

**T.C.  
ISTANBUL GEDİK UNIVERSITY  
INSTITUTE OF GRADUATE STUDIES**



**THE IMPACT OF ORGANIZATIONAL COMMUNICATION NETWORK  
ON CRM PERFORMANCE: THE MEDIATING ROLE OF KNOWLEDGE  
BASE**

**MASTER`S THESIS**

**Rama AL-SHAYEB**

**Business Administration Department  
Business Administration Master in English Program**

**AUGUST 2022**

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**T.C.**  
**İSTANBUL GEDİK ÜNİVERSİTESİ**  
**LİSANSÜSTÜ EĞİTİM ENSTİTÜSÜ MÜDÜRLÜĞÜ**

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## **DECLARATION**

I, Rama AL-SHAYEB, hereby declare that this thesis, titled “The Impact of Organizational Communication Network on CRM performance: The Mediating Role of Knowledge Base” represents my work which has been done after registration for the MBA program (or Master of Business Administration as appropriate) at Istanbul Gedik University and has not been previously included in a thesis or dissertation submitted to this or any other institution for a degree, diploma, or other qualifications (25/08/2022).

Rama AL-SHAYEB



## **DEDICATION**

This research paper is dedicated to:

- ❖ To my creator and my master, ALLAH Almighty.
- ❖ To my pacemaker and great teacher, prophet Mohammed ( peace be upon him), who taught me the meaning of life.
- ❖ To my homeland Syria, the country of Jasmine and symbol of sacrifice.
- ❖ To my mother “ Deyya”, who always guides me through the valley of darkness.
- ❖ To my father “Mohammed Majed”, who never stop giving of himself in countless ways.
- ❖ To my brothers, and my beloved little sister, the true meaning of support and family.
- ❖ To my late grandfather “Ahmed”, with my M.B.A degree, I have finally fulfilled his last wish.

## **PREFACE**

This thesis was written for my M.B.A degree in Marketing from Gedik University, Türkiye. The research dealt with studying the impact of internal organizational communication networks on the overall performance of CRM systems. The research took the mediator model for the role of the knowledge base in the relationship and the direct impact of organizational communication networks on CRM performance.

After thanking ALLAH Almighty, I would like to thank my mom “*Deyya*” for always believing in me, and my dad “*Mohammed Maged*” for always being there for me, and without them, I wouldn't date this moment. Special thanks to Dr. Metin TOPTAŞ for his continued support and guidance during my M.B.A journey. Dr. TOPTAŞ has always been enlightening me with the academic standers and guidelines for this thesis about organizational communication networks' impact on CRM performance in this model, without whom this wouldn't have been possible.

Furthermore, I need to offer this success to my late grandfather “*Ahmed*” and, with my M.B.A degree, I have finally fulfilled his last wish.

August 2022

Rama AL-SHAYB

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## **ABBREVIATIONS**

<b>AC</b>	: Absorptive Capacity.
<b>CA</b>	: Competitive Advantage.
<b>CK</b>	: Customer Knowledge.
<b>CRM</b>	: Customer Relationship Management.
<b>CS</b>	: Customer Satisfaction.
<b>KB</b>	: Knowledge Base.
<b>KE</b>	: Knowledge-Economy.
<b>KM</b>	: Knowledge Management.
<b>KMS</b>	: Knowledge Management Systems.
<b>KS</b>	: Knowledge Scanning.
<b>RM</b>	: Relationship Marketing.
<b>VC</b>	: Value to Customer

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# THE IMPACT OF ORGANIZATIONAL COMMUNICATION NETWORK ON CRM PERFORMANCE: THE MEDIATING ROLE OF KNOWLEDGE BASE

## ABSTRACT

This paper seeks to study the impact of in-firm organizational communication networks on CRM performance with Knowledge Base as a mediator in the Kingdom of Saudi Arabia (K.S.A). Using a convincing sample of 88 businesses of middle-large-sized international businesses in the K.S.A. The common factor among the participating businesses is adopting an ongoing CRM program. Accordingly, a model was tested to define the direct and indirect impact of organizational communication networks on CRM initiatives in the businesses involved. The Knowledge Base, which consists of worker knowledge and manager knowledge, was treated as a mediator in this model. The data collection was an online survey (Questionnaire based on a 7-point Likert-type scale) provide in two languages (Arabic and English). We sent the questionnaires to upper-hand managers who usually have the most complete vision of the firm's CRM strategies, such as CEOs, general managers, vice general managers, marketing managers, and IT managers. The sample size with a total sample size of 88 businesses in Saudi Arabia.

Hence, after conducting a linear regression analysis via SPSS, a strong direct impact of communications networks in the involved organizations on CRM initiatives was detected. Also, using an add-on PROCESS V4, the knowledge base successfully mediated this model's relationship between the predictor (communication networks) and the outcome (CRM). Generally, the results suggested that a sufficient and effective communication network plays a major role in the impact on the total performance of CRM systems. Moreover, based on my literature review, there are no studies about the relation between in-firm communication networks and knowledge base, and how they, eventually, contribute to enhancing organizational performance in the scoop of customer relationships management in Saudi Arabia.

A major contributor to this model is to study of the direct effect of communication networks on worker and manager knowledge and how it improves their total efficiency. The major findings of this research have, nearly, meet up with previous findings on these topics.

**Keywords:** *Communication Network, Knowledge Base, Manager Knowledge, Worker Knowledge, CRM, Saudi Arabia, K.S.A.*

## ORGANİZASYON İLETİŞİM AĞININ CRM PERFORMANSI ÜZERİNDEKİ ETKİSİ: BİLGİ TABANININ ARACILIK ROLÜ

### ÖZET

Bu makale, Suudi Arabistan Krallığı'nda (K.S.A) bir arabulucu olarak Bilgi Bankası ile şirket içi kurumsal iletişim ağlarının CRM performansı üzerindeki etkisini incelemeyi amaçlamaktadır. K.S.A.'daki orta-büyük ölçekli uluslararası işletmelerden oluşan 88 işletmenin ikna edici bir örneğini kullanmak. Katılımcı işletmeler arasındaki ortak faktör, devam eden bir CRM programını benimsemesidir. Buna göre, kurumsal iletişim ağlarının ilgili işletmelerdeki CRM girişimleri üzerindeki doğrudan ve dolaylı etkisini tanımlamak için bir model test edilmiştir. Çalışan bilgisi ve yönetici bilgisinden oluşan Bilgi Tabanı bu modelde aracı olarak ele alınmıştır. Veri toplama, iki dilde (Arapça ve İngilizce) sağlanan çevrimiçi bir ankettir (7 puanlık Likert tipi bir ölçeğe dayalı anket). Anketleri CEO'lar, genel müdürler, genel müdür yardımcıları, pazarlama müdürleri ve BT yöneticileri gibi genellikle firmanın CRM stratejileri hakkında en eksiksiz vizyona sahip olan üst düzey yöneticilere gönderdik. Suudi Arabistan'da toplam 88 işletmeden oluşan örneklem büyüklüğü.

Dolayısıyla, SPSS üzerinden doğrusal bir regresyon analizi yapıldıktan sonra, ilgili kuruluşlardaki iletişim ağlarının CRM girişimleri üzerinde güçlü bir doğrudan etkisi tespit edildi. Ayrıca, PROCESS V4 eklentisini kullanarak bilgi tabanı, bu modelin tahmin edici (iletişim ağları) ve sonuç (CRM) arasındaki ilişkisine başarılı bir şekilde aracılık etti. Genel olarak sonuçlar, yeterli ve etkili bir iletişim ağının CRM sistemlerinin toplam performansı üzerindeki etkisinde önemli bir rol oynadığını ortaya koymuştur. Ayrıca, literatür incelememe dayanarak, şirket içi iletişim ağları ve bilgi tabanı arasındaki ilişki ve bunların Suudi Arabistan'da müşteri ilişkileri yönetimi kapsamında kurumsal performansın artırılmasına nasıl katkıda bulunduğu dair hiçbir çalışma yok. Bu modele önemli bir katkı, iletişim ağlarının işçi ve yönetici bilgisi üzerindeki doğrudan etkisini ve bunların toplam verimliliğini nasıl geliştirdiğini incelemektir. Bu araştırmanın ana bulguları, bu konularda önceki bulgularla neredeyse örtüşmektedir.

**Anahtar kelimeler:** *İletişim ağları, bilgi tabanı, yönetici bilgisi, çalışan bilgisi, müşteri ilişkileri yönetimi CRM, Suudi Arabistan*

## **1. INTRODUCTION**

The world today is witnessing many changes and developments that directly affect the work of business organizations, and in this rapidly changing global environment, especially after World War II, the economic concept came that knowledge is a strategic element that achieves the organization a competitive advantage of limited importance and supportive of it in keeping pace with all developments and changes in its work environment and facing the fierceness of its competitors.

Management scholars see that renewable and innovative thought and knowledge are among the most important means of success for organizations, whether they are private or public, regardless of their objectives and the nature of their work and activities. This vision and this modern administrative thought forced the organizations to re-shape themselves and re-engineer their work to keep pace with the knowledge-based organization model that it produces and disseminates. Speculations of opinions varied between old and recent studies on the relationship between the organizational communication network inside and outside the framework of developing the company's knowledge platform. With the increasing demands of marketing and consumers, marketing management and business plans have become more and more complex. Taking into account the digital revolution in modern devices, the more sophisticated our communication technology, the more communication obstacles we will face. Moreover, solutions accompanying technical problems were not in favor of the knowledge base actions, especially now in emerging companies (Croteau & Li, 2003).

Business environments are, increasingly, making significant changes in management techniques and strategies. The more the market demands the more the need to develop huge investments in modern technologies. According to Hunt and Davis (2008), to keep up with the future changes /and, or/ obstacles within the business environment you need to invest in customizing the dynamic nature of competence (Hunt and Davis, 2008). Competence is the knowledge skill (Lawler, 1994) and skill

development (Hofer & Schendel, 1978) which are associated with high-level performance jobs. (Joyce,2008).

Effective communication has a core rule in enhancing absorptive capacity (AC) as well as integrating functional units in the organization (Cohen and Levinthal, 1990). Aletan (1991) stated that functional integration helps to create an environment in which all functional units work together to achieve organizational goals via implementing complex technology. Tasi (2001) also confirmed that improving knowledge transformation and organizational learning capabilities are related to the significant role of intra-organizational networks. (Tu et al 2006: 695).

Liao (2011) stated that the communication networks and competence transfer systems within the framework indirectly impact the importance of the knowledge base of employees and managers. Also, Filo (1996) insisted on the need for a capable, flexible, and well-founded database. It must attempt the right usage and conversion of knowledge into capabilities to meet environmental demands (Lane & Lubatkin, 1998). However, Huber (1996) supported that the lack of organizational capacity may affect an organization's assimilating technology and methods that lead to competitive advantage.

A study conducted by Bohling et al. (2005) construed CRM practices as intelligent use of customer knowledge to build term relationships-long with clients. In addition, a study conducted by Tu et al. (2006) suggested that the knowledge base of a framework has an indirect impact on Value to Customer (VC). This research is to address how in-firm communications network capabilities play an explicit role in improving an effective employee knowledge base, and thus organizational outcomes like CRM performance by investigating the businesses conducting a CRM strategy.

In CRM strategies, some studies defend the use of CRM practices to achieve better performance by studying the influencing factors associated with successful CRM implementation (Bohling et al 2006). However, a limited number of studies that specify /or/analyze empirically the influence of managers' and employees' knowledge base of organizational communication networks on customer value appear to be available. Thus, a need is apparent for research on the attributes of organizational communication networks that relate to CRM strategy implementations.

The study will examine the characteristics of an organizational communication network that relate to managers' and workers' knowledge base, thus their impact on CRM practices, which seek to obtain higher performance levels. In addition, the study analyzes the mediating role of the knowledge base in the relationship between organizational communication networks and CRM performance. This study aims to contribute to the debate about the relationship between the organizational communication network and knowledge base and their impact on CRM performance.



## **2. ORGANIZATIONAL COMMUNICATION NETWORKS**

Communication is among the topics that have received obvious attention from specialists and researchers in the field of human behavior in general and organizational behavior in particular. By its nature, it is as old as the existence of man on the surface of the wilderness, and if the ways and means used by man in his communication differed, this was to meet his primary needs and to achieve security and stability. Therefore, communication is a humanitarian, social and cultural necessity, the human need for it in various local environments. Since communication, in the end, is the development and strengthening of human relations in society, thus rooting the values of communication and interdependence between individuals and harmony between individuals in the human society as a whole on the one hand, and between clients and employees within a company's framework on the other.

Communication has transcended from being a social necessity for dealing to touch all the various institutions and organizations of society and varies according to the diversity of these institutions, and for this, we find its different types of personal and personal communication, as well as public and organizational communication. It defines organizational interdependence, i.e., determines the cohesion of organizational elements by creating a common understanding of the nature of the goals to be performed.

### **2.1 The Concept of Organization**

There have been many attempts to define organizational communication, and they differed according to different theoretical approaches and scientific disciplines, but most of them go to the fact that organizational communication is that type of communication associated with all information circulated within the organization or institution. To explicate the term "Organizational Communication Network" the term must be divided into several units. The diversity of the definition of "organization" was due to its function, its dimensions, and the presentation of perceptions regarding

organizational communication as a new form of knowledge. The definition of organizational communication in the media lexicon came as “communication within organizations, and communication between those institutions and their environment, and organizational communication is also concerned with spreading Information between members of the group within certain limits is the organization to achieve its goals”( Wrench et al.,2012). According to *Online Etymology Dictionary*, the term organization was included in the English Dictionary in the middle of the 15<sup>th</sup> century from the French word (Organisation). In the late 18<sup>th</sup> century, the definition of the term (organization) included meanings such as system or institution.

In addition, alternative definitions were mentioned in other dictionaries and articles:

- According to Collins English Dictionary—Complete & Unabridged 10th Edition, the state of being organized, or following an organized structure.
- Also, an organization is explained as an administrative concern or as a political party in finance and business.
- Furthermore, the term expanded and increased depth-in by including other concepts and sections. Barnard (1938) defined it as a system of actively coordinated two or more individual choices.
- As to Blau, P. M., & Scott, W. R. (1962), when teamwork specifies a goal to achieve, an organization`s employees are required to coordinate the efforts of many and encourage others to participate.
- “A social unit of people systematically structured and managed to meet a need or continuously pursue collective goals”.
- Interpreting the term (organization) from an economic perspective. It`s an inclusive term for a group of employees whose tasks are innovation and planning, management and control, risk management, and dealing with economic affairs.

With the multiplicity of definitions and analyses, it`s difficult to determine a specific direction for adopting a comprehensive and correct definition of the word. Hence, Wrench et al (2012) suggested in their book *An Introduction to Organizational Communication* that the general concept of the word (organization) might be detailed and explained within a specific pattern that appears within the consistent topics in the

definition. From their point of view, we can divide the definition of the term by the tasks it includes. In turn, he explained the idea more by analyzing the term within three main tasks included in the organization: goals, human unit, and structure. In this study, we will shed light on the organizational structure mainly and its functions and procedures within the external environment of any organizational institution. We can clarify the idea of the structure as a key element in the tasks of the organization in terms of their actions and their adoption of the external environment of an organization.

The external environment is known as the out-sided elements and factors that affect an organization; customers, investors, stakeholders, and dealers. The organization's exposure to any external factors will affect the results and exports of the workplace. On the other hand, the process of exchanging information with the external environment determines the type of boundaries that the company follows and to what extent the organization's exposure to any external factors will affect the organization's performance. Wrench et al. (2012) classified the flow of information inside and outside the framework of processes into two classes: open and closed boundaries.

Systems that acquire and/or allow free flows with information and data to enter \ exit the organization's data warehouse have an **open border system tracking**. the flexibility of the open boundaries organizations is more than in the closed systems because of their interactions with other systems. Wrench et al. (2012) explained that **closed systems** are "...When an organization insulates itself from what is occurring within its external environment..." The closed-information system in the organization, in other words, is to isolate the company's business environment from any variables outside its structure. Consequently, managers and organizational theorists are facilitated to analyze problems by examining the internal structure of the business with little regard for the external environment (Heil et al., 2014). The most common three units available in the environment of any business building are (information, personnel, and material resources). This research will focus on the first element, information. A **data warehouse (DW)** is an intelligent system supporting raw data storage and processing. From Vassiliadis's (2000) perspective maintaining information with technical forces is a major and supportive factor for any information seeker (manager, employee). DW forms the core of the current decision

support system and provides enterprises with long-term historical information about the decision-making process (Berengure et al.2005). Wrench et al. (2012) supported the idea of knowledge scanning and mentioned two basic methods proactive and reactive (Table 2.1).

**Table 2.1:** Knowledge Scanning Methods by Wrench and Punyanunt-Carter

<b>Proactive</b>	<b>Reactive</b>
A scanning process to get used to existing information that could be exercised into knowledge.	A scanning process to search for a specific/certain knowledge that could be useful when an organization faces a crisis.

**Source:** Wrench et al. (2012).

The obstacle lies with both scanning processes is TIME. To distribute the intended knowledge to the intended user (manager, employee, customer) the organization should structure its leadership hierarchy. Leadership in business terminology is called for a person who takes control of a group of people /employees in an organization (Collins English Dictionary). Wrench et al. (2012) also associated the previous term with the organization's internal structure. Monge et al.(2001) urged the role of leadership force and its structure in the success of the organization's network in general. These helped generate leadership theories such as Graen's (1976) leader-member exchange theory .There are four general types of organizations: mutual benefit, business concerns, service, and commonweal. Organizations differ in the types of management (leadership) hierarchy. Edward Gross (1969) discussed that an organization with management goals carries three core missions and decisions: who, how, and what. As the saying goes, organizations with management achievements must clarify (1) who to lead, (2) how to manage obstacles, and (3) what must be prioritized. With the success of organizational leadership, we can ensure the organizational value of the institution (Gross, 1969). The support of top management to employees by providing an incentive system and evaluating employees in it will create a collaborative environment within the company's walls, and thus will be reflected in the company's external relations (Gross, 1969). In these types of hierarchies, the core question is how to link other cooperating members of an organization? Therefore, the usage of communication networks comes to the surface at this level.

## 2.2 The Concept of Communication

Communication in professional work expresses all the processes and behaviors carried out by the employees and all workers in the professional organization together. The process of communication includes exchanging information and news between everyone, through what is called sending and receiving knowledge (through meetings, seminars, and joint professional work). So, this process aims to exchange opinions, learn from others, and gain the best professional experiences at work.

Communication is, also, defined as the method of delivering information or what is intended to be shared with specific people. Several researchers have been involved in trying to segment and understand the term in general. Some have concluded that the concept differs from the field occupied by communication (Dance, 1970).

In an article for Frank Dance (1970), “*The Concept of Communication*”, he introduced a diversity of fifteen definitions of communication, but they wouldn’t be the advantage of my research field. In this concept, we can start from a human perspective. We can simplify the idea of understanding the root of the word and put it in the form of human communication. Durham (2008) stated that the root of (communication) is the Latin word (*communicatio*). “To impart, share or make common.” He also added that the interpretation of *munus* means “service, duty, office”. By combining the word *cum* (which in turn means “with”) and *minus*, we get the term (preforming with) (Durham, 2008 ). Returning to the human factor, it’s necessary to delve into the factors that give communication the form of humanity. Dance (19disseminates,” Swift, slow, sweet, and sour, adazzle, dim: What makes human communication human.” Wrench, McCroskey, and Richmond (2007) proposed a definition of human communication: the means an individual/group communicates to clarify/deliver meaning to another individual/group. The previous definition is comprehensive and brief at the same time. It will serve the purpose of the research with level-higher interpretation. Several communication models have been introduced depending on the human as the source of communication.

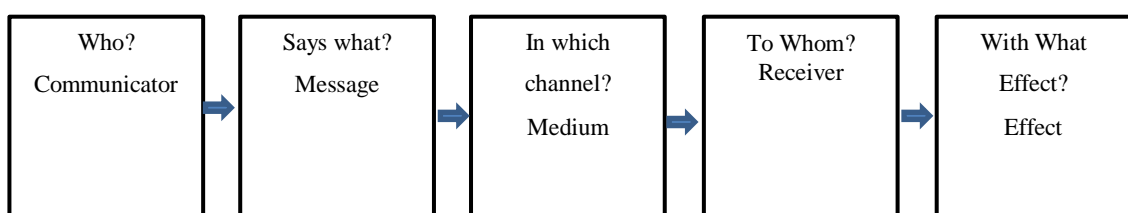
### 2.2.1 Communication models

The communication process varies according to the standards and the direction the process takes. When the patterns and forms of communication networks varied, the concept of network structures emerged. Several network models (string, circle,

wheel, etc.) appeared on how to process different forms of information (Bavelas,1948). It may also vary according to the percentage of focus on the content sent/shared between the touchpoints. Also, organizations that follow a decentralized system enjoy efficiency and cooperative harmony. In organizations with a centralized system, it's useful in routine tasks and seeks more satisfaction from employees (Leavitt, 1951). Therefore, the idea of communication models arises to simplify and understand the phenomenon and shows the researcher the variables that can be ignored and the variables that should be observed. Communication models can be divided according to:

- Levels of communication: (Self communication, Communication between two people, Group communication, and Mass communication).
- Goals of communication: (Structural models, Function models).
- According to the direction of the model: (Linear models, Two-way interactive models).

The Greek philosopher Aristotle put forward the first model of communication 300 years ago. Aristotle's model of communication consists of five basic elements: **Speaker - Discourse - Occasion - Audience – Impact**. However, other scholars believed that Claude Shannon and Warren Weaver introduced the first core communication model in 1949 (Shannon, 1949). Aristotle considers that defining each of these elements is necessary to determine how it will affect the recipients in the desired way without any problem of misunderstanding. It's a necessity for the receiver to understand the message (Rouse & Rouse; 2005). Likewise, Lasswell's Model (Figure 2.1) insists on the importance of communication's impression. *“There must be an “effect” if communication takes place”* (Akinfeleye,2012). If a communication process occurs, it must result in an effect or reaction to achieve the meaning of the process.



**Figure 2.1:** Lasswell's Communication Model-Mass Communication Theory

**Source:** Akinfeleye, (2012)

Berol's SMCR (sender, message, encoder, channel, decoder, and receiver)- Figure 2- a model of communication networks agreed compatibly on the affection of the message on the receiver. One person, a group of people, a company, an organization, and an institution, all can be considered a source of communication. Berlo's structure focused on the importance of the means of communication that takes place and how it affects the meaning of the message. Berlo sees the goal of the communicator as to get a response. So, the source must have the ability to use language well so that the meaning becomes clear to the receiver. In sum, all of the aforementioned scholars agreed that communication begins and ends with an individual or group that aims to achieve the delivery process. Therefore, Berlo's SMCR model will be analyzed to simplify and clarify the idea of communication (Unidirectional Linear Models) (Abu Youssef, 2005).

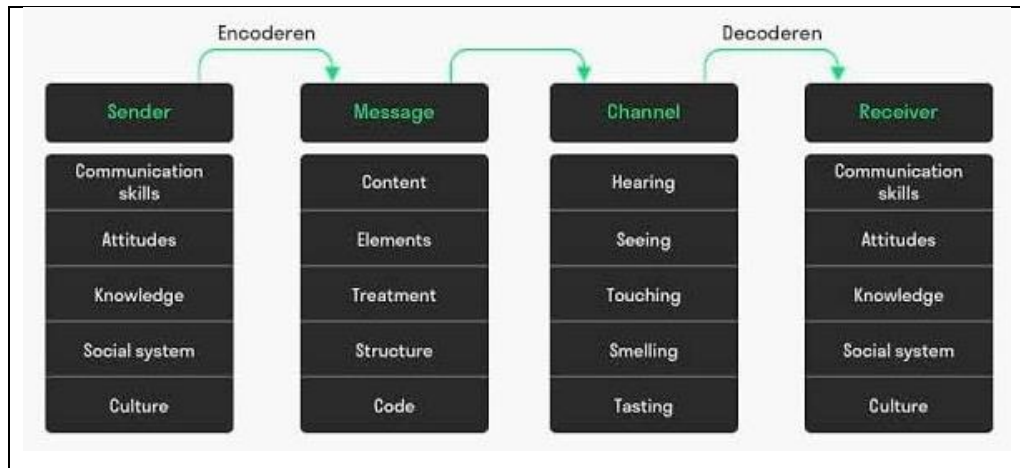
- **Source:** In some models, the source is the starting point of the communication process. The source/sender shares ideas, information, and operations with the party, or interested parties. These sent files are translated into a special code (language). The function of the encoder is to translate and convert the sent information into codes, called the message.
- **Message:** It's an essential axis in the communication process, as its information, ideas, tone of voice, gestures, and impression are transmitted between two points. Also, it's the crossroad for the sender and the receiver, for this it's important to translate and convert the information into codes that are understandable to both parties
- **Channel:** It's the tunnel through which the message is transmitted between the sender and the receiver. The success of the communication process is closely related to the success of choosing the appropriate means for the transaction. According to the type of information transmitted, the organization's communication channels are divided into two main parts. The words and meanings of the messages are generally in an interactive environment, and the channels used here are called **verbal**. On the other hand, it includes a large part of the communicative messages produced within the contexts of human communication on **non-verbal** communication.

After the emergence of advanced means of transmitting information, and after the technological revolution, a new type of channel surfaced, mediated channels. A large

part of human-machine communication is transmitted through nonverbal channels. This definition is given to any communication process that takes place with the help of technological forces - for example, the organizational communication network, its channels are considered mediated.

- **Receiver:** The receiver is one of the important elements on which this process is based. The receiver is referred to as “to whom” the transmission is intended. Communication is a process that takes place intending to deliver the message to the recipient, to be affected by it (interact with approval, rejection, or objection). The receiver and his interests are an important element required for the success of the communication process effectively. If the sender doesn't consider it the communication process becomes impractical and insignificant.

During the communicative process, when the receiver and the sender switch roles and start the process, this is called echo, or feedback. That is the practical reaction and is considered evidence that the message has reached the desired goal. Hence, this assures the sender that the message has been received, what is the extent of its acceptance and rejection, and why and what does the receiver want? All this in the end allows the sender to correct errors, if any, in addition to the deficiencies that led to a reaction in one way or another. At the expense of the multiplicity of factors affecting the process of information exchange and communication networks, we cannot be certain and rely on a specific structure for communication. “In reality, an act of communication does not simply start, like turning on a tape-recorded message, and go through stages to a point where it stops and the switch is turned off” (DeFleur et al.1993, p. 13). In other words, there is still no clear line for communication direction. Therefore, many researchers have taken it upon themselves to observe the field of communication channels in any organization or facility. To learn from previous mistakes, the organization must clarify the communication space for its customers and employees (Mulumba, 2012).



**Figure 2.2: Berlo's Communication Process Model**

Source: Toolshero.com (Accessed on 2021, October 11)

In this research, communication is defined as human behavior, which may begin and end with an element that may express an adverse reaction. Since the human element is the basis of the communication process, and the latter itself is a core element in studying organizational behavior, we can conclude that human behavior is important in the organizational communication network. This idea is supported by Turkalj and Fosić (2009) when they state that communication is an essential component of studying organizational behavior (OB) in any organization and a key element in its success. They added that organization should be understood as a behavior primarily supported by organizational communication. Based on what was mentioned previously in the definition of the message, the purpose of establishing the communication network in the organization is to connect the dimensions and employees of the organization to achieve the desired goals ( Wehrich et al.,1994).

### 2.3 Communication Ethics

Some of the previous definitions emphasized that the organizational communication network is a place or social means to link specific individuals to the same process. And because we study the concept of organizational communication with a human approach, we can study some of the acquired organizational communication characteristics / or in other words, imitated the human element. American institutions were the first to pay attention to the issue of ethics in the environment of communication and work, as the first code of ethics appeared at the level of the PENNEY Foundation in 1913 (Yahya. 2016). The interest in business ethics later

extended to the fifties of the twentieth century, when the number of ethical charters multiplied, and articles and fields interested in ethics literature increased in work. On the other hand, and immediately after its establishment, Harvard University assigned a scale to business ethics, and the content of this scale represented solving the ethical dilemmas and problems faced by managers and leaders. Also, on the New York Stock Exchange, some Christians have opened a center for ethical research for Catholic bank workers and managers (Yahya. 2016).

Work ethics has become an integral part of the study of administrative and organizational fields. The concept of ethics in general means a set of standards and concepts that help distinguish right from wrong. The term **Business Ethics** is defined in Cambridge University`s Dictionary as “rules, principles, and standards for deciding what is morally right or wrong when doing business”. Problems in organizations arise, in general, from the daily processes and tasks within the work process. Although there is no precise and sufficient definition of business ethics, specialists, and researchers, in this regard, tried to provide definitions that contribute to understanding the connotation of this term. DeCenzo and Robbins (2005) defined ethics as a set of rules and principles that determine what is right and wrong behavior, and therefore business ethics is a set of principles and standards that dominate managerial behavior (DeCenzo et al,2005). Redding (1996) stated, in his book on organizational communication, that communication is the foundation stone for the existence of any organization (Redding, 1996). He also proposed a model for understanding ethics from several ethical theoretical perspectives by answering four important questions:

- “What messages or other communication events are perceived by which perceivers as unethical?”
- “Why? That is, what criteria are cited for making specific ethical evaluations?”
- “In what respects do these criteria appear to be grounded in organizational (or other) cultures?”
- “What are the consequences of unethical communication? What, in other words, are the relationships between unethical communication and other organizational and social phenomena?” (Redding, 1996, p. 24).

Seeger (2001), also, highlighted the ethics in organizational communications and how they contribute to solving problems and developing ethical thinking and decisions. Ethics must be applied in strategic planning and informal decision-making (Seeger, 2001). Also, in this field, Reinsch (1990) studied areas and dimensions of ethical research in the communication processes within the business wheel. After studying 28 research articles, Reinsch summarized in his book several common points in this area:

- Ethical value plays an important role in diverse communication behaviors within any work environment.
- Ethics is responsible for interpreting a person's behavior
- Unethical behaviors have a high impact on business organizations in the short run.
- Ethics and behaviors are sometimes related to specific criteria, like age and gender, thus signifying concepts such as honesty and trust among the employees.
- Both oral and written communication processes are affected by behavioral and ethical changes in business communication.
- Communication ethics also affects the processes that take place within the communication environment in the marketing work via direct emails, consultations, and management practices.
- Research in the field of ethical analysis may be sequential with the field of the researcher himself/herself. (Wrench et al., 2012).

Kaplanidou and Gibson (2010) believe that one of the success factors in the rate of organizational performance is the organization's employees. Organizational performance is, in itself, an indicator of achievement by the organization at the level of the individuals (manager, employees). In general, the job performance of any organization is measured by evaluating its output and input. Governmental organizations rely on Sobandi's (2006) theories to monitor organizational performance indicators. One of the indicators that he put forward in his model is the audit of outputs from the organization. This paper will shed more light on the collection and analysis of data and the expiration and capacity of the platforms dedicated to collecting knowledge.

## 2.4 Understanding Organizational Communications

To understand more about organizational communication and its ramifications in any organization, we must take a look at the nature of its work. Deetz, S. (2001) summarized three perspectives to explain and understand the work system of organizational communication networks. From one perspective, organizational communication can be interpreted as a phenomenon that occurs within the organization. From an academic setting perspective, it can be described as “a specific sub-division of the communication field” (Wrench et al., 2012). However, we cannot isolate the discipline of organizational communication from the rest of the units contributing to establishing the concept itself. Mumby and Stohl (1996) stated that when a group of scholars agreed on a set of theoretical assumptions to study a specific phenomenon, they will spontaneously create a disciplinary model. Because we associated communication and the concept of organizational communication with the human element from the beginning, humans have developed several concepts and usage of organizational communication over time.

We can say that the nature of business first shifted in the 17th century during the Industrial Revolution in the United Kingdom (Wrench et al., 2012). At the beginning of the 19<sup>th</sup> century, a school for the study of business was opened at Harvard University. In 1942, Alexander R. Heron insisted, in his book (*Sharing Information with Employees*), that the success of business management lies in the process of correct communication with employees. After launching the term (speaking) to express the concept of communication, both Ohio State University and the University of Nebraska offered the first doctoral program in the Department of Speech in the fields of industrial communication. Organizational communication was found in the 1950s and 1960s. Over the 19th century, many articles, books, and studies published been have that talked about the concept of organizational communication. Also, Putnam (1938) and Pacanowsky (1938) also urged the need to research explanatory methods in organizational communication (Wrench et al., 2012).

Here several definitions of organizational communication between the past and the present will be put forward:

- “An aggregate of persons, arranged in predetermined patterns of relationships, to accomplish stated objectives.” Redding, W. C. (1964).
- Mumby, D. (in press) defines organizational communication as “Communicative structures of control.”
- It also can be defined as “Social collectives”, which developed methods of reciprocity in an attempt to coordinate their activities in the ongoing accomplishment of personal and group goals. Kreps, G. L. (1986).
- It is the communication that takes place within the framework of an organization. It’s a purposeful process between two or more parties to exchange information and opinions and influence attitudes and trends.
- There are five critical features to form an organizational communication: (1) the existence of socialism, (2) organizational and individual goals, (3) harmonious activity, (4) organizational structure, and (5) a multi-organizational environment (Miller, K., 2012).

#### **2.4.1 Formal and informal organizational communication networks**

Through organizational communication, development and productivity strategies and internal and external relations are created to obtain better performance by human resources, and thus its purpose is related to the achievements, successes, or failures of a company or organization. In contrast, organizational communication allows internal work processes to be carried out correctly and takes a hierarchical structure. There were many models of communication based on the goal to be communicated and the size of the impact of communication and reaction or feedback. After the application of communication patterns by organizations, new models were formed, classified according to the direction of communication in the organizational hierarchy, the processes and knowledge transferred, and the sender and receiver of each communication process. Even the lateral or sideways communication processes within the organizational hierarchy of the institution have been studied and classified under the name of horizontal communication (Figure 2.3).

##### **➤ Formal Communication:**

It is one of the most common types of communication in most organizations, and this type of communication mostly occurs in organizations that have a hierarchical organizational structure, formal communication takes place through communication

channels that are pre-defined by the organization, where these channels are used by management and employees working in The organization is to communicate with each other, and accordingly, the communication is official within the network of relationships governed by laws, regulations, and instructions. Communication Formal communication is divided into two parts, downward and upward (Sims, 2002):

*Downward Communication:*

This communication starts from the administrative bodies of a certain level in the organization to the lower levels of management and usually includes decisions, processes, and directions to implement specific steps or plans prepared in advance by the administrators (Kishk, 1999;p.266, Sims, 2002; p.154). The knowledge and information that descends from the higher management to the manager or the lower employee are usually exposed to harm and its accuracy decreases if it is transmitted by utter speech (Sims, 2002; p.154), that is, it is not documented in the form of files that are protected from damage or manipulation. The first to talk about the field of downward communication was Max Weber (1930) in his book *The Protestant ethic and the spirit of capitalism*, where he identified two methods of urging employees to follow steps or orders given to them by their subordinates: power and authority. If the employees follow the instructions directed to them compulsorily, here lies the use of force. On the other hand, if the employees showed voluntary and cooperative behavior with the administration and its directives, the administration would have followed the authority's approach in dealing with its followers (Weber, 1930). Katz and Kahn divide downward communication into five sections (Katz and Kahn, 1966):

1. ***Job instructions:*** These are instructions related to the direction and supervision of work in general. This type of communication usually occurs in training programs, where communication between management and the worker takes a period of a week to a month, and sometimes to a year, and may require sending employees outside the organization to increase the efficiency of the training program.
2. ***Procedures & Practices:*** They are related to the officials' explanation of the purpose of practicing the activities of their subordinates and the extent of cohesion and interdependence of the various activities of the organization as a

whole. The organization provides a catalog or manual of the company's transactions and plans for new employees to start working in the company, and the steps that must be considered and followed in any specific situation, and they are called Procedures. For example, if an employee applies for resignation, the management or department supervisor must be notified 15 days in advance until a replacement is found. On the other hand, the desired behaviors of employees, and the discipline required of them are categorized and mentioned in the Practices section. Lunch break, and the rules of formal dress in the organization. (Wrench et al., 2012; p.205-206).

3. **Employee Indoctrination:** It is the process of hiring and instilling partisan or ideological concepts and attitudes to the new employee, by giving new employees messages predetermined about the closed ideological positions of the organization. In other words, "the extent to which that person's self-concept includes the same characteristics he or she perceives to be distinctive, central, and enduring to the organization" (Beyer et al., 2000).
4. **Feedback:** It consists of wills and reactions, and management directives on advance messages sent from employees (upward communication), which is an essential and essential thing in developing and enhancing the efficiency of employees in their tasks (Wrench et al., 2012; p.207) and developing critical thinking of administrators in analyzing problems. Reactionary feeding, in turn, is divided into two parts; Either promoting and supporting an employee's idea or performance and is **positive feedback** or alerting the employee to neglected points that need more development, and this feedback is considered **negative feedback**.

#### *Upward Communication:*

Livesy believes that upward communication involves the transfer of messages and meanings in their various forms and types, from the base of the pyramid or the administrative ladder to the top within an open and flexible organizational structure. Understanding the communications and information coming from superiors, and also is a means of managing coordination and activities at lower levels, and a means of raising the opinions and suggestions of subordinates (Al-Otaibi,2007; p.297). Typically, the messages directed by upward communication are in response to or fulfilling requests or orders requested from senior management, as data required for a

particular analysis, to assist managers in their tasks (Sims, 2002). Upward communication is indispensable, as the free flow of information, data, and feedback from the base of the organizational structure to its top, indicates a very good state of interaction and understanding between the different administrative levels, and it also indicates the effectiveness of the communication process in this way.

Sims (2002) urged senior management to pay attention to transparency and mutual trust between them and their followers to overcome the phenomenon of **the MUM effect**. The reason that information flows via them, at times, less accurate, is because of the intention of the employees to “do their best” in front of their superiors and bosses. Thus, distortion and reduction of the information’s accuracy sent to managers will affect, in one way or another, the general performance of employees and the company's output.

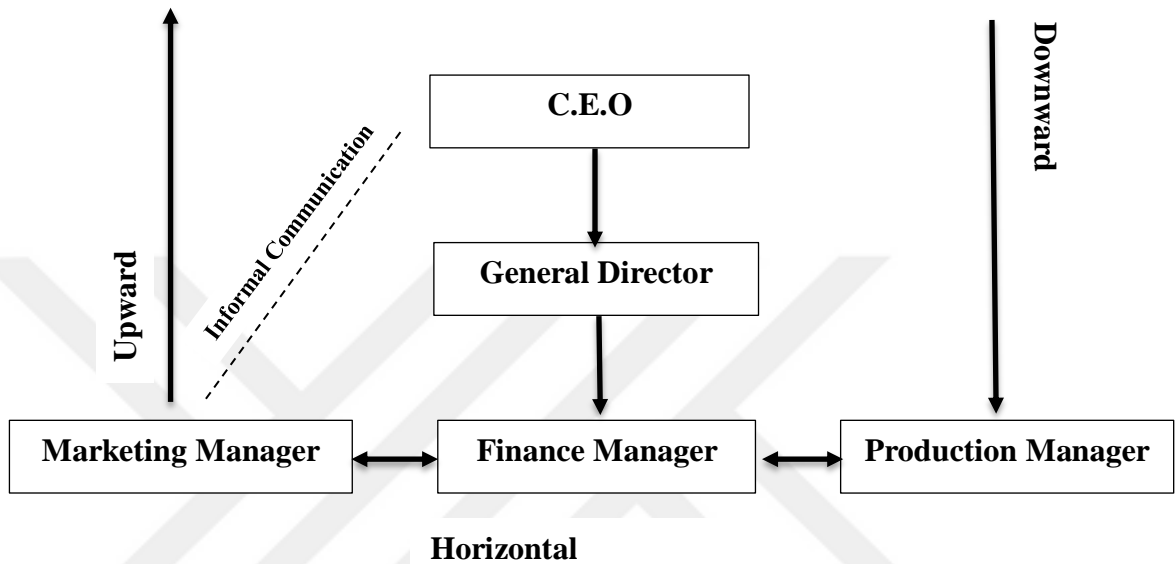
*Horizontal Communication:*

In this case, the communication is between the different departments, as the communications are at the same administrative level. Where the focus is on the process of coordination between departments and departments and the development of action plans to achieve goals. These communications are usually a planned part within the structure of the organizational hierarchy. The English readers learned, belatedly, the nature of horizontal communication in (1949) after Constance Storrs translated a thesis of the French engineer Henri Fayol (1916) entitled “Administration Industrielle et Générale” (Wrench et al., 2012; p.230; Sims,2002; p.154).

➤ **Informal Communication:**

These are communications that informally take place, or outside the specific formal channels of communication (Zewail, 2010; p.22, Sims, 2002; p.155, Wrench, 2012; p.243. Relationships that may be derived from kinship or intellectual or social agreement. All informal communications are difficult to convert into formal ones, but vice versa is likely to occur. Due to its rapidly changing nature, Sims (2002) stated that side meetings between managers and their employees, sometimes, take an implicit informal pattern, while maintaining the formal pattern in the communication climate in general (Sims, 2002).

Informal communications are considered a mitigating factor for the dryness or stagnation of official communications. Through them, workers can express openly what they may be reluctant to broadcast through official communication channels, which helps increase their interest and loyalty to work. Informal communications are important tools for monitoring workers' reactions, as these communications are characterized by speed and widespread (Al-Sayyid Ali, 2007; p.343).



**Figure 2.3:** Formal and Informal Organizational Communication Networks.

Source: Al-Shamimiri et al.(2014).

## 2.5 Previous Studies about Organizational Communication Networks

Many researchers have adopted the idea of drawing a theoretical and practical framework for the organizational communication structure of companies and classifying communication trends among employees. Previous studies focused on drawing diagrams of the direction of communications without focusing on the pattern of knowledge distribution via organizational communication networks. Nevertheless, after the development of statistical study methods, researchers adopted organizational communication networks as an independent variable contributing to the study of the efficiency of the overall performance of the organization.

## **International Studies:**

- **The study of Ying Liao et al (2011):**

A study by Ying Liao et al (2011) entitled (*A mechanism for external competence transfer to improve manufacturing system capabilities and market performance*) in the U.S.A studied the impact of the communication network CN and the communication climate CC on the knowledge base KB of the company, and thus its impact on the overall performance efficiency. The researchers used the worker's knowledge WK and the manager's knowledge MK variables to study the knowledge base KB efficiency, and thus the direct impact of the communication climate CC on the company's general knowledge base KB was calculated. On the other hand, the extent of the indirect influence of communication climate CC on the knowledge base KB was calculated with the presence of the communication network CN variable as a mediator. The study found the following:

- The communication climate CC positively affects the improvement of the knowledge base KB for both managers MK and worker WK.
- The communication climate CC directly affects the efficiency of the organizational communication network CN.
- There is a direct positive effect between the organizational communication network CN on the efficiency of the knowledge base KB for the worker WK and the manager MK, and therefore the fulfillment of the condition of the effectiveness of the communication network CN in the company leads to the improvement of the knowledge base KB competency.
- When a higher level of external efficiency transfer is achieved it leads to higher manufacturing system capacity, which in turn leads to better market performance.

There are some points in common between the study of Ying Liao et al( (2011) and our study. In the previous study, the researchers studied the communication network CN variable as a dependent variable of the communication climate CC, but in our study, the communication network CN will be treated as an independent variable. Also, the knowledge base KB variable, in Ying Liao et al, was studied as a dependent variable for the communication climate CC, but in our study, the

knowledge base KB takes the role of mediator between the communication network CN (the independent variable) and the CRM performance (the dependent variable).

- **Hawthorne (1927) Experiments:**

One of the Hawthorne studies in the state of Chicago adopted the assumption based on the foundations of traditional management, which states that the physical conditions surrounding work affect the performance of workers, which improves by increasing the level of lighting in the workplace. To examine the validity of the hypothesis, Elton Mayo with Roethlisberger and a team of researchers from Harvard University isolated several workers in a room in the factory to control the lighting factor. The experiment showed unexpected results, as the performance of the workers increased slightly and was not affected by the decrease in lighting in the working environment. Based on this, several points were concluded from this study, the most important of which are (Brannigan & Zwerman, 2001):

- The existence of informal organizational communication networks between employees within the organization without a specific theoretical framework for it, and often arises without recognition or appreciation from the upper management.
- These informal networks raise employees' performance and emphasize teamwork spirit.
- The comprehensive performance of employees is not affected by the financial incentive and the work environment only, as the pattern of supervision and dealing with workers and creating a neutral area for communication between the administration and its employees generates mutual trust between them. As the organization gives value, distinction, and importance to each employee separately.

- **Katz Kobe and Maurice (1950) Study:**

Their study was a confirmation of the results of the Hawthorne study, as the organization in which the research was conducted provided an example of successful management and effective communication and their impact on the productivity of workers as a whole. Relying on mutual trust and transparency, managers were able to persuade workers to dispense going to the cafeteria, instead, they would bring their

lunch to the workplace to spend their lunch break without leaving their positions. The officials of the production department presented statistical maps indicating that due to the delay of employees returning to their machines after the break ended, the production trend drops to less than half the average (Jalal El-Din,2008;21).

- **Gallup Institute`s Survey(1998):**

Examine the role of the mission and organizational culture in the success of the work. The survey conducted by the Gallup Institute (1998) in the United States, on a segment of 100,000 users in 24 major companies, reached some important data (Garratt,2004):

- Despite the ideas circulated about the mission and organizational culture, the conclusion reached by the survey is that the truth lies in the relationships between managers and their working groups. In the units in which the employees felt satisfied, they achieved more success.
- The survey identified the continuous challenge facing managers and mentors in mobilizing the energies of workers to increase productivity. Encouraging employees to use their emotional energies in learning through action and communication, as well as creating high performance by facilitating and promoting superior learning.

**Arabic Studies:**

- **Study of Muhammad Ali (1978)-Egypt:**

In Mohamed's study, which was set up at the El-Nasr textile factory in Alexandria-Egypt, communication was considered as one of the aspects of organizational processes, thus effects on the total efficiency of the employees. During the study, it was emphasized that there are two types of organizational communication networks: formal and informal. As mentioned by Hawthorne(1927), there is an informal network founded by the industry employee. The study proved that side-conversations between the employees about their problems inside and outside working hours are essential components of spontaneous interaction, thus increasing the teamwork between them. On the other hand, the formal organizational communication networks in the factory were poor and inefficient, as the communication process takes a one-way pattern, from the management office to the employees. The issued

decisions, in most cases, are faced with reticence, and the employees tend to strike as a method of communication.

To sum up, Mohamed`s study stated that:

- Communication achieves the function of integration and organizational balance between the different units.
- The communication methods and contents vary according to the internal group participating in the process.
- Also, illiteracy plays a major role in implementing administrative decisions.
- **Miloud Tabish study (2010-2011) -Algeria:**

Miloud conducted a study in Setif Radio`s Station in Ouargla with a segment of 43 employees, “*Organizational Communication and its Relationship to the Social Interaction of the Institution's Workers*”, and the statistical values proved that:

- Organizational communication works on developing social relations between employees within the organization.
- Organizational communication develops the social skills of employees within the organization.
- Organizational communication has a close relationship with the work group within the institution.

In our study, we will use the same independent variable of organizational communication networks CN as in Miloud`s study. However, will measure its direct impact on the CRM performance and the knowledge base of the worker`s WK and the manager MK.

- **The study of Jalal El-Din (2008) - Algeria:**

Bouatit Jalal El-Din presented a field study entitled “Organizational Communication and its Relationship to Job Performance” on a segment of 49 employees at the Sonelgaz Corporation in Annaba - Algeria. The results of the study were as follows:

- It has been proven that there is a correlation between upward communication and job performance in the study sample.

- The existence of two types of communication, downward and upward within the Sonelgaz institution, and the importance of each style in achieving the organizational process of the institution
- The direct impact of the downward and upward communication networks on the flow of knowledge between the administration office and the employees.
- It was revealed that there is a positive correlation between downward communication and organizational job performance, and job performance among the implementing employees.

This study is similar to our current study. It aimed to find out the effect of organizational communication patterns on the job performance of implementing employees, while our study aims to prove the direct and indirect impact of organizational communication networks CN on the CRM performance and the knowledge base for both the worker WK and the manager MK.

### **3. KNOWLEDGE BASE**

Today, the world is witnessing a lot of changes and developments that directly affect the work of business organizations. Therefore, in this rapidly changing global environment came the economic concept that knowledge is a strategic element that achieves for the organization a competitive advantage of paramount importance and supports it in keeping pace with all developments and changes in its work environment. Management scholars see that renewable and innovative thought and knowledge are among the most important means of success for organizations, whether they are private or public, regardless of their objectives and the nature of their work and activities. This vision and this modern administrative thought forced the organizations to reshape themselves and re-engineer their work to keep pace with the knowledge-based organization model that we produce and disseminate. Al-Sabbagh, (2002: 7) believes that it's unfortunate that most organizations focus their work only on their tangible material resources, leaving the knowledge resources they possess unmanaged despite their importance. Based on the foregoing, it can be said that knowledge management is one of the modern administrative concepts. Many companies seek to transform their business into knowledge-based businesses and activities. It directs its investments towards the generation of knowledge and attention to activities, individuals, and means that aim to acquire and create knowledge, transform into companies that own intellectual capital, and move away from traditional businesses. Since knowledge management, development, and efficiency have an indirect role and impact on organizational performance (Setyowati et al, 2020: 6, 7), in the next part, this paper will discuss the types of knowledge within the knowledge base in the organization.

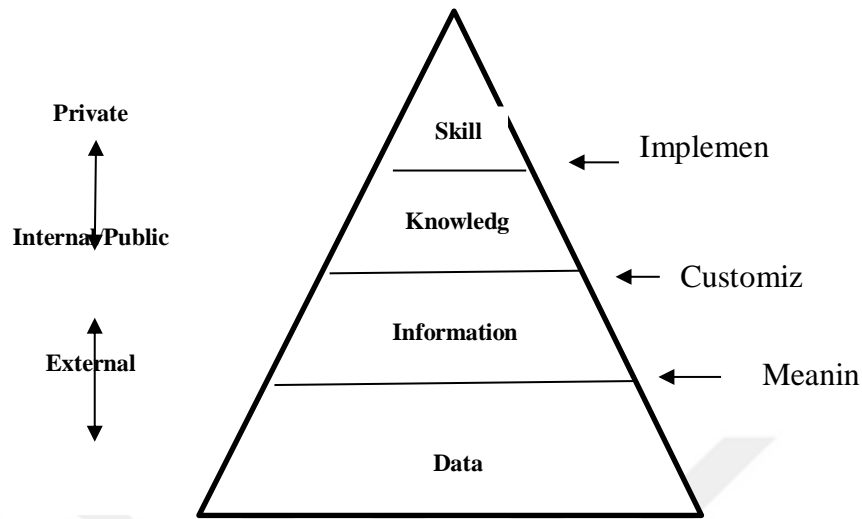
#### **3.1 The Concept of Knowledge**

To understand the mechanism of knowledge management and its dimensions, the concept of knowledge must be clarified in particular. Several scholars have cited definitions to illustrate a conceptual approach to knowledge. Cambridge University's

Dictionary defined knowledge as “awareness, understanding, or information that has been obtained by experience or study, and that is either in a person's mind or possessed by people generally” (Cambridge University`s Dictionary). ‘ Knowledge’ in the English language evolved from the roots of Old English. The word appeared in the 12<sup>th</sup> century beginning with the root *cnawlece* “acknowledgment of a superior, honor, worship; the second part is believed to be descended from the Scandinavian word for *lock* “action, process,” found in wedlock (Online Etymology Dictionary). Some researchers see knowledge as one form of power and a key to solving unfamiliar problems (Bacon, 1996;25). Also, it is intellectual capital (Stewart, 2007;17, Roos, G., & Roos, J.,1997;3, Davenport & Prusak, 1998;113, Vail, 1999) that is discovered, invested, and converted into added value to create wealth through its application in daily operations. From an informational perspective, knowledge is what individuals need to know to accomplish their work and the ability to translate comprehensible information capable of supporting action, into performance to accomplish a specific thing (Al-Hilali,2011). Below are some of the definitions of the word (knowledge) from several perspectives:

- Al-Salem (2002) declared that it can be defined as “All the mental processes of the individual: perception, learning, thinking, and judgment issued by the individual as he interacts with his private world” (Al-Salem -2002). He added that it`s one of the means to contribute to discovering the likely behavior pattern of the institution. Thus, knowledge is linked to the individual as well as to the institution, so the individual from his awareness and learning - influenced by his surroundings - follows a certain behavior; In this case, the institution is working to find the means that reveal that behavior.
- Knowledge is also considered a series or pyramid that begins with data, information, and skills (Figure -4).
- Qawasma et al., (2008:14) defined knowledge as: “It is concerned with the relationships and links that link information, and what is translated from it into mental images through the practices, experiences, and experiences resulting from it”.

- Nonaka (1993) defined knowledge as “true, justified belief”. It can take any meaning as a result of the cognitive activity of the person receiving the information (Malhotra, 2000).



**Figure 3.1:** Knowledge Pyramid

Source: Beyou (2008).

At this point, the differences between data, information, and knowledge in the organization's platform must be clarified. **Information** complex piece of data, the product of data after processing, analysis, synthesis, and extraction from indicators and relationships. Where data is collected with others, analyzed, compared, balanced, equations formed, and arithmetic operations. Al-Subaie (2008) stated that **data** is: “primitive descriptions of things, events, or activities (Al-Zatma, 2011; 12). They are stored and classified but are not organized to give anything that carries meaning. For example...data stored in database tables, if they are not retrieved in one of the query languages, to give a useful meaning, its name will remain data despite its organization and storage”. Ballmise (2001) also, defined data as: “Raw items that don't have meaning”. Information constitutes an important axis in defining the concept of knowledge, so we find many definitions that have tried to put a clear concept of this term. Lee Sr, (2000) declared information as: “the data that is attached to something from other links “. This knowledge is the basis of the interest of the knowledge management system (KMS), which links knowledge and the exploitation of this knowledge to lead the institution to change. In other words, it focuses on achievements and change management.

### 3.2 Knowledge Components

Knowledge is not a major resource for organizations unless it is transformed into action, or a method to achieve a competitive advantage to solve a problem or develop a strategy. Tiwana suggested five basic components that make up all of the knowledge (Al-Qahmouh, 2019).

- **Judgments:** Since knowledge is an intellectual product of the individual, knowledge is characterized by being linked to the rules applied to it to achieve a specific purpose. Information in its raw form is not employed until it is used to express something or analyze a situation. By doing so, the individual makes judgments based on that information to form knowledge.
- **Intelligence:** If knowledge is applied at the appropriate time to make a specific decision or develop a strategy that serves the organization and improves overall performance, we can consider knowledge as intelligence that enables the organization to acquire the property of a smart enterprise.
- **Assumptions:** When developing any new business plan, marketing, or strategy, several assumptions are made about the expected results. Most of the decisions taken in advance lose their effectiveness over time because they are subject to change. Here lies the role of knowledge, as it discovers hypotheses and ensures their achievement within a specific functional framework for individuals.
- **Experience:** Knowledge is characterized by renewal, as part of the process of transferring knowledge to another future. During the exchange process, part of the experience takes place in the process. The individuals with experience in the organization are the most valuable and exclusive contributors of knowledge within the organization or institution.
- **Values and Beliefs:** Since knowledge is an intellectual product that extracts assumptions, it is often difficult to materialize. The reason is the inability of the organization to perceive and target the ideas of individuals implicitly. In a study by SIMON of the limited rationality of institutions, it was proved that the lack of effort expended by the institution in developing a theoretical framework for the ideas of its employees negatively affects knowledge.

Values are responsible for explaining the different methods of institutions within the same field (Al-Qahmouh, 2019; 13-14).

### 3.3 Knowledge Characteristics

Knowledge arises from ideas and statements that guide the behavior of individuals in various activities within the institution/organization. Since knowledge has characteristics that distinguish it from other resources, it is a vital resource developed to meet the needs of the institution and its external requirements. Among the most important characteristics of knowledge (Syed Ali and Al-Jamal, 2013):

- Knowledge is not enforceable and is not negated by delivering from one person to another or a group. As soon as a person acquires knowledge, it can't be taken away and isn't exhausted from him by frequent use.
- Knowledge is a growing human resource with many processes of communication and exchange. In other words, the processes of dissemination and generation of new knowledge give knowledge a growth characteristic.

For Jurgen Kluge et al (2001), knowledge is characterized by:

- **Subjectivity:** Knowledge is a product of the individual and ends with the individual, his judgments, character, and the context in which information is exchanged.
- **Self-reinforcement:** knowledge is self-reinforcing, that is, participation in it does not detract from it. As the person's knowledge increases with participation and adds new values to the knowledge of each individual.
- **Implicit nature:** knowledge is implicit because it is formed inside the human mind and not on paper. The cognitive output is stored in the mind and the individual may never share it, or he may share part of it after some time or in a certain environment.

It is worth mentioning, that in businesses that are held in an open environment (open boundaries), the wealth of knowledge is threatened with change and disappearance (**Ephemerality**) over time.

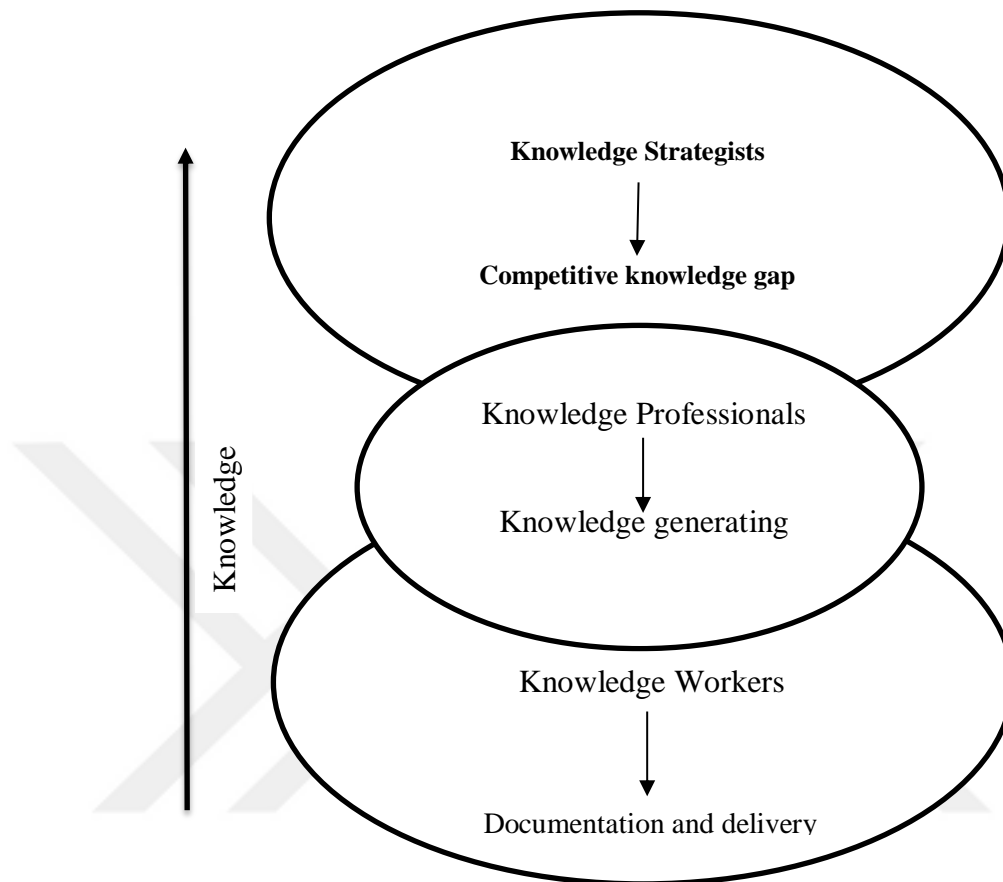
### 3.4 Knowledge Sources

Al-Hijazi (2005), in his book on Knowledge Management, divided the sources of knowledge based on the environment that contains the individual. Thus, there are two types of sources: internal and external.

#### *Internal Sources:*

1. **The worker and the manager:** since knowledge has an implicit form within the mind of the individual, the main originator of knowledge in the organization are the workers, their experiences, and their assumptions. The workers, in all fields that require creativity and innovative methods, are important sources of knowledge. Employees, according to Al-Samarrai (2004), are the main ones responsible for the value returned to their organization. Najm (2008) added that workers can be classified based on three categories:
  - a. **Knowledge Strategists:** the category of experts in strategies and discussions based on market knowledge. Knowledge strategists re-evaluate the organization based on its knowledge and its knowledge excellence rather than relying on its outputs and services.
  - b. **Knowledge Professionals:** They are the category who deal with knowledge as a subject and are interested in knowing the causation (Know - What). This category is characterized by expertise in the methods of acquiring knowledge and absorbing it with an effective methodology to generate it or prepare it for use. Knowledge Professionals are representatives of an intrinsic ability based on knowledge, according to Najam (2008).
  - c. **Knowledge Workers:** Personnel in this category represent the detailed operational competency related to implementation processes. It's their mission to provide the support factor for the transactions of knowledge professionals. (Figure 3.2).
2. **The work team:** the team consisting of a group of workers involved in a specific or diverse work, and they are distinguished by their creative abilities to invent new knowledge.

3. **Research and studies:** such as marketing studies and product development research, as they contribute to the formation of new knowledge based on certain statistics from raw information.



**Figure 3.2:** Knowledge Individuals.

Source: Najm (2008)

***External Sources:***

Exploring the sources of information from the surrounding environment of the institution, which adopts open border systems, identifying and knowledge gained by dealing with individuals outside the institution classified as external sources of knowledge. All of them possess knowledge of any ideas, concepts, experiences, and values that are not available to the institution, and which can't be obtained by their efforts (Abboud and Shawqi, 2009; p.9). Taleb and Al-Janabi (2009; p. 63-65) mentioned some important external sources:

1. **Shareholders and partners:** They are the category that provides ready-to-use knowledge, which the institution lacks, and this is done through the

alliance of two institutions that are positively complementary in their needs for knowledge assets.

2. **Suppliers:** They constitute the main source of knowledge in industrial establishments, meaning that the positive interactive relationship between suppliers constitutes a deep matrix of knowledge about resources and their impact on products.
3. **Competitors:** The importance of this category lies in giving the institution a distinctive and unique knowledge that distinguishes it from other competitors. Also, the competitive environment creates knowledge that is difficult to imitate and is rooted in the environment and culture of competitors.
4. **Customers:** They are the most important sources of knowledge and information in their raw form because of direct contact with individuals. The customer can give the institution he deals with the largest amount of information and knowledge about the service process, which is the real benefit of its products and services, it must establish an effective system to collect useful information from customers.

### **3.5 Knowledge Types & Classification**

Scientists differed in defining and classifying the types of knowledge, as they take different forms and serve complex and difficult functions for analysis. In this research, several types of knowledge will be presented from different researchers' perspectives:

- **Zack's (1999) Classification:**
- Michael Zack (1999) classified knowledge based on the organizational knowledge that distinguishes an organization from its competitors. Possessing some knowledge that qualifies it is due to the improvement of its performance to which the various resources in it contribute, and this depends on the type of knowledge it possesses (Mubarak, 2008). Knowledge is classified into three types:

- **Core knowledge:** It is the lowest type of knowledge. This type is required to survive in a particular sector, but it does not guarantee the institution's long-term survival opportunity.
- **Advanced knowledge:** It's the type that makes the institution acquire a competitive advantage (Rahmani, 2005). Generally, organizations share the same level and quality of knowledge as competitors, but advanced knowledge gives them the capability to avoid head-on competition, and to excel in their strategies to gain a competitive advantage
- **Innovative knowledge:** this type makes the organization able to change the game's rules in the sector in which it is active. Innovative knowledge is not static, its continuous improvement diverts it from innovative to core knowledge.
- **Polanyi (1962) Classifications:**
  - The philosopher Polanyi's (1962) model, with the contribution of Greek philosophers, sees the concept of knowledge from a comprehensive binary perspective, implicit and explicit knowledge:

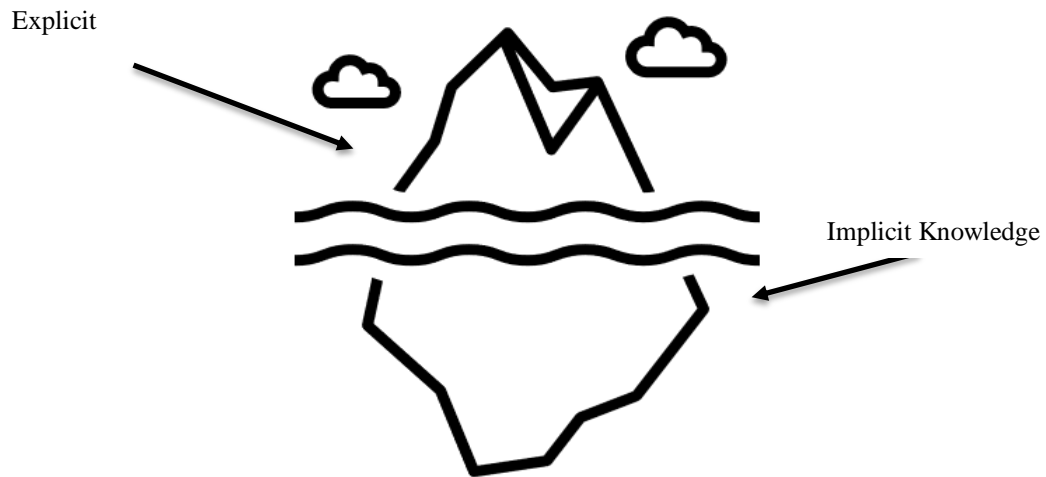
First, **Explicit knowledge** is represented by mental images that can easily be translated and transferred to others. This knowledge is related to the existing and stored information in the institution's archive, including brochures related to policies, documents, and operational standards, and individuals within the institution can access, use, and share it through forums, seminars, and books (Jaradat and Al Maani, 2014:p.30). Although tacit knowledge cannot be identified or encoded, it can be partially transformed into explicit knowledge through the application, sharing, and transfer between individuals and groups that work close to each other through learning and direct observation (Ibrahim A, and Abdullah B, 2015, p12). Beijerse (1999) likened knowledge to the iceberg since explicit knowledge of the apparent part of the iceberg is expressed as the knowledge that is coding and easy to exchange, while implicit knowledge is subjective and difficult to transfer (Figure 6).

**Implicit knowledge**, as is represented by mental images that remain in the form of experiences stored in the brain, which have a unique privacy character that might be the basis for a unique competitive advantage CA (Abul-Ela, 2012; p.107). It's an informal or codified knowledge, one can't easily pass it on to another person by

writing it or in words. Some considered it to do something unconsciously, that is, it's usually personal and takes an informal character. It is made of models, values, beliefs, assumptions, and mental perceptions, and it can only be revealed and exchanged through communication and participation, or dialogue through the exchange of ideas and experiences in conferences and forums. (Smith,2001; p.314)

Some researchers refer to what is known as **comprehensive knowledge**, which includes that knowledge extends over a long and continuous chain between these two previous types of knowledge. Because the invention of types of knowledge is related to the different types of tasks within any field, a particular type of knowledge may be used in several topics depending on the task (de Jong et al, 1988; Messick, 1984).

For competitive necessities, total reliance on apparent knowledge is not sufficient, and this is what IBM has witnessed. When IBM decided to launch its personal computer (1981) it relied on third-party manufacturers to install the main computer components, so it purchased the microprocessor exclusively from Intel, and the licenses included the main operating system from Microsoft. Moreover, it has followed its marketing plan on external channels of distribution, packaging, and retail. On the positive side, IBM was able to manufacture and launch the computer in a record time (15 months), and it competed with major international companies, such as Apple. But profits, on the downside, have not escaped threats and risks at a global level. After some time, IBM realized that outsourcing explicit knowledge from external sources poses a risk to production and service levels because markets become open to competitors to use the same method as they can buy the same operating system and use the same distribution channels. As a result, IBM lost much of its competitive advantage and could not control computer architecture (ie, tacit knowledge). (Fred, 2013; p.37)



**Figure 3.3:** Implicit and Explicit Knowledge.

Source: Beijerse (1999;100).

- **Nonaka & Takeuchi (1995) Classification:**

Nonaka and Takeuchi's (1995) classification of knowledge is based on individual and collective quantitative factors. Their model took Polanyi's classification to a next level.

- **Individual knowledge:** It is the knowledge that at least one of the members of the organization can access or use. This type includes tacit and explicit knowledge among the managers and the employees of the organizations, which establishes a "Knowledge spiral" to create the total organizational knowledge. This type of knowledge is substantially generated via an adequate communication network.

- **Collective knowledge (ontological):** It's the knowledge that is divided or distributed among the members of the institution.

Their classification is an extension of the previous classifications, as both Nonaka and Takeuchi argue that knowledge takes two forms. Either knowledge possessed by an individual that is not available to others to know, or acquaintances agreed around the group under the institution.

- **Blumentritt & Johnston (1999) Classification:**

For Blumentritt & Johnston (1999), we can classify knowledge based on answering several questions:

- Knowledge of (What –Know).

- Knowledge of (What-Why).
- Knowledge of (What-How).
- Knowledge of (What- Who) (Al-Qawasmeh et al.,2012; p.14).

At the beginning of the twentieth century and with the integration of technology with knowledge management, new ways of generating and collecting information appeared. Some transformations and pivots have been applied to information sources.

- **Eisenberg et al (2004) Classification:**

Mansour (2006) summarizes the most important sources of knowledge in the twenty-first century, by quoting from Eisenberg et al. (Eisenberg et al, 2004, p.6-9):

- **Knowledge of visual information:** This knowledge is represented by pictures, illustrations, or computer graphs.
- **Knowledge of media information:** This means accessing, analyzing, and producing information to generate qualitative outputs, by making use of television and radio stations, audio-visual tapes, CDs, magazines, and bulletins.
- **Knowledge of computer information:** This knowledge includes making use of personal computers in data processing and using software tools and information bases.
- **Digital knowledge:** It includes those sources that are available online in the use of knowledge via the computer such as e-mail and online dialogues.
- **Knowledge of the information network:** which can be obtained by identifying, accessing, and using information sites through a networked environment, such as the World Wide Web (www).
- **Barthes (1997)Classification :**

Barthes) 1997), in turn, classified knowledge into three types. The knowledge that is necessary to accomplish a specific task is called **Objective knowledge**. While **Product-related knowledge** centers on the product and is represented in the product documents, the practical knowledge associated with the product, and the sum of information related to the product. Lastly, **Institutional knowledge** refers to the

institution's many features as well as its overall plan. It consists of knowledge of the work in general and product knowledge. The employee is meant to have access to the information he needs to do his job well and information about the institution's strategy and goal.

### **3.6 Knowledge Base**

Knowledge base (KB) is a technology used to store complex, structured, and unstructured information used by a computer system. The term's initial use was related to expert systems, which were the first knowledge-based systems. The original use of the term knowledge base was to describe one of the two subsystems of an expert system. A knowledge-based system, initially, consists of a knowledge base that represents facts about the world and ways of thinking about these facts to infer new concepts and strategies or highlight contradictions (Hayes-Roth et al., 1983). Knowledge-based systems mean those processes that include retention, perpetuation, search, access, retrieval, and location. The process of storing knowledge indicates the importance of organizational memory.

Tu et al (2006) suggested that the knowledge base of a framework has an indirect impact on Value to the Customer (VC). The knowledge base includes an understanding of the functional skills and administrative practices that exist in them, and by this, we mean the tasks of the manager and the worker on both sides. The knowledge base is structured, basically, from two sub-dimensions: manager knowledge (MK) and knowledge of the worker (WK) (Liao et al, 2011). The field of worker knowledge can be determined by studying the technical knowledge of first-line workers with awareness of educational level and competence. On the other hand, managers` tasks are more complex and include development and innovation departments (Liao et al, 2011).

Organizations face great danger as a result of losing a lot of knowledge carried by individuals who leave it for one reason or another. Hence, storing and retaining knowledge has become very important because these people take their tacit knowledge without any documentation, while the documented remains are stored in their bases (Al-Zatma, 2011, p.48).

### **3.7 Knowledge Management**

The concept of knowledge management (KM) was created based on the diversity of concepts and classifications of knowledge according to the goal to be achieved. Therefore, researchers have developed several concepts for the term. Knowledge management is the process of searching and identifying appropriate information (obtaining knowledge) and transforming silent knowledge into open knowledge (transferring and creating knowledge) organizing and preserving this knowledge (the institution's memory) and distributing it within the institution (sharing knowledge) providing the opportunity for workers to retrieve this knowledge (retrieval knowledge) using it in a way that serves the organization (the power of knowledge) (Ingrida and Zenona,2015).

Where Finneran (1999) referred to knowledge management as a close system that helps spread knowledge, whether at the individual or collective level, to raise the level of work management, by obtaining the appropriate information at the right time for the appropriate intended work (Al-Zahir, 2009, p. 78). In addition to the previous process, Gray added that there is a set of processes that require the collection, organization, dissemination, and application of knowledge (Johanna O.E & Enoch G.W, 2015, p.7). Gupta et al (2000) added that knowledge management is the process that assists an organization in obtaining, selecting, organizing, disseminating, and transferring important information and experience and transforming it into useful activities; Strategic planning, decision making, and problem-solving (Gupta et al, 2000, p.669). Tiwana's definition was in line with Gupta when he defined the existing knowledge management in the organization through knowledge acquisition, transfer, application, and utilization in achieving competitive advantage and generating commercial value for the organization (Qahmush, 2019).

As for the knowledge base of an organization, it's what the workers have through work that can be used in developing the performance of the institution. Many researchers see that the development of the institution occurs faster and stronger when these experiences and knowledge are transferred from the person to the institution to be general information and knowledge that can benefit from It (Ying Liao et al,2011; El-Din,2008; Gallup,1998).

### 3.7.1 Knowledge management models

- **Monell's KM Model:**

To understand and mobilize the efforts of any organization that uses special knowledge management systems, several models researchers have put to help organizations define their basic goals and strategies. Monell's knowledge management model, which was presented by (Winnosky. E.D), classifies knowledge as experience (Terguini, 2011). The experience consists of four units, each of which works independently, but at the same time, they are mutually dependent.

- **Knowledge management objectives:** These objectives are usually represented in improving the capabilities of the institution, whether in improving the institution's use of its resources or improving its capabilities.
- **The basic rule of knowledge management** is represented in the tools and technologies that work on the embodiment of knowledge management processes.
- **Knowledge management culture:** which in turn determines the direction, values, preferences, and priorities in knowledge management.
- **Knowledge management standards:** They refer to the best practices that the institution uses about its customers and employees (suppliers, distributors, customers) as well as the technologies and capabilities achieved in comparison with competitors.
- **Jason and Gupta KM Model:**

This model is based on knowledge management procedures that are strategically designed to achieve a specific goal, which is excellence. This model limits knowledge management to its operations, as it sees that it consists of five main operations. If these processes are applied, the institution will gain a competitive advantage. He also believes that to achieve these processes, there must be some elements such as technologies that help, for example, storing knowledge helps achieve (Al Ramaha, 2020).

- **Harvesting:** knowledge must be obtained from inside or acquired from outside the institution ,leading to the generation of competitive advantage.

- **Purification:** it is necessary to determine which information and which knowledge is of interest to the institution; And then purify it, accordingly, the institution must refrain from collecting and coding all its knowledge randomly. This step must be taken into consideration by the vision of the institution, mission, and objectives.
- **Arrangement:** after examining the knowledge management system to determine the strategic benefit envisaged by it, the institution will reach the level of benefiting from the development of mechanisms. Which itself aimed to store this knowledge and develop it to help generate a competitive advantage.
- **Dissemination:** the two main factors that influence well in the process of appropriate dissemination of knowledge are the process of facilitating communication and the method of developing organizational culture.
- **Application:** Achieving a competitive advantage is for the institutions that apply knowledge management in the best form because this will lead to the achievement of the competitive advantage.
- **David J. Skyrme KM Model (1999):**

This model classifies knowledge into two forces, (1) the power of knowledge stored in the foundation's base consisting of solutions to previous problems so that they are not repeated in the future. In addition to (2) the power of generating and renewing stored information and transforming it into new services and products that support competitive advantage.

- **Customer's Knowledge:** developing deep knowledge through customer relationships and using it to enrich customer satisfaction through improved products and services.
- **Products and services' Knowledge:** the knowledge embodied in products and what is associated with them and knowledge-intensive services.
- **Individuals' Knowledge:** the development of human competencies and the development of an innovative culture, as learning and sharing knowledge has a high value.
- **Operations' Knowledge:** Embodiment of knowledge in business processes and access to expert expertise.

- **Organizational memory:** It is the current recorded experience for future use, whether in explicit knowledge repositories or the development of experienced indicators.
- **Knowledge Flows in Relationships:** Improving cross-border knowledge flows inside and outside the organization to suppliers, customers, and employees.
- **Knowledge assets:** This factor is the measurement, development, and exploitation of intellectual capital.

### 3.7.2 Knowledge management importance

In the mid-nineties (1996-1997), several conferences were held to announce work seminars and conferences in the field of knowledge management due to the interest of institutions in managing knowledge outside and inside to achieve competitive goals. Therefore, the importance of knowledge management KM emerges from being the most valuable and most effective equivalent to the competitive advantage used (Najm, 2006, Al-Saed and Harem, 2004, p.6) due to the following reasons:

- Increasing the intensity of competition in the markets and the rapid increase in innovations and discoveries.
- The complexities of goods and services require more knowledge of the customer, market, and competition than strong knowledge management.
- Increasing competition has reduced the number of employees in organizations with distinguished knowledge, and here it was necessary to compete on how to attract these competencies.
  - Maintaining loyal customers and attracting new ones.
  - Organizational adaptability due to changing work rules and assumptions.
  - Reducing costs and the amount of time it takes for workers in the process to acquire new knowledge.

### 3.7.3 Knowledge management goals

Al-Zatma (2011; p.31) mentioned in his research, on knowledge management and its impact on performance excellence, the objectives of knowledge management in any

database, and how it should be harnessed to serve employees, customers, and internal transactions. The objectives of knowledge management vary according to the diversity of the entities in which it is located, and the fields in which it operates. There are a set of general objectives that knowledge management shares in various types of organizations:

- Determining and collecting knowledge and providing it appropriately and at the appropriate speed, to be used at the appropriate time.
- Building information bases to store knowledge provide it and retrieve it when needed.
- Facilitating the exchange and sharing of knowledge among all workers in the organization.
- Transferring latent (implicit) knowledge from the minds of its owners and transforming it into apparent knowledge.
- Transforming internal and external knowledge into knowledge that can be employed and invested in the organization`s various operations and activities.
- Improving the decision-making process by providing accurate and timely information he the best results.
- Contribute to solving the problems facing the organization, which may lead to a lack of efficiency or a waste of time and money.
- Attracting intellectual capital to use it in solving-problem and strategic planning.

Generally, the most important goals that knowledge management seeks to achieve are to confirm the principle of knowledge culture and maintain the assets and principles that achieve the goals of the organization. It also aims to contribute to advancing the performance of employees with data and numbers and an integrated and accurate information base that helps them improve their work performance, raise their productivity and, efficiency, and develop their abilities and skills.

### **3.8 Knowledge Management Systems Tracks**

As we mentioned earlier, the human element plays an important role in the processes of organization and communication. There is also an essential role for him in managing knowledge in the framework of any business. Therefore, we can allocate the paths of knowledge management processes into two parts: information management and people management.

1. Information management includes the technological forces that support collecting and analyzing information in the required and appropriate form for each task and computer skill.
2. People management: this includes managing the human factor within any organization and teaching it the science of philosophy, psychology, psychology, or business management within the change and improvement of individual human skills and behavior, and knowledge here is a complex set of dynamic skills.

These two paths represent the entire relationship between humans and machines. The human is the maker of the machine, but it does not work alone, and the efficiency of using the machine is determined by the love of its user, and the machine gives humans more production and the ability to develop the machine and the whole work, as it is a continuous integrative relationship.

From the above, knowledge management (KM) can be defined as placing the acquired knowledge, experience, and skills in the hands of workers in the appropriate time, form, and ease of use (Ragsdale,1999). Garner (1999) defined it as learning from mistakes. Verespe (1999) sees knowledge management as finding a way that facilitates the process of obtaining the wisdom and knowledge of employees in the organization and then putting it at the disposal of everyone (Al-Athari, 2017).

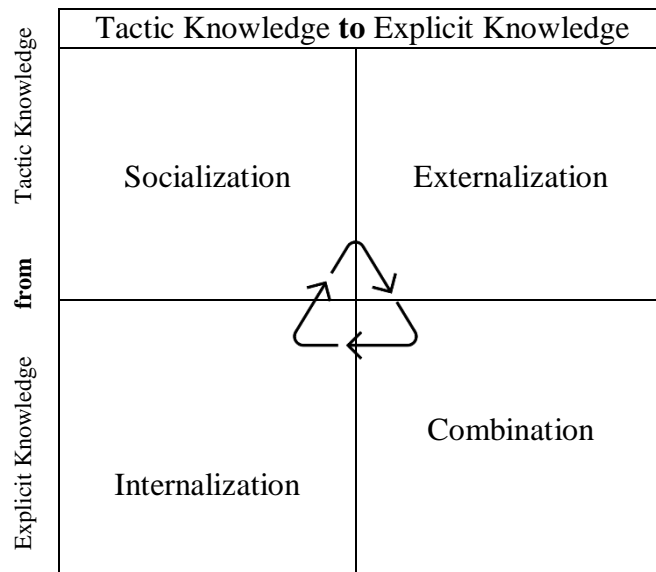
#### **3.8.1 Knowledge management systems success factors**

A knowledge management system (KMS) is a system for applying and using knowledge management principles. These include data-driven objectives on business productivity, competitive business models, business intelligence analysis, and more. A knowledge management system consists of various software modules served by a central user interface. Some of these features can allow data mining from customers'

inputs and histories, along with the provision or sharing of electronic documents. Knowledge management systems can help train and orient employees, support better sales, or help business leaders make critical decisions. The first to develop the basics of knowledge management is Nonaka and Takeuchi (1995) in their book *The Knowledge-Creating Company*, where they put forward a model of knowledge management after defining the line between tacit knowledge and explicit knowledge. This came after several cases of misuse of the SECI model that was put forward at Yale University in 1962, as mentioned by Polanyi (Polanyi, 1983). Takeuchi and Nonaka explained the SECI model (Knowledge management cycle), which shows the transformation, generation, and re-creation of knowledge, (as in Figure 3.4).

In their previous study, Nonaka and Takeuchi (1991) laid the foundations of the BPR Business Process Re-Engineering model. This model serves businesses that are doing day-to-day business to acquire knowledge and integrate it with the company's practices in the interest of efficiency. However, companies have realized that the human element or tacit knowledge has a major role in ensuring business efficiency. Also, the problems and issues that were formed after the transformation of knowledge into explicit knowledge were framed and reduced. Eisenbrook (1996) interpreted knowledge management as an activity undertaken by the organization to identify performance gaps that occur and then draw plans to fill these gaps. So, he suggested a four steps knowledge management system model:

- Clarify the goal of organizational knowledge innovation, and how knowledge matches the organization's overall business strategy while recognizing the need to form a structure that supports knowledge innovation.
- Configure a feedback system to measure success in efforts, and secure data to adjust strategies on an ongoing basis.
- Developing apparent knowledge by adopting advanced structures that contribute to the development of knowledge strategies.
- Founding organizational learning structures and the level of knowledge to implement strategies to form plans to fill the performance gaps between the organization's knowledge vision and its current performance.



**Figure 3.4:** Takeuchi and Nonaka`s Knowledge Management Cycle Model of SECI

**Source:** Eisenbrook (1996)

Some researchers focused on operations and others focused on the elements that must be available for their application. In general, KM is a project that the institution can implement; the basic basis for this must be prepared from technology, individuals, and organizational culture to achieve the desired goals.

Another derivation of the knowledge management system is combined with customer knowledge management in an organization, called **Customer Knowledge Management CKM**. Knowledge management plays a significant and contributory role in CKM`s transactions (Mulumba, 2012: 17). To clarify the picture more about the nature of the relationship between them, chapter four of this research must be presented: **Customer Relationship Management CRM**.

The first interest in information in the field of administrative decisions appeared in the fifties. It was necessary to obtain decisions before taking any administrative decision, as the debate about the value of information increased, from uncertainty to the decision in the case of risk to the decision in case of confirmation. Computers were used to collect, process, store and retrieve information in large quantities and at an exciting speed at the time, but they did not achieve a noticeable impact until the late sixties when information systems began to be used efficiently and effectively in the activities and businesses of companies.

### 3.9 Knowledge-Economy

The role of knowledge in the success of business organizations has grown with its contributions to transforming these organizations into the new global economy that has become known as the **knowledge economy (KE)**. Daniel Bell (2019) first introduced the concept of the knowledge economy in his analysis of a post-industrial society. He put the first assumption in a text that if the industrial society revolves around manufacturing and skilled workers, then the post-industrial society is based on services and depends on intellectual technology and the increasing importance of information and computers (Gupte,2018). The World Bank defined the knowledge economy as an economy capable of acquiring and creating knowledge and disseminating and applying it to promote development (The World Bank, 2005).

The knowledge-based economy is defined as “an economy capable of producing, disseminating, and using knowledge where knowledge is a major factor in growth, wealth creation, and employment. Human capital is the engine of creativity, innovation, and the generation of new ideas, by relying on information and communication technology (Cavusoglu, 2016). It’s an economy based on the manufacture, circulation, and evaluation of knowledge; where it is less important than labor costs, it also does not use traditional concepts of economics, such as scarcity of resources (Business Dictionary, 2017).

The first reference to knowledge as a term in economics was through research conducted by the economist Friedrich Layek (1945) in (*The Use of Knowledge in Society*). But the real attempt to study knowledge as a commodity has been spotted by Fritz Machlup in his book (*The Production and Distribution of Knowledge in the US*), and in Bhekuzulu Khumalo (*The Fundamental Theory of Knowledge*). He explained that knowledge is originally a commodity, as he realized that to analyze knowledge as a commodity it must be determined, and therefore he identified a unit of knowledge and used it. (Abu Shamat, 2012)

The knowledge economy emphasizes intellectual and knowledge capital and competition through human capabilities and its crucial role in transforming organizations into knowledge societies, which bring about change. The organization has to adapt to the rapid change in its environment. Edward Swanstrom (2002) in his speech about the knowledge economy:

*“It is a branch of basic science, which aims to improve the well-being of individuals, organizations, and society by studying systems for the production and design of knowledge and then implementing the necessary interventions to develop these systems. This branch generates theoretical models through scientific research, and, on the other hand, it develops practical and technical tools that can be applied directly to the real world”*

### **3.9.1 Economy knowledge characteristics**

To be able to understand the knowledge economy more, we must analyze it from more than one perspective. What are the characteristics of a knowledge economy? The features and characteristics of the knowledge economy according to Cavusoglu (2016) can be summarized as follows:

1. Knowledge is the basic factor of production that can be used over and over again without being consumed, and it can be used by many individuals at the same time, and in many different locations simultaneously.
2. Knowledge can produce additional economic value through the dissemination of knowledge in the production process.
3. Knowledge economics is very different from ordinary goods and services; the focus is on intangible resources rather than tangible resources.
4. The ability to generate knowledge and use it to achieve efficiency in the production process and create opportunities, whether for producers or consumers.
5. The absence of geographical barriers and distance does not mean an obstacle to communication and integration with the internal and external environment.
6. That knowledge is available to everyone and that every individual can be creative and innovative within the community and not be just a consumer of information and knowledge.
7. Knowledge reliance on education and training makes workers keep pace with developments in the fields of knowledge and uses information and communication technologies to build a knowledge system characterized by speed and accuracy.
8. The flexibility that enables it to adapt to changing needs and the ability to compete, being a fully open economy that qualifies it to generate knowledge

products – the knowledge economy is linked to intelligence and its ability to innovate, which distinguishes it from the traditional economy.

Weber (2011) derived the following features of the knowledge economy from the notion of “the four pillars,” as defined by the Knowledge Development Program (Mulumba, 2012; p.41).

- **Economic and Institutional regime**
- **Educational skills.** Education is required to enable individuals to create, use, and sharing of knowledge by individuals
- **ICT infrastructure**
- **Innovation**

### **3.10 Absorptive Capacity**

The ability of the organization to store information from several external and internal sources can be called the absorptive capacity AC of the information base. Determining the company’s necessary data, storing it, and recruiting it to achieve commercial goals and competitive excellence determines the efficiency of AC. This is due to the effectiveness of organizations in absorbing technical practices and achieving competitive excellence, under unpredictable circumstances, which is affected by the efficiency of the organization’s learning ability and its absorption (Huber, 1996). In addition, AC is considered an organizational mechanism for collecting information from various sources (Tu et al, 2006). It can also be defined as a dynamic capability that includes multiple components embedded in specific organizational processes. Fiol (1996) compared this mechanism to a sponge to determine the efficiency of AC to generate innovative results when operating under an effective level of pressure. But “pressing with more force does not always succeed.” In addition, the time factor has a role in the continuity of the absorptive capacity so that it’s left dry to the point of losing the ability to absorb anything. Research and development R&D is the most common measure to study and measure AC (Tasi, 2001: Stock et al., 2001), although it’s not comprehensive enough.

For Brown (1997), AC components of a firm can be summarized into three components: communication climate CC, communication network CN, and related

prior knowledge. A formal and informal network of communication is necessary to ensure the dissemination of internal knowledge (Jones and Craven, 2001). The three components contribute to internalizing internal knowledge, which can be easily acquired within the organization. Cohen and Levinthal's (1990) definition of AC suggested the need for a fourth component, which is the existence of a "scanning mechanism" for information and knowledge outside the internal environment of the organization. Its tasks include identifying ideas and external sources of information useful to the company while monitoring the organization's surrounding and competitive environment. As the external and internal forces have a role in promoting AC (Eutlie, 2000). Tasi's (2001) study cited the role of intra-organizational communication networks is substantial in improving processes of knowledge transformation, alongside, AC. When an organization promotes an open communication climate, it's seen as a positive change to facilitate the acquisition of organizational learning (Levinson and Asahi, 1995). The adoption of open climate systems and transactions encourages competitive advantage, due to the existence of the concept of "safe failing" (Roth et al., 1994).

The human component also had a role in developing the concept of the absorptive capacity of the company, being the main source of the idea of storing knowledge. The development of the AC of a specific organization depends on the carrying capacity of individuals and the prior investment in the individual absorptive capacity that constitutes it. The AC of an organization includes knowledge transfers across and within sub-units that can be removed upon entering the original access point (Cohen and Levinthal, 1990).

### **3.11 Previous Studies**

#### **International Studies:**

- **The Study of Chinho and Shu-Mei (2005):**

Their study, "*Bridging the Implementation Gaps in The Knowledge Management System for Enhancing Corporate Performance*", emphasized the gaps within the knowledge management KM process to predict the whole performance of the organization. The study aimed to provide an indicator to measure the performance of the knowledge management system, analyze the knowledge needs of the company,

and identify any disincentives for the success of the activities of implementing the knowledge management systems KMS, through which this performance can be evaluated in companies. According to the researchers, knowledge management is an important strategy to improve the company's management. Also, investing in the development of total knowledge management systems KMS drives the overall performance of the company to achieve high rates of creativity and thus the company's performance becomes more rational. The study concluded that the higher the system performance index, the higher the quality of knowledge management systems KMS, and thus the company's overall performance (Lin and Tseng,2005).

- **The Study of Suzana and Kasim (2010):**

The study of Suzana and Kasim," *The Relationship of Knowledge Management Practices, Competencies, and the Organizational Performance of Government Departments in Malaysia*", agreed with Chinho and Shu-Mei's study on the role of knowledge management KM practices in improving the performance and efficiency of institutions. Suzana and Kasim's study focused on the role of knowledge management KM in improving government job performance through knowledge applications. After surveying 500 employees from 28 ministries in Malaysia at random regularly, it was proven that there is a positive relationship between the knowledge management KM practices and the efficiency of job performance in Malaysian institutions. Also, the study recommended the need for senior management to understand the factors that contribute to increasing the effectiveness of job performance.

#### **Arabic Studies:**

- **The Study of Al-Kubaisi (2002):**

In a study on knowledge management KM and organizational creativity, Al-Kubaisi focused on diagnosing the theoretical and practical implications of the types of knowledge in the industrial sector companies in Iraq (11company and 54 managers were contributing). The study concluded that the industrial sector companies succeeded in investing advanced methods in the process of diagnosing, generating, and distributing knowledge within the scope of work and employees. It deals with tacit knowledge as the importance of explicit knowledge, which also contributes to the development and research departments and encourages creativity. In other words,

the absence of an efficient organizational communication network CN may directly or indirectly affect the tacit knowledge base (the worker or the manager), and this is what will be studied in this research.

- **The Study of Tayeh (2017):**

Tayeh studied the role of knowledge management in achieving superior performance in the sector of national insurance companies. The study model for Tayeh included four processes of knowledge management KM (knowledge generation – knowledge storage – knowledge distribution – knowledge application) to form the independent variable, and quantitative and qualitative measures of customer satisfaction and sales growth to form the dependent variable. The study concluded that the surveyed companies showed a fluctuating performance as a result of the lack of interest of the top management in the knowledge tool, its application, and recruitment for the sake of the company's business. Therefore, we must focus on the efficiency of knowledge management KM processes and their activation in achieving sales goals and customer satisfaction, which in turn reflects the distinguished management of the company in question.

## **4. CUSTOMER RELATIONSHIPS MANAGEMENT CRM**

### **4.1 The Concept of Customer Relationship Management CRM**

The modern and advanced concept of relationship marketing started with the introduction of the term customer relationship management (CRM) within the business dictionary. After considering that consumers (the human element) are one of the assets of the system, and due to the multiplicity of alternatives in front of consumers and the high degree of awareness they have, their loyalty has become difficult to harvest. Thus, competition between companies lies not only in the search for new customers but in understanding the requirements of existing customers and retaining them on an ongoing basis (Ahn, J. Y., et al, 2003).

With the inflation of the labor market and relationships, the marketing philosophy between companies became necessary to ensure competitive advantage. The marketing philosophy is based on customer relationship management to retain and gain their loyalty, which greatly reduces the cost of the marketing budget and keeps them permanently. Since customer loyalty is one of the dimensions of customer relationship management systems, companies have become obligated to adopt the concepts of customer management to ensure the profitability of the company. Hence, ensuring the needs and services of their customers and establishing a strong relationship with them for the future. The distinction that is achieved through the interaction provided to the company's customers, as well as the company's market share, is a measure of the institutions' performance and distinguishes them from other companies in the market.

Therefore, customer relationship management CRM is a primary source whose impact contributes to achieving a competitive advantage for organizations and thus enhances their position in the market as a distinct competitor over the rest. It's suggested to use the word "strategy" more than "concept" to describe customer relationship management due to its need to conduct a clear performance plan. CRM strategies can be viewed as a benchmark for all strategies' performance for other

activities in the organization. There is no doubt that any organizational strategy that does not entail the formation, maintenance, and development of relationships with target customers, will inevitably be unprofitable for the organization. The strategy sets and determines the direction in which the organization should go, and therefore any strategy that is not developed in the light of relationships with customers will put the organization on the wrong path or direction.

#### **4.2 Customer Relationship Management Definitions and Terminology**

In an article published in the Scientific Journal of the Faculty of Tourism and Hotels in Egypt (2017), both Helali and Morsi talked about the beginning of the emergence of the term relationship marketing RM in the nineties of the twentieth century. Many articles such as (Gro'nroos, 1994; Reichheld et al, 2000; Reinartz and Kumar et al, 2003; Harker and Egan, 2011) have adopted the marketing approach, and the trends associated with the formation of relationship marketing programs (Helai and Morsi, 2017). Harker and Egan (2010), in addition to (Huang et al, 2010) agreed that the trend of relationship marketing is related to the concept of customer relationship management CRM, where relationship marketing is based on the main axis, which is the customer. Whereby, the concept of relationship marketing is the basis for customer relationship management CRM strategy. During previous studies, it was found that more definitions of customer relationship management CRM focus on the idea of achieving company goals, through good relationships with and retaining valued customers. Customer relationship management CRM has been defined as a complex or multi-role function of continuous communication with customers through dialogue, in all available ways, as well as dealing personally with customers of benefit to the company, which helps to keep them in pursuit of greater marketing initiatives (Day et al., 2002).

Rahimi and Kozak (2017) also indicated a comprehensive definition from their point of view, and it's that CRM is "building a customer-oriented culture through which a strategy is developed to enhance profitability and obtain it from customers in parallel with retaining them to achieve mutual benefits for both organizations and customers". It is also known as a comprehensive organizational strategy to attract and retain a group of customers to achieve value for the organization (Parvatiyar &

Sheth, 2001:41). It's, also, described as a set of tools, technologies, and processes to gain and develop relationships with profitable customers (Lamb, 2001).

The complexities of CRM systems so far are as follows: lack of overall project responsibility, poorly written objectives, and poor technical performance. Many feel that CRM's results so far have been disappointing. However, it was found that managing customer relations leads to many positive outcomes for the company, including improving customer satisfaction, obtaining strategic information that is useful in developing plans for the company, in addition to improving the value provided to customers (Xu and Walton, 2005). The Customer Relations Department also works on gaining and maintaining customers' loyalty, as well as persuading customers to recommend others to deal with the company (Sivaraks et al, 2011).

#### **4.3 Customer Relationship Management Core Tasks**

The functions of CRM can be summarized in marketing, selling, customer care, and service support according to Kincaid's (2003) definition of CRM. These functions communicate directly with customers through multiple media and face-to-face contact. Front office functions design and communicates customer interactions are responsible for shaping the customer experience that builds and develops loyalty.

- **Marketing:** It functions like CRM, and it must successfully expand its responsibilities in the market. Marketing usually focuses on the use of certain advertising means, and this is no longer sufficient. The marketing function within the CRM strategy includes several tasks, such as evaluating and classifying customers based on value. In CRM strategy, the focus is on categorizing customers and communicating with them in a personal way that requires complex marketing efforts based on knowledge in the first place. For marketing applicants, unlike CRM strategies, communication with clients is done via SMS messages, emails, and phone calls (El Shiki, 2017).
- **Sales:** When the components of CRM interact with the sales process, it usually takes the form of automating the tasks of sales representatives. Although this step does not help the organization to center its sales activities focused on the customer, it leads to increased productivity of service providers and sales. Automation of sales tasks produces a database of customers, and this indicates the

importance of integrating sales management into the general strategy for CRM. The reason is that the technological applications of sales operations alone are unable to organize their activities. Thus, new and innovative methods are developed by sales representatives based on a renewed customer database that guarantees the largest possible number of profitable deals. (Abdel Moneim, 2003).

- **Service support:** service organizations must have their activities for the customer to be able to succeed because the nature of the work of these organizations interacts largely and directly with customers. This is the reason behind the difficulty of its development without focusing based on customer relationship management CRM. The experience and all the information collected by the researchers indicate the necessity of integrating the customer care department into the customer relationship management strategy. Buttle, returning to Schneider, it has been proven that the employee environment of the service environment in the organization affects the customer's perception of the level of quality of services provided, and the study proved that there is a complete inverse relationship between customer satisfaction and the rate of employee replacement in the company (Aladwani, 2003).
- **Customer support** focuses on helping customers solve problems related to the product or service, as well as answering all their inquiries. Unfortunately, this department is often seen as something extra, so expenditures should be reduced as much as possible. But when the department is based on the strategy of managing the relationship with customers, the efforts are focused on the call centers and automated response systems that determine the time of the call and reduce the cost (M. Mohamed, 2002).

But the automation of these systems in this particular department must be handled in a very careful manner so as not to give a negative impact on customers (to consider communication ethics). This department has a good opportunity to influence the customer's experience, as a negative experience can be transformed into a positive one, through the information collected through direct interaction with the customer, which is kept in the customer database.

- **Loyalty:** Loyalty's concept, from a marketing point of view, is the customer's belief in the organization more than it is a qualitative measure. It can be defined as

good feelings derived from positive interactions with the organization (El Shiki, 2017). The link between satisfaction and loyalty can't be considered conditional. A satisfied customer's loyalty is not a necessity, while a loyal one's satisfaction must be granted first. Also, achieving customer loyalty is much more difficult than achieving customer satisfaction, as it requires creating an alliance between the potential value of the customer and the value expected to be provided to him after a long-term understanding of his requirements (Alstad, J. 2002).

As for Bohling (2016)'s work, CRM initiatives were summarized as nine initiatives (Table 4.1). The CRM section in the survey included questions to cover all nine CRM practices.

**Table 4.1: CRM Initiatives**

<b>CRM Practice</b>	<b>Description</b>
Strategic brand management	Create, and develop a brand image, which promotes goods and services, provides an increase in profits, and attracts the attention of customers.
Customer service and after-sales support	Creating win-back programs; standardizing customer service; improving customer relations programs, channels, and call centers; using client satisfaction tools and complaint resolution methods.
Loyalty and retention programs	Creating loyalty programs and retention schemes (customer cards, bonus systems) and building the required support infrastructure.
Cost Reduction	Introducing marketing, sales, and service cost-cutting strategies; restructuring plans to cut manpower, close branches, and consolidate systems.
Channel integration and optimization	Integrating and optimizing current and upcoming channels to enable the organization to give the best possible customer experience while also encouraging customers to use low-cost channels and media.
Sales programs	Creating cutting-edge marketing strategies and the necessary infrastructure to match the company's customer-centric approach.
Campaign Management	Integrating and optimizing current and upcoming channels to enable the organization to give the best possible customer experience while also encouraging customers to use low-cost channels and media.
CRM Outsourcing	Outsourcing part of a firm's CRM IT infrastructure, business process, or application to an outsourcing partner to lower costs and increase focus
Product optimization and management	Optimizing product usage; refining, migrating, and phasing out current products; developing new products and services.

**Source:** Bohling, T. et al (2006).

#### 4.4 CRM and Customer Satisfaction and Loyalty

Loyalty is the motive for adopting a CRM strategy to gain customer loyalty. The profitable return for the organization from loyal customers and its services guarantees it a predetermined percentage of sales, which achieves the element of stability for the organization. These sales do not require marketing efforts, as the loyal customer does not need to be targeted in marketing activities (Aladwani, 2001). The loyal consumer helps organization services` promotions by mentioning the benefits of the services to those around him. According to L. Kristin and J. Kerr (2001), loyalty is classified into Two-dimensional loyalty: **behavioral loyalty and attitudinal loyalty** (Figure 8). The first is measured according to customer behavior that reflects the continuity of the purchase process. It might be customer satisfaction and impulse to consume more goods, or the organization maintains its market share of consumer loyalty to protect its long-term profitability. The latter measures the customer`s loyalty based on his attitudes (beliefs, feelings, and intent to buy) toward the supplier company. This type of loyalty helps the organization understand the customer`s needs and develop commitment to a high degree that makes the customer resist all competitors` efforts (Anderson, and Card, 2002).



**Figure 4.1:** Elements of two-dimensional loyalty

Source: Khan (2009)

CRM seeks to attract and maintain customers and gain their satisfaction, and consequently their loyalty to the organization, and from this, it can be said that the organization`s achievement of a certain percentage of loyalty is an indication or a

result of its activity or marketing effort towards its customers and their satisfaction which leads to reaching their loyalty. The reason why many strategies are distinguished in the world is based on respecting the customer and working to satisfy him.

The competitive advantage of the customer relationship goes beyond retention and purchase arrangements. It includes the effective relationships generated from emotional and cognitive relationships with the customer, along with the behavioral aspects. When the institution implements a strong competitive advantage based on the customer achieves several side benefits. Sheth Jagdish estimates that “the company’s acquisition of a new customer costs it five times what it spends to retain the customer it is currently dealing with” (Jagdish 2009). Competitive advantage based on the customer facilitates the upper hand in controlling the cost of maintaining existing customers. The customer who develops a strong relationship with the organization will tend to use its services over and over again, which will result in a higher share of sales for one customer and consequently higher market shares. Moreover, organizations become more effective over time because they can anticipate customer expectations, and this knowledge results in reduced costs and an increase in the quality of service provided. In addition, recent studies indicate that customers constitute a source of institutional creativity, at a rate of no less than 17% (Chan et al, 2018).

Many researchers have based the role of customer satisfaction on CRM strategies, and it has become a wide field aftermarket inflation and competitive advantage. While electronic customer relationship management CRM systems achieve many advantages for organizations, their application may be hampered by several obstacles:

- a) The absence of support from the company’s senior management.
- b) The lack of awareness of CRM systems, software problems, financial problems, poor planning, organizational policies, organizational change, and electronic payment problems (Ivanovic et al., 2011; Abdel, 2014).
- c) Weak trust and lack of experience in electronic dealing (2012, Harrigan et al., 2009; Harrigan & Ibbotson), and companies focus on customer acquisition more than customer retention (Foss & Stone, 2002).

#### **4.5 Previous studies about Customer Satisfaction and Loyalty**

- The study of Nadereh (Rastghalam et al, 2014) was an advantage to knowing the effect of CRM on customer satisfaction CS. The study was conducted in “Al-Moallem”, an insurance company in the city of Isfahan. A field survey was conducted on 185 clients in the company using a cluster random sampling method in five regions. The sample was randomly drawn from each region, and the study reached the following results: The high degree of customer satisfaction for the “Al-Moallem” insurance company, where several factors were measured: response method, quality of services, and electronic services. Providing their needs and desires and providing the volume of cost to the company in attracting new customers.
- George (2012) also agreed on the impact of customer relationship management practices on customer loyalty in a study conducted at the Golden Tulip Accra. The study was conducted on a sample of (50) single clients of the hotel and the companies that deal with it, and the study ended with the satisfaction of the study sample with the hotel and its positive attitude towards it and the emphasis on returning to dealing with the hotel (George K. et al., 2012).
- Also, a study conducted in the Egyptian sector in Turkey (Duygu Kocoglu et al, 2012) confirmed that CRM has a significant impact on customer loyalty in the Egyptian sector in Turkey. This study was conducted on a sample of (350) single employees working in all branches of Denizli Bank in Turkey. The study showed that collecting data about the bank’s customers in addition to providing them with information was the main factor in the loyalty of customers to the bank, in addition to the speed of meeting and responding to their requirements.
- Siphwe (2014), too, wrote a study to evaluate the strategy of CRM in supporting and enhancing their loyalty in the automotive industry. The study was applied to a sample of (297) individuals, which included (150) customers who deal with car dealers, and (147) employees. The study concluded with results, the most important of which are: that the customer’s trust has a fundamental role and his loyalty to the company. In summary, the study showed that CRM contributes significantly and effectively to customer loyalty through the efficiency of those in charge of work (P. Mandina, 2014).

The previously mentioned studies agree on several points that serve the purpose of this research. The research helped define the scientific model that will contribute to identifying and studying the variables in this study. The results of these studies help to support the research hypotheses of the impact of organizational communication networks CN on the strategies of customer relationship management CRM systems with the intervention and role of the knowledge base for each sector. Most of the studies relied on variables related in one way or another to the variables of this research, Such as customer satisfaction and the impact of relationship marketing as a marketing philosophy on customer loyalty.

Electronic e-CRM promotes organizational process re-engineering (Githaiga, 2013), organizational learning (Mithas et al., 2005), and positive support for organizational culture (Rahimi & Gunlu, 2017). Kımılođlu and Zaralı (2009) added that companies that implemented e-CRM achieved higher levels of improvements in the level of customer satisfaction, transaction rates, and frequency, brand image, effective database management, customer targeting, business process efficiency, use of technology, excellence, and innovation in services, improving sales and profitability and lowering service support costs (Kımılođlu & Zaralı,2009).

#### **4.6 Customer Relationship Management and Competitive Advantage**

The organization's permanent preservation of the competitive advantage CA is extremely difficult if the organization cannot provide unique goods and services that are difficult to imitate by others, and this can only be achieved by managing the available knowledge effectively and creating a structure for the use of new knowledge, which enables the organization to achieve a stable competitive advantage (Nodehi and Afarin,2014). Competitive advantage is considered a desire for every economic institution; As a result of its importance in achieving continuous excellence. Of course, this superiority will not be short-term, since it is a constant quest to maintain the balance of the institution and the interests of stakeholders, including the competitor. Competitive advantage is a term that carries its meanings as it indicates the uniqueness of the institution from the rest of the competitors in the sector, that is, its distinction in terms of its possession of the capabilities, the outstanding resource, or special skill that is embodied in creating values for

customers that outweigh the competitors in a way that is sustainable and subject to well-defined competitive strategies.

At present, the orientation of institutions to create competitive excellence has changed to rely on the approach of customer management instead of leading production to the level of general total quality to satisfy the market. As it turned out that the institutions that are managed by customers, have completely changed themselves and turned to an approach that gives priority to the customer, and this was confirmed by the study by Fred Reischel (Lendrevie, 2006) It was concluded that a 5% increase in customer loyalty can lead to an increase in profitability from 25% to 100%. The ability of the institution to compete in the market depends on its ability to build and develop relationships with its customers to obtain a high-accuracy information flow. Then to use that information in making marketing decisions regarding important aspects of the marketing mix (Volle et Delécolie, 2012). These processes will enhance the organization's ability to improve product or service offerings by responding quickly to the needs of customers. Getting access to the needed information at the right time and means to maintain the relationship a little longer (Ivens et Mayrhofer, 2005) as well as acquiring new customers is the main approach for competitive advantage. (Haqqana and Bin Sufyan, 2018).

Institutions that want to remain at the forefront of competitors are the ones that can translate the customer's needs and desires into products or services that match his needs and desires, achieving greater satisfaction for him and better than competitors. Note that despite the despreadwi of Fred Reischel's study, new research confirms that simply satisfying the customer is no longer the only guarantee of obtaining their loyalty, as there is no link between customer satisfaction and the degree of customer retention.

#### **4.7 Previous Studies about Customer Relationship Management and Competitive Advantage**

- **Mehardad & Mohamed (2011)- Iran:**

An Iranian study by Mehardad & Mohamed (2011) focused on knowing the impact of customer relationship management on achieving a competitive advantage in the truck industry in Iran. This study concluded that one of the requirements of

competition is the ability of business organizations to adapt to the needs of customers and respond to their requests quickly. The study variables were:

- Improving and customizing relationships with clients.
- Recognizing and understanding the needs of customers and distinguishing between them.
- Responding to customer complaints.
- Attracting and maintaining customers.

The results showed that relationships with customers through relying on data analysis through statistical methods, that there is a positive relationship between customer relationship management and competitive advantage at a level of significance of 5% from the perspective of managers. Thus, the hypotheses of the study were achieved with positive results between customer relationship management and competitive advantage. The order of the variables according to the respondents' answers was as follows: responding to customer complaints, maintaining customers, improving and allocating relationships with customers, realizing and including customers' needs, and distinguishing between them.

- **Hisham Sayed Soliman (2011)- Cairo:**

An Arabic study presented by Soliman (2011) applied to well-known managers in the insurance companies, banks, and financial intermediation sector. The researcher identified the dimensions of customer relationship management in (focusing on key customers, organizational efficiency, and customer knowledge management), as were the dimensions of marketing performance represented in (maintaining existing customers, attracting new customers, market share, customer satisfaction, and sales growth). After collecting the data using the survey list, the study showed a strong positive direct correlation between (focus on key customers, organizational efficiency, and customer knowledge management) and marketing performance. The researcher also explained that customer relationship management is widely available in insurance companies compared to banks and financial brokerage companies (Soliman, 2010). Good and strong relationships with customers can make the potential customer more willing to share his goals and plans with the company, explore possibilities, listen to new ideas, and participate in the mutual discovery

process, leading to his confidence in the company, and then turning him into a strategic partner (Stinnett, 2005).

- **Keshvari, R.S. (2012)- Iran:**

A study (Keshvari, 2012) aims to study the competitive advantage resulting from electronic customer relationship management in financial institutions. The case was studied by distributing a questionnaire to nearly 400 clients and employees of financial institutions. The results of the study showed that the most important benefits of using the electronic customer relationship management system are (1) improving cash flow management, (2) international customer satisfaction, (3) increasing security, (4) spreading communication channels such as the Internet, and (5) quality of service. Keshvari's study supported the purpose of this research as the role of a knowledge platform for managers and employees in improving the application of customer management in organizations. Customers are the basic elements of banks and financial institutions and indicated that the application of the electronic customer relationship management system in financial institutions and banks works to create competitive advantages for both customers and the bank, such as improving the integrated profitability of the customer, reducing the response time to customer requests, improving response to customer activity, and benefiting from marketing and strategic factors. After mentioning and reviewing previous studies, we will comment on some points:

- Foreign and Arab studies and research on the subject of customer relationship management CRM and its impact on competitive advantage were applied in an environment different from the Turkish environment, meaning that its results are difficult to adapt and generalize.
- Most of the studies also emphasized the role of the knowledge base KB in collecting information about customers in light of the relationship marketing philosophy.
- Most of the studies are field studies, but most of them are in a different environment from organizations and companies within Turkey's standards, which prompted me to do a field study to know the role of the organizational communication network on the practices of customer relationship management CRM in the Turkish sector.

#### 4.8 Customer Relationship Management and Knowledge-Based Solutions

Recent studies have proven that knowledge management (KM) capabilities have an essential role and a significant impact on the success of CRM applications. It is worth noting that many companies face obstacles in justifying CRM initiatives in the modern labor market, due to the long history of failure of electronic solutions. The combination of KM and CRM processes brings the company considerable benefits (Gibbert et al., 2002) if implemented correctly. In the study of Salomann et al (2006) a very important question was highlighted: how companies can successfully utilize knowledge *for*, *from*, and *about* customers to achieve better performance in CRM processes? The tasks of CRM evolved from managing routine operations to taking care of the customer relationship in terms of marketing and caring for them (Bose and Sugumaran, 2003). When a company adopts CRM systems, it radically shifts its concerns from single sales to maintaining the permanent customer (Parvatiar and Sheth, 2000; Webster, 1992). CRM operations have been defined as an interactive process that achieves a balance between meeting customer requirements and corporate investments to achieve maximum profit (Shaw and Reed, 1999). CRM services operations are classified as follows (Salomann, 2006):

- **Sales Department:** Which is based on providing the most appropriate solutions to customers to meet their desires. Employees provide alternatives to fill in the gaps in the sales system to win customers permanently, also to identify and formulate consumer needs.
- **Service Management:** The main task is to manage the services, identify them, and present the studied plans for distributing the necessary services promptly. The task of managing the services is focused on contributing to the tracking of the customer's consumption stages.
- **Complaints Management:** It focuses on providing a platform for easy communication with customers and hearing their complaints and comments on the offered products or services, in addition to evaluating their suggestions to provide a better environment for loyal customers.
- **Campaign management:** It is the process of applying marketing plans and ideas for any company that adopts CRM systems. Campaign management is based on the awareness and control of marketing activities directed to a

specific segment identified by the company. Usually, marketing campaigns are individualized and clarify the need of the customer process.

The study of the relationship of the effect of KM techniques on the operational and planning processes of CRM has become a relevant field of study (Romano and Fjermestad, 2003; Fahey, 2001; Romano, 2000, Winer, 2001, Massey, et al., 2001). As mentioned earlier in the knowledge base definition, the term Customer Knowledge Management (CKM) should be mentioned here to facilitate the explanation of knowledge-based solutions to some issues. CKM is defined as the systematic processing and management of knowledge that gathers from several points of customer interaction. It is required to support efficient business operations (Geib and Riempp, 2002).

Customer knowledge (CK) must be integrated by the company with the innovation department and service production. In addition to developing and generating ideas, as well as continuously improving its products and services (Thomke and Von Hippel, 2002; Kristensson, Gustafsson, and Archer, 2004). Customer Knowledge CK cycle in CRM systems is as this: knowledge collected in CRM service and support processes and analyzed in CRM analysis processes (Salomann et al, 2006).

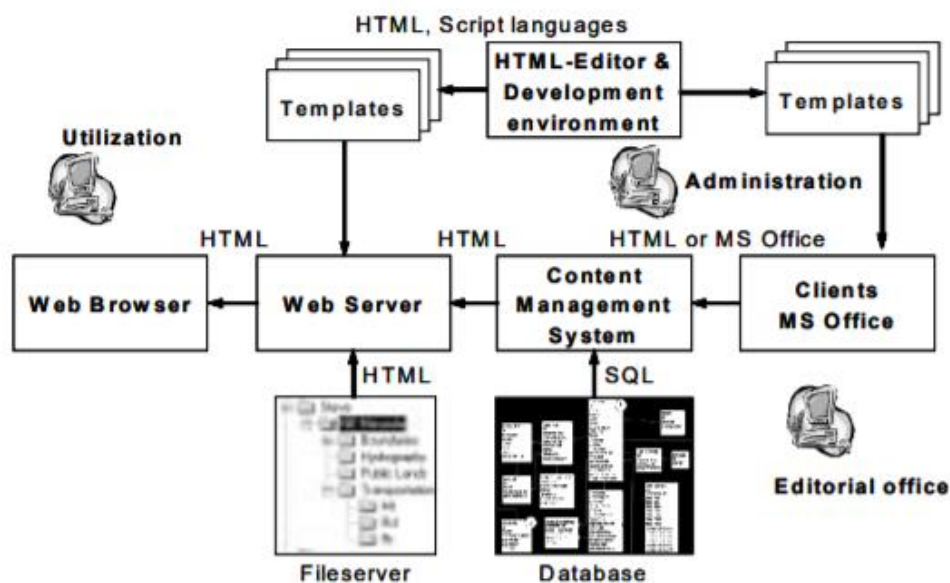
#### **Union Investment`s Case: Customer Communication Center CCC and Knowledge Support:**

Knowledge management pathways in the organization to manage customer knowledge can be summarized in two basic processes: The process of exchanging knowledge between the organization and customers. Secondly, the knowledge is disseminated to the relevant stakeholders in the organization to be used in a highly efficient manner. These paths were adopted for a more in-depth study by Salomann et al (2006). One of the cases adopted by the study was the case of Union Investments. The Customer Communication Centers CCC faced several obstacles based on the separation of knowledge from customers and knowledge from the organization. (Figure 4.2)

- Consuming time to acquire any knowledge because there is no platform for employees to share the available knowledge with.

- The lack of a search engine in the organization's systems, so workers are encouraged to search with individual thanks, which leads to the loss of some unregistered information.
- The process of converting and recording information in the form of technical codes and files in a format suitable for storage in the knowledge base of the organization will cost a specific and exorbitant budget.

Union Investments has launched a special project to eliminate deficiencies related to content search and an information support unit that helps them structure pre-existing knowledge and documents. The system is a new enterprise content management system whose primary task is to convert files into newly created templates in office applications. This system uses HTML for automatic layout font. After following this system and implementing it according to the success criteria, the search process was facilitated to support the work of CCC agents, and it provided a redesigned navigational structure.



**Figure 4.2:** Customer Management pattern at Union Investments

Source: Salomann et al.(2006)

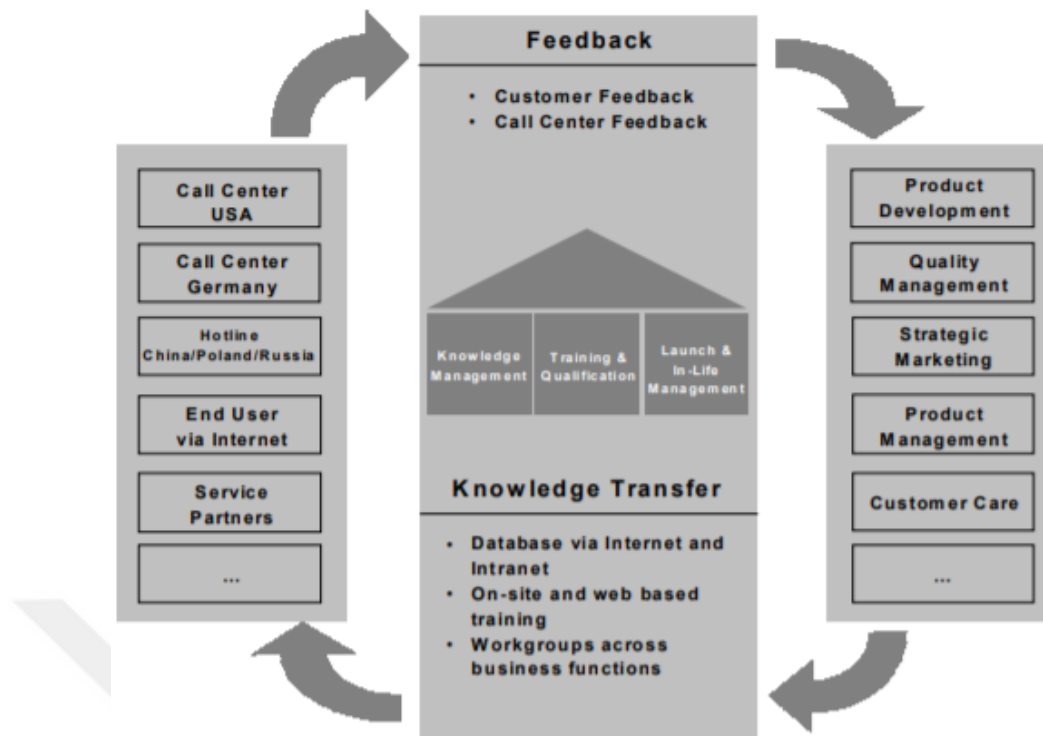
### **Siemens Mobile's Case: Customer Feedback and Product Innovation:**

There is an important role for knowledge from customers on the innovation and enhancement department in the manufacturing department of any company. The study by Salomann (2006) at Siemens` proved that the use of the knowledge base on customer complaints and suggestions in support of the product development

department is a theory worth studying. Siemens operates 90 local service organizations that provide mobile solutions. The company noted that each organization has a separate knowledge platform. Because of the huge information collected by calls, about 400,000 e-mails, and 70,000 inquiries, a part of the general administration's operations has been allocated to support the complaints and customer service department.

However, a vast amount of information has not been analyzed to keep track of product improvement and innovation. Whereas the main business drivers for Siemens are to link customer care transactions to product development via KM systems, highly competitive pressure in shorter product life cycles in the mobile market and customer increased expectations regarding product functionality and quality (Salomann, 2006).

The knowledge-based solution offered in this case was to set up a central knowledge database in the company's main building that includes the product development department. The systems adopted the use of knowledge extracted from the complaints department received from customers in a way-three (Figure 4.3): (1) Frequently asked questions to improve the quality of self-service, (2) customer feedback to keep the Banat base in a renewed state and update the quality of the internal customer service portal information that supports the process of direct contact with the customer, (3) after analyzing the data, the common points between the customer service department are determined and development department. These observations are considered in the development and introduction of future updates, for example, updating mobile device systems. Siemens's study proves that serious communication and response to customer complaints create permanent and satisfied "top segment" customers. The Credit Suisse study agreed on the same point by measuring the performance of individual initiatives to carry out campaigns with a positive expected net present value (NPV).



**Figure 4.3:** Customer–Oriented Knowledge Transfer at Siemens

**Source:** Salomann et al.(2006)

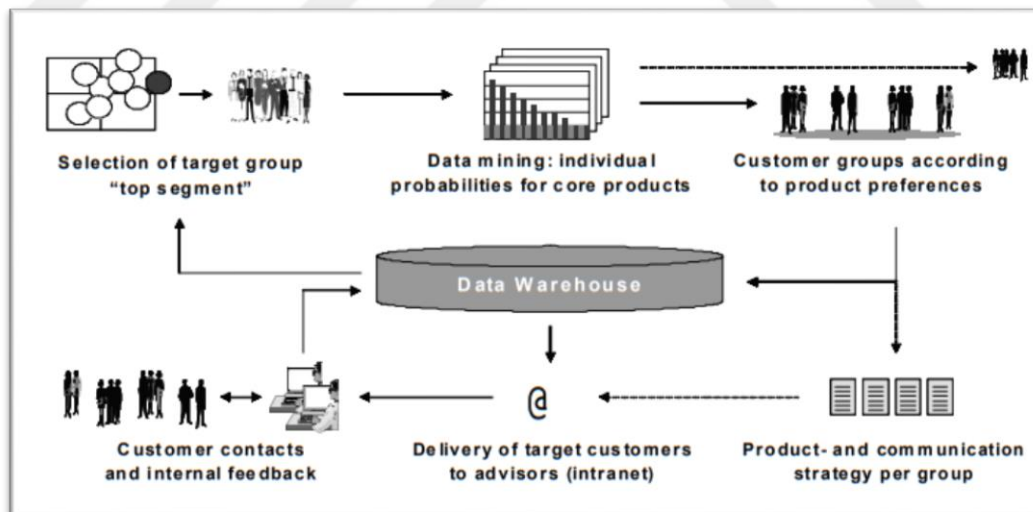
After reviewing previous studies, we can support the idea and hypothesis of this paper. This research proposes the hypothesis of an influence relationship between organizational communication networks within the organization and customer relationship management (CRM) practices with the presence of a variable mediator, which is the knowledge base (KB). Also, the studies reviewed the necessity of creating a communication environment between the employees of one department (single with its tasks), as well as the need to establish communication points that link all parties of the organization to provide an opportunity to share data and knowledge regardless of *how*, *where*, and *when* the necessary information is available for a particular purpose.

#### **Credit Suisse: Gaining Customer Insights for Profitable campaigns:**

It should be mentioned a study in **Credit Suisse** Bank in the field of finding a link to the impact of customer knowledge on activities in the financial services department. As the bank launched marketing campaigns for its financial services without focusing on a specific segment of the target groups. This led to collecting

information about the offered product instead of about the target customers in this service.

Here the concept of “high customer value” appeared, i.e., identifying the most profitable customers for the bank and tailoring advertising campaigns and services appropriately and satisfactorily for them. Credit Suisse Bank realized the limitations of their systems by acquiring knowledge of the history of contacting their customer base and the products they used to identify customer relationships that were highly profitable for the bank. To avoid these obstacles in the future, in 1999 the bank decided to set up a data warehouse to organize the knowledge gained about any product by its long-term customers. After creating the data warehouse, the bank has considered the identification of a target group in any advertising campaign for any new product and the probability of its purchase. This is done first by extracting data about preferences and product strategy, secondly, a list is made of the most targeted consumers and customers and delivered to the managers concerned with managing branch relations. Finally, the information and feedback are delivered to the marketing department to further improve the segmentation model for future campaigns (as in Figure 11).



**Figure 4.4:** Data-based campaign management at Credit Suisse.

Source: Salomann et al, (2006)

**Table 4.2:** Summary of CRM Knowledge-based Solutions Studies

<b>Credit Suisse</b>	<b>Union Investment</b>	<b>Siemens</b>
<ul style="list-style-type: none"><li>-Provide marketing campaigns with a higher net worth</li><li>-Reduce unintended product offerings by linking campaigns and information extracted to individual credit ratings.</li></ul>	<ul style="list-style-type: none"><li>- Increase customer satisfaction, reduce call time, and increase the quality of service provided.</li></ul>	<ul style="list-style-type: none"><li>- Integrate improvements and feedback with the product development department</li><li>- Improving the quality of service and the percentage of self-service in the customer care department.</li></ul>

**Source:** Salomann et al, (2006)

After reviewing previous studies, we can support the idea and hypothesis of this paper. This research proposes the hypothesis of an influence relationship between organizational communication systems and networks within the organization and customer relationship management practices with the presence of a variable mediator, which is the knowledge base. The studies reviewed some ideas and cases, which we summarize as follows: The necessity of creating a communication environment between the employees of one department (single with its tasks), as well as the need to establish communication points that connect all parties of the organization to provide an opportunity to share data and knowledge regardless of *how, where, and when* information is available for a particular purpose.

## **5. METHODOLOGY**

The study will examine the characteristics of an organizational communication network that relate to managers' and workers' knowledge base, thus their impact on CRM practices, which seek to obtain higher performance levels. In addition, the study analyzes the mediating role of the knowledge base in the relationship between organizational communication networks and firm performance.

### **5.1 Aims and Objectives**

In CRM strategies, some studies defend the use of CRM practices to achieve better performance by studying the influencing factors associated with successful CRM implementation (Bohling et al 2016). However, a limited number of studies that specify /or/analyze empirically the influence of managers' and employees' knowledge base of organizational communication networks on customer value appear to be available. Thus, a need is apparent for research on the attributes of organizational communication networks that relate to CRM strategy implementations.

The main aim of the study is to contribute to the debate about the relationship between the organizational communication network and knowledge base and their impact on CRM performance. In other words, to shed a brighter light on how in-firm communication network (CN) capabilities may play an explicit role in improving an adequate employee knowledge base KB, and thus organizational outcomes like CRM performance by investigating the businesses conducting a CRM strategy.

The objectives based on the main aim of the study are as follows:

- To examine the direct effect of organizational communication networks (CN) on the knowledge base of the managers (MK).
- To examine the direct effect of organizational communication networks (CN) on the knowledge base of the worker's (WK).

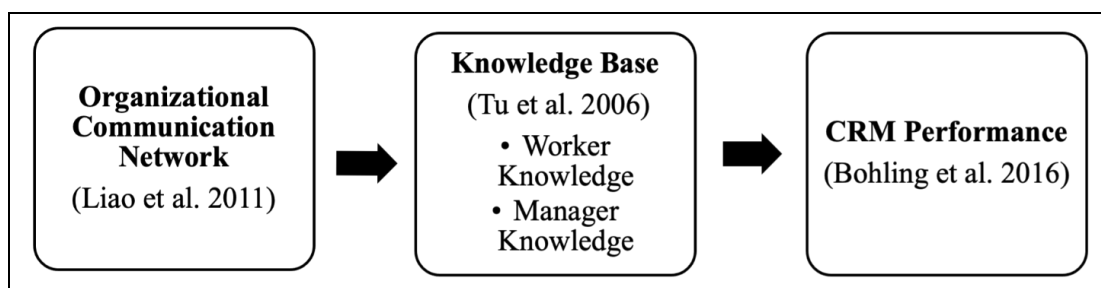
- To examine the positive correlation between organizational communication networks (CN) and worker knowledge (WK) and manager knowledge (MK).
- To examine the direct effect of organizational communication networks (CN) on CRM performance within the company.
- To examine the direct impact of knowledge base (KB) on the total initiatives of CRM systems.
- To examine the mediation effect of knowledge base (KB) on the direct impact of organizational communication networks (CN) and CRM performance.

## 5.2 Research Type

The type of this research is casual, which is the type that helps the marketing improvement processes to create more effective business plans. Casual research is a quantitative type used to evaluate whether two different situations have a cause-and-effect relationship.

## 5.3 Research Model and Hypotheses

The model of the study includes Organizational Communication Networks competence as an independent variable, Knowledge Base as a mediator variable, and CRM Performance as the dependent variable.



**Figure 5.1:** Research Model

Source: The researcher

Based on the research question that *‘What is the impact of organizational communication network competence on improving knowledge base, and thus enhancing Customer Relationship Management CRM performance?’* the following hypotheses were developed:

**H1:** Organizational communication network has a statistically significant impact on the knowledge base.

**H2:** Organizational communication network has a statistically significant impact on CRM performance.

**H3:** Knowledge base has a statistically significant impact on CRM performance.

**H4:** Knowledge base has a statistically significant mediation role between the indirect impact of organizational communication networks on CRM performance.

#### **5.4 Measures**

Three main variables were tested in this paper:

- A. Communication Networks (CN), the independent (predictor) variable.
- B. Knowledge Base (KB), the mediator. Knowledge base was created by calculating the total mean of two sub-variables:
  - Worker Knowledge (WK)
  - Manager Knowledge (MK)
- C. Customer Relationship Management (CRM), dependent (outcome) variable.

By using a 7-point Likert type scale, the data were collected from the targeted business. The options provided to the participants were (strongly agree- Strongly disagree) for (CN) and (KB). As for (CRM), the options were (Complete success – Not applicable).

**Table 5.1: Research Measures And Variables**

Variable	Dimension	Question Items
Organizational Communication networks (CN) (Liao et al., 2011)	None	<ul style="list-style-type: none"> <li>- In our firm, the communications among functional areas are extensive:</li> <li>- In our firm, the communications among functional areas are frequent:</li> <li>- In our firm, the communications between supervisors and their subordinates are extensive:</li> <li>- In our firm, the communications between supervisor and their subordinates are frequent:</li> <li>- In our firm, the communications between departments are hindered by clear boundaries:</li> <li>- In our firm, the communication of new ideas from one department to another is extensive:</li> <li>- The communications have to pass through many hierarchical levels in our firm:</li> </ul>
Knowledge Base (KB)(Tu et al., 2006)	Worker Knowledge (WK)	<ul style="list-style-type: none"> <li>- In our firm, the general knowledge level of our first-line workers is high:</li> <li>- In our firm, the general educational level of our first-line workers is high:</li> <li>-In our firm, the overall job competence of our first-line workers is high:</li> </ul>
	Manager Knowledge (MK)	<ul style="list-style-type: none"> <li>-In our firm, the knowledge of our managers is adequate when making business decisions:</li> <li>- In our firm, the knowledge of our managers is adequate when dealing with new technologies:</li> <li>- In our firm, the knowledge of our managers is adequate when managing daily operations:</li> <li>- In our firm, the knowledge of our managers is adequate when solving technical problems:</li> </ul>

**Table 5.1: (Cont.) Research Measures And Variables**

Variable	Dimension	Question Items
CRM Performance (CRM) (Bohling et al, 2016)	None	<ul style="list-style-type: none"> <li>- In our firm, developing a consistent brand image built around the strategic goals of the CRM initiative is:</li> <li>- In our firm, standardizing customer service is</li> <li>- In our firm, optimizing customer service programs, channels and call centers is</li> <li>- In our firm, using customer satisfaction tools and complaint resolution processes is:</li> <li>- In our firm, creating customer win-back programs are:</li> <li>- In our firm, creating loyalty programs and retention schemes (customer cards, bonus systems) and building the required support infrastructure is:</li> <li>- In our firm, introducing programs to reduce marketing, sales, and service costs is:</li> <li>- In our firm, restructuring programs to reduce headcount, closing branches, and consolidating infrastructure are:</li> <li>- In our firm, Integrating and optimizing existing and new channels to enable the company to provide an optimal customer experience, encourage and customers to use low-cost channels and media is:</li> <li>- In our firm, identifying and acquiring attractive new customers is</li> <li>- In our firm, creating targeted up-selling, cross-selling, and service-to-sales programs is</li> <li>- In our firm, increasing the efficiency of the sales force is</li> <li>- In our firm, developing innovative marketing campaigns and the required infrastructure to reflect the company`s customer focus is</li> <li>- In our firm, outsourcing part of the firm`s CRM IT infrastructure, business processes, or applications to an outsourcing partner to lower costs and increase focus is</li> <li>- In our firm, optimizing product usage is</li> <li>- In our firm, refining, migrating, and phasing out current products is</li> <li>- In our firm, developing new products and services:</li> </ul>

## **5.5 Data Sources**

The research is aiming to investigate how organizational communication networks capabilities may play an explicit role in improving an effective employee knowledge base, thus CRM performance, the target data source was the businesses conducting a CRM strategy. The researcher aimed to reach higher level managers of each company, who is a person who usually has the most complete vision of the firm's CRM strategies, such as CEOs, general managers, vice general managers, marketing managers, and IT managers.

## **5.6 The Scope of the Research**

To study the hypotheses from several aspects, and to adopt the largest possible segment of respondents, hypotheses were studied in the field of the Arabic labor market, specifically in the Kingdom of Saudi Arabia. In the Arabic labor market, starting since March-2022 till May-2022, the questionnaire included CRM managers in some of the leading companies in the Kingdom of Saudi Arabia, which itself includes experiences and employees from Iraq, UAE, Egypt, and Tunisia.

## **5.7 Data Collection**

For data collection, an online survey, applying a questionnaire based on a 7-point Likert-type scale, was sent to the targeted population of companies, and 88 responses were collected (out of 130). To meet the research necessary to collect information, a questionnaire was presented in both languages (Arabic and English) to also increase the efficiency of the collected data. The questionnaire included four sections: General questions about the responsive and the organization (industry- organizational position- firm size- ongoing CRM program). A section of seven questions to study the organizational communication network of the company (the study of the CN communication network). The next section is to study the efficiency of the knowledge base (KB) for the worker WK and the manager MK in the company. Therefore, this section is divided into two parts; One section is for the worker's knowledge base (WK), and the other is for the manager's knowledge base (MK). The last section is to study and monitor the functions and performance of the company's CRM program.

## 5.8 Data Analysis Techniques

To analysis the data collected SPSS program was used to reveal the demographic characteristics of the participants, and to study relationships among the three variables in the model namely the organizational communication network (CN Communication network) as the independent variable and the knowledge base as a moderator variable (the knowledge base of the worker WK, the knowledge base of the manager MK), and CRM customer relationship management performance as the dependent variable.

- First, descriptive and frequency and dispersion statistics were used to reveal the demographic characteristics of the data.
- Second, the variables were analyzed in terms of normal distribution using Shapiro-Wilk analysis, if they indicate a normal distribution or not.
- Then, factor analysis was applied to take a closer look at the dimensional structure of each variable in the model.
- The next step was the correlation analysis, which focused on exploring the strength and the dimensions of the data on the variables.
- Last but not least, mediation analysis was conducted using an SPSS add-on called PROCESS v4. The add-on has several model templates. In this study, model 4 is the most convenient model to monitor the mediation effect (the indirect effect) of the relationship between the independent variable and the dependent variable ( size of the effect was considered too).

## 5.9 Results

In this section, first, descriptive statistics were calculated for the demographical aspects of the participants ( i.e., industry, firm size, organizational position, and having an ongoing CRM program). Then, for the variables in the model, a normality analysis, correlation analysis, and factor analysis were applied. In the last step, a regression analysis was conducted by using an add-on called PROCESS v4 , model 4, to decide whether the knowledge base variable plays a mediator role in the relationship between the independent (communication networks)and the independent (CRM performance).

### 5.9.1 Descriptive statistics

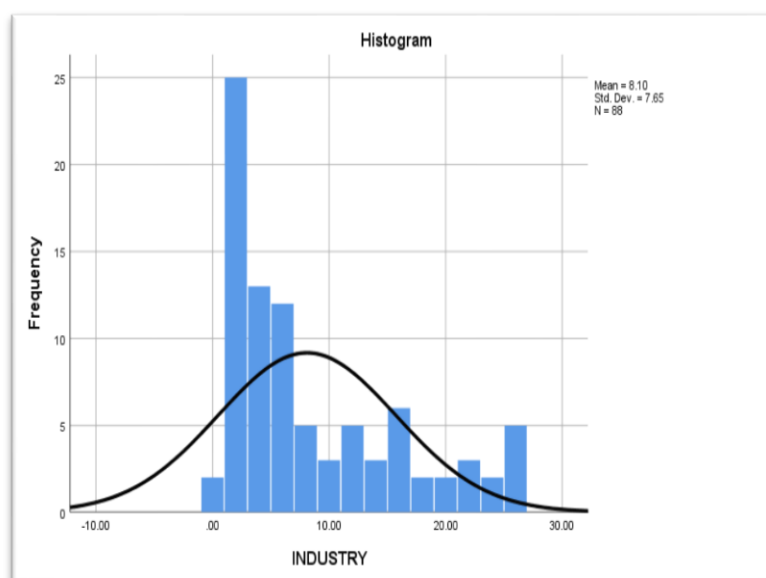
#### *Descriptive statistics for industry distribution*

The statistics for the industry distribution of the participant as in Table 5.2:

**Table 5.2:** Frequency and Descriptive Statistics: Industry

	<b>Frequency</b>	<b>Cumulative. Pct</b>
<b>Missing</b>	2	2.3
<b>Travel Industry</b>	16	20.5
<b>Medicines and Medical Service</b>	9	30.7
<b>Total of (88)</b>	88	
<b>Total mean</b>	8.1023	
<b>Std.D</b>	7.65047	
<b>Sig</b>	.000	
<b>Total N</b>	88	

In the descriptive statistics, the average mean of the **industry** was calculated as 8.1023 (SD=7.65047). Descriptive statistics of the contributed industries indicate that the data are more spread out from the mean (normal curve) (Figure 5.2). The sample fields of work of the responsive companies varied (**INDUSTRY**), with the highest frequency rate for the travel industry (F=16,) and the Medicines and Medical services (F= 9,). (Table 5 ,Figure 13)<sup>1</sup>.



**Figure 5.2:** Frequency Histogram of Industry

**Source:** The researcher`s SPSS analysis

<sup>1</sup> \* (Also take a look at (Appendix-1)for the total frequency statistics page).

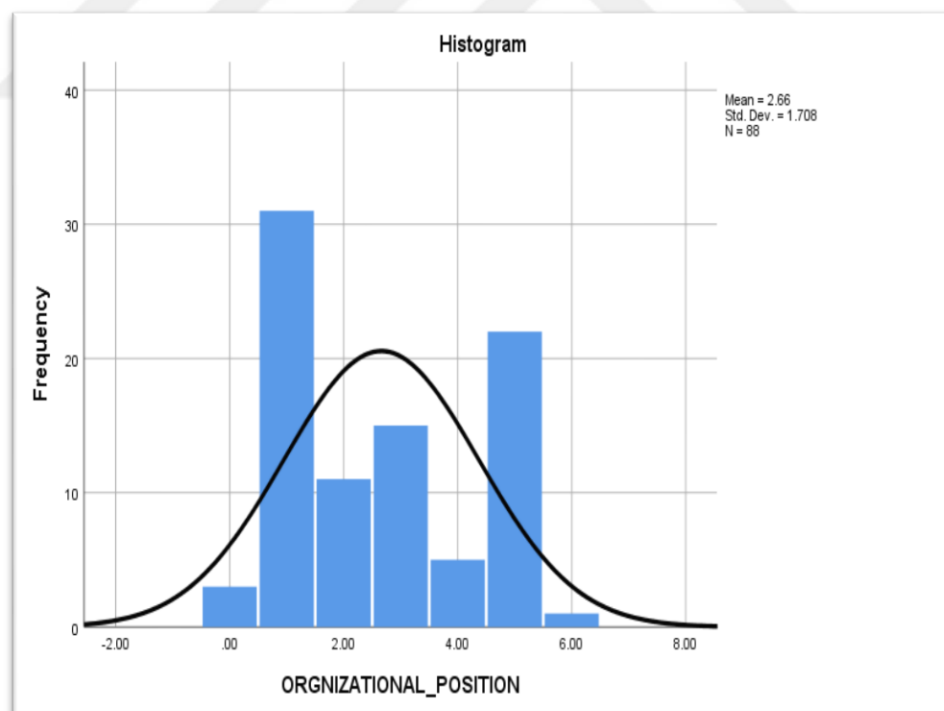
### *Descriptive statistics for the Organizational position of the participants*

For the Organizational position distribution of the participant as in Table 5.3:

**Table 5.3:** Frequency and Descriptive statistics: Organizational Position

	Frequency	Cumulative Pct
Missing	3	3.4
General Manager	31	38.6
Department Manager	11	51.1
Assistant Manager	15	68.2
Supervisor	5	73.9
Employee	22	98.9
Owner	1	100.0
Total	88	
Total mean	2.6591	
S.D	1.70790	
Sig	.000	

The descriptive statistics of the **organizational position** of responsive participants indicate that the data are slightly spread out of the total mean of 2.66(St. D=1.708) (Figure 5.3).



**Figure 5.3:** Frequency Histogram of Organizational position

**Source:** The researcher`s SPSS analysis

The majority of the organizational positions were managers who indicate a well-founded knowledge of CRM practices, so it indicates this research purpose. The

majority were general managers (F=31), then employees (F=22), assistant managers (F=15), and department managers (F=11). The responses include occupations that deal with several CRM initiatives such as sales and customer services departments in their companies who work on at least one CRM practice. (Table 5.4).

***Descriptive statistics for active CRM program and firm size of the participants***

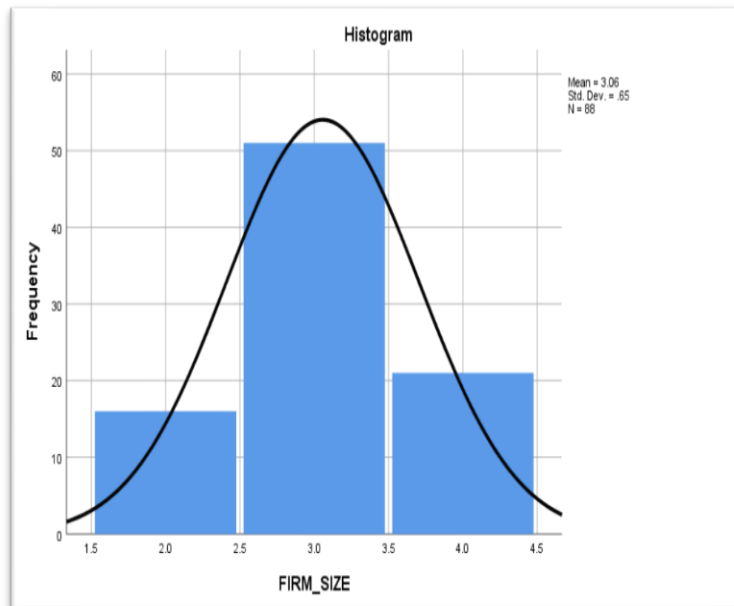
The demographic statistics for having an active CRM program and the firm size of the participants as in Table 7:

**Table 5.4:** Frequency and Descriptive statistics of CRM Program and Firm Size

	CRM Program		Firm Size		
	No	Yes	Small	Medium	Large
<b>Frequency</b>	18	70	16	51	21
<b>Cumulative %</b>	20.5	100	18.2	76.1	100
<b>Total mean</b>	1.78		3.06		
<b>S.D</b>	.414		.650		
<b>Sig</b>	.000		.000		

**Source:** The researcher's SPSS analysis.

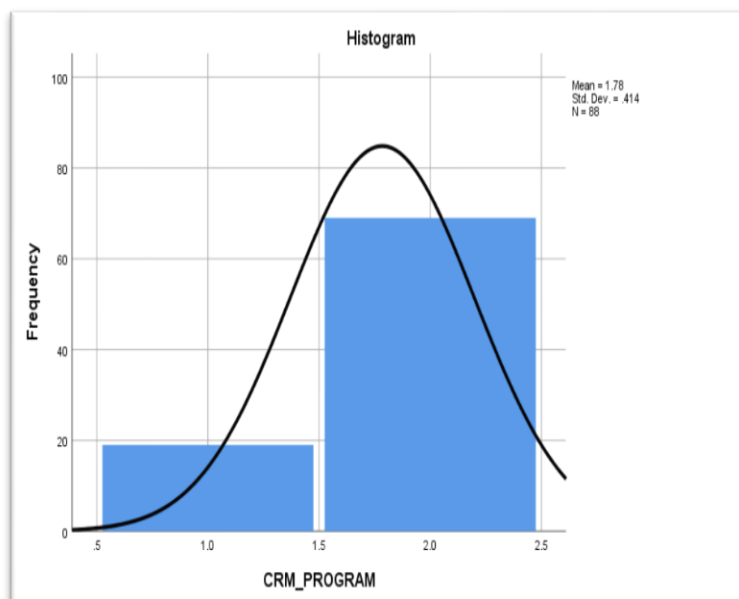
The majority of the size of the contributed organizations (**FIRM\_SIZE**) were medium-sized organizations (F=51). In the book of Al-Qatameen (1995), a hypothesis was put forward upon whether the company's size factor affects the performance factor of its employees. The researcher tested his hypothesis in Jordanian banks in the State of Jordan, but no positive relationship was proven between the two factors. Based on that, the size of the firm has wouldn't minimize the adequacy of the data. The standard deviation was close to zero (.650) indicating that data are more clustered around the mean (Table 5.4), ( Figure 5.4).



**Figure 5.4:** Frequency Histogram of Firm Size

**Source:** The researcher's SPSS analysis

Most of the contributed organizations apply an ongoing CRM program (**CRM\_PROGRAM**) with a total mean of (88), and the collected data are clustered around the total mean (Figure 5.5). Based on the previous statistics, the collected data in this section serve the main purpose of this paper because they provide knowledge of the requirements and practices of CRM systems for this research hypothesis (Table 5.4).



**Figure 5.5:** Frequency Histogram of CRM Programs

**Source:** The researcher's SPSS analysis

### 5.9.2 Normality checks

The next step was checking the normality of the variables in the model. By using SPSS, the outcomes of the normality test for the variables were as follows in Table 5.5:

**Table 5.5:** Tests of Normality of Variables

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
<b>Organizational communication networks (CN)</b>	.187	81	.000	.952	81	.004
<b>CRM</b>	.127	81	.003	.976	81	.129
<b>KB</b>	.122	81	.005	.930	81	.000

a. Lilliefors Significance Correction

	Kurtosis		Skewness		Std. Deviation
	Statistic	Std. Error	Statistic	Std. Error	Statistic
<b>CN</b>	-.622	.529	.199	.267	.53387
<b>CRM</b>	.705	.529	.273	.267	.36772
<b>KB</b>	-.517	.529	-.401	.267	.51232

\* Normality is significant at .05 or above.

\*\* Skewness is formed at  $-1 < p < 1$ .

**Source:** The researcher's SPSS analysis.

Since the number of participants was more than 50, the researcher relied on Kolmogorov-Smirnov test of normality (Durmuş et al., 2011). Even though the CN, CRM, and KB variables showed a significant departure from normality according to the Kolmogorov-Smirnov test of normality (Table 5.5), because the kurtosis and skewness statistics for the aforementioned variables were between  $\pm 1.0$ , they were considered suitable for parametric analyses (George and Mallery, 2019).

### 5.9.3 Factor and reliability analyses

Initially, factor analysis was conducted for 31 items. Several well-recognized criteria for the correlation were used to examine if the data is appropriate for factor analysis. Kaiser Meyer Olkin (KMO) test of Measure of Sampling Adequacy (MSA) indicated the adequacy of the sample size for conducting a factor analysis. The KMO value ( $.80 < .835$ ) for 31 items is excellent. In addition, the Bartlett's test value ( $\chi^2 = 1615.42$ ,  $p = .00 < .05$ ) was significant, which indicated that correlations among the 31 items was strong enough (Table 5.6) (Durmuş et al., 2011).

**Table 5.6:** Factor Analysis: KMO and Bartlett's Test for 31 Items

<b>KMO Measure of Sampling Adequacy.</b>		.835
<b>Bartlett's Test of Sphericity</b>	<b>Approx. Chi-Square</b>	1615.419
	<b>df</b>	465
	<b>p</b>	.000

Source: The researcher's SPSS analysis.

During Measure of Sampling Adequacy (MSA) checks for each item, despite communication networks (CN) and knowledge base (KB) variables having no items with an MSA value lower than .50, the CRM8 item of CRM variable showed a Measure of Sampling Adequacy (MSA) value below 50 ( $0.373 < .50$ ) in the anti-image correlation matrix (Appendix-7). Hence the item was removed, and the analysis was repeated. However, with no means, the CRM variable could compose a meaningful factor structure. Based on this fact, we formed the factor structure of the CRM variable based on the theoretical structure in Bohling et al. (2016)'s work.

Furthermore, the knowledge base (KB) and communication networks (CN) variables also present a meaningful factor structure probably due to the low sample size. Based on this fact, a) the factor structure of the communication network (CN) variable was based on Liao et al.(2011)'s research, and b) the factor structure of the manager knowledge MK and worker knowledge variables, which constitutes the knowledge base (KB) variable, were based on Tu et al.,(2006)'s work.

**Table 5.7:** Research Variables, Dimensions and Reliabilities

<b>Variable</b>	<b>Dimension</b>	<b>Reliability (Cronbach's alpha)</b>
Organizational Communication networks (CN) (Liao et al., 2011)	None	.804*
Knowledge Base (KB) (Tu et al., 2006)	Worker Knowledge (WK)	.865*
	Manager Knowledge (MK)	.873*
CRM Performance (CRM) (Bohling et al., 2016)	Bohling et al., (2016)'s model for CRM initiatives (Table 2).	.889*

\*Dimensions are reliable when  $\alpha > .80$

According to Durmuş et al. (2011)'s classifications of reliability, all of the dimensions of this model's variables are reliable ( $\alpha > .80$ ) (Table 11).

### 5.9.4 Correlation analysis

As a criteria, correlation coefficients can be classified as follows (Durmuş et al., 2011):

- Correlation coefficients lower than 0.50 are considered weak.
- Correlation coefficients between 0.50 and 0.70 are considered mediocre.
- Correlation coefficients greater than 0.70 are considered strong.

Then a correlation analysis between the variables and the dimensions was conducted to reveal the relationships between all of the contributing variables (Table 5.8).

**Table 5.8:** Descriptive and Correlation Statistics for CN, WK, MK, KB, CRM

Variable	Mean	S.D.	CN	WK	MK	KB	CRM
Organizational Communication Network CN	4.0441	.53387	1	.500*	.462*	.520*	.474*
Worker Knowledge Base WK	4.2008	.65807		1	.711*		.500*
Manager Knowledge Base MK	4.3693	.65651			1		.564*
Knowledge Base KB	4.3483	.51232				1	.575*
CRM Performance	3.8932	.36772					1

\*Correlation is significant at  $p < .01$ .

\*\*WK and MK are the total means of KB.

Strong Correlation	Mediocre Correlation	Weak Correlation
<p>WK ↔ MK (<math>r = .711</math>, <math>p &gt; .01</math>)</p>	<p>CN ↔ WK (<math>r = .500</math>, <math>p &gt; .01</math>)</p> <p>CN ↔ KB (<math>r = .520</math>, <math>p &gt; .01</math>)</p> <p>WK ↔ CRM (<math>r = .500</math>, <math>p &gt; .01</math>)</p> <p>MK ↔ CRM (<math>r = .564</math>, <math>p &gt; .01</math>)</p> <p>KB ↔ CRM (<math>r = .575</math>, <math>p &gt; .01</math>)</p>	<p>CN ↔ MK (<math>r = .462</math>, <math>p &gt; .01</math>)</p> <p>CN ↔ CRM (<math>r = .474</math>, <math>p &gt; .01</math>)</p>

- The majority of respondents showed a positive attitude toward the communication network in their organizations (total mean= 4), and the data is clustered around the mean of S.D (.53387) (Table 5.8). Likewise, knowledge

base KB shares a significant positive correlation with the organizational communication networks CN at the same organization (Table 5.8).

- CRM performance statistics were in favor of this paper too (CRM=3.8932, S.D.= .51232). One reason that supports the adequacy of CRM performance statistics is the CRM initiatives were adopted by the majority (Table 5.8). Another reason is, based on the descriptive statistics of the CRM variable, an overall mean of 3.845(SD=0.506). The highest mean value is for (CRM 10) item (4.13), indicating that the participating companies had adequate CRM programs (Appendix 6).
- The dependent variable CRM shared a significant positive correlation with all of the variables; CN, WK, MK, and KB (Table 5.8). By combining the CRM correlation attitude with the descriptive statistics (Table 5.8), most of the CRM initiatives in the oriented industries participated in developing CRM total mean.

### **5.9.5 Regression analysis**

In this study, initially, a linear regression analysis was made to study the direct effect of communication networks (CN) on both knowledge base (KB) and CRM performance and knowledge base (KB) direct impact on CRM performance. Secondly, to study the indirect effect of the predictor on the outcome

#### **5.9.5.1 Direct effect**

For mediation models, an add-on called PROCESS v4 was used to analyze the indirect effect of communication network (CN) on CRM performance (CRM) with knowledge base (KB) as a mediator. Model 4 is the most convenient for our study model, to study the linear regression by adding one or more variables into the regression equation. A mediation is detected when an indirect effect occurs between the independent variable (predictor) communication networks on the dependent variable (outcome) CRM performance influenced by a mediator knowledge base.

**Table 5.9:** Linear Regression and Size of the Effect of CN on WK, MK.

1	Model	WK			MK		
	(Constant)	R	R <sup>2</sup>	P	R	R <sup>2</sup>	P
	CN	.500	.250	.000	.462	.271	.000

a. Dependent Variable: WK, MK.  
 b. Predictor: CN.  
 c. Significant regression at < .05

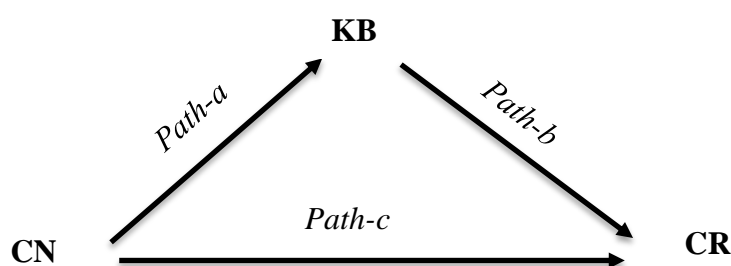
Source: The researcher's SPSS analysis.

In the count of the items that composed the KB variable (Worker knowledge WK and Manager Knowledge), we introduced a linear regression test between CN and each item separately. CN shared a positive significant relationship with both WK and Mk ( $p = .000 < .05$ ,  $R^2 = .25$ ,  $R^2 = .271$ ). (Table 5.10)

**Mediation Regression Analysis:**

Establishing a mediation model requires three conditions to be fulfilled (Baron and Kenny, 1986; Judd and Kenny, 1981; James and Brett, 1984):

- 1-The predictor (independent) CN is positively correlated with KB (mediator): (path-a)
- 2-The mediator KB is positively correlated with CRM (outcome): (path-b)
- 3-The predictor (independent) CN has a direct impact on CRM (outcome): (path-c)

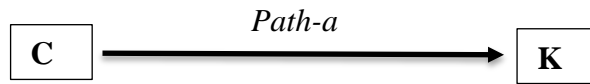


**Step-1: Effects of the Relationship of CN on KB (a-path):**

**Table 5.10:** Linear Regression: Direct Effect of CN on KB:

R	R <sup>2</sup>	MES	F	Df1	Df2	p
.5202	.2706	.2727	24.9435	1.0000	86.0000	.0000
Main Model						
	Coeff	se	T	p	LLCI	ULCI
Constant	2.0601	.3978	5.1783	.0000	1.2692	2.8509
CN	.5562	.0985	5.6484	.0000	.3605	.7520

Source: The researcher's SPSS analysis.



The effects between CN and KB are presented in table-12. The coefficient obtained on *path-a* is .5562, and the test of statistical Coefficient ( $t=5.6484$ ), while  $p=.000(p<.05)$ . The lower limit confidence interval (LLCI) is .3605 and the upper limit confidence interval (ULCI) is .7520. The outcome is based on a p-value ( $p<.05$ ), and both LLCI and ULCI values  $\neq 0$  indicate significant effects between organizational communication network CN and knowledge base KB thus satisfying the first condition of mediation (Baron and Kenny,1986; Judd and Kenny,1981; James and Brett,1984). (Table12)

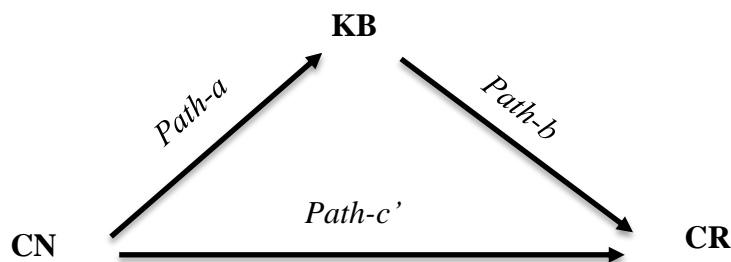
To calculate the size of the effect, according to Gravetter,et al,( 2009), CN has a large significant size o effect on KB ( $R^2 >.25$ )( Gravetter, F.et al,2009).

The KB variable was to be found significantly, positively correlated with the CN variable (Pearson Co.=.520,  $p<.01$ )(Table 8), and CN has a large positive direct effect on KB ( $R^2=.27 >.25$ ) As previously mentioned, WK and MK contribute to the form KB means, added to the positive relationship between CN and both WK and MK, individually, we can deduce that organizational communication networks efficiency shares a positive correlation and has a statistically significant impact on the total knowledge base KB of the organization(Table 8).In other words, the first hypothesis of this research has been proven.

**H1: Organizational communication network has a statistically significant impact on the knowledge base.**

**Step-2: Direct Effects of CN and KB on CRM (*path-a* and *path-b*):**

Then, the linear regression analysis of communication networks and knowledge base on CRM performance, individually, to calculate the value of *path-b* and *path-c`*.



**Table 5.11:** Linear Regression: Direct Effect of CN and KB on CRM

<b>R</b>	<b>R<sup>2</sup></b>	<b>MES</b>	<b>F</b>	<b>Df1</b>	<b>Df2</b>	<b>p</b>
.6103	.3725	.1646	25.2268	2.000	85.000	.0000
<b>Main Model</b>						
	<b>Coeff</b>	<b>se</b>	<b>T</b>	<b>p</b>	<b>LLCI</b>	<b>ULCI</b>
Constant	1.3842	.3540	3.910	.0002	.6803	2.0880
CN	.2138	.0896	2.3868	.0192	.0357	.3919
KB	.3747	.0838	4.4721	.0000	.2081	.5412

**Source:** The researcher's SPSS analysis.

*Path-c*: The direct effect of CN on CRM is presented in table-31. The coefficient obtained in path-b is .2138 and the statistical coefficient  $t=2.3868$ , while  $p=.0192$  ( $p<.05$ ), in addition to, both LLCI (.0357) and ULCI (.3919) values  $\neq 0$  indicate large-sized ( $.25 < R^2$ ) significant effects of organizational communication network CN on CRM Performance. (Table 5.11)

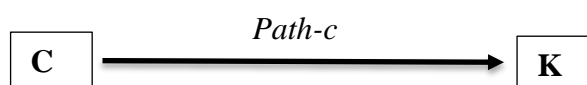
*Path-b*: On the other hand, knowledge base KB has a significant effect on CRM performance due to the coefficient of the path-b .3747 and the statistical coefficient  $t=4.4721$ , along with  $p=.0000<.05$ , and both LLCI (.2081) and ULCI (.5412) values  $\neq 0$  (Table 13). Consequently, the second condition of mediation has been fulfilled (Baron and Kenny, 1986; Judd and Kenny, 1981; James and Brett, 1984).

Here, Knowledge base KB implies a significant positive correlation with CRM performance CRM (Pearson Co.=.575,  $p<.01$ )(Table-5). Also, CRM was to be found positively affected by the direct impact of KB on it (Coeff=.3747,  $p<.05$ ), with a large size of the effect ( $R^2=.37>.25$ )(Table 13). Hence, the total knowledge base KB (WK and MK) of an organization has an effective impact on the CRM performance within it, which declares that the third hypothesis has been proven.

**H3: Knowledge base has a statistically significant impact on CRM performance.**

**Step-3: Total Direct Effect of CN On CRM:**

To fulfill the third condition of the mediation analysis, a linear regression analysis was done separately to calculate the total effect of communication networks on CRM performance to find the value of *path-c*.



**Table 5.12:** Linear Regression: Direct Effect of CN on CRM

Model Summary						
R	R <sup>2</sup>	MES	F	Df1	Df2	p
.4742	.2248	.2010	24.9435	1.0000	86.0000	.0000
Total of Direct Effect of CN on CRM (path-c)						
	Effect	se	t	p	LLCI	ULCI
CN	.4222	.0845	4.9943	.0000	.2542	.5903

Source: The researcher's SPSS analysis.

*Path-c:* The coefficient of the total effect of CN on CRM in table-13 is .4222 ( $p=.0000<.05$ ) and the test of statistical significance is  $t=4.9943$ , while LLCI (.2542) and ULCI (.5903) values  $\neq 0$ . The results indicate a medium-sized ( $.09<R^2<.25$ ) significant effect; thus, the model satisfies the third condition of the mediation model as presented in table 5.12 (Baron and Kenny, 1986; Judd and Kenny, 1981; James and Brett, 1984).

The total mean of organizational communication networks CN shared a significant positive correlation with the mean of CRM performances (Pearson Co.=.464,  $p<.01$ ), and there is a significant positive direct impact of CN on CRM (Coeff=.2138,  $p<.5$ ). In table-14, the total summary of the direct impact of both CN and KB indicates that CN, also, has a large size of the effect on the CRM variable ( $R^2>.25$ ). Decisively, in-firm organizational communication networks CN has a significant direct impact on CRM, in other words, the third hypothesis was found to be confirmed (Table 5.12).

**H2: Organizational communication network has a statistically significant impact on CRM performance**

### 5.9.5.2 Indirect effect

Here, we conducted a regression analysis using an add-on called PROCESS v4, model 4, to test the mediation role of the knowledge base in the indirect effect of the predictor on the outcome. The results were as follows:

Variables	Coeff	R	R <sup>2</sup>	t	LLCI	ULCI	P
Step-1: Direct Effect of CN on KB							
CN	.5562	.5202	.2706	5.6484	.3605	.7520	.0000
Step-2: Direct Effect of CN on CRM							
CN	.2138	.6103	.3725	2.3868	.0357	.3919	.0000
Step-3: Indirect Effect of CN on CRM (With KB as a Mediator)							
KB	.2084				.0940	.3537	

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- a. *Dependent Variable: CRM*
- b. *Independent Variable: CN*
- c. *Mediator: KB*
- d. *Significant regression at < .05*

**Source:** The researcher`s SPSS analysis.

Right from the start, we stated that this study model was to study the indirect effect of CN on CRM through KB as a mediator. Previously mentioned, Baron and Kenny (1986), Judd and Kenny (1981), and James and Brett (1984) all agreed on the three conditions for establishing a mediation model. Over the last few years, confirmed mediation effect in a model is judged based on indirect effects, that occur along path-a and path-b (Hayes, 2013). According to Hayes and Preacher (2014), indirect effects are the difference between total effects (path-c) and direct effects in the model, and the results should be equal:

$$\text{Mediation or indirect effects } c-c' = (.4222-.2138) = .2084$$

$$\text{Mediating or direct effects } = a*b = (.5562)*(.3747) = .2084$$

The results are equally the same as the value generated by the add-on PROCESS v4 macro software .2084 (Table 15). Hence, the occurrence of mediation effects is confirmed. Decisively, knowledge base KB has partially mediated the effects of in-firm organizational communication network CN between the managers and workers in one organization applying CRM systems, which will subsequently improve CRM performances and initiatives.

## 6. CONCLUSION AND DISCUSSION

### 6.1 Conclusion

To sum up, the statistical indications have succeeded in proving the hypotheses presented in this research. The respondents, consisting of 88 employees, agreed that the organizational communication network (CN), in organizations that implement CRM programs, has an effective role in the efficiency of the overall knowledge base (KB). As ensuring a dynamic network of communication (CN) between members of the organization generates efficient knowledge of daily transactions, and thus the performance of CRM systems. Also, the statistical analysis has proven that the knowledge base (KB) of both the manager (MK) and the worker (WK) has a direct impact on the overall performance of customer relationship management (CRM) systems and their implementations. Using the add-on PROCESS v4 macro, the role of the knowledge base (KB) as a mediator of positive influence on the indirect impact of the organizational communication network (CN) on CRM has been, also, proven.

After the statistical analysis by SPSS and the add-on PROCESS v4 macro, we were able to positively verify all the hypotheses put forward in this research, and they are as follows:

- **H1;** Organizational communication network has a statistically significant impact on the knowledge base KB.
- **H2;** Organizational communication network has a statistically significant impact on CRM performance.
- **H3;** Knowledge base KB has a statistically significant impact on CRM performance.
- **H4;** Knowledge base has a statistically significant mediation role between the indirect impact of organizational communication networks on CRM performance.

## 6.2 Discussion

Overall, and after proving the previous hypotheses, the main question of this research was answered (*What is the impact of organizational communication network competence on improving knowledge base, and enhancing Customer Relationship Management CRM performance?*), along with, the objectives of the research were achieved with success. The research aims to shed light on the role of organizational communication networks in the efficiency and effectiveness of the knowledge base for both the worker and the manager. The statistical significance proved the existence of an effective role and a direct impact of the organizational communication networks and the knowledge base, separately, on the overall performance of CRM. Also, the variable knowledge base in the role of mediator succeeded positively in the indirect influence relationship between the organizational communication network and CRM performance, and it showed an efficient size effect paving the way for other studies to know the relationship between the knowledge base and CRM systems under different conditions and or specific sectors that depend entirely on the base Knowledge.

In table 5, the data suggested that there is a positive significant correlation between communication networks CN and worker knowledge WK and manager knowledge MK. Of course, both worker and manager knowledge have fulfilled remarkable adequacy levels in the oriented industries and companies. Those findings go along with the study of Qiang Tu et al.(2006), "*Absorptive Capacity: Enhancing the Assimilation of Time-Based Manufacturing Practices*". They suggested that sufficient communication networks CN, along with an adequate worker knowledge WK and an adequate manager knowledge MK are essential factors in establishing a sufficient absorptive capacity AC along with other variables (knowledge scanning, prior relevant knowledge, and communication climate CC). Also, significant CN and MK, and WK have an indirect effect on the value to the customer. In other words, by sharing adequate knowledge via sufficient communication networks CN cooperates in establishing an adequate absorptive capacity. Subsequently, Ying Liao et al.(2011), in their study of "*A Mechanism for External Competence Transfer to Improve Manufacturing System Capabilities and Market Performance*", highlighted the effect of communication networks CN on both worker knowledge WK and

manager knowledge MK within an organization, thus, its contribution on effecting on manufacturing system capabilities and market total performance.

Back to table 5, the data supported the theory that suggests a knowledge base has a positive impact on CRM initiatives and total performance with a large size of the effect. Those findings are compatible with Bohling et al. (2006). In their study of “*CRM Implementation: Effectiveness Issues and Insights*”, it was clarified that CRM initiatives have a significant role in value creation for the business objectives based on the customer knowledge base. 6 out of 12 CRM initiatives were rated as “*very important*” for value creation for the customer, one of them is mainly established from the customer base for the retaining process. The 6 items are used in this research for CRM items (Table 3). On the other hand, the data in this research didn't show a positive pattern and application of all CRM sectors. Based on the 12 CRM initiatives introduced by Bohling et al.(2006), the data collected by this research failed to form a factor analysis for the CRM data section. It's obvious due to the low MAS value below .50 for CRM8 ( $0.373 < .50$ ) (Appendix-7), which suggests that the data has failed to be equivalent to Bohling et al.(2006) findings on this topic. On the other hand, this research conducted a theoretical factor analysis form based on Bohling et al.(2006) one's.

Hence, this research highlighted in-firm organizational communication networks' CN capability impact on the knowledge base of both workers WK and manager MK, on one hand, and the total impact of organizational communication networks on CRM performance in general. Likewise, a positive linear regression was detected of CN on both WK and MK (Table-7). Based on Gravetter, F.J.et al,( 2009) interpretation of the size of the effect, in-firm organizational communication networks CN have a large positive effect on the knowledge of their workers and managers. A positive correlation between manager knowledge MK and worker knowledge WK in an effective communication network CN establishes an adequate knowledge base KB for the organization. The previous statement is supported by the positive correlation between CN and both WK and MK (Table 5). This research has also proven that knowledge base KB is a factor that impacts the outcomes of the CRM systems, in case the knowledge base was adequate.

Initially, this paper suggested a mediation model study of the knowledge base variable as a mediator between the indirect effect between organizational

communication network CN and CRM performance. Using SPSS and add-on PROCESS v4 macro (model 4, the results showed a positive impact of knowledge base KB on the direct effect of communication networks CN on CRM performance. The previous statement was proven when the three variables succeeded in establishing the mediation model (Baron and Kenny,1986; Judd and Kenny,1981; James and Brett,1984). Therefore, the data has answered the main question of this paper:

*“What is the impact of organizational communication network competence on improving knowledge base, and enhancing Customer Relationship Management CRM performance?”*

### **6.3 Limitations**

- An online questionnaire was created due to the difficulty of being present in the country chosen for the study, the Kingdom of Saudi Arabia.
- Because of this complication, the target sample size couldn't be achieved. Since only 88 responses were collected after sending 130 questionnaires, and there was limited accessibility to get the graphic scope of participants, it might be argued whether the sample is random or not.
- The questionnaires were written in both languages (Arabic and English) to eliminate the language factor or lack of communication that may cause a fundamental impact on the accurate information collecting process.

### **6.4 Recommendations**

- *Practical Implications:*
  - The dimensions of the impact of CRM on the marketing performance of companies can be studied in the presence of the technological development of systems in light of external changes (such as the Corona pandemic).
  - Based on the MSA value of the CRM8 item ( $0.373 < .50$ ) in the factor analysis, organizations that adopt the CRM systems must study the readiness of restructuring programs to reduce the number of employees, close branches,

and enhance corporate infrastructure to overcome the unforeseen consequences.

- Improve knowledge scanning and storing methods to ensure the efficiency of the database for the manager and employee in case of a lack of communication climate due to the sudden closure of the company, for example, the complete closure of the industries due to the COVID-19 pandemic.
- *Future Studies:*
  - It is possible to study the impact of the worker knowledge and the manager knowledge via a sufficient communication network in developing new methods of e-marketing and service marketing, using the communication climate as a mediator factor (for example, the complete closure in light of the COVID-19 pandemic). This study ensures the development of e-marketing strategies and the readiness of CRM systems for unexpected future consequences.
  - The effect of the efficient knowledge base under the influence of the organizational communication network on CRM Performance can be studied in the presence of the employee's resistance variable to applying the CRM system as an intermediate variable.
  - A study can be put forward to study the direct effect of communication networks on the knowledge base, with the presence of communication climate as a mediating variable similar to in Hawthorne (1927) case study (go back to p:29).

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## APPENDICES

### 1. Frequency statistics: Industry

Frequency statistics: INDUSTRY					
		Frequency	Percent	Valid Percent	Cum.Percent
Valid	Missing	2	2.3	2.3	2.3
	Travel Industry	16	18.2	18.2	20.5
	Medicines and Medical Service	9	10.2	10.2	30.7
	Technical support /Technology Solutions	8	9.1	9.1	39.8
	Health care, Hospitals	5	5.7	5.7	45.5
	Communication Services	6	6.8	6.8	52.3
	Furnishing	6	6.8	6.8	59.1
	Accommodation Industry	3	3.4	3.4	62.5
	Saudi Ministry of Health	2	2.3	2.3	64.8
	Digital Marketing and Advertisement	2	2.3	2.3	67.0
	Logistics	1	1.1	1.1	68.2
	General Foreign Trading	1	1.1	1.1	69.3
	Banking	4	4.5	4.5	73.9
	Oil and Gas	1	1.1	1.1	75.0
	Commercial Market	2	2.3	2.3	77.3
	Food Industry	5	5.7	5.7	83.0
	Administration	1	1.1	1.1	84.1
	Financial Audit	1	1.1	1.1	85.2
	Insurance	1	1.1	1.1	86.4
	Constructions	1	1.1	1.1	87.5
	Sales	1	1.1	1.1	88.6
	Shipping and Contracting company	2	2.3	2.3	90.9
	Office Commerce	1	1.1	1.1	92.0
	Perfumes and Cosmetics	1	1.1	1.1	93.2
	Gaming	1	1.1	1.1	94.3
	IT Solutions and Software	2	2.3	2.3	96.6
	Advertising and Marketing	3	3.4	3.4	100.0
Total	88	100.0	100.0		

## 2. Descriptive Statistics of Communication Network

Descriptive Statistics of Communication Network					
	N	Minimum	Maximum	Mean	Std. Deviation
CN1	88	2	5	4.19	.658
CN2	88	1	5	4.06	.778
CN3	88	2	5	4.09	.737
CN4	88	2	5	4.06	.862
CN5	88	1	5	3.65	1.029
CN6	88	2	5	4.03	.850
CN7	88	1	5	3.92	.900
CN Mean	88	2.29	5.00	4.0000	.56855
Valid N (listwise)	88				

## 3. Descriptive Statistics of Worker Knowledge

Descriptive Statistics of Worker Knowledge.					
	N	Minimum	Maximum	Mean	Std. Deviation
WK1	88	2	5	4.15	.824
WK2	88	2	5	4.18	.687
WK3	88	2	5	4.27	.707
WK Mean	88	2.00	5.00	4.2008	.65807
Valid N (listwise)	88				

## 4. Descriptive Statistics of Manager Knowledge

Descriptive Statistics of Manager Knowledge.					
	N	Minimum	Maximum	Mean	Std. Deviation
MK1	88	2	5	4.39	.718
MK2	88	2	5	4.28	.857
MK3	88	2	5	4.38	.748
MK4	88	1	5	4.43	.755
MK Mean	88	2.00	5.00	4.3693	.65651
Valid N (listwise)	88				

## 5. Descriptive Statistics of Knowledge Base

Descriptive Statistics of Knowledge Base					
	N	Minimum	Maximum	Mean	Std. Deviation
MK and WK	88	2.00	5.00	4.3483	.60795
Valid N (listwise)	88				

## 6. Descriptive Statistics of CRM Performance

Descriptive Statistics of CRM Performance					
	N	Minimum	Maximum	Mean	Std. Deviation
CRM1	88	1	5	3.67	.956
CRM2	88	1	5	4.01	.735
CRM3	88	1	5	3.92	.834
CRM4	88	1	5	4.03	.823
CRM5	88	1	5	3.84	.969
CRM6	88	1	5	3.77	1.014
CRM7	88	1	5	3.78	.903
CRM8	88	1	5	2.77	1.257
CRM9	88	1	5	3.85	.810
CRM10	88	2	5	4.13	.640
CRM11	88	1	5	3.93	.770
CRM12	88	2	5	4.09	.655
CRM13	88	1	5	3.92	.776
CRM14	88	1	5	3.92	.776
CRM15	88	1	5	3.92	.715
CRM16	88	1	5	3.76	.816
CRM17	88	1	5	4.03	.651
CRM_MEAN	88	2.12	5.00	3.8449	.50627
Valid N (listwise)	88				

## 7. Anti-Image Correlation Matrix of the 31 Items

	CRM1	CRM2	CRM3	CRM4	CRM5	CRM6	CRM7	CRM8	CRM9	CRM10	CRM11	CRM12	CRM13	CRM14	CRM15	CRM16	CRM17
CRM1	<b>.830<sup>a</sup></b>	.026	.056	-.061	.105	-.113	.040	.047	-.025	.113	-.093	-.152	-.240	.098	-.277	-.063	.130
CRM2	.026	<b>.848<sup>a</sup></b>	-.063	-.231	-.077	-.194	.084	.447	-.071	-.041	-.031	-.214	-.036	-.111	.006	.025	-.128
CRM3	.056	-.063	<b>.877<sup>a</sup></b>	-.285	-.115	-.061	.207	-.161	-.159	.216	-.119	-.264	-.013	.032	.097	-.059	.131
CRM4	-.061	-.231	-.285	<b>.882<sup>a</sup></b>	-.252	.128	-.076	-.106	-.058	-.142	.318	-.047	.125	-.133	-.261	.113	-.183
CRM5	.105	-.077	-.115	-.252	<b>.863<sup>a</sup></b>	-.278	.016	.205	-.122	-.246	-.137	.112	-.029	.074	.001	-.079	-.026
CRM6	-.113	-.194	-.061	.128	-.278	<b>.771<sup>a</sup></b>	-.390	-.191	.035	-.031	.059	.286	-.273	.080	-.101	-.036	-.061
CRM7	.040	.084	.207	-.076	.016	-.390	<b>.751<sup>a</sup></b>	-.047	-.493	-.019	-.129	-.235	.268	-.051	.006	-.239	.024
CRM8	.047	.447	-.161	-.106	.205	-.191	-.047	<b>.373<sup>a</sup></b>	-.057	-.073	.139	-.088	-.089	-.152	.001	.130	-.177
CRM9	-.025	-.071	-.159	-.058	-.122	.035	-.493	-.057	<b>.879<sup>a</sup></b>	.088	.042	-.025	-.163	.031	-.044	.210	.002
CRM10	.113	-.041	.216	-.142	-.246	-.031	-.019	-.073	.088	<b>.917<sup>a</sup></b>	-.159	-.171	-.006	-.037	-.064	.093	-.158
CRM11	-.093	-.031	-.119	.318	-.137	.059	-.129	.139	.042	-.159	<b>.869<sup>a</sup></b>	-.259	-.107	-.251	-.229	-.063	.014
CRM12	-.152	-.214	-.264	-.047	.112	.286	-.235	-.088	-.025	-.171	-.259	<b>.792<sup>a</sup></b>	-.087	.088	-.023	.050	-.187
CRM13	-.240	-.036	-.013	.125	-.029	-.273	.268	-.089	-.163	-.006	-.107	-.087	<b>.895<sup>a</sup></b>	-.188	-.023	-.004	-.302
CRM14	.098	-.111	.032	-.133	.074	.080	-.051	-.152	.031	-.037	-.251	.088	-.188	<b>.631<sup>a</sup></b>	-.026	-.292	.188
CRM15	-.277	.006	.097	-.261	.001	-.101	.006	.001	-.044	-.064	-.229	-.023	-.023	-.026	<b>.913<sup>a</sup></b>	.007	.007
CRM16	-.063	.025	-.059	.113	-.079	-.036	-.239	.130	.210	.093	-.063	.050	-.004	-.292	.007	<b>.826<sup>a</sup></b>	-.367
CRM17	.130	-.128	.131	-.183	-.026	-.061	.024	-.177	.002	-.158	.014	-.187	-.302	.188	.007	-.367	<b>.852<sup>a</sup></b>

## 8. Questionnaire

<b>1-Organizational Communication Networks:</b>						
		Strongly agree	Agree	Undecided	Disagree	Strongly disagree
<b><u>*Communication Networks:</u></b>						
1- In our firm, the communications among functional areas are extensive:						
2- In our firm, the communications among functional areas are frequent:						
3- In our firm, the communications between supervisors and their subordinates are extensive:						
4- In our firm, the communications between supervisor and their subordinates are frequent:						
5- In our firm, the communications between departments are hindered by clear boundaries:						
6- In our firm, the communication of new ideas from one department to another is extensive:						
7- The communications have to pass through many hierarchical levels in our firm:						

<b>2- Knowledge Base KB:</b>						
		Strongly agree	Agree	Undecided	Disagree	Strongly disagree
<b><u>*Worker Knowledge WK:</u></b>						
1- In our firm, the general knowledge level of our first-line workers is high:						
3- In our firm, the general educational level of our first-line workers is high:						
4- In our firm, the overall job competence of our first-line workers is high:						

<b><u>*Manager`s Knowledge MK:</u></b>	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1-In our firm, the knowledge of our managers is adequate when making business decisions:					
2- In our firm, the knowledge of our managers is adequate when dealing with new technologies:					
3- In our firm, the knowledge of our managers is adequate when managing daily operations:					
4- In our firm, the knowledge of our managers is adequate when solving technical problems:					

<b>3- Customer relationship management CRM:</b>					
<b><u>*CRM Performance:</u></b>	Complete success	Success	Undecided	Failure	Not applicable
1.1 In our firm, developing a consistent brand image built around the strategic goals of the CRM initiative is:					
2.1 In our firm, standardizing customer service is					
2.2 In our firm, optimizing customer service programs, channels and call centers is					
2.3 In our firm, using customer satisfaction tools and complaint resolution processes is:					
2.4 In our firm, creating customer win-back programs are:					
3.1 In our firm, creating loyalty programs and retention schemes (customer cards, bonus systems) and building the required support infrastructure is:					
4.1 In our firm, introducing programs to reduce marketing, sales, and service costs is:					
4.2 In our firm, restructuring programs to reduce headcount, closing branches, and consolidating infrastructure are:					
5.1 In our firm, Integrating and optimizing existing and new channels to enable the company to provide an optimal customer experience, encourage and customers to use low-cost channels and media is:					

6.1 In our firm, identifying and acquiring attractive new customers is					
6.2 In our firm, creating targeted up-selling, cross-selling, and service-to-sales programs is					
6.3 In our firm, increasing the efficiency of the sales force is					
7.1 In our firm, developing innovative marketing campaigns and the required infrastructure to reflect the company`s customer focus is					
8.1 In our firm, outsourcing part of the firm`s CRM IT infrastructure, business processes, or applications to an outsourcing partner to lower costs and increase focus is					
9.1 In our firm, optimizing product usage is					
9.2 In our firm, refining, migrating, and phasing out current products is					
9.3 In our firm, developing new products and services:					

#### 4- General Questions

1. What is the size of your firm?    Large ( )    Medium ( )    Small ( )    Micro ( )
2. In which industry does your firm operate?  
.....
3. What is your current position in the firm?  
.....
4. Do you have an ongoing CRM program?    Yes ( )    No ( )

## **RESUME**

I graduated from Taif University (2017) with a B. A degree in English Language and Literature, Faculty of Arts, Taif- K.S.A. Recently I'm studying M.B.A (Master of Business Administration) in Istanbul- Türkiye.

### **CAREER:**

- Department supervisor in Syrian Virtual University (S.V.U) testing center, Riyadh-K.S.A (2017-2018).
- General Secretary for female section of Syrian Virtual University (S.V.U) testing center, Riyadh-K.S.A (2017-2018).
- Freelancer Academic Research instructor for undergraduate students (2017-2018).
- Homeroom teacher at House of Languages International School, Riyadh-K.S.A (2018-2019).
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