characteristics of good leaders in applying KM.

2.3.1 The concept of leadership

Simply, leadership means the ability to affect employees to achieve the organization's goals. Whereas, KM is an investment that carried out by organizations in order to employ it in their activities to develop and achieve its strategic objectives. So the first responsible for the support and application of KM by participating it intellectually and practically among the organization's departments and affecting employees by its activities is Leadership. However, there are several definitions for leadership. Here are some of the leadership definitions:

- It is the process where a person affects specific group members to accomplish specific objectives(Northouse, 2015).
- Leadership has been studied by the U.S. military in depth. Their definitions about leadership is a process by which a person influences others to achieve a mission(Manual, 1999).
- It is the accomplishment of the goal during the guidance and supervision. And the person who can accomplish the desired goals is the commander(Kouzes & Posner, 2008).
- It is the process of influencing members to understand and agree about what desires to be completed and the ways to complete it, and the process of enabling the members and to achieve common goals(Yukl, 2006).

William Edwards Deming says that the system designed by management is responsible for 85% of the unintended consequences where the workforces are only responsible for

15% of the mistakes(Deming, 2009). That simplifies the important role of leadership in managing knowledge and achieving organization’s goals.

2.3.2 The importance of leadership

The implementation of KM requires many variables to be succeeded and the most important variable is leadership. Leadership is the mainstay for successful KM, if all factors are met together to achieve successful KM without leadership then the tasks will be unorganized which causing a confusion in working practices and that lead failing to achieve the organization’s goals. Leadership acts as the catalyst that makes all other elements work together. It is a significant management function which assists to maximize efficiency and to achieve organization’s goals. The importance of leadership is justified by the following points(MSG team, 2016):

- Leading members, inspiring trust and providing purpose.
- The link between the workers and the organization's future plans and perceptions.
- Driving change, managing change and encouraging creativeness.
- Information and knowledge manager and communication and knowledge developer to help decision making.
- Generalize the positive aspects in the organization and reduce the negative aspects as possible.
- Managing resources and activities to budget and meeting required quality.
- Control over the work's problems and draw the necessary plans to correct the problems.

2.3.3 Leadership styles

“The best way to have a good idea is to have a lot of ideas.” Dr. Linus Pauling

To develop the leadership skills, you must ask yourself “What is the best leadership style that works for me and my organization?” To better answer the question, you should understand which to choose while developing leadership, you should consider developing

as many leadership styles as possible. And choosing the right style, at right time in the right situation is the basis for leader effectiveness. Below are definitions of leader styles:

- **transformational leadership*:*** is a style in which the leader pinpoints the change that is needed, guide the change through inspiration, and executes the change with the commitment of the members of the group (WebFinance, 2016c).
- **Transactional Leadership**: is a style that is based on the identifying clear goals and objectives for the followers along with the use of either rewards or punishments to encourage followers to compliance with these objectives(WebFinance, 2016b).
- **Laissez-faire Leadership**: A style of non-authoritarian leadership. Laissez-faire leaders attempt to provide the least possible guidance to followers (subordinates) and attempt to accomplish control through less recognizable ways. They have faith in that people shine when they are left alone to respond to their duties and responsibilities in their own ways(WebFinance, 2016a).

2.3.4 Transformational leadership

Burns (1978) has presented the “transactional and transformational” styles of leadership. Leaders of transactional try to exercise a functional give-and-take leadership involving a more realistic leadership approach. And also he proposes that this style of leadership make an environment in which followers and leaders help to evolve each other's levels of motivation and morality furthermore help them to look at obstacles and problems from an another perspective. This form of leadership can claim to create such a spirit in the followers and encouraging them to concentrate on a higher value goals while assisting them to contemplate about globally goals and objectives. By underlining the perspectives of the future, transformational leaders inspire their followers to take on perspective in a manner to grant them motivation to achieve their aims. The main factor about this leadership kind is the fact that they inspire the spirit of harmonization among the followers(Cacioppe, 1997).

Interestingly to note that in the years following 1985 and combined with Burns' Studies, Bass offered a leadership mode, it was the basis for the implementation of transactional and transformational leadership in order to create a state of transformation and stability. Furthermore; soon after Jung, Avolio, Bass, and Berson (2003) bring together some other transformational leadership aspects which were driven from the previous model and categorized it as new single model known as "Multifactor Leadership Questionnaire (MLQ)."(Gelard & Boroumand, 2014).

Moreover, all aspects of other theories of leadership including situation, processes, styles and characteristics are contained by the transformational leadership. A survey of the leaders' characteristics throughout history in some different businesses has verified that these characters are all in the same line with Bass' description in his research.

In fact, Bass presumes that the transformational leadership characteristic is applicable universally and that it is based on leaders' performance with interest-free which heartens all of his employees to work more heartiness. It is worth mentioning that transformational leaders hearten their followers by giving enthusiastic approval to their ideas, views and thoughts and also making those ideas practiced using modern means. These leaders are a model for their followers by their own behavior and words. Their followers reverence them and value their actions and words. As well, transformational leadership is so poignant and influential, why? Because of the capability of its practitioners to influence, inspire and motivate their followers to their action and words(Nemanich & Keller, 2007). Seaver (2010) defined transformational leadership in his study as a style of leadership where some people participate with each other acting in a way that is stimulating and in a way provide others a motivation to work in an ethical way. Regarding to him, this kind of leadership will exist when the leader acts in a way to make a trustable environment and so inspire his followers to follow him(Yukl, 2006).

Transformational leadership heartens others to encourage self-interest of the followers for the good of the organization being capable of having such a significant effect on the concern of his followers(Munir, Rahman, & Malik, 2012).

2.3.5 Transformational leadership and KM

Jennex (2005) has believed that obtaining, sharing, detaining and using knowledge of the organization can be a factor that can drive and also support to result in an environment of successful business. We can notice that leadership is a significant component in the efforts of KM. Mohamed and Nguyen (2011) substantially indicate that leaders are strongly effective in the practices of KM. What leaders could do for making this factor more effective is to share their individual knowledge and also to fulfill and promote their knowledge skills (Gelard & Boroumand, 2014).

These days, transformational leadership able to function such an important role in promoting the environment of organizations and it can help to apply knowledge efficiently by managing the knowledge in the desired way to improve the organizational learning(Aragón-Correa, J. A., García-Morales, V. J., & Cordón-Pozo, 2007). It could also be an assistant for improving the organization's absorptive capacity and enabling the organization to exchange knowledge in a preferable way. Transformational behaviors' best key features is an urgency on the implementation of knowledge in the environment of the organization and thus preparing and comforting the way for establishing an innovative organization which will be done by offering some rewards. And also transformational leadership could be functional in the way that it prepares and boosts the environment for making a decision and leading to the application of knowledge(Gelard & Boroumand, 2014).

Remarkably, Politis (2001) researched the relation between self-management, transactional and transformational leadership and different KM’s features. As a result of the research, he concluded that transformational leadership can be an effective factor in the skills of KM.

All of the transformational leaders have the same common attribute that all of them try and attempt to encourage their followers to involve a higher degree of KM(Bryant, 2003).So the researcher can claim that organizational learning positively affects KM. And also there is another research done by Vincent (2006) proved the fact that transformational leadership is meaningfully related to KM. As well, Lipshitz, Popper, Amitaiand (2006) represent a significant relationship between the followers’ understanding of

transformational leadership and the extent to which knowledge is supported by businesses. In a row with others, Hannah Doloriert, David Analoui, and Sambrook (2013) represented the perfectly positive correlation between the style of transformational leadership and KM's activities of an organization. Generally, the results of the researches clarify the fact that the behavior of KM are extremely predicted by transformational leadership and the fact that those leaders are better matched to be involved in KM(Crawford, 2005).

Transformational leaders improve an environment which aids to create, share, maintain, and imply knowledge. Especially, transformational leaders by using advantages of the mental inspiration, ideal and developmental support inspire their followers to generate and share knowledge(Bryant, 2003).

Bass and Riggio (2006) explain that transformational leaders function an important role in the knowledge creating process through promising non-cash and cash rewards. However this attitude is treated to be as transactional leadership's characteristics, research proves a positive relationship between transformational leadership and the promised awards(Goudarzv, 2011).

Podsakoff, Mackenzie, and Bommer (1996) declared that transformational leaders generate and invent original ideas and support the workers in applying these ideas to develop the process of production. According to this, there is a positive relationship between transformational leadership and the employees' performance has been noticed. Eventually, organizations encourage innovative performance among the employees to support knowledge creation(Birasnav & Rangnekar, 2011).

There are a number of researchers like Crawford (1998), Strohekerch and Crawford (2002) and Scott, Gould, and Crawford (2003), they have been demonstrated the relationship between transformational leadership and personal creativity. And also, they have found transformational leaders more inventive compared to the transactional leaders. As well, they have considered creativity one of the most essential characteristics of KM. One of the creativity assumptions is the capability to generate and achieve knowledge and data(Crawford, 2005).Transformational leaders function a role in execution the KM process in the organization and in this way develop the human capital benefits.

In general, the results of the studies explain that the KM's behaviors can be predicted by transformational leaders, and they function a very significant role in implying and managing KM. Those leaders show the same view and generate functional solutions to inspire the followers to make them more taking a part in the activities of KM. Transformational leaders prepare lower- level individuals with information competencies, motivation, skills and duties that assist them to inspire, gain, create, share, keep and imply knowledge (Noruzy, Dalfard, Azhdari, Nazari-Shirkouhi, & Rezazadeh, 2013).

2.3.6 Knowledge leaders

Knowledge leaders play and hold too many roles in the foundations. According to Bergeron (2011), the main positions of knowledge leaders and their roles are:

- **Chief knowledge officer**: It is a senior management position concentrates on facilitating, promoting, and communicate the practices of KM.
- **Knowledge analyst**: a lower or mid-level position that focuses to personally distribute and learn the best practices of the foundations.
- **Knowledge engineer**: A lower level position concentrates on gathering information from specialists and representing it in an organized form.
- **Knowledge manager**: “middle-level position” and their job is to organize the work of knowledge analysts and engineers.
- **Knowledge steward**: a low level, and sometimes temporary or informal position generally related to small corporations.

2.3.7 Knowledge leaders characteristics

Leaders are facing the challenges of globalization and new technology, as well they focus on values and reliability, strength and cognitive competence among workers and also motivate them toward participation and sharing of knowledge, especially in the knowledge-based organizations, which the leaders are characterized by the following(Singh, 2008):

- Possess a clear vision of knowledge and KM as they are thinking about the objectives of knowledge.

- Have a holistic perspective that includes the regulatory and technology strategy perspectives.
- Bet on the success of knowledge in the different circumstances and possibilities.
- Encourage the movement of information and knowledge generation between organizational levels.
- Format team's work whose members consist of different specialties.
- Develop incentive programs and the human resources that contribute to change behaviors.
- Motivate employees to participate by applying what they learn and how to share their own knowledge and how to explain that knowledge and translate it into skills and behaviors to improve performance.

In summary, it can be said that the contribution of administrative leaders can create an atmosphere of teamwork among employees and the various departments and branches, and spread the organizational awareness to share and transfer the knowledge, and open a way for workers to share their creative ideas, And also to participate in decision-making at all administrative levels, all of these would contribute to apply KM in order to achieve the organization's goals.

2.4 Information Technology

Prusak and Davenport (1998), the core role of IT in KM is to quicken the rapidity of transferring knowledge. The software of KM advocates the flow of knowledge through communities and networks. The tools of KM aim to help the practices of organizing and gathering the knowledge of groups of individuals to make the knowledge obtainable in a shared base. The use of modern information technology to get the best results is the main requirement for organizations that want to be at the forefront. KM needs to apply IT in order to improve creating, organizing, sharing and applying knowledge. Therefore these technological tools are too important and without it, the organizations can not apply and practice the full KM. IT is playing an important role in ease the implementing of KM in organizations. In this section, the researcher will discuss the concept of IT and what is the

important role of it in applying KM, and the researcher will discuss the importance of the internet and how it could be useful in the organizations.

2.4.1 The concept of information technology

The term information technology appeared in the early seventies with the advent of electronic computers. IT can be defined as the management of information by using computers and software. In several organizations, IT is known as Information Services (IS) or Management Information Services (MIS). The department of IT in organizations is liable for storing, processing, protecting, transmitting the information, and later reclaiming the information if it needed(Epstein, 2011). Information Technology means the tools of the modern innovative advanced ways in information and knowledge processing like computers and network that are used to get the information for storing and even developing it and then reclaiming it for use in the organization in order to reach the goals as fast as possible with high performance in the advanced world of enormous competition.

Technology systems that keep pace with the era of knowledge in four stages: The first stage, which began in 1992. In this stage; a new database for projects has created using technological tools. Then the second began to focus on the customer, and the aim in this stage was to use all of what the organization has to gain access to the best ways to serve the customer. All operations were focusing on data storage, and there was no interaction with the recipients of knowledge. The third stage (1999-2001), there was an interaction between knowledge and the recipients of knowledge. The users started to also interact with information at network pages, as there have become e-commerce, e-business and banking transactions. And there was a high interest in the concept of KM. Finally, the fourth stage began in 2001, where became a focus on how to maximize the organization's ability to create new knowledge, and how to create an environment that encourages internal knowledge sharing in the organization(Abdlwahab, 2006).

2.4.2 The role of information technology in KM

Today, numerous tools are available under the umbrella of KM. The discovery of knowledge by technological tools able to be very effective for organizations that want to

get a sustainable competitive advantage. Technology plays an important role in the management of knowledge, as in knowledge generation, acquisition, sharing and storing.

Using technology as a mean to support the explicit KM is indisputable. The Statistics Australian Bureau (2000) reports that of organizations with (100) or more employee, (100%) of employees have IT tools to help them in their work like computers, and (95%) of them have internet access, (68%) of these organization have a permanent staff of IT. These results of statistics would be an evidence of an almost global use of computers and Internet (Zyngier, 2001).So we can sum up the role of technology in KM in the following points(Kai, 2005):

- KM is often facilitated by IT: facilitates storage of data, management of document, information access, the dissemination, sharing and exchange of ideas.
- Contributes to the strengthening of controlling on the existing knowledge which made it an easy process with less cost.
- Helps in creating an environment that supports the interaction of human resources for the generation of new knowledge.
- Increases the “capability” and “efficiency” of KM by IT tool.
- Provides solutions to KM.
- Provides the communication means that facilitates the formation of joint workshops which is needed by reactive groups in different areas, and also provides a knowledge base containing all the knowledge about related topics with organization's operations.
- Helps in completing clerical works and the preparation of documents and increases the speed, accuracy and processing of these documents.

2.4.3 The use of internet for KM

Intranet is working with similar functionality, but existing solely within the firm. Such as the intranet utilizes network technologies like Transmission Internet Protocol/Control Protocol. The creation of internal networks will be allowed with some internet

applications to make the individuals communicate with each other and with different operating systems(Frost, 2014).

The internet helps in the implementation of the main various activities that are necessary for knowledge generation, transferring and sharing. And one of these activities is to integrate knowledge in products, processes and individuals. Moreover, it plays an important role in facilitating interaction with customers by providing a valuable data which is used to generate knowledge about customers. And it helps in the communication and coordination between the various departments of the organization which makes it easier to manage and control all activities and processes. Also, it considers an effective way to conduct training and dissemination of knowledge, awareness and guidance on the work and the products of the organization. The internet is an effective way to communicate between all parts of the organization with simple cost compared with other means of communication.

The intranet could be a highly helpful mean in the process of KM. It allows the multimedia communication integration and it can be groupware applications and publishing platform. The purpose is to promote productivity, socialization, and cooperation, but also to impact the culture of the organization and to play a role as a warehouse for knowledge(Frost, 2014).

Knowledge collaboration and sharing could be the most significant function of the intranet. And the main functions that enhancing this are(Frost, 2014):

- **Searching**: the intranet can combine the different search functions, like search engines or using a categorization system.
- **Recording**: It could be useful as a storage way.
- **Interacting**: directories, expert finders, collaborative applications, etc.
- **Transacting**: let the users make transactions with intranet home pages of others.
- **Publishing**: E.g employee's guides, Websites, documents, information sheets.

2.4.4 Technological infrastructure for KMS

IT is the main factor responsible for maintaining the efforts of KM and it plays an important role as enablers of KM in the organizations. Without an appropriate IT tools, KM could not be applied because IT is the main enabler for KM application. The organizations must secure a suitable infrastructure of IT, and the most important infrastructure elements of IT are(Ahmadi, Momeni, & Ahmadi, 2013):

- Tools and inputs and outputs hardware that are used for input and output information on the computer.
- Softwares and instructions are used to perform a specific task including operation and communications systems.
- The communication network can eliminate the difficulties to communicate between organizational departments.
- Communication devices and tools which include modems, satellites and cables.
- Storage devices and tools that keep information and software (CDs, flash drivers, etc.)
- Internet network.

2.4.5 KMS

KMS points out to any IT system kind that stores and restores knowledge, gets better cooperation, determines the sources of knowledge, mines storehouse for hidden knowledge, seizes and employs knowledge, or in a way or another enhances the process of KM(Frost, 2014). The fundamental idea is to allow workers in the organization have access to the knowledge of the organization of the facts and the sources of necessary information of the problems and solutions. In contrast, workers share their own knowledge and the knowledge in the organization files, thus they can gather a new cumulative knowledge through which they can create new ideas about the organization's products or services.

Considering the importance of the accumulated knowledge that resides in different forms in the field of knowledge systems, the researcher will talk about knowledge engineering,

known as a field within artificial intelligence that improve the systems of knowledge. These systems are programs on the computer that comprise huge amounts of knowledge, cogitation mechanisms and rules to set solutions to the problems of the real world. The main aim of Knowledge Engineering is to build flexible systems to make it easy to add or change without affecting the work of the other units(Ferraggine, Doorn, & Rivero, 2009).However, figure (5.1) represents the process of knowledge systems(Turban, Aronson, & Liang, 2001):

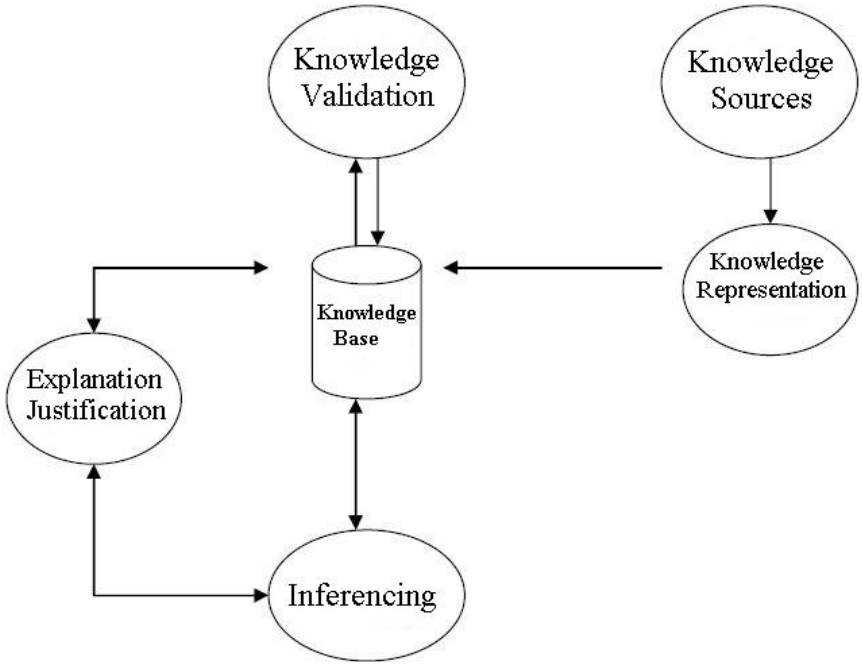

Figure 2.3 the process of knowledge system

- **Knowledge Sources**: Documented (manuals, books, etc.), undocumented (in people's minds)
- **Knowledge Validation**: it is an ensuring process that something is valid or true or complies with standard rules.
- **Knowledge representation**: is the artificial intelligence dedicated to represent information in a form that a computer system can be used to solve complex tasks
- **Inferencing**: design programs that enable the computers to infer on a knowledge-based, which able to guide the user to specific issues.

- **Explanation and justification**: It includes designing and programming, or getting a certain result by the computer.

2.4.5.1 KM and groupware systems

The term of groupware denotes to technology destined to assist workers to cooperate and it includes a huge amount of applications. According to Wikipedia, there are three tools for groupware:

- **Tools of communication**: for sending files, documents and messages, etc.
- **Tools of conferencing**: for example chat, video conference, audio conference, forums, etc.
- **Tools of collaborative management**: for managing group activities.

Groupware systems are valuable for supporting KM. They could simplify explicit knowledge sharing through communication and publishing tools and support the creation of knowledge process. Lotus Notes are known as the best groupware system(Frost, 2014).

2.4.5.2 Decision support systems

These systems' role is to control and access data. They generally relate to a data storage, use data mining techniques, and employ an online analytical processing system. The aim is to support the decision making and problems solving through working with the administrators rather than replacing them (Frost, 2014).

2.4.5.3 Document management systems

They are systems that are useful to help in the indexing, storing, distributing, and recovering of documents. Also, they deal practically with explicit knowledge. The document management systems functions are(Frost, 2014):

- **Capturing**: to make the documents usable, they need to be scanned in.

- **Classification using metadata**: metadata which is data about data is used to classify the document and then retrieve it later. It includes date, keywords, codes, author, etc.
- **Indexing**: there are too many forms of it. Metadata will be used by index function.
- **Retrieval and searching**: it is the most important function of the system.
- **Versioning**: storing and managing the different versions of documents. Earlier versions are allowed to be returned by the authorized users.
- **Administration and security**: all of IT systems need to be controlled and regulated. Systems need to back-up in place in case of misfortunes.

2.5 Previous Studies

In general, this chapter deals with studies that have examined KM topics or subjects in both local and global environments. After reviewing the previous studies, the researcher selected studies that benefit the research in this study, through the involvement of previous studies with the study of the researcher at one of the independent variables.

2.5.1 Researches

The researcher will list the studies of other researchers the related with KM as the following:

2.5.1.1 The Study of Parvaneh Gelard and Others 2013

The title of their study "*Looking into KM from Organizational Structure Perspective"*.

The study's purpose was to assess how the organizational structure affects the knowledge sharing, knowledge creation and utilization of knowledge.

The population of the study was constructed on firms of Kaveh Industrial City in Iran. (15) Firms of the industrial city were selected as sample of the study. They selected

managers of middle and top of different firms, the number of managers were (150) persons.

The study proved that organizational structure affects KM process and KM improvement depends on an organic structure that facilitates knowledge sharing and creation. They concluded that organizational structure drives to new great capabilities, organizational learning and innovation.

2.5.1.2 The Study of Ludmila Mládková 2004

The title of her study "*Analyze of Interrelation between KM and Organizational Structure of Organization".*

The purpose of the study was to examine the interrelation between KM and organizational structure. She identified three basic organizational structures in organizations; bottom-up structures, top-down structures and combined structures. In her study, she defined the advantages and disadvantages of these organizational structures and described the impact of them on KM activities.

The study on KM was in the Czech Republic organizations. (131) organizations were selected randomly from different industries, including the public administration and governmental area. Also, the organization's size differs; she has questioned both small and medium-sized organizations and multinational organizations. The smallest organization had only (7) employees. The study was built on a questionnaire. The questionnaire contained closed questions with the option of commentary; some opened questions were supplied, too.

The study provided an evidence of strengths and weaknesses of chosen organizational structures. The result of the study, (52%) of the employees of top-down organizations did not cooperate and (45%) did not share knowledge. In another hand, (80%) of the employees of bottom-up organizations cooperated and (75%) shared knowledge. Finally, (87%) of the employees of combined structure organizations cooperated and shared knowledge. Combined structure seems to be the best structure for practicing KM activities.

2.5.1.3 The Study of Birasnav and Others 2013

The title of the study "*The Role of Transformational Leadership and KM Processes on Predicting Product and Process Innovation: An Empirical Study Developed in the Kingdom of Bahrain*".

The population of this study was (119) service firms in the Kingdom of Bahrain, the collected data were used to test a conceptual model including the relationship among KM process, transformational leadership, process innovation, and product innovation.

Results indicated that product and process innovation and employees' day to day involvement are directly influenced by the transformational leadership in the KM process such as transferring, acquiring, applying and sharing knowledge. Also, the findings of the study exposed that knowledge application and transfer partially intermediated the relationship between product innovation and transformational leadership; knowledge application and acquisition completely mediated the relationship between process innovation and transformational leadership.

2.5.1.4 The Study of Crawford 2003

The title of the study "*Exploring the Relationship between KM and Transformational Leadership*".

The purpose of the study was to examine the correlation between KM and transactional, transformational, and laissez-faire leadership. The behaviors of KM were a negative predictor of laissez-faire leadership and a predictor variable for transformational leadership.

The sample of the study was (845) of student and other individuals taking classes in a nontraditional graduate degree program. (50%) of the sample was over the age of (30) years. Females slightly were completing the assessment more than males. (50%) had been employed for over (5) years, and also (50%) were in management positions.

The study proved the strong relationship between behaviors of KM and transformational leadership. Another finding of this study that related transactional leadership to KM were a significant negative correlation with management by exception, and significant

relationships between KM and contingent reward. Finally, this study also showed that KM was a strong negative predictor of laissez-faire leadership.

2.5.1.5 The Study of Sanjay Kumar Singh 2008

The title of the study "*Role of Leadership in KM*".

The purpose of the study was to examine the relationship and the impact of leadership styles on practices of KM in a software firm in India.

In this study, a quantitative data were collected on leadership styles and the practices of KM by using two psychometric tools, questionnaire and KM assessment tool. The sample contained (331) employees working for a software firm in India with at least one year of working experience in the organization.

The study showed the supportive and directive leadership styles to be significantly and negatively associated with the art of the practices of KM. It also described that delegating and consulting leadership styles are positively and significantly related with KM. Lastly, the delegating mode of behaviors of leadership was only found to be significant in creating and managing knowledge for competitive advantage in software firms in India.

2.5.1.6 The Study of Hai Nam Nguyen and Sherif Mohamed 2010

The title of the study "*Leadership Behaviors, Organizational Culture and KM Practices an Empirical Investigation*".

The purpose of their study was to examine the relationship between the behaviors of leadership and the practices of KM. More specially, the aim was to expose the impact of behaviors of the transactional and transformational leadership on KM, and the influence of the culture of organization on this relationship.

Four hypotheses were proposed for analyzing and testing using a questionnaire based survey targeting small and medium-sized operating in Australia. It provided a review of the basics KM that appropriate to the study, the correlation between KM and leadership, and organizational culture and leadership.

The results showed that both transactional and transformational leadership are positively related to the practices of KM. They also exposed that the behaviors of contingent reward and charismatic leadership have a great impact on the practices of KM.

2.5.1.7 The Study of Ahmadi and Others 2013

The title of the study "*Required Infrastructures for Implementation of KM System in the Masjed Soleyman Oil and Gas Production Company*".

The purpose of the study was to classify the infrastructures that are required for KM implementation within the Masjed Soleyman Oil & Gas Production Company.

The community of study included full-time staff with higher education of the Masjed Soleyman Oil & Gas Production Company and (226) employees were selected as sample for this study. Also, the community of the study was mostly of males with (89%) and (4%) females.

The finding of the study described that the KM implementation is well-prepared with the existing information technology, organizational structure, organizational culture and human resources.

The study concluded that the well understanding of the concept of KM, the organization will be able to face any challenges or obstacles. And also, the organizations needed to take some variables to be ready for KM implementation like organizational structure, organizational culture, available information technology and human resource within organizations.

2.5.1.8 The Study of Peyman Akhavan and Others 2010

The title of the study "*The Challenges KM Portals Application and Implementation: The Iranian Organizations Case Study*".

The purpose of the study was to identify the factors of the application of KM portals for organizations in Iran. The study also defined several significant weakness factors affecting KM application like the weakness in information overcrowd, organizational strategy, content management, etc. Furthermore, the study showed that the factors do not have the

same priorities where financial factors are the lowest priority and managerial factors are the highest priority.

The questionnaire was distributed to identify the most significant issues that influence the KM implementation in Iranian industries. The sample of the study was selected from (200) customers of Corporate Portal companies where most of their customers were involved with problems of KM.

The study suggested that organizations and managers should first take in consideration and pay attention to the way their organization implement portal solutions that try to deal with challenges and problems. And the results of the study showed that men have less technology infrastructure, attention to the acceptance of portals and level of complexity than women. The following factors "Weakness in sharing of knowledge culture, and weakness of portal technology infrastructure" were considered as a challenging factor by the growing of the age. The study also showed that people with a higher job position have a better vision for their organization and they become more aware of the organizational challenges.

2.5.1.9 The Study of Shahnawaz Muhammed 2006

The title of the study "*Antecedents and Impacts of KM Practices Supported by Information Technology: An Empirical Study in Manufacturing Context*".

The purpose of the study was to analyze the behaviors of the individual in the context of information technology supported knowledge work since today's knowledge effort is considerably combined with various information technologies.

A web based format questionnaire used on the server on the researcher's institution. (252) knowledge workers from various manufacturing and related industries were selected as a sample for this study.

The first finding of the study was that the study shows a comprehensive theoretical model of KM at an individual level and has integrated the various conceptualizations of KM. Second, it showed a reliable and valid new measurement tools for the practices of KM and

tasks knowledge at an individual level, and of information technology support from the perspective of KM.

2.5.2 Comments on the previous studies

According to previous studies that addressed the requirements and factors of success of the implementation of KM. The researcher listed the most important studies that help him to proceed in his study, which confirmed the relationship either between one of the variables or all of the variables and the application of KM. Previous studies indicate to the importance of the subject of the current study. The researcher has been achieved a number of benefits can be summarized as follows:

- Identify the aspects of KM that had not been discussed by the other researchers.
- Help in identifying the problem of the study.
- Contribute in constructing some of the pillars of the theoretical framework for the study.
- Guide the researcher to many of the references.
- Draft the questionnaire clauses that relate to the variables of the current study.

Through a review of previous studies, it became clear to the researcher that the current study is unique by the trying to identify the requirements of the leadership, organizational structure and information technology for the application of KM in the IAU. This study also differed from previous studies in terms of the goal of the study, the study population and the theoretical framework.

3. FRAMEWORK

OECD computes that between (1985) and (1997) knowledge contribution -based industries to total value added improved from (45%) to (51%) in Britain and from (51%) to (59%) in Germany(Wooldridge, 2005). The leading companies are now dedicating at least a third of their investment to knowledge-intensive intangibles such as R&D, marketing and licensing. Universities are generally among the most important engines of the knowledge economy. Not only do they produce the brain-workers who man it, they also provide much of its corner stone, from laboratories to libraries to computer networks(Wooldridge, 2005). This section of the research explains the reason why the researcher started to write about KM and why he chose the education sector to apply his study.in this chapter, the researcher will mention the objectives of the study and why it is important.

3.1 Problem Statement

Despite the concept of the KM is new to management, KM could be implied in other sectors rather than just in the industrial sector. There are many studies indicate to the useful of implying KM, and there are an assurances that we could use KM in the education sectors.

The benefits of KM to your organization are restricted only if you do not occupy the full advantages of a KM system. A well-organized KMS can help you and your business by increasing client satisfaction, quality of service, and staff performance. Furthermore, in a specific organization, knowledge is the core of innovation and operation(cracium, 2014). The world is in a “soft revolution” grips in which knowledge is exchanging physical resources as the main driver of the growth of economy. An example of companies used KM in their business is Ecopetrol, the main oil company in Colombia, since 2004 the

company has leveraged KM to help it in achieving its business goals. Ecopetrol's KM program is encompassing communities of practice, ambitious and broad in scope, technological environment forums, a corporate university to facilitate learning and lessons learned capture approach. These efforts have had a deep impact on the company, including improvements in the organizational culture, efficiency gains leading to increased oil production, and millions of dollars in costs savings(APQC, 2015).

Ludmila Mládková (2011) studied the relationship between KM and organizational structure of the organization. She tried to define the advantages and disadvantages of the types of organizational structures and explain how KM activities get influenced by them in the organization(Mládková, 2011). And also Al Beshi (2009) studied the readiness of the application of KM Consultative Assembly of Saudi Arabia by analyzing how the organizational culture and information technology influence the application of KM(Al-Beshi, 2009). Moreover, John D. Politis (2001) studied the relationship of different leadership styles to knowledge management. He indicated that the leadership styles that involve human interaction and inspire decision making participation processes are positively related to the skills and traits that are necessary for KM(Politis, 2001).

The reason that the researcher chooses the University because of its ability to follow the technological development through establishing information technology centers for entering the modern technological tools and use it to serve the education system. At the same point, universities, in general, have a great opportunity to be a master at entering knowledge society because of the educated human resource and the ability to improve them.

Accordingly, some universities have a knowledge problem. Sometimes the workers don’t corporate as one group in their work and sometimes the head of the department takes decoctions without sharing with the university’s staff in the other departments. For these reasons, there is a necessity to encourage the head managers to share and corporate with their staff as a group.

Finally, because of the powerful infrastructure of the universities in general including their human resources, developed technology, and the scientific fields, then they have the

priority to use the KM in their foundation. Accordingly, the study attempts to answer the main question: **What are the requirements for implementing KM in the IAU?**

3.2 Hypotheses

The hypotheses are divided in tow section as following:

3.2.1 First main hypothesis

There is a significant relationship between the requirements of KM and the implementing of KM in the IAU University. For this main hypothesis, there are some of the sub-hypotheses depends on it, as following:

- **First sub-hypothesis**: there is a significant relationship between the *organizational structure* and *the implementation of KM* in the IAU.
- **Second sub-hypothesis**: there is a significant relationship between the *transformational leadership* and *the implementation of KM* in the IAU.
- **Third sub-hypothesis**: there is a significant relationship between the *information technology tools* and *the implementation of KM* in the IAU.

3.2.2 Second main hypothesis

There is a significant difference in requirements for implementing of KM to the respondent's personal traits such as age, sex and experience.

3.3 The Research Variables

The researcher adopted Donoghue model which stressed that "effective KM needs a combination of many organization elements – organizational culture, human resources practices, organizational structure, and information technology– in order to make sure that the right knowledge is brought to bear at the same time"(Donoghue, Harris, & Weitzman, 1999).

The main dependent variable:

- Implementing KM.

The independent variables (explanatory variable):

- The organizational structure.
- Leadership.
- Information technology.

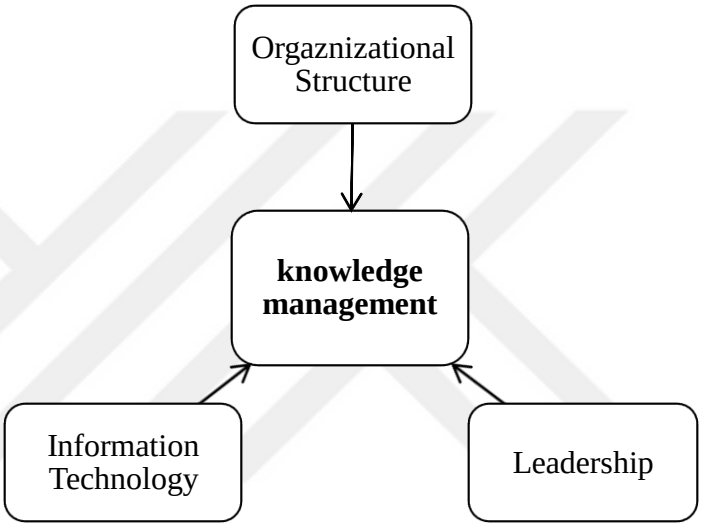

Figure 3.1 implementing KM requirements

3.4 The Research Objectives

The purposes and objectives of the research are presented below:

- Identify the organizational structure that affects KM.
- Disclosure of an appropriate organizational structure for the implementation of KM.
- Identify an appropriate leadership characteristic for the implementation of KM.
- Identify the necessary technological requirements for the implementation of KM.
- Provide a set of recommendations of KM requirements for IAU to serve the university' management in their development and improvement.

3.5 Importance of the Research

This research is important for many reasons, the researcher divided this reasons into two sections as follows:

3.5.1 Scientific importance

The scientific importance of this research is listed below:

- This study is an attempt to highlight the implementation of KM requirements in the University through the importance of KM as a way to improve and develop the administrative system in IAU.
- Stand on the relationship between the University and the KM through the intellectual university' staff, and their role in nation building.
- This study can be considered as a source for researchers who would like to know about the requirements of the implementation of KM in IAU, and this research could be a starting point for those interested in further research in this area.

3.5.2 Practical importance:

The practical importance of this research is listed below:

- This study may contribute in developing the administration system in the university by identifying the requirements of the implementation KM that could help the university to efficiency satisfy their beneficiaries.
- Researcher seeks to acquaint the administrative staff at the university with KM and how they could effectively use it.

4. RESEARCH METHODOLOGY

This section relates to a methodology that was used in the research, it explains the strategy followed in the analysis of the effects caused by organization structure, leadership and information technology on the implementation of KM in IAU. Also, the research methodology considers the main focus through completing the applied section of the study. It shows the way in which to obtain the needed data to conduct statistical analysis to reach conclusions and thus achieve the goal of the research.

This section explains the nature of the research community, as well as research design, sources of the data, the population of research, the reliability of the questionnaire, the degree of validity and statistical tests used.

4.1 Research Methodology

A descriptive study in addition to a statistical analysis is used by the researcher to describe and evaluate the requirements of KM implementation in the IAU. The data were assembled from both secondary and primary sources. The secondary resources include the books, statistics, journals and web pages. The primary data were assembled of the distribution of the questionnaire that was developed specifically for this research which was combined and modified to fit the purpose of this research ended up in developing one questionnaire distributed to the targeted respondents to collect the primary data.

4.2 Population and Sample Size

The study represents a population of staff working including (deans, administration staffs, head of departments and academics) in IAU. The researcher applied a stratified random sample and it calculated by using the scientific sample calculation formula at a confidence

level of (%95), the confidence interval of (5) and a population of (1000), the results show the least sample size needed and it was (278).

The collection of data is completed by two ways. First, the researcher designs an online questionnaire and it was sent by the university's emails to the staff working and (30) of staff working members answered the online questionnaire. The other way of collecting data was by distributing the manual questionnaire by hand to the university' staff and collecting (251) answered questionnaires. The researcher distributed (290) questionnaires to the university's staff and collected (251) questionnaire at the rate of (%86.5) and it is a good result for analysis.

Table 4.1 Respondents' Job Category Representation.

Job title	Frequency	Percent (%)
Dean	5	1.8
Administrative staff	123	43.8
Head of Department	20	7.1
Academic	126	44.8
Other	7	2.5
Total	281	100.0

4.3 Tool Development and Design

A questionnaire was designed to measure the requirements of KM implementation in the IAU. Appendix (2) has the whole questions of the questionnaire in English and Turkish languages. However, the questionnaire was composed of two parts:

- **First part:** This part aims to collect personal and professional information including, gender, job title, years of work.
- **Second part:** which consists of the study topics. it divides into two sections as follows:

- **First section:** aims to measure the implementation of KM and it consists of (13) questions.
- **Second section:** aims to measure the requirements of KM implementation and it is divided into three sections:
  - Organizational structure and it consists of (11) questions.
  - Transformational leadership and it consists of (11) questions.
  - Information technology and it consists of (10) questions.

4.4 Data Measurement

The researcher used a Likert scale to measure respondents' responses to the question of the questionnaire as it is shown table (4.2).

Table 4.2 Likert scale

Strongly disagree	Disagree	Uncertain	Agree	Strongly agree

4.5 The Normality of Distribution Test

The researcher used Kolmogorov-Smirnov test to make sure if the collected data distributed according to a normal distribution or not.

Table 4.3 One Sample Kolmogorov-Smirnov Test

Field	P-value (sig.)
All Fields of the Questionnaire	0.0826

According to the table (4.3), the calculated sig. (p-values) for the whole fields of the questionnaire were greater than the significance level at ($\alpha = 0.05$), in other meaning that (p-value > 0.05). This results identified that the data of the study followed the normal distribution.

4.6 Statistical Analysis Tests

In this section, the researcher explains the whole statistical tests that used in the analyzing the data.

4.6.1 Kolmogorov-Smirnov test

The One-Sample Kolmogorov-Smirnov Test compares the observed cumulative distribution function for a variable with a specified theoretical distribution, which may be normal, exponential, Poisson, or uniform(IBM SPSS Statistics, 2015). The statistical assumption of this test as following:

- Null Hypothesis (H0): the collected data of the sample from the population follows the normal distribution.
- Alternative Hypothesis (Ha): the collected data of the sample from the population doesn't follow the normal distribution.

4.6.2 Pearson correlation coefficient

This test is useful for the study to measure the strong relation between two variables. The researcher used it to measure the internal and structure scale validity of the study.

Correlation coefficient (r) equation:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

A positive *r* value states a positive relationship between the two variables whereas a negative *r* value indicates a negative relationship**.**

4.6.3 Cronbach's Alpha statistical test

Cronbach's alpha measures the internal consistency of the questionnaire. In another meaning, it identifies how closely related the items of the questionnaire are as a group.

The ranges of Cronbach's alpha is from (0 to 1) and the appropriated results are likely to be between (0.7 and 0.9).Further down is a generally recognized rule for interpreting Cronbach's alpha (Marshall & Boggis, 2016).

Table 4.4 the rules for interpreting Cronbach's alpha

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Very high consistency
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$\alpha < 0.7$	Poor internal consistency

4.6.4 One-sample t-test

We use One-sample t-test when we need to compare the mean of the sample with the mean of the population. There are some assumptions should be followed to perform this test:

- The necessity of the dependent variable is continuous.
- The observations are independent of one another.
- The normality distribution of the dependent variable.
- Outliers should not be contained by the dependent variable.

The equation of One-sample t-test:

$$t=\frac{\bar{x}-\mu}{s_{\bar{x}}} \qquad \text{Where} \qquad s_{\bar{x}}=\frac{s}{\sqrt{n}}$$

$s_{\bar{x}}$: The mean's estimated standard error

Null Hypothesis (H0): There is no difference between the mean of our sample and the mean of the population.

Alternative Hypothesis (Ha): There is a difference between the mean of our sample and the mean of the population.

4.6.5 Two independent samples T-Test

The independent samples *t*-test is a parametric test and we use it to identify the two independent groups' means (male and female) due to defining whether there is statistical evidence that the means of the population are meaningfully different(Yeager, 2017).

The tested data should follow the following requirements:

- The necessity of the dependent variable is continuous.
- Categorical.
- The observations are independent of one another.
- The sample should be collected randomly.
- The normality distribution of the variables.
- Variances' homogeneity.
- There are no outliers.

The equation of the independent samples *t*-test Test is:

$$t = \frac{(\overline{x_1} - \overline{x_2}) - (\mu_1 - \mu_2)}{s_{\overline{x_1} - \overline{x_2}}}$$

Null Hypothesis (H0): the means of the two population are equal.

Alternative Hypothesis (Ha): the means of the two population are not equal.

4.6.6 One Way analysis of variance – ANOVA

This test is used to identify the difference in means of r more than two independent groups such as experience or job-title variables. The test is performed by using the ratio of the between group variance to the within group variance to identify whether there are/are no statistically significant differences between the groups(Marshall & Boggis, 2016). The assumption of the rest are:

- The groups must be independent.
- The necessity of the dependent variable is continuous scale.
- The normality distribution of the variables.
- Variances' homogeneity.

ANOVA equation is:

$$F = \frac{MST}{MSE} = \frac{\frac{\sum n(x-\bar{x})^2}{p-1}}{\frac{\sum(n-1)S^2}{N-p}}$$

Where,

F: ANOVA coefficient

MST: Mean sum of squares due to treatment

MSE: Mean sum of squares due to error.

p: Total number of populations

n: Total number of samples in a population.

p: Total number of populations

S: Standard deviation of the samples

Null Hypothesis (H0): all of the means of the population are equal. Alternative Hypothesis (H1): at least one of the means of the population is not equal to the others.

4.7 Questionnaire Validity

It means the ability of questionnaire's questions to measure what it should be measured.

4.7.1 Arbitrators validity

The researcher presented the questionnaire to a group of specialists in business administration and statistics. Therefore, the researcher complies with the opinions of the arbitrators and then makes the necessary deletion and modification to get the final form of the questionnaire.

4.8 The Scale validity

To confirm the validity of the questionnaire, the researcher used Pearson Test which is the first step in the statistical analysis, and it includes: internal and structure validity.

4.8.1 Internal validity

It identifies the coherence of the correlation of each element of the questionnaire with all elements of entire fields. The researcher measures the correlation coefficients between each element of the questionnaire in a single field.

Table (4.5) represents the correlation coefficient between the items of implementation of KM field and the whole of implementation of KM field. The results of the assessment of the correlation coefficients between the items of implementation of KM field and the whole field are situated between (.564) and (.768), the results confirmed the validity measuring of implementation of KM field.

The whole table (4.5) of the Person correlation coefficient test is attached in Appendix (1).

Table 4.5 The correlation coefficient between the items of implementation of KM field and the whole field.

No.	Item (question)	Pearson correlation coefficient	P-value (sig.)
1	Administrative behaviors such as (Knowledge appreciation, knowledge building, knowledge sharing) represent a model for workers in the university.	.564**	.000
2	The University provides a continuous updating of the information by communicating with the external environment.	.768**	.000

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

Table (4.6) represents the correlation coefficient between the items of organizational structure field and the whole of organizational structure field. The results of the assessment of the correlation coefficients between the items of organizational structure field and the whole field are situated between (.630) and (.804), the results confirmed the validity measuring of organizational structure field.

The whole table (4.6) of the Person correlation coefficient test is attached in Appendix (1).

Table 4.6 The correlation coefficient between the items of organizational structure field and the whole field.

No.	Item (question)	Pearson correlation coefficient	P-value (sig.)
1	Decentralization of work provides an opportunity to share knowledge among employees.	.630**	.000
2	The University provides a periodic review of the organizational structures according to the internal and external variables that required by the effective organizational structure.	.804**	.000

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

Table (4.7) represents the correlation coefficient between the items of transformational leadership field and the whole of transformational leadership field. The results of the assessment of the correlation coefficients between the items of transformational leadership field and the whole field are situated between (.592) and (.821), the results confirmed the validity measuring of transformational leadership field.

The whole table (4.7) of the Person correlation coefficient test is attached in Appendix (1).

Table 4.7 The correlation coefficient between the items of transformational leadership field and the whole field.

No.	Item (question)	Pearson correlation coefficient	P-value (sig.)
1	Managers have the ability to influence subordinates.	.592**	.000
2	The University encourages the employees to submit their ideas and suggestions.	.821**	.000

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

Table (4.8) represents the correlation coefficient between the items of information technology field and the whole of information technology field. The results of the assessment of the correlation coefficients between the items of information technology field and the whole field are situated between (.563) and (.740), the results confirmed the validity measuring of information technology field.

The whole table (4.8) of the Person correlation coefficient test is attached in Appendix (1).

Table 4.8 The correlation coefficient between the items of information technology field and the whole field.

No.	Item (question)	Pearson correlation coefficient	P-value (sig.)
1	The University provides an electronic means for helping to hold conferences and meetings and transfer experiments remotely.	.563**	.000
2	The University provides the necessary computer software to gain and easily share the knowledge.	.740**	.000

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

4.8.2 The validity of structure

It's another type of the validity measurements, it measures the questionnaire's structure quality, and also if this questionnaire appropriate for the research's goal, and whether if questionnaire can or can't achieve these goals. This test is measuring the validity of each field with the validity of the whole questionnaire.

Table 4.9 The correlation coefficient between each field of the questionnaire and the whole fields.

No.	The name of the field	Pearson correlation coefficient	P-value (sig.)
1	Implementation of knowledge management	.883**	.000
2	Organizational structure	.888**	.000
3	Transformational leadership	.906**	.000
4	Information technology	.712**	.000
5	Requirements of knowledge management	.982**	.000

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

Table (4.9) shows the accuracy level presented by the correlation coefficient test between the different fields of the questionnaire and the whole fields.

4.9 The Reliability of the Questionnaire

It means that the questionnaire gives the same result if the questionnaire is redistributed more than once under the same circumstances. In other words, the reliability of the questionnaire means that the results of the questionnaire are stabilized and will not significantly be changed if it has redistributed to the sample several times over a specific time.

The researcher used Cronbach's Alpha to measure the reliability of the questionnaire and the results are shown in the following table.

Table 4.10 Cronbach's Alpha for Reliability

No.	The name of the field	No. of Items	Cronbach's Alpha coefficient
1	Knowledge management	13	.893
2	Organizational structure	11	.914
3	Leadership	11	.902
4	Information technology	10	.857
5	Requirements of knowledge management	32	.945
6	All fields of the questionnaire	45	.958

From the table (4.10) we can notice that the Cronbach's Alpha values were high in every field, the values are between (.857 - .945). And Cronbach's Alpha of the whole fields of the questionnaire was also high (.958). These results illustrate that the reliability is high.

Thus, the researcher has verified the validity and reliability of the questionnaire, which makes the researcher fully confident in the validity of the questionnaire and its validity and availability to analyze the results and answer the study questions and test hypotheses.

5. DATA ANALYSIS AND DISCUSSIONS

This chapter contains a presentation of analyzing data and testing hypotheses through answering the study questions and highlights the results of the questionnaire which were reached through analyzing the questionnaire's fields.

5.1 Data Analysis

A Statistical analysis of the collected data from the questionnaire by using a statistical software program (SPSS) was performed to reach the results of the study that will be presented and analyzed.

5.1.1 Characteristics of the sample

The following table presents the characteristics and personality traits of the study according to the sex, job title and years of experience.

Table 5.1 The characteristics and personality traits of the sample

Characteristics of the sample		Frequency	Percent (%)
sex	Male	127	45.2
	Female	154	54.8
	Total	281	100
Job title	Dean	5	1.8
	Head of the department	20	7.1
	Administration staff	123	43.8
	Academic(teaching member)	126	44.8
	Others	7	2.5
	Total	281	100
Years of Experience.	Less than 5 years	98	34.9
	Between 5-10 years	100	35.6
	Between 10-15 years	42	14.9
	More than 15 years	41	14.6
	Total	281	100

From table (5.1) the researcher concluded the following:

- With respect to the distribution of the sample of the study by sex (45.2%) of the respondents were males, whereas (54.8%) of the respondents were females. This result clarifies that the females' proportion is dominant over the males' one. The

reason is that because the number of female workers are more than the number of male workers in IAU. According to the university's human resource department (2017), the statistics showed that (51.7%) of the workers are females and (48.3%0 of the workers are males.

- As seen on the table (5.1), the respondents of the job title were (1.8%) deans, (7.1%) head of departments, (43.8%) administration staffs, (44.8%) academics (teaching members) and (2.5%) others. The respondents of the administration staffs and academics were the highest because both of them are the most important for the administration and education process in the university.
- However, in the year of experience section we can note that (34.9%) of the respondents were less than (5) years, (35.6) were between (5-10) years, (14.9%) were between (10-15) years and (14.6%) were more than (15) years.

5.1.2 Study fields analysis

The researcher used (One-Sample T-test) to determine the statistical mean of each question and then compare the results with the neutrality degree of (3) and at the end conclude if the response to a questionnaire's item was equal to the neutrality degree of (3) or significantly differ than it.

In order to test the hypotheses of the study, the following statistical hypotheses will be tested.

Null Hypothesis

There is no statistically significant relationship between two fields of the study fields.

Alternative Hypothesis

There is a statistically significant relationship between two fields of the study fields.

If the sig. (p-value) was greater than the significance level at ($\alpha = 0.05$) according to SPSS statistical programs results, then Null Hypothesis will not be refused and according to these results, there will be no statistically significant relationship between two fields of the study fields. But if the sig. (p-value) was less than the significance level at ($\alpha = 0.05$), Null Hypothesis will be refused and then we will accept the Alternative Hypothesis, and

then the result will present a statistically significant relationship between two fields of the study fields.

5.1.2.1 First main hypothesis

The researcher will explain the statistical finding that related to the first hypothesis which are KM implementation, organizational structure, transformational leadership, information technology and requirement of KM.

5.1.2.1.1 Analysis of KM field

One-Sample T test is used to illustrate the results to analyze each element in the field of KM.

The whole results of One-sample T-test of the table (5.2) attached in Appendix (1).

Table 5.2 One-Sample T test mean and P-value (sig.) of the implementation KM field.

Item's No.	Item (question)	Mean	P-value (sig.)	Test Value (T)	Order
2	Knowledge management helps in achieving the objectives of the university.	4.1281	.000	21.868	1
13	The University seeks to attract highly skilled and qualified people from outside to help in generating knowledge.	3.3630	.000	5.072	13
All the items of the field		3.7473	.000	19.218	

Table (5.2) displays the respondents' opinions concerning the items of "implementation of knowledge management" field and also the results are ranked according to the acceptance degree in a descending order, where the rank (1) represents the highest acceptance degree of the items. The following details can be concluded from the table (5.2):

- From the table, the researcher noticed that the second question of the KM field "Knowledge management helps in achieving the objectives of the university" ranked as the highest acceptance degree in the order value of (1) with a mean value of (4.1281), Test-value (21.868), and P-value (0.000) which is lower than the level of significance (0.05). These results show a statistical significance and that the level of response of this item is greater than the neutrality degree of (3) that means the respondents agreed that KM helps in achieving the objectives of the university.

The researcher attributed the reason that the second item had the highest acceptance degree and the agreement of the sample on that item because of their awareness of the importance of KM and its achievement of the university's goals.

- However, the thirteenth question of the implementation KM field "The University participates in scientific conferences which contributing to gain knowledge" ranked as the lowest acceptance degree in the order value of (13) with a mean value of (3.3630), Test-value (5.072), and P-value (0.000) which is lower than the level of significance (0.05). These results show a statistical significance and that the level of response of this item is larger than the neutrality degree of (3), that means the respondents also agreed that the University participates in scientific conferences which contributing to gain knowledge.

The researcher attributed the reason that the thirteenth item had the lowest acceptance degree because the respondents seek that the university should hire experts to help them generating and gaining new knowledge.

- Generally, the statistical mean for the whole field of the implementation KM equals (3.7473) and Test-value (19.218), and P-value (0.000) which is lower than the level of significance (0.05) These results show a statistical significance and that the level of response of this item is greater than the neutrality degree of (3).the statistical results indicate that the respondents agree with the KM field.

This can be explained by the fact that there is awareness among the respondents of the importance of implementing KM in the activities of the university and considering that knowledge will not be useful if it is not invested and used to ensure the achievement of

the objectives of the university. The results support the findings of (Omar Sharifuddin Syed Ikhsan & Rowland, 2004) Whose results indicated that all organizations, whether private or public, need to manage tacit and explicit knowledge in order to achieve the highest efficiency in organizational knowledge.

5.1.2.1.2 Analysis of dominant organizational structure field

One-Sample T test is used to illustrate the results to analyze each element in the field of the "organizational structure".

The whole results of One-sample T-test of the table (5.3) attached in Appendix (1).

Table 5.3 One-Sample T test mean and P-value (sig.) of dominant organizational structure field.

Item's No.	Item (question)	Mean	P-value (sig.)	Test Value (T)	Order
4	The University provides an organizational structure achieves integration, coordination and interaction in cognitive assets.	3.5943	.000	10.075	1
6	The university reduced the hierarchical levels of supervision to allow closeness between organizational levels.	2.8185	.008	-2.669	11
7	The university achieves a balance between the powers and responsibilities that granted to the individual.	3.1388	.060	1.892	10
All the items of the field		3.3381	.000	6.970	

Table (5.3) displays the respondents' opinions towards the items of "organizational structure" field and also the results are ranked according to the acceptance degree in a descending order, where the rank (1) represents the highest acceptance degree of the items. The following details can be concluded from the table (5.3):

- The fourth question of the organizational structure field "The university provides an organizational structure achieves integration, coordination and interaction in cognitive assets." ranked as the highest acceptance degree in the order value of (1) with a mean value of (3.5943), Test-value (10.075), and P-value (0.000) which is lower than the level of significance (0.05). These results show a statistical significance and that the level of response of this item is greater than the neutrality degree of (3) that means the respondents agreed that the university provides an organizational structure achieves integration, coordination and interaction in cognitive assets

The researcher attributed the reason that the fourth item had the highest acceptance degree because of the management of the university has a perception of the importance of knowledge being integrated and interacted in the university's activities to achieve the university's objectives.

- On the other hand, the sixth item of the organizational structure field "The university reduced the hierarchical levels of supervision to allow closeness between organizational levels." ranked as the lowest acceptance degree in the order value of (11) with a mean value of (2.8185), Test-value (-2.669), and P-value (.008) which is lower than the level of significance (0.05). It means that there is a statistical significance and that the level of response of this item is less than the neutrality degree of (3), these results explain that the respondents hesitated on the agreement but the result of P-value shows that the university reduced its hierarchical levels of supervision to allow closeness between organizational levels. And the lack of social interactions in the university may play a role in reducing the interactions between the level organizational levels.

The researcher attributed the reason that the university's hierarchical levels of supervision are poorly closed to each other.

- The seventh item of the organizational structure field "The University achieves a balance between the powers and responsibilities that granted to the individual." had a mean value of (3.1388), Test-value (1.892), and P-value (.060) which is higher than the level of significance (0.05). It means that there is no statistical significance and that the level of response of this item is lower than the neutrality degree of (3), these results explains that the university doesn't achieve a balance between the powers and responsibilities that granted to the individual.

The researcher attributed to the reasons of that the respondents didn't accept the seventh item because they thought in their perspective that there is no balance between the required tasks from them and their gained power. And also most of the individuals in their nature look for gaining more power and they think that the current gained power is not enough for them to perform their work.

- Finally, the statistical mean for the whole field of organizational structure equals (3.3381) and Test-value (6.97), and P-value (0.000) which is less than the level of significance (0.05) These results show a statistical significance and that the level of response of this item is greater than the neutrality degree of (3).the statistical results indicate that the respondents agree with the organizational structure field.

These results are consistent with the findings of (MLÁDKOVÁ, 2011) study which shows that the bottom-up and flat organization structures are highly capable of sharing knowledge among staff and through task forces. And (Frey, Lindner, Muller, & Wald, 2009) study that shows the importance of a flexible organizational structure that identifies the roles required for the application of knowledge management and control of the processes of KM.

Table (5.4) shows the correlation coefficient between KM and organizational structure equals (.764) and the p-value (sig.) equals (0.000) which is less than ($\alpha = 0.05$). This result confirms a positive and statistical significance between organizational structure and the implementation of KM in IAU.

Table 5.4 The correlation coefficient between the implementation of KM and organizational structure.

Field	Pearson correlation coefficient	P-value (sig.)
Organizational structure	.764**	.000

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

The result of the Hypothesis shows that: there is a significant relationship at level (α = 0.05) between the implementation of KM and organizational structure.

These results are consistent with the result of (Gold, Malhotra, & Segars, 2001) study which explains that the organizational structure is one of the components of the infrastructure for the application of KM. And the study of (Akhavan, Adalati, Sharifi-Yazdi, & Hosnavi, 2010) which its results represent the need for integration between the organizational structure and knowledge management approaches to ensure the successful implementation of KM. Finally, the study of (Ghorbani, Noghabi, & Nikoukar, 2011) which explains that there is a positive relationship between the dimensions of the organizational structure and KM.

5.1.2.1.3 Analysis of dominant transformational leadership field

One-Sample T test is used to illustrate the results to analysis each element in the field of transformational leadership.

The whole results of One-sample T-test of the table (5.5) attached in Appendix (1).

Table 5.5 One-Sample T test mean and P-value (sig.) of dominant transformational leadership field

Item's No.	Item (question)	Mean	P-value (sig.)	Test Value (T)	Order
1	The University encourages the employees to submit their ideas and suggestions.	3.0747	.315	1.007	7
2	The university raises the level of managerial interaction between leaders and employees.	3.1281	.061	1.880	6
5	Employees participate in decision-making at all organizational levels of the university.	2.8434	.019	-2.364	9
6	The University participates in local and international scientific conferences which contribute acquiring a new knowledge.	3.6762	.000	10.815	1
7	The university relies on a leadership style which based on granting authority to employees.	3.0641	.365	.907	8
8	There is justice in the distribution of rewards and bonuses among employees in the university.	2.4057	.000	-8.532	11
All the items of the field		3.1016	.037	2.092	

Table (5.5) displays the respondents' opinions towards the items of "transformational leadership" field and also the results are ranked according to the acceptance degree in a descending order, where the rank (1) represents the highest acceptance degree of the items. The following details can be concluded from the table (5.5):

- According to table the sixth the question of the transformational leadership field "The University participates in local and international scientific conferences which contribute acquiring a new knowledge." ranked as the highest acceptance degree in the order value of (1) with a mean value of (3.6762), Test-value (10.815), and P-value (0.000) which is smaller than the level of significance (0.05). These results show a statistical significance and that the response level of this item is greater than the neutrality degree of (3) that means the respondents agreed the university participates in local and international scientific conferences which contribute acquiring a new knowledge.

The researcher attributed that the sixth question had the highest ranking and approval of the respondents is an evidence of the importance of providing all means, whether local or international scientific conferences, training courses, workshops, which makes the workers in the university permanently gain a new knowledge and thus participate it with their colleagues and apply it in their daily work.

- In contrast, the eighth item of the transformational leadership field "There is justice in the distribution of rewards and bonuses among employees in the university." ranked as the lowest acceptance degree in the order value of (11) with a mean value of (2.4057), Test-value (-8.532), and P-value (.000) which is smaller than the level of significance (0.05). It means that there is a statistical significance and that the response level of this item is smaller than the neutrality degree of (3), these results explain that the respondents agreed that in the university there is justice in the distribution of rewards and bonuses among employees.

The researcher attributed that the eighth item had the lowest in the order because the respondents answered this question according to their personal preferences and interests and they consider themselves more worthy to get the rewards and bonuses that offered by

the University. However, the university may look at the issue of rewards distribution from another perspective which the respondent may not agree with it.

- On the other hand, the first question of the transformational leadership field "The university encourages the employees to submit their ideas and suggestions." ranked (7) in the order of acceptance degree with a mean value of (3.0747), Test-value (1.007), and P-value (.315) which is away greater than the level of significance (0.05). It means that there is no statistical significance and that the response level of this item is higher than the neutrality degree of (3), these results explain that the respondents strongly disagreed that in the university encourages the employees to submit their ideas and suggestions.

The researcher attributed that the respondents don't agree on the first question because the university doesn't make attention to their employee's ideas and suggestions and this may cause a reason for the university to lose great ideas which could help to be better in their field.

- And also the second question of the transformational leadership field "The University raises the level of managerial interaction between leaders and employees." ranked (6) in the order of acceptance degree with a mean value of (3.1281), Test-value (1.880), and P-value (.061) which is greater than the level of significance (0.05). It means that there is no statistical significance and that the response level of this item is higher than the neutrality degree of (3), these results explain that the respondents disagreed that in the university raises the level of managerial interaction between leaders and employees.

The researcher attributed that the respondents don't agree on the second question because the relations at the University seem to be oriented toward absolute formalism, which reduces the level of communication between staff at different departments and levels, the University should strengthen informal groups in its organizational structure through the launch of programs to promote integration and cooperation among them. And another reason could be that the hard working conditions of the administrative staff considering

the working pressures and time are the main factors for the lake of interactions among leaders and employees in the university.

- And also the seventh question of the transformational leadership field "The University relies on a leadership style which based on granting authority to employees" ranked (8) in the order of acceptance degree with a mean value of (3.0641), Test-value (.907), and P-value (.365) which is away greater than the level of significance (0.05). It means that there is no statistical significance and that the response level of this item is higher than the neutrality degree of (3), these results explain that the respondents strongly disagreed that in the university relies on a leadership style which based on granting authority to employees.

Despite of the University follows a flexible administrative approach that helps the employees to practice their work, the researcher noted the employees' refusal of that the university grants them the appropriate authorities to end their duties better, because the employees'' thoughts of the need for more authority to practice their work or it is a failure by the employees to understand the nature of their work and their lack of knowledge of the university's administrative regulations.

- Finally, the statistical mean for the whole field of leadership equals (3.1016) and Test-value (2.092), and P-value (0.037) which is smaller than the level of significance (0.05) These results show a statistical significance and that the response level of this item is smaller than the neutrality degree of (3).the statistical results indicate that the respondents agree with the leadership field.

The findings agree with (Basu, Sengupta, & Lake, 2007) study which indicated to the importance of knowledge acquisition and sharing through supporting the academics in the participation in scientific conferences and seminars. And (Kulkarni, Ravindran, & Freeze, 2007) study which indicated that the provision of incentives and rewards, whether monetary or in another kind, taking into account equality among workers motivates them to share knowledge, which is a key factor for the success KM.

Table (5.6) shows the correlation coefficient between KM and leadership equals ($.683^{**}$) and the p-value (sig.) equals (0.000) which is less than ($\alpha = 0.05$). This result confirms a

positive and statistical significance between leadership and the implementation of KM in IAU.

Table 5.6 The correlation coefficient between the implementation of KM and transformational leadership.

Field	Pearson correlation coefficient	P-value (sig.)
Transformational leadership	.683**	.000

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

The result of the Hypothesis shows that: there is a significant relationship at level (α = 0.05) between the implementation of KM and transformational leadership.

The findings are consistent with the result of (Khalifa & Liu, 2003) study which showed that administrative leadership is an important component of the infrastructure of KM, which indicates a relationship between administrative leadership and the application of KM. And the study of (Yew Wong, 2005) which showed that leadership is one of the success factors for the application of KM in organizations.

5.1.2.1.4 Analysis of dominant information technology field

One-Sample T test is used to illustrate the results to analysis each element in the field of information technology.

The whole results of One-sample T-test of the table (5.7) attached in Appendix (1).

Table 5.7 One-Sample T test mean and P-value (sig.) of dominant information technology field

Item's No.	Item (question)	Mean	P-value (sig.)	Test Value (T)	Order
3	Mainstreaming of the internet connection service for employees at all levels in the university.	4.2420	.000	24.913	1
6	The University provides an electronic means for helping to hold conferences and meetings and transfer experiments remotely.	3.6228	.000	10.402	10
All the items of the field		3.8317	.000	21.460	

Table (5.7) displays the respondents' opinions towards the items of "information technology" field and also the results are ranked according to the acceptance degree in a descending order, where the rank (1) represents the highest acceptance degree of the items. The following details can be concluded from the table (5.7):

- From the table, the researcher noticed that the third question of the information technology field "Mainstreaming of the internet connection service for employees at all levels in the university." ranked as the highest acceptance degree in the order value of (1) with a mean value of (4.2420), Test-value (24.913), and P-value (0.000) which is smaller than the level of significance (0.05). These results show a statistical significance and that the response level of this item is greater than the neutrality degree of (3) that means the respondents agreed that the university provides an internet connection service for the employees at all levels.

The researcher attributed the reason that the third item had the highest acceptance degree and the agreement of the sample on that item because the generalization of the Internet

service at the university allows for all employees to collect information about the work, to communicate between the different departments, to follow all of the latest developments and news at the university, to access the databases, and to benefit from what is available on the university's webpage like electronic library, forums, etc. which help in generating and preserving of knowledge.

- However, the sixth question of the leadership field “The University provides an electronic means for helping to hold conferences and meetings and transfer experiments remotely.” ranked as the lowest acceptance degree in the order value of (10) with a mean value of (3.6228), Test-value (10.402), and P-value (0.000) which is smaller than the level of significance (0.05). These results show a statistical significance and that the response level of this item is greater than the neutrality degree of (3) that means the respondents also agreed that the University provides an electronic means for helping to hold conferences and meetings and transfer experiments remotely.

The researcher attributed the reason that the sixth item had the lowest acceptance degree because of the lack of experience in this field within the university and also the lack of the participants in electronic conferences and meetings due to the working conditions of employees. However, the respondents agreed with this item, which demonstrates the awareness of university's staff towards the electronic conferences and meetings, and its presence helps in the participation of the workers in the implicit knowledge of their fields of work.

- In general, the statistical mean for the whole field of information technology equals (3.8317) and Test-value (21.460), and P-value (0.000) which is smaller than the level of significance (0.05). These results show a statistical significance and that the response level of this item is greater than the neutrality degree of (3).the statistical results indicate that the respondents agree with the information technology field.

The results support the findings of (Boumarafi, 2009) study which indicates to the importance of the availability of technology to help workers acquire and share knowledge

in accordance with the tenth item. And the finding of (Orth, Smolnik, & Jennex, 2009) which pointed to the importance of providing databases and internal means of communication between all levels of management and the importance of communication with the external environment through the relevant technological means.

Table (5.8) shows the correlation coefficient between KM and information technology equals (.531**) and the p-value (sig.) equals (0.000) which is less than ($\alpha = 0.05$). This result confirms a positive and statistical significance between information technology and the implementation of KM in IAU.

Table 5.8 The correlation coefficient between KM and information technology.

Fıeld	Pearson correlation coefficient	P-value (sig.)
Information technology	.531**	.000

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

The result of the Hypothesis shows test: there is a significant relationship at level ($\alpha = 0.05$) between the implementation of KM and information technology.

These results are consistent with the result (Khalifa & Liu, 2003) study which indicates to the positive relationship between information technology and KM process. And the finding of (Yew Wong, 2005) study which points out that the information technology is one of the success factors of KM application, which indicates a positive relationship. and the results of (Adalati, Akhavan, & Hosnavi, 2010) study which indicates that the used technology in the administrative field has a direct impact on the implementation of KM. The study of (Basu et al., 2007) confirmed that the availability of technological infrastructures is a factor in the success of KM initiatives.

5.1.2.1.5 Analysis of dominant of the requirements of KM implementation field

One-Sample T test is used to illustrate the results to analysis requirement of KM.

Table 5.9 One-Sample T test mean and P-value (sig.) of requirements of KM field

Item (question)	Mean	P-value (sig.)	Test Value (T)
Requirements of KM field	3.4110	.000	10.468

Table (5.9) displays the respondents' opinions towards the items of "Requirement of KM" as follows:

- The mean of the requirement of KM equals (3.4110), Test-value (10.468), and P-value (0.000) which is smaller than the level of significance (0.05). These results show a statistical significance and that the response level of this item is greater than the neutrality degree of (3), that means the respondents agreed on the whole items of requirements of KM.

Table (5.10) shows the correlation coefficient between KM and the requirements of KM equals (.779**)and the p-value (sig.) equals (0.000) which is less than ($\alpha = 0.05$). This result confirms a positive and statistical significance between the requirements of KM and the implementation of KM in IAU.

Table 5.10 The correlation coefficient between KM and KM requirements.

Fıeld	Pearson correlation coefficient	P-value (sig.)
Organizational structure	.764**	.000
Transformational leadership	.683**	.000
Information technology	.531**	.000
Requirements of KM	.779**	.000

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

The result of the Hypothesis test: there is a significant relationship at level ($\alpha = 0.05$) between the implementation of KM and the requirements of KM.

These results are consistent with the findings of (Frey et al., 2009) and (Abdlwahab, 2006) studies which concluded that the previous three fields are the fundamental requirements for the successful implementation of KM. And (Adalati et al., 2010) which also concluded that the previous three fields have a direct impact on the implementation of KM.

5.1.2.2 Second main hypothesis

There are no significant statistical differences at level ($\alpha = 0.05$) among the respondents in their opinions about the study fields attributed to their gender, job title and experience.

5.1.2.2.1 Sub-Hypothesis one testing

Sub-Hypothesis one: There are no significant statistical differences at level ($\alpha = 0.05$) among the respondents in their opinions about the study fields attributed to their gender.

The independent samples T-Test performed to prove whether there are significant differences at level ($\alpha = 0.05$) among the respondents on the fields of study related to gender.

Table 5.11 Two independent samples T-Test for testing the differences due to gender.

Field	Gender	No. of respondents	mean	Std deviation	T-value	P-value (sig.)
KM implementation	Male	127	3.6996	.63480	-1.121	.263
	Female	154	3.7867	.66507		
Organizational structure	Male	127	3.3658	.75415	.525	.600
	Female	154	3.3152	.86051		
	Male	127	3.1167	.82050	.281	.779

Transformational leadership	Female	154	3.0891	.81109		
Information technology	Male	127	3.7929	.68071	-.900	.369
	Female	154	3.8636	.62328		
Requirements of KM	Male	127	3.4136	.66107	.060	.952
	Female	154	3.4089	.65795		

The critical value of the t-distribution from the table at the degree of freedom (281) and P-value (.05) equals (1.96).

Table (5.11) clearly indicates that the significance of fields of the study as a whole is greater than the significance level ($\alpha = 0.05$). The results purely mean that opinions regarding gender make no difference in the study. These results make the researcher concludes to accept the sub-hypothesis which indicates that there are no differences among the respondents in their opinions over the study fields attributed to gender.

5.1.2.2.2 Sub-Hypothesis two testing

Sub-Hypothesis two: There are no significant statistical differences at level ($\alpha = 0.05$) among the respondents in their opinions about the study fields attributed to their job title.

To define if there are significantly statistical differences at level ($\alpha = 0.05$) among respondents' on the study field related to job title a One-Way ANOVA Test was used.

Table 5.12 The analysis of variance (Job-title variable)

Fields		Sum of Squares	df	Mean Square	F-statistic	Sig.
The implementation of Knowledge Management	Between Groups	4.538	4	1.135	2.736	0.029
	Within Groups	114.439	276	0.415		
	Total	118.978	280			
Organizational structure	Between Groups	11.616	4	2.904	4.619	0.001
	Within Groups	173.514	276	0.629		
	Total	185.130	280			
Transformational leadership	Between Groups	5.113	4	1.278	1.956	0.102
	Within Groups	180.417	276	0.654		
	Total	185.530	280			
Information technology	Between Groups	0.931	4	0.233	0.548	0.701
	Within Groups	117.237	276	0.425		
	Total	118.168	280			
Requirements of knowledge management	Between Groups	3.228	4	0.807	1.886	0.113
	Within Groups	118.071	276	0.428		
	Total	121.299	280			

From the results of the table (5.12) the researcher concluded that both of the implementation of KM and organizational structure fields don't have a significance level which is less than ($\alpha = 0.05$), so it can be concluded that there are a statistically significant differences among the respondents on these fields due to the job title variable.

However, transformational leadership, information technology and requirements of KM fields have a significance level which is greater than ($\alpha = 0.05$), so it can be concluded that there are no statistically significant differences among the respondents on these fields due to the job title variable.

Table 5.13 The mean of difference due to the job title variable for the requirements of KM field.

Field	Job title categories		Mean difference	Sig
Requirements of KM	Dean	Administrative staff	0.51621	0.417
		Head of Department	0.56406	0.42
		Academic	0.66657	0.17
		Other	0.46071	0.75
	Administrative staff	Dean	-0.51621	0.417
		Head of Department	0.04785	0.998
		Academic	0.15036	0.368
		Other	-0.0555	0.999
	Head of Department	Dean	-0.56406	0.42
		Administrative staff	-0.04785	0.998
		Academic	0.1025	0.966
		Other	-0.10335	0.996
	Academic	Dean	-0.66657	0.17
		Administrative staff	-0.15036	0.368
		Head of Department	-0.1025	0.966
		Other	-0.20585	0.927
	Other	Dean	-0.46071	0.75
		Administrative staff	0.0555	0.999
		Head of Department	0.10335	0.996
		Academic	0.20585	0.927

Table (5.13) shows that there are no statistically significant differences among the respondents on the requirements of KM field due to the job title variable. Because the field has a significance level values (Sig.) which are greater than ($\alpha = 0.05$).

5.1.2.2.3 Sub-Hypothesis three testing

Sub-Hypothesis three: There are no significant statistical differences at level ($\alpha = 0.05$) among the respondents in their opinions about the study fields attributed to their experience.

To define if there are significantly statistical differences at level ($\alpha = 0.05$) among respondents' on the study field related to experience a One-Way ANOVA Test was used.

From the results of the table (5.14) the researcher concluded that the whole fields of the survey have a significance level which is greater than ($\alpha = 0.05$), so it can be concluded that there are no statistically significant differences among the respondents on these fields due to the experience variable.

Table 5.14 The analysis of variance (Experience variable)

Fields		Sum of Squares	df	Mean Square	F-statistic	Sig.
The implementation of knowledge management	Between Groups	.575	3	.192	.448	.719
	Within Groups	118.403	277	.427		
	Total	118.978	280			
Organizational structure	Between Groups	1.375	3	.458	.691	.558
	Within Groups	183.755	277	.663		
	Total	185.130	280			
Transformational leadership	Between Groups	2.353	3	.784	1.186	.315
	Within Groups	183.177	277	.661		
	Total	185.530	280			

Information technology	Between Groups	1.214	3	.405	.958	.413
	Within Groups	116.955	277	.422		
	Total	118.168	280			
Requirements of knowledge management	Between Groups	1.374	3	.458	1.058	.367
	Within Groups	119.925	277	.433		
	Total	121.299	280			

6. CONCLUSION AND RECOMMENDATION

After reviewing the statistical results of the study, the main findings and recommendations of this study were extracted. The results will be divided into two main fields related to the implementation of KM and the second related to the requirements of KM represented in organizational structure, transformational leadership and information technology.

6.1 Conclusions

The main findings and results of the research are in the following:

6.1.1 The implementation of KM field

The study concluded that the respondents of the study in IAU agree with the availability of elements of an implementation of KM. In the first instance according to the acceptance degree, the respondents strongly agreed that the implementation of KM helps to achieve the objectives of the university. The results show also an agreement that the university participates in scientific conferences and uses the scientific researches which contributing to gain knowledge. And that the university supports the knowledge sharing among employees, and that there is a cooperative relationship between IAU and other universities. In addition, there is an interest by the university administration in knowledge behaviors such as knowledge appreciation, knowledge building, and knowledge sharing. As well as, The University helps in providing knowledge centers to enhance communication with the beneficiaries of its services and provides a continuous updating of the information by communicating with the external environment.

6.1.2 Requirements of KM fields

The section represents 3 fields which are:

6.1.2.1 Organizational structure field

There is a statistically significant correlation at (α=0.05) between the implementation of KM and organizational structure.

The respondents agreed that most of the elements of the organizational structure are important to implement KM. The following is the order of organizational structure elements according to the acceptance degree in a descending order:

1. The University provides an organizational structure achieves integration, coordination and interaction in cognitive assets.
2. The University provides an organizational structure allows the flow of knowledge and information in all directions.
3. Decentralization of work provides an opportunity to share knowledge among employees.
4. The University provides a flexible organizational structure allows to accommodate internal and external environmental variables.
5. The University provides an organizational structure that facilitates the job rotation for employees which contributes to knowledge transfer.
6. The University provides a periodic review of the organizational structures according to the internal and external variables that required by the effective organizational structure.
7. The existence of a relationship between the president and subordinates based on cooperation and trust in the university.

The following elements had a low degree of agreement and acceptance:

1. The University switches from individual work patterns to a teamwork pattern in self-working teams.
2. The university has a high attention on the beneficiaries (internal and external) from their services and taking their opinions as a priority.

3. The university achieves a balance between the powers and responsibilities that granted to the individual.
4. The university reduced the hierarchical levels of supervision to allow closeness between organizational levels.

6.1.3 Transformational leadership

There is a statistically significant correlation at (α=0.05) between the implementation of KM and transformational leadership.

The respondents agreed that most of the elements of transformational leadership are important to implement KM. The following is the order of transformational leadership elements according to the acceptance degree in a descending order:

1. The University participates in local and international scientific conferences which contribute acquiring a new knowledge.
2. The university focuses on completing tasks by working as a team.
3. Managers have the ability to influence subordinates.
4. The university possesses information and controls the distribution of information with respect to future plans.

The following items had a low degree of agreement and acceptance:

1. The University provides opportunities for continuous learning and development for employees.
2. Employees participate in decision-making at all organizational levels of the university.
3. Employees work in their own way in order to achieve the desired results in the university.
4. There is justice in the distribution of rewards and bonuses among employees in the university.

The respondents didn’t agree on the following item:

1. The university raises the level of managerial interaction between leaders and employees.

And also the respondents strongly disagreed on the following items:

1. The University encourages the employees to submit their ideas and suggestions.
2. The university relies on a leadership style which based on granting authority to employees.

6.1.4 Information technology

There is a statistically significant correlation at (α=0.05) between the implementation of KM and information technology.

The respondents agreed that most of the element of information technology is important to implement KM. The following is the order information technology elements according to the acceptance degree in a descending order:

1. Mainstreaming of the internet connection service for employees at all levels in the university.
2. The University provides an inside information network to gain access to the databases (computers and archiving systems).
3. The University provides information and knowledge needed by participating in international databases.
4. The University provides the necessary computer software to gain and easily share the knowledge.
5. Availability of database systems at the University.
6. The University provides specialized electronic forums contribute in documenting and sharing knowledge.
7. The University provides an electronic library that allows workers to take advantage of it.
8. The existence of website links which illustrate the achievements, goals and functions of each department in the university.
9. The University provides a special website which is available to all according to their needs.
10. The University provides an electronic means for helping to hold conferences and meetings and transfer experiments remotely.

6.1.5 Conclusion summary

The results showed the positive relationship between the requirements of KM (organizational structure, transformational leadership and information technology) and the implementation of KM in IAU. However, the field of information technology took the first place with a mean that equals (3.83) followed by an organizational structure field with a mean that equals (3.34) and then leadership field with a mean that equals (3.10).

In addition, the study identifies that there are no differences among the respondents in their opinions over the requirements of KM implementation attributed to gender and years of experience. The study detected that there are significant statistical differences in the implementation of KM and organizational structure fields between the answers of the respondents concerning the requirements of implementing KM due to the position (job-title). The study also detected that there are no significant statistical differences in the responses opinions at the transformational leadership, information technology and requirements of KM fields due to position (job-title).

6.2 Recommendations

First, the university should pay attention to hold a series of seminars, lectures, workshops, training courses and conferences in the field of KM to raise awareness and culture of KM and exchange of information and experiences in this field. The university also should hold workshops to explain to the employees their rights and give them information about its regulations and laws. And then, The university focuses on developing creativity processes in KM and making this as part of its day working, by following up the new creative opportunities, and then evaluating and choosing the best of them. They also should make the practice of KM activities as a basis for the competition among employees.

Next, the University should encourage its employees to share their ideas and suggestions by interacting with them and rewarding them for their significant ideas. In addition, the university should arrange trips to its employees to make them close to each other which ease the sharing of Knowledge among them. And also, the University should encourage

and motivate the using of information and communication technology and employ the knowledge systems in decision-making to achieve its goals at a high level of performance.

The university should keep up with the management methods, methodologies and practices that related to KM to improve, develop and invest the knowledge which is available in its human resources and pay attention to their knowledge as a great wealth that increases its success or turns its failure into success. And also, there is a need to link the university with major research centers and databases in order to contribute in building and developing knowledge. And the university should design a central database and share it with other universities to enable exchanging and storing knowledge among the universities in Turkey and their employees.

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APPENDIX (1)

Table 0.1 The correlation coefficient between the items of implementation of KM field and the whole field.

No.	Item (question)	Pearson correlation coefficient	P-value (sig.)
1	.The university has a knowledge management policy or strategy for acquiring and sharing knowledge.	.635**	.000
2	Knowledge management helps in achieving the objectives of the university.	.581**	.000
3	Knowledge management terminology is used and shared by the university.	.600**	.000
4	Administrative behaviors such as (Knowledge appreciation, knowledge building, knowledge sharing) represent a model for workers in the university.	.564**	.000
5	The cooperative relationships at the university allow them to exchange experiences and information with other universities.	.625**	.000
6	The university uses scientific researches to generate knowledge for the achievement of its goals.	.742**	.000

7	The university participates in scientific conferences which contributing to gain knowledge.	.677**	.000
8	The university helps in providing knowledge centers to enhance communication with the beneficiaries of its services.	.733**	.000
9	Sharing of knowledge and information among employees does not affect the loss of their jobs.	.550**	.000
10	The university hires specialists to apply the knowledge management programs.	.692**	.000
11	The university provides a continuous updating of the information by communicating with the external environment.	.768**	.000
12	The university is interested in the management of training and education programs and the establishment of the internal learning centers.	.716**	.000
13	The university seeks to attract highly skilled and qualified people from outside to help in generating knowledge.	.716**	.000

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

Table 0.2 The correlation coefficient between the items of organizational structure field and the whole field.

No.	Item (question)	Pearson correlation coefficient	P-value (sig.)

1	The university provides a flexible organizational structure allows to accommodate internal and external environmental variables.	.685**	.000
2	Decentralization of work provides an opportunity to share knowledge among employees.	.630**	.000
3	The university provides an organizational structure that facilitates the job rotation for employees which contributes to knowledge transfer.	.759**	.000
4	The university provides an organizational structure achieves integration, coordination and interaction in cognitive assets.	.739**	.000
5	The university provides an organizational structure allows the flow of knowledge and information in all directions.	.734**	.000
6	The university reduced the hierarchical levels of supervision to allow closeness between organizational levels.	.701**	.000
7	The university achieves a balance between the powers and responsibilities that granted to the individual.	.794**	.000
8	The university provides a periodic review of the organizational structures according to the internal and external variables that required by the effective organizational structure.	.804**	.000
9	The university switches from individual work patterns to a teamwork pattern in self-working teams.	.772**	.000

10	The existence of a relationship between the president and subordinates based on cooperation and trust in the university.	.702**	.000
11	The university has a high attention on the beneficiaries (internal and external) from their services and taking their opinions as a priority.	.748**	.000

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

Table 0.3 The correlation coefficient between the items of transformational leadership field and the whole field.

No.	Item (question)	Pearson correlation coefficient	P-value (sig.)
1	The university encourages the employees to submit their ideas and suggestions.	.821**	.000
2	The university raises the level of managerial interaction between leaders and employees.	.798**	.000
3	The university provides opportunities for continuous learning and development for employees.	.789**	.000
4	The university focuses on completing tasks by working as a team.	.683**	.000
5	Employees participate in decision-making at all organizational levels of the university.	.722**	.000
6	The university participates in local and international scientific conferences which contribute acquiring a new knowledge.	.595**	.000

7	The university relies on a leadership style which based on granting authority to employees.	.742**	.000
8	There is justice in the distribution of rewards and bonuses among employees in the university.	.689**	.000
9	Employees work in their own way in order to achieve the desired results in the university.	.633**	.000
10	Managers have the ability to influence subordinates.	.592**	.000
11	The university possesses information and controls the distribution of information with respect to future plans.	.729**	.000

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

Table 0.4 The correlation coefficient between the items of information technology field and the whole field.

No.	Item (question)	Pearson correlation coefficient	P-value (sig.)
1	Availability of database systems at the university.	.680**	.000
2	The university provides an inside information network to gain access to the databases (computers and archiving systems).	.738**	.000
3	Mainstreaming of the internet connection service for employees at all levels in the university.	.619**	.000
4	The university provides specialized electronic forums contribute in documenting and sharing knowledge.	.610**	.000

5	The existence of website links which illustrate the achievements, goals and functions of each department in the university.	.706**	.000
6	The university provides an electronic means for helping to hold conferences and meetings and transfer experiments remotely.	.563**	.000
7	The university provides an electronic library that allows workers to take advantage of it.	.631**	.000
8	The university provides information and knowledge needed by participating in international databases.	.721**	.000
9	The university provides a special website which is available to all according to their needs.	.614**	.000
10	The university provides the necessary computer software to gain and easily share the knowledge.	.740**	.000

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

Table 0.5 One-Sample T test mean and P-value (sig.) of the implementation KM field.

No.	Item (question)	Mean	P-value (sig.)	Test Value (T)	Order
1	.The university has a knowledge management policy or strategy for acquiring and sharing knowledge.	3.7936	.000	13.804	6

2	Knowledge management helps in achieving the objectives of the university.	4.1281	.000	21.868	1
3	Knowledge management terminology is used and shared by the university.	3.7651	.000	15.157	7
4	Administrative behaviors such as (Knowledge appreciation, knowledge building, knowledge sharing) represent a model for workers in the university.	3.8114	.000	13.877	5
5	The cooperative relationships at the university allow them to exchange experiences and information with other universities.	3.5302	.000	8.921	12
6	The university uses scientific researches to generate knowledge for the achievement of its goals.	3.9466	.000	15.481	2
7	The university participates in scientific conferences which contributing to gain knowledge.	3.9217	.000	15.611	3
8	The university helps in providing knowledge centers to enhance communication with the beneficiaries of its services.	3.6690	.000	11.911	10

9	Sharing of knowledge and information among employees does not affect the loss of their jobs.	3.8577	.000	15.145	4
10	The university hires specialists to apply the knowledge management programs.	3.5516	.000	8.795	11
11	The university provides a continuous updating of the information by communicating with the external environment.	3.6833	.000	11.733	9
12	The university is interested in the management of training and education programs and the establishment of the internal learning centers.	3.6940	.000	11.942	8
13	The university seeks to attract highly skilled and qualified people from outside to help in generating knowledge.	3.3630	.000	5.072	13
All the items of the field		3.7473	.000	19.218	

Table 0.6 One-Sample T test mean and P-value (sig.) of dominant organizational structure field.

No.	Item (question)	Mean	P-value (sig.)	Test Value (T)	Order
1	The university provides a flexible organizational structure allows to accommodate internal and external environmental variables.	3.5053	.000	7.777	4
2	Decentralization of work provides an opportunity to share knowledge among employees.	3.5196	.000	9.071	3
3	The university provides an organizational structure that facilitates the job rotation for employees which contributes to knowledge transfer.	3.4804	.000	7.508	5
4	The university provides an organizational structure achieves integration, coordination and interaction in cognitive assets.	3.5943	.000	10.075	1
5	The university provides an organizational structure allows the flow of knowledge and information in all directions.	3.5302	.000	8.531	2
6	The university reduced the hierarchical levels of supervision	2.8185	.008	-2.669	11

	to allow closeness between organizational levels.				
7	The university achieves a balance between the powers and responsibilities that granted to the individual.	3.1388	.060	1.892	10
8	The university provides a periodic review of the organizational structures according to the internal and external variables that required by the effective organizational structure.	3.4128	.000	6.472	6
9	The university switches from individual work patterns to a teamwork pattern in self-working teams.	3.1708	.011	2.555	8
10	The existence of a relationship between the president and subordinates based on cooperation and trust in the university.	3.3879	.000	5.317	7
11	The university has a high attention on the beneficiaries (internal and external) from their services and taking their opinions as a priority.	3.1601	.031	2.172	9

All the items of the field	3.3381	.000	6.970	

Table 0.7 One-Sample T test mean and P-value (sig.) of dominant transformational leadership Field

No.	Item (question)	Mean	P-value (sig.)	Test Value (T)	Order
1	The university encourages the employees to submit their ideas and suggestions.	3.0747	.315	1.007	7
2	The university raises the level of managerial interaction between leaders and employees.	3.1281	.061	1.880	6
3	The university provides opportunities for continuous learning and development for employees.	3.1886	.013	2.514	5
4	The university focuses on completing tasks by working as a team.	3.3665	.000	5.550	2
5	Employees participate in decision-making at all organizational levels of the university.	2.8434	.019	-2.364	9
6	The university participates in local and international scientific	3.6762	.000	10.815	1

	conferences which contribute acquiring a new knowledge.				
7	The university relies on a leadership style which based on granting authority to employees.	3.0641	.365	.907	8
8	There is justice in the distribution of rewards and bonuses among employees in the university.	2.4057	.000	-8.532	11
9	Employees work in their own way in order to achieve the desired results in the university.	2.6940	.000	-4.477	10
10	Managers have the ability to influence subordinates.	3.3559	.000	5.442	3
11	The university possesses information and controls the distribution of information with respect to future plans.	3.3203	.000	4.952	4
All the items of the field		3.1016	.037	2.092	

Table 0.8 One-Sample T test mean and P-value (sig.) of dominant information technology field

No.	Item (question)	Mean	P-value (sig.)	Test Value (T)	Order

1	Availability of database systems at the university.	3.8256	.000	13.405	5
2	The university provides an inside information network to gain access to the databases (computers and archiving systems).	3.8932	.000	15.060	2
3	Mainstreaming of the internet connection service for employees at all levels in the university.	4.2420	.000	24.913	1
4	The university provides specialized electronic forums contribute in documenting and sharing knowledge.	3.7936	.000	14.677	6
5	The existence of website links which illustrate the achievements, goals and functions of each department in the university.	3.7153	.000	12.709	8
6	The university provides an electronic means for helping to hold conferences and meetings and transfer experiments remotely.	3.6228	.000	10.402	10

7	The university provides an electronic library that allows workers to take advantage of it.	3.7900	.000	12.494	7
8	The university provides information and knowledge needed by participating in international databases.	3.8897	.000	15.610	3
9	The university provides a special website which is available to all according to their needs.	3.6548	.000	10.649	9
10	The university provides the necessary computer software to gain and easily share the knowledge.	3.8897	.000	14.370	4
All the items of the field		3.8317	.000	21.460	

APPENDIX (2)

1. The English version of the questionnaire

Please assess to what extent the following statements related to knowledge management apply to your foundation. Indicate the degree of agreement or disagreement that fit the situation in your foundation. Please put a mark on one choice for each of the following statements.

Part I: Personal and Professional Traits:

1- **Name of university: Istanbul Aydin University**

2- **Gender:**

O Male O Female

3- **Job Title:**

O Dean O Administrative staff

O Head of Department O Academic (teaching member)

O Others:……..

4- **Experience:**

O Less than 1 years O Between 1-5 years

O Between 5-10 years O More than 10 years

Part II: Knowledge management

Instructions: These statements describe the knowledge in your university. Please answer each statement below by putting a point inside the box that best reflects your degree of agreement or disagreement with that statement.

The implementation of KM field	Strongly disagree	disagree	Uncertain	Agree	Strongly agree
1. The university has a knowledge management policy or strategy for acquiring and sharing knowledge.					
2. Knowledge management helps in achieving the objectives of the university.					
3. Knowledge management terminology is used and shared by the university.					
4. Administrative behaviors such as (Knowledge appreciation, knowledge building, knowledge sharing) represent a model for workers in the university.					
5. The cooperative relationships at the university allow them to exchange experiences and information with other universities.					
6. The university uses scientific researches to generate knowledge for the achievement of its goals.					
7. The university participates in scientific conferences which contributing to gain knowledge.					
8. The university helps in providing knowledge centers to enhance communication with the beneficiaries of its services.					
9. Sharing of knowledge and information among employees does not affect the loss of their jobs.					
10. The university hires specialists to apply the knowledge management programs.					
11. The university provides a continuous updating of the information by communicating with the external environment.					
12. The university is interested in the management of training and education programs and the establishment of the internal learning centers.					

13. The university seeks to attract highly skilled and qualified people from outside to help in generating knowledge					

Part II: Requirements of knowledge management implementation

First: organization structure	Strongly disagree	disagree	Uncertain	Agree	Strongly agree
14. The university provides a flexible organizational structure allows to accommodate internal and external environmental variables.					
15. Decentralization of work provides an opportunity to share knowledge among employees.					
16. The university provides an organizational structure that facilitates the job rotation for employees which contributes to knowledge transfer.					
17. The university provides an organizational structure achieves integration, coordination and interaction in cognitive assets.					
18. The university provides an organizational structure allows the flow of knowledge and information in all directions.					
19. The university reduced the hierarchical levels of supervision to allow closeness between organizational levels.					
20. The university achieves a balance between the powers and responsibilities that granted to the individual.					
21. The university provides a periodic review for the organizational structures according to the internal and external variables that required by the effective organizational structure.					
22. The university switches from individual work patterns to a teamwork pattern in a self-working teams.					
23. The existence of a relationship between the president and subordinates based on cooperation and trust in the university.					

24. The university has a high attention on the beneficiaries (internal and external) from their services and taking their opinions as priority.					

Second: Transformational leadership	Strongly disagree	disagree	Uncertain	Agree	Strongly agree
25. The university encourages the employees to submit their ideas and suggestions.					
26. The university raises the level of managerial interaction between leaders and employees.					
27. The university provides opportunities by continuous learning and development for employees.					
28. The university focuses on completing tasks by working as team.					
29. Employees participate in decision-making at all organizational levels of the university.					
30. The university participates in local and international scientific conferences which contributes to acquire a new knowledge.					
31. The university relies on a leadership style which based on granting authority to employees.					
32. There is justice in the distribution of rewards and bonuses among employees in the university.					
33. Employees work in their own way in order to achieve the desired results in the university.					
34. Managers have the ability to influence subordinates.					
35. The university possesses information and control the distribution of information with respect to future plans.					

Third: Information technology	Strongly disagree	disagree	Uncertain	Agree	Strongly agree
36. Availability of database systems at the university.					
37. The university provides an inside information network to gain access to the databases (computers and archiving systems).					
38. Mainstreaming of the internet connection service for employees at all levels in the university.					
39. The university provides specialized electronic forums contribute in documenting and sharing knowledge.					
40. The existence of a website links which illustrate the achievements, goals and functions of each department in the university.					
41. The university provides an electronic means for helping to hold conferences and meetings and transfer experiments remotely.					
42. The university provides an electronic library that allows workers to take advantage of it.					
43. The university provides information and knowledge needed by participating in international databases.					
44. The university provides a special website which is available to all according to their needs.					
45. The university provides the necessary computer software to gain and easily share the knowledge.					

The questionnaire's questions were collected from the following sources:

- Rasula, j., vuksic, v. b., & stemberger, m. i. (2012). The impact of knowledge management on organizational performance. Economic and business review for central and south-eastern Europe.
- Rebecca (2014) initiatives in Indian industry. (a special study on i.t. industry
- Alraqb,M (2011) the needs for knowledge management application
- Downes, t. v. (2014). An evaluation of knowledge management practices in nonprofit community services organizations in Australia.

2. The Turkish version of the questionnaire

Vakfınızın bilgi yönetimiyle ilgili bu ifadeler, sizin için uygunluk durumuna göre anlaşma veya anlaşmazlık derecelerini gösterir.

Aşağıdaki ifadelerden her bir seçenek için bir işaretleme yapınız.

Bölüm I: Kişisel ve Profesyonel Özellikleri:

1. Üniversitenin Adı:

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2. Cinsiyet:

O Erkek O Kadın

3. Unvan:

O Dekan O İdari personel

O Departman Başkanı O Akademik (öğretim üyesi)

O Diğerleri:

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4. Tecrübe:

O 5 yıldan az O 5-10 yıl arası

O 10-15 yılları arasında O 15 Fazla

Bölüm II: Bilgi yönetimi

Bilgi yönetimi, örgütün amaçlarına ulaşmak için örgütsel ve kolektif bilgileri üretme, paylaşma ve kullanma süreci olarak tanımlanabilir. İlk olarak Dr. Karl Wiig tarafından 1986 yılında literatüre kazandırılan bilgi yönetimi kavramı "örgütsel performansı arttırmak için bilgiyi eyleme dönüştürmeye yönelik bilinçli bir stratejisi olarak tanımlanmıştır.

Talimatlar: Bu ifadeler sizin üniversitenizdeki bilgi yönetimini açıklar.

Lütfen anlaşma ve anlaşmazlık derecenizi en iyi yansıtan kutu içerisine bir nokta koyarak aşağıdaki her bir ifadeyi cevaplayınız.

	Kesinlikle katıl**mı**yorum	katıl**mı**yorum	karasızım	katılıyorum	Kesinlikle katılıyorum
1.Üniversitenin bilgi yönetiminin; bilgi edinme ve paylaşımı için bir ilkesi veya stratejisi vardır.					
2.Bilgi yönetimi üniversitenin hedeflerine ulaşmasında yardımcı olur.					
3.Üniversite tarafından kullanılan ve paylaşılan bir bilgi yönetimi terminolojisi vardır.					
4.İdari davranışlar (Bilgi takdiri, bilgi üretimi, bilgi paylaşımı) üniversitede çalışanlar için bir modeli temsil eder.					
5.Üniversitede kooperatif ilişkiler; diğer üniversitelerle deneyim ve bilgi alışverişlerine izin verir.					
6.Üniversite hedeflerine ulaşmak için bilgi üretir ve bunun için bilimsel araştırmaları kullanır.					
7.Üniversite bilgi elde etmek için bilimsel konferanslara katılır.					

8.Üniversite, verdiği hizmetlerin yararlanıcıları ile iletişimi geliştirmek için bilgi merkezleri sağlıyor.					
9.Bilgi ve enformasyon paylaşımı çalışanlar arasında iş kaybını etkilemez.					
10.Üniversite bilgi yönetimi programları uygulamak için uzmanları işe alır					
11.Üniversite dış ortam ile iletişim kurarak bilginin sürekli güncellenmesini sağlar					
12.Üniversite eğitim ve öğretim programlarının yönetimi için ilgilidir ve iç öğrenme merkezleri kurar					
13.Üniversite bilgi üretenlere yardımcı olmak için dışarıdan çok yetenekli ve nitelikli insanları çekmek istiyor.					

Bölüm II: bilgi yönetimi uygulaması Gereksinimleri

Birincisi: organizasyon yapısı	Kesinlikle katıl**mı**yorum	katıl**mı**yorum	kararsızım	katılıyorum	Kesinlikle katılıyorum
1.Üniversite esnek organizasyon yapısı sağlamak için iç ve dış çevre değişkenlerine uyum sağlar					

2.Bilgi paylaşımı için yerelleşme çalışanlar arasında bir fırsat sağlar					
3.Bilgi transferine katkıda bulunmak için çalışanların iş rotasyonunu kolaylaştıran bir organizasyon yapısı sağlar					
4.Üniversitenin organizasyonel yapısı; bilişsel varlıklar entegrasyonu, koordinasyonu ve etkileşimi elde etmeyi sağlar					
5.Üniversitenin organizasyon yapısı tüm yönlerde bilgi edinme ve bilgi akışına izin vermeyi sağlar					
6. Üniversitede örgütsel düzeyler arasında yakınlık sağlamak amacıyla hiyerarşik denetim azaltılmıştır					
7. Üniversite, bireye verilen yetki ve sorumluluklar arasında bir denge elde eder					
8. Üniversite etkili organizasyon yapısı için gerekli iç ve dış değişkenlerin, organizasyonel yapılar içinde periyodik olarak gözden geçirilmesini sağlar					
9.Üniversitenin benimsediği çalışma modeli, bireysel çalışma modeli değil ekip çalışması modelidir.					
10.Üniversitede üstler ve astlar arasındaki ilişkiler, karşılıklı işbirliği ve güvene dayalıdır.					
11.Üniversite, hizmetlerinden yararlanan bireylerin görüşlerinin alınması konusunda yüksek ilgi gösterir.					

İkincisi: Liderlik	Kesinlikle katıl**mı**yorum	katıl**mı**yorum	karasızım	katılıyorum	Kesinlikle katılıyorum
12. Üniversite çalışanlarının fikir ve önerilerini iletmeleri için teşvik eder.					
13.Üniversitede liderler ve çalışanlar arasındaki yönetsel etkileşim düzeyi yüksektir					
14.Üniversite çalışanlarına sürekli öğrenme ve gelişme için fırsatlar sunar					
15.Üniversite ekip olarak çalışarak görevleri tamamlamaya odaklanır					
16.Çalışanlar üniversitenin tüm organizasyonel düzeyde karar alma sürecine katılır					
17.Üniversite yeni bir bilgi elde etmeye yardımcı olan yerel ve uluslararası bilimsel konferanslara katılır					
18.Üniversite çalışanlarına yetki verilmesine dayalı bir liderlik tarzına dayanır					
19.Üniversitede çalışanlar arasında ödül ve ikramiye dağıtımında adalet vardır.					
20.Üniversitede çalışanlar istenen sonuçları elde etmek için kendileri istediği şekilde çalışırlar.					

21.Yöneticiler çalışanları etkileme yeteneğine sahipdir.					
22.Üniversite gelecek planlarına uygun şekilde bilgileri sahiplenir ve bilgilerin dağılımını kontrol eder.					
Üçüncüsü: Bilgi teknolojisi	Kesinlikle katıl**mı**yorum	katıl**mı**yorum	karasızım	katılıyorum	Kesinlikle katılıyorum
23.Üniversitede veritabanı sistemleri kullanılabilirliği iyidir					
24.Üniversite veritabanlarına erişmek için bir iç bilgi ağı sağlar (Bilgisayarlar ve arşivleme sistemleri)					
25.Üniversitede her düzeyde çalışanlar için internet bağlantısı hizmeti vardır.					
26.Üniversite bilgi belgelenmesi ve paylaşımı sağlamak için özel elektronik forumlara katkıda bulunur					
27. Web sitesi bağlantıları, üniversitede her departmanın başarısı, hedefleri ve işlevlerini tanımlar.					
28.Üniversite uzaktan konferans, toplantı ve transfer deneyleri yapmak için elektronik araçları sağlar					
29.Üniversite çalışanların yararlanması için elektronik kütüphane sağlar					

30.Üniversite uluslararası veri tabanlarına katılarak gerekli enformasyon ve bilgiyi sağlar					
31.Üniversite çalışanların ihtiyaçlarına göre herkesin kullanabileceği özel bir web sitesi sağlar					
32.Üniversite, bilginin kolayca paylaşımı ve kolay elde edilmesi için gerekli bilgisayar yazılımı sağlar					

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T.C.
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