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The Impact of Knowledge Management Processes on Workforce Agility: An Empirical Investigation at Pharmaceutical Companies in Jordan

أثر عمليات إدارة المعرفة في سرعة استجابة العاملين: دراسة ميدانية في شركات الأدوية الأردنية

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II

Authorization

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DEDICATION

Every challenging work needs self efforts as well as guidance of older especially those who were very close to our heart.

This study dedicated to my whole family and friends;

My Father, who always proud of me and supported me in every step of my life and encouraging me believed in myself, thank you for everything

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My sweetest brothers: Abdullah and Dina, who are one part of my life

My Grandfather who is my first teacher

My friends who always been there for me during difficult and stressful times.

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The Impact of Knowledge Management Processes on Workforce Agility: An Empirical Investigation at Pharmaceutical Companies in Jordan

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Abstract

This study aims to investigate the impact of knowledge management (KM) processes on the workforce agility at pharmaceutical companies in Jordan. The study used the quantitative method by collecting data via questionnaire. (250) questionnaires were distributed among managers and head of departments working at (11) pharmaceutical companies in Jordan that registered in Jordanian Association of Pharmaceutical Manufacturers (JAPM). Out of (250) questionnaires, (210) were retrieved, (10) questionnaire were discarded for large missing data. The study revealed that KM processes (creation, acquisition, sharing, and application) have significant impact on workforce agility (proactive, adaptive, and flexible).

Finally, the study recommends that companies have to adopt top level management for KM processes companies should encourage them to apply KM processes through various training programs. Also, companies should prepared different training programmes for top level management to enhance their abilities, knowledge and skills.

Keywords: Knowledge Management (KM), KM Processes, Agility, Workforce Agility, Pharmaceutical Companies.

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إشراف

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الملخص

هدفت هذه الدراسة إلى قياس أثر عمليات إدارة المعرفة على رشاقة العاملين في شركات الأدوية الأردنية، وقد استخدمت هذه الدراسة المنهج الوصفي التحليلي لمناسبته لموضوع الدراسة. واستخدمت الاستبانه التي تم تطويرها كاداه لجمع البيانات والمعلومات من عينة الدراسة والتي تكونت من المديرين و رؤساء الأقسام في (11) شركة أدوية أردنية المسجلة في الجمعية الأردنية لإنتاج الأدوية. حيث وزعت (250) استبانه وتم استرجاع (210) استبانه، وتم استبعاد (10) استبانات. توصلت الدراسة إلى وجود أثر ذو دلالة إحصائية على أثر عمليات إدارة المعرفة التي تتضمن (خلق المعرفة، اكتساب المعرفة، مشاركة المعرفة، تطبيق المعرفة) على رشاقة العاملين و تتضمن (الاستباقية، التكيفية، المرونة). و أوصت الدراسة إلى تشجيع الإدارة العليا في الشركات على تطبيق عمليات إدارة المعرفة من خلال برامج مختلفة، اشتراك كافة الموظفين في البرامج التدريبية لتطوير قدراتهم و مهاراتهم و معرفتهم، و تشجيع الموظفين على مشاركة المعرفة مع زملائهم.

الكلمات الدالة: إدارة المعرفة، عمليات إدارة المعرفة، الرشاقة، رشاقة العاملين، شركات الأدوية.

Chapter One

General Framework

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1.5 Study Questions and Hypothesis

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1.8 Study Delimitations

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Chapter One

1.1 Introduction

For the time being, the power of any company measured by how much knowledge they owned and how much they utilize of it. Most important of this, is how to manage that paraphrase knowledge, and how companies can deal with it in a creative way under the changing and unstable business environment. This include, workforce, competitive of market places, government regulations, and technology. Companies need to look for solutions and strategies that enable them to survive and cope with unexpected, unpredictable, and unprecedented environment changes (Almahamid, 2015).

One of these solutions seems to be the activation of knowledge management (KM) processes include creation, acquisition, sharing, and application in order to be able to sense changes in business environments that contains competitor behaviors changes, etc. (Almahamid, 2015). However, the ability of companies to respond changes in business environment is a function of workforce agility. When companies have established KM processes that lead to creating new knowledge, it will enrich the workforce agility. In fact, the need to encourage agility should arrive from increasing rates of changes in business environment as well as from increasing complexity and competitiveness in markets. Therefore, if companies seek to be agile, they should be ready to learn various support activities and to think carefully about "planned responsiveness" for any expected changes (Alavi, et al., 2014).

In addition, companies should discover both opportunities and threats in their business environments in order to respond quickly to opportunities (Kharabe, 2012). Moreover, companies should reply to changes faster than their competitors, in order to create competitive advantages at the market place (Robert and Grover, 2012). According to Chonko and Jones (2005) the evolution of workforce agility seeks to understand the importance of companies characteristics and no companies can be agile without completely classifying adapt workforce agility and their employees have the ability and desire to be agile.

However, agility based on KM processes has a senior function in helping companies to deal with the processes successfully and to cooperate with sudden and unexpected changes. In addition workforce agility can be "reconfigured quickly" in response to changing situations through adaptive and proactive behavior (Alavi, et al., 2014). According to this current study, many companies do not apply modern concepts of management such as KM processes and agility, while others pay a lot of attention to these concepts. Therefore, the study will focus on the impact of KM processes including: (creation, acquisition, sharing and application) on the workforce agility such as: (proactive, adaptive, and flexible) at pharmaceutical companies in Jordan.

Finally, the study will arrange as chapter one by viewing the general framework, then in chapter two will explain the theoretical framework and the previous studies, after that in chapter three will explain the study methodology (Method and Procedures), also, in chapter four will explain data analysis and testing hypothesis, finally, chapter five will explain the results discussion and recommendation.

1.2 Problem Statement

Companies need to look at the importance of studying KM processes that related to knowledge and its impact on their performance in general and on their agility in specific. Companies have to understand the best ways to employ the different elements of the workforce they have in general, and their workforce agility in particular. This mean, the companies have to apply the concept of workforce agility throughout the life cycle of their business. (Alive, et al., 2014) stated that workforce agility has not been tested in many manufacturing firms and he recommend in his study that the effect of workforce agility should be examined in future studies.

Unfortunately, recent studies paid little attention to the impact of KM processes on workforce agility. Therefore, companies need to identify some important practices and knowledge to achieve successful workforce agility (Qin and Nembhard, 2010). In Jordan there are only few studies and researches related to the concept of agility and such studies shown that few companies have clear picture about agility and for that few of these companies have not applied this concept (Agility) in their workforce.

According to Sherehiy and Karwawski (2014); Dries et al., (2012) little empirical research on workforce agility has been conducted. Based on the above arguments, the study problem represented by the low level of workforce agility which can be formulated as follows: **"Does KM processes impact workforce agility in pharmaceutical companies in Jordan? And to what extent does KM processes impact workforce agility?"**

1.3 Study Objectives

The current study seeks to investigate the impact of KM processes on workforce agility at pharmaceutical companies in Jordan, by:

- Investigating the impact of KM processes (Creation, Acquisition, Sharing, and Application) on workforce agility (Proactive, Adaptive, and Flexible).
- Investigating the impact of KM processes (Creation, Acquisition, Sharing, and Application) on Proactive agility.
- Investigating the impact of KM processes (Creation, Acquisition, Sharing, and Application) on Adaptive agility.
- Investigating the impact of KM processes (Creation, Acquisition, Sharing, and Application) on Flexible agility.

1.4 Study Significance

The significant of this study is to demonstrate the impact of KM processes on workforce agility at pharmaceutical companies in Jordan. KM processes will measure and evaluate, in terms of independent variables, which are (Creation, Acquisition, Sharing, and Application) and the effect of dependent variables of workforce agility which are (Proactive, Adaptive, and Flexible), that will help and aid the business to be more conscious and aware of applying KM processes on the future. Also, it will help to understand what is KM and agility, and how it is important for companies. The results of this study may reveal useful information and provide good recommendation for the Jordanian pharmaceutical companies that may help them in implementing the concept of KM processes and workforce agility.

1.5 Study Questions and Hypothesis

Study Questions:

This study seeks to answer the following questions:

- Is there impact of KM processes (Creation, Acquisition, Sharing, and Application) on workforce agility (Proactive, Adaptive, and Flexible)?
- Is there impact of KM processes (Creation, Acquisition, Sharing, and Application) on Proactive agility?
- Is there impact of KM processes (Creation, Acquisition, Sharing, and Application) on Adaptive agility?
- Is there impact of KM processes (Creation, Acquisition, Sharing, and Application) on Flexible agility?

Study Hypothesis:

According to the research questions, the following hypotheses are formulated as follows:

- **Main Hypotheses:**

  H_{o1}: There is no significant impact of KM processes (Creation, Acquisition, Sharing, and Application) on the workforce agility (Proactive, Adaptive, and Flexible), at the level of significance ($\alpha \leq 0.05$).

- **Sub-Hypotheses:**

  $H_{o1\text{-}1}$: There is no significant impact of KM processes (Creation, Acquisition, Sharing, and Application) on Proactive agility, at the level of significance ($\alpha \leq 0.05$).

H_{o1-2}: There is no significant impact of KM processes (Creation, Acquisition, Sharing, and Application) on Adaptive agility, at the level of significance ($\alpha \leq 0.05$).

H_{o1-3}: There is no significant impact of KM processes (Creation, Acquisition, Sharing, and Application) on Flexible agility, at the level of significance ($\alpha \leq 0.05$).

1.6 Study Model

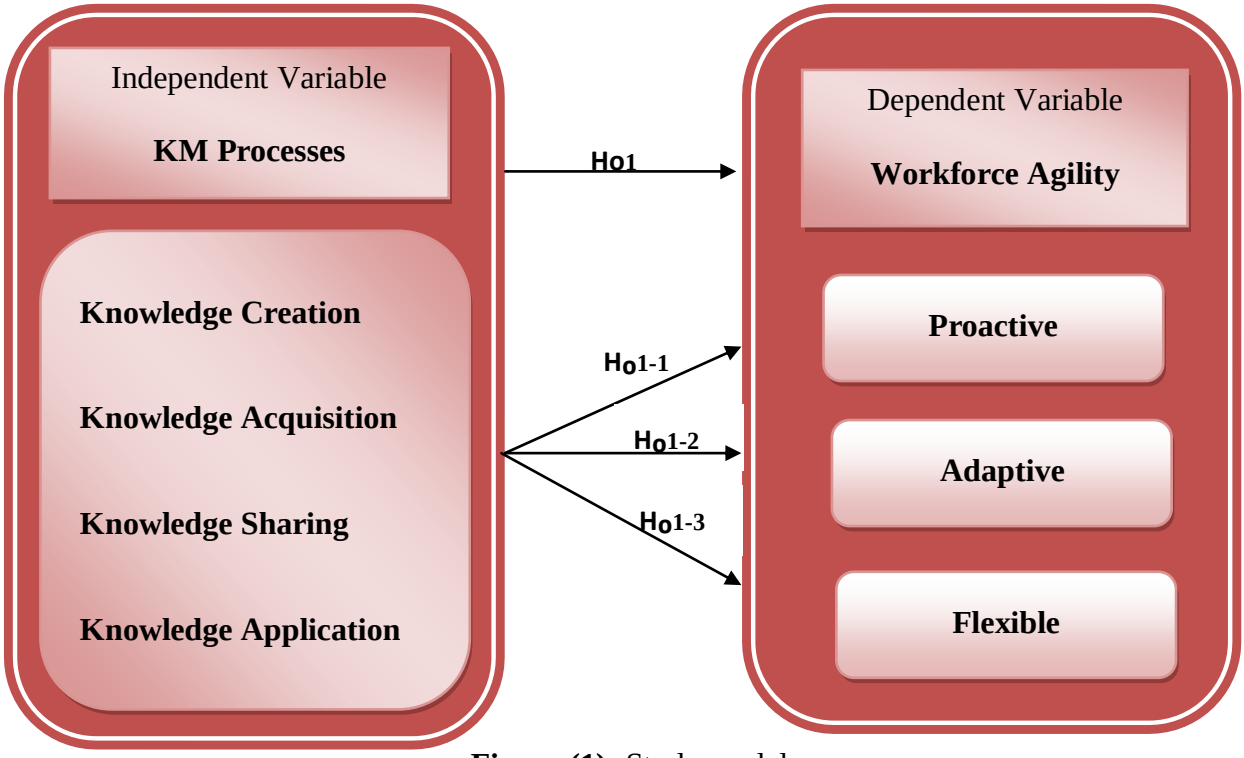

Figure (1): Study model.

Source: prepared by the researcher based on:

- **Independent variable**:

  Almahamid (2015).

- **Dependent variable**:

  a. Alavi, et al. (2014).

  b. Sherehiy (2008).

1.7 Study Limitations

There are numbers of limitations for this study which include:

- **Human limitation:** this study takes only managers and heads of departments on pharmaceutical companies in Jordan.
- **Place limitation:** this study performed on pharmaceutical companies that registered in Jordanian Association of Pharmaceutical Manufacturers (JAPM).
- **Time limitation**: the academic year of 2016-2017.
- **Scientific limitation:** There is a very few Arabic studies concerning KM processes on workforce agility, and we hope that this study will fill this gap.

1.8 Study Delimitations

This study is conducted at pharmaceutical companies in Jordan which limit the ability to generalize results to other companies and industries.

- Hopefully, the results of this study will be useful to the pharmaceutical companies in Jordan.
- The amount of the collected data will deepens on how many managers and heads of department will answer the questionnaires, hoping their answers will reflect the real situations of these companies.
- Managers and head of departments responses will reflect the psychological impression of them at that point of time.

1.9 Study Operational Definitions

1- Knowledge Management (KM) Processes: is the ability to link and to manage knowledge that captured or created from companies employees or from companies external environment, and to share it with the right employees at the right time. This study will focus on the following processes: Knowledge Creation, Knowledge Acquisition, Knowledge Sharing, and Knowledge Application (Wellman, 2009; Andreeva and Kianto, 2011; Ortiz et al., 2016; Kidd, 2014; Paulin and Suneson, 2012; Fernandez, et al., 2007; Dragoi et al., 2013).

-**Knowledge Creation:** Wellman (2009) defines it as the ability to create new knowledge is often "the heart of the organization's competitive advantage". Also, knowledge creation defined as the ability of companies to develop new knowledge, creative ideas, and solutions through technological processes in order to manage and to organize practices (Andreeva and Kianto, 2011). For the purpose of this study, knowledge creation can be defined operationally as the ability to develop new knowledge of pharmaceutical companies.

-**Knowledge Acquisition:** "is the identification and capture by a firm of knowledge from its environment" (Ortiz et al., 2016). Also, knowledge acquisition defined as a crucial stage in the development of an expert company, which involves eliciting, analyzing, and interpreting the knowledge (Kidd, 2014). For the purpose of this study, knowledge acquisition can be defined operationally as the capturing and identification knowledge of pharmaceutical companies.

-Knowledge Sharing: is the exchange of knowledge between workforce teams and different organization units (Paulin and Suneson, 2012). For the purpose of this study, knowledge sharing can be defined operationally as exchanging knowledge between employees of pharmaceutical companies.

-Knowledge Application: "is the potential to expand the use of information by transforming existing huge data collections in to revenue-generating assets" (Dragoi et al., 2013). Also, knowledge application defined as the use of knowledge that has been captured or created and to deploy it in the organization environment (Fernandez, et al., 2007). For the purpose of this study, knowledge application can be defined operationally as the use of information between employees of pharmaceutical companies.

2- Workforce Agility: is the ability to use knowledge, skills, and experience at work rapidly and to respond quickly to unexpected changes. Regarding workforce agility, this study will include the following three dimensions: Proactive, Adaptive, and Flexible (Sherehiy, 2008; Sherehiy, 2007; Heckler and Powell, 2016).

-Proactive: it is the situation when a person initiates the activities that have positive effect on the changed environment (Sherehiy, 2008). Also, proactive can be defined as the "first-mover approach" where companies seek to get an opportunity for having changes that could positively affect the performance of their employees (Heckler and

Powell, 2016). For the purpose of this study, proactive can be defined operationally as the employees activates that have positive impact on pharmaceutical companies.

-Adaptive: the changing or modifying behaviors to better fit new environment (Sherehiy, 2008). Also, adaptive defined as employees behaviors with different skills, abilities, and roles fit together in order to deal with new skills and to add new competencies in the organization (Sherehiy, 2007). For the purpose of this study, adaptive can be defined operationally as the employees behaviors with different skills and abilities that combined together to perform duties at pharmaceutical companies.

-Flexible: the ability to get different products and to achieve different objectives with the same levels and employees need flexibility to deal with different tasks and teams at the same time (Sherehiy, 2008). For the purpose of this study, flexibility can be defined operationally as the ability to achieve different objectives with the same facilities of pharmaceutical companies.

Chapter Two

Theoretical Framework and Previous Studies

2.1 Introduction

2.1.1 Knowledge

2.1.2 Knowledge Management (KM)

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2.2 Previous Studies.

2.2.1 Distinctive Features of the Current Study.

Chapter Two
Theoretical Framework

In this chapter, the study will review the theoretical framework and the previous studies related to KM processes and workforce agility.

2.1 Introduction

This section discusses all about the knowledge, KM, KM processes, agility and workforce agility and the relationship between them.

2.1.1 Knowledge

According to Rasoulinezhad (2011); Akhavan, (2009) the power of any company is measured by how much knowledge they own, and how much they can utilize out of this knowledge. Therefore knowledge is one of the most important assets in the companies. (Rahimli, 2012) consider that any company in marketplace depends mainly on the knowledge quality in their field business. While Nazick (2014) believes that knowledge is about skills and facts that employees have gained through their years of experience such skills and facts, and increase their ability to make decisions and take the right actions.

The difference between data, information and knowledge (Bernstein, 2009) defined data as the product of observations and it's not have value until it's processed into a usable form to become information. Information is "contained in answers to questions" (Bernstein, 2009) or represents the results. Also, knowledge is refines information by making possible the transformation of information into instructions (Bernstein, 2009).

For King (2009) knowledge can be achieved throughout business processes, activities, and skills that are created over time. For him knowledge is what the employees get from information, experience, and values. (Nonaka, 1994) argued that knowledge has several meanings and multi types to create, improve, share, and justify, through collaborative, social processes and employees cognitive processes. Also, (Nonaka, 1994) divide knowledge in two types explicit knowledge and tacit knowledge. Explicit knowledge defined by (Forst, 2014) as the codified knowledge that employees found in documents or in contexts and it can disseminate and shared in forms of hard work. While, tacit knowledge is the non-codified and it's highly personal or just an experience based knowledge. Based on the study view, Knowledge is a term that used by companies to get facts, information, and skills through education and experience. Also, companies need to understand and to take the right decision and actions at the right time.

2.1.2 Knowledge Management (KM)

For Almahamid (2015) KM respected is one of the most important resources to all companies and no one company can build a successful and reliable team without good KM. KM is about managing the right knowledge at the right time and notes what is beneficial to their employees and their company. For (Dalkir, 2011) KM is a systemic coordination to manage and organize knowledge of employees, processes, technologies and organizational structure to add value through innovation, and reuse to enhance organizational learning.

According to Maartin (2015) goals of KM focus on insight environment inside and outside companies, to carry out the information from workforces and coordinate with employees to make decisions and take actions to deal with the complexity and sudden changes. Based on the above, companies performance is affected by KM at different levels of management and to

embedded KM, the company need to carry knowledge through documents, as well as employees (Rasoulinezhad, 2011).

For King (2009) companies seek to acquire or create potentially useful knowledge to make it available to employees who can use it at the right time and place that appropriates them to achieve maximum effective usage and to positively influence company's performance, also, any company can increase effective knowledge utilization by small percentage and benefits will be generated. Finally for (Laal, 2010) to have effective KM program, the company need to identify and leverage the know-how embedded in its workforce, and focus on how they will apply that knowledge.

2.1.3 KM Processes:

KM is viewed as processes with many activities that formed to carry out the key elements of companies, although, it must identify, capture, organize knowledge, in order to bring it from companies society (Naik, 2016). (King, 2009) consider that KM involves processes that develop systems and methodologies to support each process and to motivate employees. For (King, 2009), these processes include: creation, refinement, storage, transfer, sharing, and utilization.

According to Rasoulinezhad, (2011) KM processes are defined as observable companies activities that are related to KM and interrelated with various business processes developed in a company to create, store, transfer, and to apply knowledge. The organizational processes which aim to create a source of centralized knowledge within companies have multi processes such as: acquires, assimilates, distributes, integrates, sharing, retrieves, and reuses internal and external, explicit and implicit knowledge to bring new knowledge to companies (Akram, et. al., 2011).

Finally, to implement KM successfully, the companies need to focus and take in their consideration this processes which includes: creation, acquisition, sharing and application (Omotayo, 2015). The processes of KM in this research will focus on knowledge creation, acquisition, sharing and application. The next section will deal with these four processes of KM:

A. Knowledge Creation

Knowledge creation refers essentially to the processes of developing new ideas and new knowledge from the available data and information; also, it refers to the company that has ability and activity that develop new and useful ideas, skills, solutions, and insight to enrich the knowledge (Andreeva and Kianto, 2011). Knowledge creation defined as the ability of companies to develop new knowledge, creative ideas, and solutions through technological processes in order to manage and to organize practices (Nonaka, 1994; Andreeva and Kianto, 2011). The processes of knowledge creation become through learning, research and development, experience accumulation, and learning by doing (Shih et al., 2010). Knowledge creation should focus on the exchange and sharing of information (Shih et al., 2010).

Knowledge creation depends on the ability to put knowledge into practice. The creative processes of knowledge creation that post by (Forst, 2014) are:

1. Enable and encourage knowledge sharing.
2. Create a suitable work environment.
3. Provide systems that support the work processes.
4. Provide workers with relevant information and knowledge at proper time.

Innovation defined by Andreeva and Kianto (2011) as the processes of producing new viable ideas and implements it in suitable ways to produce value. (Nonaka, 1994) argues that

companies need a high score in knowledge creation to succeed and have the ability to create new market or to develop new product. Also, to have quick response to their customers and adapt new technology once it's available.

For Andreeva and Kianto (2011) companies knowledge creation depends on the ability of employees to exchange and combine existing knowledge and ideas, within information and data. Finally, the definition of knowledge creation according to the study view is the ability to develop new knowledge and ideas to their own knowledge and put it in practices.

B. Knowledge Acquisition

Knowledge acquisition is about knowledge that company can obtain from outside sources. According to (Andreeva and Kianto, 2011) knowledge acquisition refers to the available knowledge for external sources such as customers, clients, suppliers, other competitors, governmental regulations, and that represent rich knowledge source. Knowledge needs to be acquire before it can be used (Choi et al., 2010). For (Kidd, 2014) knowledge acquisition is a crucial stage in the development of an expert company, which involves eliciting, analyzing, and interpreting the knowledge and to use knowledge when they need to solve a particular problem and transform it into suitable machine representation.

The essential strategy for knowledge acquisition is to add knowledge when the case is handled in wrong way, that's mean the knowledge need to add for real cases in real circumstances (Kang et al., 2004). Employees can acquire knowledge through their own learning and experiences (Choi et al., 2010). The cost of knowledge acquisition is effectively constant with knowledge base size, so knowledge can be added while the system is in actual use and becomes small interesting extension to normal work or activity (Kang et al., 2004). Based on

the above, knowledge acquisition is about what employees can get of new knowledge from external and internal business environment.

C. Knowledge Sharing

Knowledge sharing is the most important part in KM processes and the success or the failure of company is directly related to how much knowledge could be used with employees. (Andreeva and Kianto, 2011) knowledge sharing is a critical factor in the companies which have the ability to respond quickly for change, create, and achieve competitive success. (Paulin and Suneson, 2012) believed that knowledge sharing focus on the exchange of knowledge between the employees and the company units, the exchange can reflect on the workforce environment. Knowledge sharing refers to the processes of locating distributed knowledge in company and transferring it to another context where the knowledge is needed (Choi et al., 2010).

According to (Andreeva and Kianto, 2011) knowledge sharing moves the existing knowledge between different companies, within and between departments and hierarchical levels. Therefore, to facilitate knowledge sharing, KM must understand the requirements of employees as well as the complexities, and potential problems with managing knowledge and sources (Forst, 2014). However, knowledge sharing represents into two basic phases, the first phase include the socialization which mean an intensive sharing of tacit knowledge among employees and close colleagues, while the second phase include the combination that concern about sharing explicit knowledge among a broader range of employees through the whole company (Andreeva and Kianto, 2011). Knowledge sharing has taken on the quality of a truism in many companies (Choi et al., 2010).

Knowledge sharing depends on the habit and willingness of employees in the company, while it help to seek out and be receptive to knowledge sources, also, it can be described as push knowledge or pull knowledge, however, push knowledge means that knowledge is "pushed onto" the employees (e.g. newsletters and unsolicited publications), but pull knowledge means that knowledge employee actively seeks out knowledge sources (e.g. library search, seeking out an expert, and collaborating with a coworker) (Forst, 2014). The definition of knowledge sharing according to the study view is the ability of employees to share, exchange such skills, information, and expertise in the company.

D. Knowledge Application

Employees must not only share knowledge, but also apply it effectively in order to address the given challenge (Choi et al., 2010). Without application, companies will waste their time and resources on the "re-invention of knowledge", and spending plenty of money and time looking for knowledge or information and data (Martin, 2015). So, companies need to look carefully for knowledge application and to get the right tool to apply this knowledge that they get from their employees or from external environment. However, knowledge application can deal with both cultural and environmental changes at workplace and not only at the changes in technologies (Martin, 2015).

Knowledge Application defined as how can companies use knowledge that they have been captured or created how to deploy such knowledge in their own company, in order to enable them to implement decisions in different domains such as architecture, engineering and planning (Fernandez, et al., 2007). To support knowledge application, companies can use knowledge technology that helps in inserting and managing the right knowledge into company’s processes (Rasoulinezhad, 2011).

Also, for Martin (2015) technology advancement has the availability of high-speed network and has the opportunity to gather, store, distribute, and utilize knowledge. Also, there are many software products, processes, and procedures which can enable effective implementation of knowledge. Based on the above the definition of knowledge application according to the study view is the utilization and the use of knowledge and put it into operations reach all employees at companies. Also, it's the processes of integrating knowledge into an organizations products and services.

2.1.4 KM System

KM system assist sharing and integrating knowledge by designing information system, it has all the necessary tools to help companies to turn information into knowledge (Craciun, 2001). In fact, KM system identify and recognize the value of new knowledge and invests it in workforce competencies (Belkahla and Triki, 2011). The main purpose of KM system is to achieve information and store it and to retrieve important data and knowledge. Also, KM system includes collaboration of data, and locating various sources of knowledge (Martin, 2015).

According to Martin (2015) the main benefit of having KM system in companies, is to help make learning as a habit and a way of life for any company and to create a culture at workplace which include self-improvement. Also, KM system gives the ability to change culture inside the company and enable employees to express their ideas and use to perform tasks. However, to achieve the success of KM system companies need to share codified knowledge and non-codified knowledge within their employees through motivation and commitment (Rasoulinezhad, 2011).

For Fernandez, et al, (2007) the implementation of KM system requires high commitment of workforces that has the most outputs of the least information in order to apply them to the

whole company. Also, top level of management should consider that strategic operation and organize all resources to ensure the success of KM system. The use of KM system had to be correlated with increased agility (Heckler and Powell, 2016). KM system can enable companies to make better business decisions.

2.1.5 Agility

Agility is a fresh approach to link employees with company's purposes, to get the best productivity and quality of skills and knowledge, with getting the perfect opportunity, and recover customer products and services. Agility has the ability to respond rapidly to change in internal and external environment at companies, and to act proactively with changes and try capturing opportunities that become available due to the changes (Sherehiy, 2008). Also, agility can be applied to all employees, companies, collectives, management, governance, and can command and control processes, plans, tools, functions, architectures, policies, tactics, strategies, and others (Alberts, 2010).

For Dove (2011) agility is the ability of companies to respond quickly and flexibly way in their environment, to meet emerging challenges with innovative response that indicated to have ability to manage and applied knowledge in effective way, agility has a chance to succeed in an unpredictable and continuously changes in business environments. If company aspires to be agile, it should be forthcoming with knowledge levels and have willingness to learn on various activities at business environment (Alavi, et al., 2014).

Agility is important capability in contemporary environment, although, agility has some characteristics, from these characteristics it has a quick, flexible, resourceful, and adaptable to response changes on business environment (Webster, 2005). For (Salavati and Reshadat, 2014) to be agile in business environment, companies need to have the ability to detect

changes with positive agents to reach growth and prosperity. Also, agility has the capability of surviving and prospering in competitive business environment and market changes which is continuous and unpredictable, by reacting quickly, effectively, and designed products and services (Gunasekeran, et al., 2001).

According to Maskell (2001) agility has the ability of maintaining prosperity in a continuously changing and unpredictable environment, to enhance companies capability to provide high quality products and services, also, it can increase the companies competitiveness by enhance the employees knowledge. In fact, agility has the ability to cope with unexpected challenges and sudden changes, to survive unprecedented threats of business environment and need to take "advantage of changes as opportunities" (Sharifi and Hang, 2001). To response the sudden and complexity changes in business environment, agility need to deal efficiently and effectively to reach the capability to convert knowledge quickly and flexibility into act, with the help of employees and head department.

According to Heckler and Powell (2016) there are two different concepts that related to agility, the first one is "range agility", defined as: "the capability to increase/decrease a variety of product, service, or internal processes" .And the second concept is "time agility" defined as: “the speed at which products or information can be presented", company can choose just one of them, range or time agility, but they can't increase agility by taken both.

Based on the previous study, the study view point found out that agility is a concept used to describe the ability of companies to apply KM processes quickly and effectively, and to respond rapidly to the sudden changing in business environments. Also, employees needs to be more proactive and adaptive to any new knowledge or changes in business environment. Also, agility within companies has the power to encourage employees to adapt all changes

happened in its environment. This includes continuous competitive advantage, flexibility, fast moving, recruiting good candidate, and good relationship with customers (Sohrabi et al., 2014). However, there are other several kinds of agility in the business environment such as: organizational agility, manufacture agility, strategic agility, business agility, supply chain agility, customer agility, and workforce agility (Sambamurthy et al., 2003) (Alavi et al., 2014).

- Organization agility has a great external assessment and re-publishes resources, and has the ability to encourage employees to collaborate (McCann, 2004). To enhance organizational agility, organizations need to encourage employee's skills, knowledge, experience, and intelligence through reinforcement of cooperation, allegiance, and capability of employees (Meredith and Francis, 2000). However, organizational agility needs to focus on improvement of the flexibility and the speed of companies decisions at all levels (Heckler and Powell, 2016). To increase agility, organizations have to integrate knowledge, information, and data to communicate with all areas of business environment, to improve information technology and flexibility.

- Manufacture agility defined by Narasimhan (2006) as manufacturing practices linked with agility to utilize advanced manufacturing technologies, supplier alliances, high skill employee training, customer sensing, and sales linkages, to emphasize the performance of improvement in the programs of responsiveness. According to (Alavi et al., 2014) agile manufacturing is about companies capability to succeed and to survive in the competitive business environment with quick response to changes through administrative uses and methods.

- Strategic agility is the ability of companies that come and help knowledge which generates strategies, to help employees to deal with environment changes (Sambamurthy et al., 2003).

Strategic agility requires a company to use their resources to build their knowledge bases. Business agility has the ability to use the available sources to make business decisions and to communicate with employees on a global environment which allow companies to improved their strategies and become more agile in the market sector (Heckler and Powell, 2016).

- **Supply Chain agility** is a chain of linked activities among sections and departments in companies that help the process of delivery of products and services and to help companies to respond quickly and effectively to uncertain and events in a safe manner (Yusuf et al., 2014).

- **Customer agility:** "the co-opting of customer in the exploration and exploitation of opportunities for innovation and competitive action moves" (Sambamurthy et al., 2003). (Roberts and Grover, 2012) defined customer agility as "the degree to which a firm is able to sense and respond quickly to customer-based opportunities for innovation and competitive action".

2.1.6 Workforce Agility

Workforce agility is a strategy used by companies to survive and facilitates profitability in rapidly changing and in environment, by using knowledge skills. Workforce agility estimate and measure a strategic dimensions to support and to enhance the quality of strategic levels and the decision making processes at the companies (Alberts, 2010). This mean, all companies need to identify the most important characteristics that needed to achieve workforce agility.

For Sherehiy (2008); Alavi et al., (2014) they have argue that all definitions of workforce agility are linked to know how employees handle and respond to sudden changes, know how to be adapted to changes and to add new conditions, and know how to use the best capabilities for companies. Organizational learning is important to create workforce agility because it

depends on skills and knowledge that acquired from training and experience and companies which looking for achieving long term success and been survival on business environment, need to focus on internal recourses of workforce such as knowledge capability and learning ability (Alavi et al., 2014).

However, there are little studies which investigate workforce agility; most of these researchers have focused on the attributes of the agile workforce and not on how employee affects the workforce agility. According to (Sohrabi et al., 2014; Sherehiy, 2008) workforce agility considered as an agile performance at work, its defined with six characteristics, which are:

1. Dealing with unpredictable and uncertain situations.
2. Creative problem solving.
3. Professional flexible.
4. Learning work tasks and procedures.
5. Interpersonal adaptability.
6. Coping with work stress.

The first character is about how easily employees adjust and deal with unpredictable situations, how employees can shift their orientation efficiently or focus when is necessary, and what extent employees can take the best action. Creative problem solving refers to initiate activities that help to solve problems, which requires workforce to bring complex situation to employee's desired end or to develop creative solutions to difficult problems. Professional flexible means the ability and competence of working on different tasks with different teams simultaneously (Sohrabi et al., 2014; Sherehiy, 2008)

The fourth character is how to learn new ways to perform a job, tasks, and skills to retool a job or a new work, although, interpersonal adaptability has aspects of interpersonal adaptive

performance include such things as demonstrate interpersonal flexible, adjust interpersonal style to achieve the goal and adapt interpersonal behavior to work effectively with a new team, co-workers, and customers. The last characteristics is about coping with work stress which employees can handle with stress and with hard situations at work, it often occurs when workforces physical and emotional do not match or employees cannot handle with their job demands, constraints or opportunities (Sohrabi et al., 2014; Sherehiy, 2008).

Alavi and Abd Wahab (2014) studies on workforce agility can be classified into two groups. The first one focused on agile manufacturing which employed workface agility as a dimension of agile manufacturing. The second group focused on workforce agility as it is. To make workforce more agile, companies need to mobilize KM processes in order to increase the overall agility and to help employees on their day-to-day activities. However, a company cannot become agile without properly addressing workforce agility because such agility can offer immediate solutions to unexpected changes (Heckler and Powell, 2016).

2.1.7 Workforce Agility Dimensions

Workforce agility can be formed by companies speedily to response to the continuous and unanticipated changes in the competitive market through adaptive and proactive dimensions (Sherehiy, 2008). Aslo, workforce agility are connected with how much employees can deal with changes, and how much employees can adapt with changes and with new conditions (Sherehiy, 2008). (Dyer and Shafer, 2003) confirm that proactive behavior and adaptive behavior are the most important for learning best knowledge. In fact, companies need to quickly adapt to their business environment demands (Dyer and Shafer, 2003). Many studies shown that all companies that ignored both concept (proactive behavior and adaptive

behavior) were crashed because they were powerless to apply agility (Salavati and Reshadat, 2014). The three common dimensions which related to workforce agility are:

A. Proactive

Proactive is the "first-mover approach" where companies seek to get an opportunity for having changes that could positively affect the performance of their employees (Heckler and Powell, 2016). Employees proactive defined as implementing new and creative approaches to pursuing opportunities and dealing with threats, responsiveness to changing customer needs, responsiveness to changing market conditions, and creative problem solving initiation (Sherehiy, 2007).

Proactive enable managers to directly have impact on decision making processes and to impact the success these decisions at their companies (Dominguzz, et al. 2010). Also, proactive is important to determinant new products and services in the market place. Finally, the proactive dimension refers to the situations when employees start with activities that have a positive effect on the changes at business environment (Sherehiy, 2008).

B. Adaptive

Based on Sherehiy (2008) adaptive is defined as changing and converting the behavior of our self to get good new knowledge at environment, and that require hypothesis of various roles to implement it at different efficiencies with levels of companies. Employee adaptive has defined by Sherehiy (2007) as the employees behaviors with different skills abilities, roles assumptions, competencies, quick motivation, and redeployment, in order to deal with new skills and add new competencies in the organization. In fact, adaptive is based on two dimensions, interpersonal adaptability and cultural adaptability when dealing with employees with different background and experience (Sherehiy, 2008).

Pulakos et al., (2000) conceder five adaptive types, that have relationships between adaptive performance and other factors, these types are: "self-efficiency, emotional stability, cognitive ability, experience measures, and achievement movement", but the "emotional stability" the most high association with adaptive performance. When it comes to business conversation, companies need to grow up through some prime steps, these steps are: adapting, developing, renewing, and envisioning (Morgan and Page, 2008). Therefore, the traditional manager needs to follow the plan with minimal changes to achieve a successful adaptive and managers need to anticipate sudden changes quickly. So, to be an agile leader, it requires focusing on adaptability successfully, to determined changes (Highsmith, 2009).

C. Flexible

Flexible is the ability to get different products and achieve different objectives with the same levels and employees need to be flexibility with different tasks and teams at the same time (Sherehiy, 2008). Flexible is about how can employees deal with their function effectively under stress and complexity in an "ever-changing" business environment. For him, employees need to be flexible in the way they perform their tasks (Heckler and Powell, 2016).

Tsourvelodis and Valavanis (2002) consider flexible as the ability to perform the whole company to change from one task to another**.** To be flexible employees, he should have the ability to learn new skills, knowledge, education, and continuous innovation, by using information technology, training, job rotation, and know-how to deal with work stress, emergencies, complexity, and uncertainty.

For Erikphilippus (2015) flexible dimension means the ability to probably deal with both disturbances and opportunities. Workforce agility can be flexible by getting a strong sense of a valued identity, common purpose, and shared believes to be agile at business environment.

Finally, to be a flexible leader, employees need to be flexible and agile at the same time and use systems that help to be adapting quickly and to be developed rapidly (Anderson, 2011).

2.1.8 The Relationship between KM Processes and Workforce Agility:

In this section the study will discussed the relationship between KM processes (Creation, Acquisition, Sharing, and Application) and the dimension of workforce agility (Proactive, Adaptive, and Flexible). Previous studies such as (Sohrabi et al., 2014) entitled "Relationship between workforce agility and organizational intelligence"; show there is a relationship between KM processes and organizational agility, and (Almahamid, 2015) entitled "the Impact of KM processes on organizational intelligence"; stated that there is a relationship between KM processes and organization intelligence. However, none of the previous studies show how the KM processes is going to influence the workforce agility. Also, workforce agility is part of organizational agility pre-request for organization agility. Anyhow, the best of the study knowledge, no one of previous studies explore the relationship between KM processes and workforce agility in the context of pharmaceutical companies in Jordan.

Therefore, current studies such as: Alavi et al., (2014) shown that the agile workforce can be reconfigured quickly in response to changing conditions through adaptive and proactive behaviors. Also, current literature on workforce agility shown that development of employees in an agile enterprise requires new and flexible forms business organization. Agility has the ability to be based on knowledge levels to learn and support activities that should be forthcoming. However, KM developed systems and processes to acquire and share intellectually assets to increase the generation of useful and meaning information to increase workforce and team learning at business companies (Dalkir, 2011). Based on the

study view, KM processes it's related to every dimension of workforce agility, and if one of them not there, the influence will be decreased. This mean that they should be implemented together to get the best knowledge and the same time to agile in workforce at company.

If the company seeks to be agile at their workforce, it has to be related to proactive, which has a positive impact to deal with any changes or any new knowledge. The more knowledge increased in a company, the more proactive the company will be. Every process of KM can affect the proactive of the company. This mean that knowledge creation can help to developed new ideas, and skills which make employees more proactive to get the right knowledge. However, employees who have the ability to share knowledge with other employees they become more proactive at work, and can influence proactive behavior by utilizing and applying knowledge in their work rapidly and to respond to any changes. Knowledge sharing helps to develop knowledgeable employees, who are crucial to the development of an agile organization (Alavi et al., 2014). Also, the quality and scope of this knowledge base affects workforce proactive and its awareness of the benefits of exchanging ideas. Also, KM processes can impacted by adaptive at workforce agility by has the ability to respond to all new changes and new knowledge at the right time. As far as related adaptive of employees for creating, acquisition, sharing and application knowledge in a company, the more workforce agility will be.

Every process of KM can affect the adaptability in the company, this mean that knowledge creation can help to developed new ideas and skills which make employees adaptive to get the right knowledge. However, employees who are adaptive to share knowledge with other employees can become more agile at workforce. Also, employees are adaptive to explore various sources, motivated to adopt creative work approaches, and seek answers to various

questions in a less structured companies (Sherehiy, 2008; Alavi et al., 2014). Learning new knowledge improved workforce adaptability, and enables employees to meet usefully every sudden change.

To be more agile, workforce in any company, need to be flexible to fit and deal with new situations effectively and under stress or un-expected circumstances, which have a positive impact to fit companies with any changes or any new knowledge. However, when knowledge increased in a company, the more flexible the company will be. Also, KM processes can affect flexibility in the company and this mean that knowledge creation can help to develop new ideas and skills which will support employees to be more flexible to deal with stress in the company environment.

2.2 Previous Studies

- Sherehiy (2008) study entitled**: "Relationships between Agility Strategy, Work Organization and Workforce Agility"**, the study aimed to explore the organization and conditions of work in agile enterprise and its impact on employees performance and development. The study identified factors for workforce agility such as dealing with unpredictable and uncertain situations, learning work tasks and procedures, and coping with work stress. The results hypothesized relationship between management strategies that focused on agility development, work characteristics and workforce agility. The study suggested that if management implements agility in the way that positively affects job autonomy, job uncertainty, and employees collaboration, the employees will be able to perform a job in an adaptive and flexible way.

- King (2009), study entitled: **"Knowledge Management and Organizational Learning",** the study focus on KM which emerged in the last 20 years, individuals was "unable to draw on the full potential of their brains" and "organizations are generally not able to fully utilize the knowledge that they possess". With KM, organizations attempt to create or acquire beneficial knowledge and use time and place to make it available to achieve the best effective usage to influence positively to organizations performance. In addition, if the organization can increase effective knowledge utilization even a small percentage, great benefits will be result.

- Abu Khadegeh (2011) study entitled**: "The Effect of Knowledge Management Process on e-Business Performance",** the study aims to seeks the impact of KM process on e-business performance using the balanced scorecard. However, businesses start to formulate strategies and developed in systems that enable companies to manage knowledge. The system performance is a key issue for organizations. The study showed that new of e-business systems which demands new efficient and effective performance will be implemented to measure the success and erroneous trends.

- Akram et al. (2011) study entitled**: "Role of Knowledge Management to Bring Innovation: An Integrated Approach",** the purpose of the study was to investigate the literature on KM and innovation in companies. The study examined and described the relationship between KM processes and innovation processes to get the important relationships and output actions. The study used qualitative methodology and the result was that KM processes such as knowledge types, activities, transformation, and technology have

a significant positive effect in innovation through transformation of knowledge into knowledge assets in companies.

- Andreeva and Kianto (2011) study entitled**: "Knowledge Processes, Knowledge-Intensity and Innovation: A Moderated Mediation Analysis"**, the study aimed to examine innovation from a knowledge-based view by exploring the impact of knowledge processes and knowledge intensity on innovation performance, with design and methodology. The hypotheses was tested statistically, using a survey dataset of (221) company. The result was that all knowledge processes have a high impact on innovation and knowledge creation impacts innovation. Also, fully mediates the impact of knowledge sharing and acquisition on innovation performance.

- De Meuse, Karunaratne, and Alexander (2012) study entitled**: "The Federal Agility Fix: Developing the Next Generation of Leaders**", the study focus on add learning agility to federal government management system which supplied "thrive leaders". The study identifies and develops learning agility that gets a high role for federal government strategies. The study focus on four dimensions for learning agile individuals such as: adaptable, resourceful, reflective, and flexible. Also, the result of the study was integrated learning agility as a personal adaptability to pinpointed innovative and versatile individuals.

-Emadzade, Mashayekhi, and Abdar (2012) study entitled**: "The Relationship between Agility Capabilities and Organization Performance: A Case Study among Home Appliance Factories in Iran",** the study attempts to explore the agility capabilities of manufacturing firms and their impact on organizational performance. The study investigates

the key principles and features of the agile manufacturing companies and agile manufacturing dimensions. The study adopted a description survey method and used a questionnaire for data collection. The result was that data revealed has a positive relationship between agility capabilities and performance in companies in confidence level at 99.

- Guangya Su (2012) study entitled "**Exploring Requirements of Agility for Knowledge Management",** The aim of the study is to understand the concept and definition of agility. Also, to explore the impact of agility on KM in companies, the study interview (23) managers at "Siemens AG", to reflect and analyze demands of KM to increase agility. The study discovered three perceived drivers for agility such as mergers, customers, and competitors. The study suggests a framework for managing agility to prove the application of KM to effect agility and how to manage agility by using KM.

- Rahimli (2012) study entitled**: "Knowledge Management and Competitive Advantage"**, the study found that the sustainable competitive advantage in organizations should realize how to create, distribute, and utilize knowledge, and how to attach to organizational processes. For him, managers should know what kind of knowledge they should seek to enhance organizational activities to get sustainable competitive advantage.

- Marja and Seppo (2013) study entitled: **"Do Agile Principles and Practices Support the Well-being at Work of Agile Team Members?",** the study aim to know how to apply agility practices to experienced and features of agility methods that enhance and challenge "well-being at work". The study measure of "well-being at work" by applying agile

practices and managerial implications that developed in the empirical research. The results were that methods described a holistic measure of "well-being at work" by applying agile methods, and developed managerial implications.

- Alavi et al. (2014) study entitle**d: "Organic Structure and Organizational learning as the Main Antecedents of Workforce Agility",** the study attempted to provide empirical evidence to enable managers to understand and to identify the relationship on organizational learning, organic structure, and workforce agility. The hypotheses testing revealed organizational learning and the dimensions of (organic structure, flat structure, and decentralized decision-making) which capable of complementing the enhancement of workforce agility. The study demonstrated the applicability of the social exchange theory in the field of workforce agility. Also, the impact of the dimensions of an organic structure on organizational learning was considered and proposed as a process model on workforce agility**.**

- Forst (2014) study entitled**:** "**A Synthesis of Knowledge Management Failure Factors",** the study aim to organize and collect the failure organizations that apply KM at their projects in the late of 90s. The failure factors organized into two divisions: "causal and resultant", causal deal with broad organizational and managerial issues that required implementing KM successfully. Also, resultant factors deal with specific problems. The study presented factors that classified "causal factors" such as the aspects of KM project and areas that include organizational structure, management support, and organizational culture. The result was about "losing knowledge due to staff retirement is a result of poor planning",

"a lack of widespread contribution could be the result of an inadequate organizational culture", and "further research in the relationships between failure/success factors and specific operating conditions would also be useful".

-Salavati and Reshadat, (2014) study entitled: **"The Relationship between Customer Knowledge Management and Organizational Agility in the Branches of Bank Tejarat in the City of Sanandaj",** The study aim to identify the relationship between KM and organizational agility. The study suggest that there a significant relationship between the variables of KM and organizational agility. The results of hypothesis testing, namely used regression analysis to examine the relationship between KM and organizational agility is provided. Also, interpretations and specific reasons for scientific explanations for the findings are given, and regard to data normality, parametric test was used to examine the relationship between variables that used the Pearson correlation coefficient. The main hypothesis was confirmed with the correlation coefficient (0.437) and reliability (99%).

-Shaarab et al. (2014) study entitled**: "Measurement of Agility by Shifting Paradigms that Gave Rise to Agile Manufacturing"**, the study explains agility concept that was later applied at the broader level of organizations, workforce and enterprise. As agility there is no exact definition to workforce perception that evaluates system agility. Also, it's attempted with diverse approaches. The study reviews various agility evaluation methods and attempts to provide a holistic view of every method and limitations.

-Sohrabi et al. (2014) study entitled**: "Relationship between Workforce Agility and Organizational Intelligence Case Study: The Companies of Iran High Council of Informatics"**, the study aim to investigate the relationship between workforce agility and organizational intelligence, the population include managers and employees. The results determine that their significant positive correlation between workforce agility and organizational intelligence. Also, the relationship between workforce components of workforce agility and organizational intelligence is positive. The study recommended that organizations need to translation mission statement and strategies for employees by establishing feedback system. Also, organizations need to enhance employees to facilitate learning, managerial skills training, and putting employees in decision-making situation to be considered.

- Omotayo (2015) study entitled: **"Knowledge Management as an Important Tool in Organizational Management: A Review of Literature"**, the study investigate the importance of KM in organizations and discussed the effectiveness of KM. the study focus on sustainable strategic competitive advantage. In addition, the study recommended that organizations must paid more attention to knowledge, KM processes, and technology.

- Ripatti (2016) study entitled **"Towards Agile Workforce – Case Study Research in Three Companies"**; the study provides initial empirical evidence to understand the essential elements of agile workforce and to understand the relationship within organizational agility. Also, the study discovered the role of management methods, practices, and tools to support the actions of an agile workforce.

2.2.1 Distinctive Features of the Current Study

There have been little studies about KM processes as (creation, acquisition, sharing, and application), and the impact of KM processes on workforce agility. Therefore, this study may be sheds the light on the impact of KM processes and workforce agility at pharmaceutical companies in Jordan. This study will discover the relationship between KM processes and workforce agility at pharmaceutical companies in Jordan, while previous studies didn't provide evidence about workforce agility at pharmaceutical companies in Jordan. Most of previous studies doesn't conducted on KM processes and workforce agility dimensions, only very limited studies conducted in Jordan and in Arab world. According to the in-depth study, there wasn't any prior study examined the impact between the current study variables.

Chapter Three

Study Methodology (Method and Procedures)

3.1 Introduction

3.2 Study Methodology

3.3 Study Population

3.4 Study Sample

3.5 Data Collection Methods (Tools)

3.6 Data Validity and Reliability

3.7 Study Variables

3.8 Normal Distribution of Study Variables

3.9 Study Statistical Treatment

Chapter Three

Study Methodology (Method and Procedures)

3.1 Introduction

In this chapter, the study described in detail the methodology used on this study. Also, presents study population and sample, after that, it will explain the study tools and data collections. Next, it will discuss data reliability and validity. Finally, will discuss the study variables and statistical treatment.

3.2 Study Methodology

This study used the analytical descriptive approach in order to test hypotheses and to investigate the related previous studies. The descriptive related to describing the phenomena under investigation and the analytic alone concern with testing the research hypotheses and answering the research questions. A questionnaire was design to collect the relevant data from the research sample. The questionnaire was constructed by three sections which include demographic variables section that aimed to collect some demographic data about research respondents, KM processes section, and workforce agility section.

3.3 Study Population

The domain of this research is the Jordanian Pharmaceutical companies that have (14) company which registered in Jordanian Association of Pharmaceutical Manufacturers (JAPM) by December 2016. The population of this study consists of all managers and head of departments working at pharmaceutical companies in Amman city. Only (11) pharmaceutical companies agree to participate in this study.

3.4 Study Sample

The sample of this study is non-probability sample (judgmental sample) of managers and head of departments working at (11) pharmaceutical which were willing to cooperate with the researcher. The questionnaire was sent to the concerned section within each company. Upon the request of pharmaceutical companies, (250) questionnaires were distributed, (210) were retrieved, (10) questionnaire were discarded for large missing data. Accordingly, only (200) responses were valid for data analysis. That mean that 66% of questionnaire valid.

3.5 Data Collection Methods (Tools):

The data that used to achieve the purposes of this study was divided into two groups:

First: Secondary Data

From books, journals, researches, dissertations, articles, working papers, and the worldwide web, to write the theoretical framework of the study.

Second: Primary Data

From a questionnaire that was designed to reflect the study objectives and questions.

In this study, both secondary and primary data were used. The data collected through questionnaire that was constructed by three sections:

- **Section One:** demographic variables, it was collected with close-end questions, through five factors which include: Gender, Age, Educational Qualification, Job Title and Years of Experience in current company.

- **Section Two**: this section was measured the KM processes through four processes (Creation, Acquisition, Sharing, and Application); (24) items as follows: knowledge creation measured by five items adopted from (Almaani, 2009), knowledge acquisition measured by seven items adopted from (Sweis et al., 2011), knowledge sharing measured by six items adopted from

(Alavi et al., 2014; Sweis et al., 2011) and knowledge application measured by six items adopted from (Sweis et al., 2011). However, KM processes measured by the five-point Likert-type ranging from 1 (Strongly disagree) to 5 (Strongly agree) as shows in table (1):

Table (1)

Likert-type Scale

Strongly agree	Agree	Neutral	Disagree	Strongly disagree
5	4	3	2	1

- Section Third: this section was measured the workforce agility through three dimensions (Proactive, Adaptive, and Flexible); (20) items as follows: Proactive measured by seven items adopted from (Alavi et al., 2014), adaptive measured by seven items adopted from (Alavi et al., 2014), and flexible measured by seven items adopted from (Alavi et al., 2014). However, workforce agility measured by the five-point Likert-type ranging from 1 (Strongly disagree) to 5 (Strongly agree) as shows in table (1).

3.6 Data Validity and Reliability

To validate the data collection instrument used in this study in terms of its readability, format, and ability to measure the study's constructs; the study distributed the questionnaire instrument to (7) professors in public and private universities in Jordan (Appendix 3) those who have specializations in business management, E-Business, and scientific research. The questionnaire instrument was updated and refined to reflect the comments and suggestions received by the domain experts. Also, the experts showed interest and interact with the study concerning the questionnaire instrument which adds to its validity. In order to measure the

reliability of this study's constructs. Cronbach's alpha (α) and Person Correlation measures were used. Table (2) shows that the Cronbach' alpha value range between (0.78-0.93) and the correlation person value range between (0.44-0.60). However, the reliability of the instrument as a whole is very good (α=0.88).

Table (2)

Cronbach' Alpha and Person Correlation

No.	Variables	Number of items	Cronbach's Alpha	Person Correlation
1	Knowledge Creation	5	.88	.60
2	Knowledge Acquisition	7	.87	.55
3	Knowledge Sharing	6	.89	.44
4	Knowledge Application	6	.93	.51
5	Proactive	7	.78	.54
6	Adaptive	7	.84	.43
7	Flexible	7	.80	.60

3.7 Study Variables

The study identifies and measures the independent variable (KM processes) through literature review based on (Almahamid, 2015). As well as, to identify and measures the dependent variables through literature review based on (Alavi, et al., 2014 and Sherehiy, 2008).

All variables was measured by the five-point Likert-type ranging from 1 (Strongly disagree) to 5 (Strongly agree) used throughout the questionnaire.

3.8 Normal Distribution of Study Variables

The normal distribution of variables used (Kolmogorov– Smirnov Z) test to verify the absence study data from the statistical problems that may adversely affect the results of the study hypotheses, this indicates to normality distribution for variable data as shown in table (3):

Table (3)

Normal Distribution of Study Variables

No	Variables	Kolmogorov–Smirnov	Sig*	Result
1	Knowledge Creation	.849	0.091	Follows a normal distribution
2	Knowledge Acquisition	1.626	0.087	Follows a normal distribution
3	Knowledge Sharing	.945	0.145	Follows a normal distribution
4	Knowledge Application	.687	0.103	Follows a normal distribution
5	Proactive	1.721	0.072	Follows a normal distribution
6	Adaptive	1.120	0.931	Follows a normal distribution
7	Flexible	1.853	0.067	Follows a normal distribution

***Distribution is normal when the significance level ($\alpha \leq 0.05$).**

In view of the above table and at the significance level of ($\alpha \leq 0.05$) it is apparent that the distribution of all variables was normal, where the normal distribution ratios for each variables is greater than (0.05) which is approved level in the statistical treatment of the current study**.**

3.9 Study Treatment

The study used the suitable statistical methods that consisted of:

- Percentage and Frequencies used to describe the characteristics of research respondents.
- Cronbach's Alpha reliability (α) to measure strength of the correlation and coherence between questionnaire items.
- Arithmetic Mean to identify the level of response of study sample individuals to the study variables.
- Standard Deviation to Measure the responses spacing degree about Arithmetic Mean.
- Stepwise multiple regression analysis.
- Multiple regression analysis.
- Relative importance, assigned due to:

  Interval Length = (Highest Value – Lowest Value) / Number of Levels

  Interval Length = (5-1) / 3 = 4/3 = 1.33

  -The Low degree from 1+1.33 = 2.33 (Low Level 1-2.33).

  -The Medium degree from 2.34+1.33 = 3.67 (Medium Level 2.34 -3.67).

  -The High degree from 3.68 and above.

Chapter Four

Data Analysis and Hypothesis Testing

4.1 Data Analysis

4.1.1 Description of characteristics of study sample

4.1.2 Description of study variables

4.2 Hypothesis Testing

Chapter four

Data analysis and hypothesis testing

4.1 Data Analysis

To answer the research questions and test the hypotheses, the study utilized the Statistical Package for Social Sciences (SPSS). Also, to answer the research questions, the study utilized means, frequencies, standard deviations, and Cronbach's Alpha test to test the reliability and consistency of the data collection tool (Questionnaire). To test study hypotheses, the study utilized multiple regression analysis and stepwise multiple regression analysis.

4.1.1 Description of characteristics of study sample

The objective of this section is to illustrate the personal and job functions of this study sample such as: gender, age, educational qualification, job title and years of experience in current company. Table (4) presents descriptive analysis of the study sample depending on the personal and functional variables.

Table (4)

Distribution of the study sample depending on the personal and functional variables

Variable	Categories	Frequency	Percent
Gender	Male	128	64%
	Female	72	36%
	Total	**200**	**100.0**
Age	Less than 28 years old.	82	41%
	28-38 years old.	92	46%
	39-48 years old.	20	10%
	49-58 years old.	6	3%

	More than 58 years old.	-	-
	Total	**200**	**100.0**
Educational Qualification	Collage/ Diploma.	20	10%
	Bachelor's Degree.	150	75%
	Master's Degree.	28	14%
	PHD Degree.	**2**	**1%**
	Total	**200**	**100.0**
Job Title	Executive Manager.	28	28%
	Director General.	66	66%
	Administrative Manager.	40	40%
	Head of Section.	66	66%
	Total	**200**	**100.0**
Years of Experience in Current Company	Less than 5 years.	10	5%
	5-14 years.	100	50%
	15-20 years.	62	31%
	More than 21 years.	28	14%
	Total	**200**	**100.0**

Table (4) shows that:

- For Gender variance, the highest category (Male) by frequency (128) percentage (64%), but the lowest category (Female) by frequency (72) percentage (36%).
- For Age variable, the highest category (28-38 years old) by frequency (92) percentage (46%), then category (Less than 28 years old) by frequency (82) percentage (41%), then category (39-48 years old) by frequency (20) percentage (10%), but the lowest category (49-58 years old) by frequency (6) percentage (3%). The above table leads us to understand that the most of the study sample are young employees (not too old) and they can perfectly evaluate the KM processes impact in their workforce.

- For Educational Qualification variable, the highest category (Bachelor's Degree) by frequency (150) percentage (75%), then (Master's Degree) by frequency (28) percentage (14%) then (Collage/ Diploma), by frequency (20) percentage (10%), but the lowest category (PHD Degree) by frequency (2) percentage (1%). These results can describe that the study sample has a good education and they can fill in the questionnaire neutrally and they also can evaluate impact of KM processes on workforce agility dimensions.

- For Job Title variable, the highest category (Director General) and (Head of Section) by frequency (66) percentage (66%), then (Administrative Manager) by frequency (40) percentage (40%), but the lowest category (Executive Manager) by frequency (28) percentage (28%). This leads to that those who are working with authority can best evaluate the impact of KM processes on workface agility.

- For Years of Experience in Current Company variable, the highest category (5-14 year.) by frequency (100) percentage (50%), then (15-20 years) by frequency (62) percentage (31%), then (More than 21 years) by frequency (28) percentage (14%) but the lowest category (Less than 5 years) by frequency (10) percentage (5%).

4.1.2 Description of Study Variables

In this section, the study described variables, means average, and standard deviations. The results of description are shown as follows:

A. Description of the independent variable (KM processes)

-Knowledge Creation:

Table (5)

Means and standard deviation for "Knowledge Creation"

No.	Items	Mean	Standard Deviation	Rank	Agreement Degree
1	The company regularly monitors the renewable knowledge that comes from the various sources.	4.23	0.70	1	High
2	The company regularly monitors the available knowledge that comes from the various sources.	4.17	0.72	4	High
3	The company works constantly to update the different kind of knowledge it has.	4.18	0.73	2	High
4	Top management is well aware of the company's needs for knowledge in different aspects of its daily activities	4.18	0.72	2	High
5	The company works to support the creative ideas of its own.	4.04	0.76	5	High
Total Means		**4.16**	**0.29**	**-**	**High**

Table (5) shows that the highest means reached (4.23) out of (5) for item (1) "The company regularly monitors the renewable knowledge that comes from the various sources." by high agreement degree, then the item (3) and (4) " The company works constantly to update the

different kind of knowledge it has"," Top management is well aware of the company's needs for knowledge in different aspects of its daily activities", means (4.18) by high agreement degree, then for item (2) " The company regularly monitors the available knowledge that comes from the various sources. ." means (4.17) by high agreement degree, and the lowest means was (4.04) for item (5) "The company works to support the creative ideas of its own" by high agreement degree. The total mean for Degree of "Knowledge Creation" reached (4.16) by high agreement degree, which mean that "Knowledge Creation" have high agreement from perspective of sample study.

- Knowledge Acquisition:

Table (6)

Means and standard deviation for "Knowledge Acquisition"

No.	Items	Mean	Standard. Deviation	Rank	Agreement Degree
1	There is support for good and creative knowledge to develop competitive advantage.	3.91	1.03	4	High
2	There is sector inside the company to provide studies and researches.	4.03	1.04	1	High
3	There is transformation from tacit knowledge to explicit knowledge.	3.94	1.09	3	High
4	The company encourages the workers to develop their knowledge.	3.86	1.08	5	High
5	The company allows workers to help with the problem that faces the company.	3.98	1.14	2	High
6	The company works on development of knowledge that they has.	3.67	1.02	6	High

7	The company provides mechanisms for receiving views and suggestions among employees.	3.60	1.06	7	High
Total Means		**3.85**	**0.51**	**-**	**High**

Table (6) shows that the highest means reached (4.03) out of (5) for item (2) “There is sector inside the company to provide studies and researches." by high agreement degree, then for item (5)” The company allows workers to help with the problem that faces the company." (Means 3.98) by high agreement degree, and the lowest means was (3.60) for item (7) “The company provides mechanisms for receiving views and suggestions among employees." by high agreement degree. The total means for "Knowledge Acquisition" reached (3.85) by high agreement degree, which means "Knowledge Acquisition" has high agreement from perspective of sample study.

- Knowledge Sharing:

Table (7)

Means and standard deviation for “Knowledge Sharing”

No.	Items	Mean	Standard. Deviation	Rank	Agreement Degree
1	We have specific mechanisms for sharing lessons learned in organizational activities from department to department (unit to unit, team to team).	4.18	0.69	4	High
2	Top management repeatedly emphasizes the importance of knowledge sharing in our company.	4.14	0.76	5	High
3	We always analyze unsuccessful organizational endeavors and communicate the lessons learned widely.	4.25	0.71	2	High

4	There is a good deal of organization conversation that keeps alive the lessons learned from history.	4.19	0.76	3	High
5	There is facilitating for processes of consulting between the company and the research centers.	4.32	0.66	1	High
6	Promote a supportive environment for knowledge exchange of ideas among all employees.	4.13	0.70	6	
Total Means		**4.20**	**0.34**	**-**	**High**

Table (7) shows that the highest means reached (4.32) out of (5) for item (5) “There is facilitating for processes of consulting between the company and the research centers." by high agreement degree, then for item (3)” We always analyze unsuccessful organizational endeavors and communicate the lessons learned widely. “(means 4.25) by high agreement degree, and the lowest means was (4.14) for item (6) “Promote a supportive environment for knowledge exchange of ideas among all employees” by high agreement degree. The total mean for “Knowledge Sharing” reached (4.20) by high agreement degree. Which means "Knowledge Sharing" has high agreement from perspective of sample study.

-Knowledge Application:

Table (8)

Means and standard deviation for "Knowledge Application"

No.	Items	Mean	Standard Deviation	Rank	Agreement Degree
1	There is an initiative to deliver the knowledge that available to all employees.	4.09	0.89	1	High
2	There has an easy access for all employees to reach its own knowledge bases.	3.92	0.91	5	High
3	There has working teams of specialists for scientific consultations.	3.11	1.21	6	Medium
4	The company held different workshops, lectures and others, which related to knowledge.	3.93	1.00	4	High
5	The company has a policy to invite outside experts to participate on its workshops and training programs that related to knowledge.	4.01	0.97	2	High
6	The company encourages its employees to benefit from its own knowledge inventory.	3.99	1.09	3	High
Total Means		**3.84**	**0.43**	**-**	**High**

Table (8) shows that the highest means reached (4.09) out of (5) for item (1) " There is an initiative to deliver the knowledge that available to all employees" by high agreement degree, then for item (5) " The company has a policy to invite outside experts to participate on its workshops and training programs that related to knowledge" (Means 4.01) by high agreement degree, and the lowest means was (3.11) for item (3) "There has working teams of specialists

for scientific consultations. " by medium agreement degree. The total mean for “Knowledge Application” reached (4.20) by high agreement degree, which mean "Knowledge Application" have high agreement from perspective of sample study**.**

B. Description of the dependent variable (Workforce Agility)

- Proactive:

Table (9)

Means and standard deviation for “Proactive”

No.	Items	Mean	Standard Deviation	Rank	Agreement Degree
1	I am able to solve new and complex problems at work.	4.11	1.10	2	High
2	I am able to predict the problems that might occur in my work.	4.06	0.94	3	High
3	When I see something that I do not like, I am trying to fix it.	3.56	1.08	6	Medium
4	I look for opportunities to make improvements at work.	4.12	1.13	1	High
5	I am trying to find out more effective ways to perform my job.	3.90	1.11	5	High
6	I let time take care of things that I have to do.	4.00	1.17	4	High
7	I design new procedures or processes for my work area.	3.55	1.15	7	Medium
Total Means		**3.96**	**0.54**	**-**	**High**

Table (9) shows that the highest means reached (4.12) out of (5) for item (4) “I look for opportunities to make improvements at work” by high agreement degree, then for item (1) " I am able to solve new and complex problems at work” (Means 4.11) by high agreement

degree, and the lowest means was (3.55) for item (6) "I design new procedures or processes for my work area" by medium agreement degree. The total mean for "Proactive" reached (3.96) by high agreement degree, which mean "Proactive" have high agreement from perspective of sample study.

- Adaptive:

Table (10)

Means and standard deviation for "Adaptive"

No.	Items	Mean	Standard. Deviation	Rank	Agreement Degree
1	I adjust to the requirements of new equipment.	4.11	1.10	2	High
2	I adjust to work with teams that have different customs.	4.06	0.93	3	High
3	I use new equipment at work.	3.56	1.09	6	Medium
4	Change my behavior to work more effectively with other people.	3.90	1.11	5	High
5	I accept critical feedback.	4.13	1.13	1	High
6	I communicate well with people of different backgrounds.	4.00	1.17	4	High
7	I change plans when the necessary supplies or equipment are suddenly unavailable.	3.55	1.15	7	Medium
Total Means		**3.97**	**0.54**	**-**	**High**

Table (10) shows that the highest means reached (4.13) out of (5) for item (5) " I accept critical feedback." by high agreement degree, then for item (1) "I adjust to the requirements of new equipment" (Means 4.11) by high agreement degree, and the lowest means was (3.55) for

item (6) " I communicate well with people of different backgrounds." by medium agreement degree. The total mean for “Adaptive” reached (3.97) by high agreement degree, which mean "Adaptive" have high agreement from perspective of sample study.

- **Flexible:**

Table (11)

Means and standard deviation for “Flexible”

No.	Items	Mean	Standard Deviation	Rank	Agreement Degree
1	The changes at work frustrate me.	4.15	0.94	1	High
2	I like to change old ways of doing things.	4.01	0.99	5	High
3	I am able to perform the job without knowing the total picture.	4.06	1.02	4	High
4	I am able to work out what to do when work instructions are unclear.	3.52	1.12	7	Medium
5	I remain calm and composed when faced with difficult circumstances.	4.12	0.91	2	High
6	When a difficult situation occurs, I react by trying to manage the problem.	4.09	0.85	3	High
7	I drop everything and take an alternate course of action to deal with an urgent problem.	3.78	1.02	6	High
Total Means		**3.96**	**0.36**	-	**High**

Table (11) shows that the highest means reached (4.15) out of (5) for item (1) “The changes at work frustrate me." by high agreement degree, then for item (5) “I remain calm and composed when faced with difficult circumstances.” (means 4.12) by high agreement degree, and the lowest means was (3.52) for item (4) " I am able to work out what to do when work

instructions are unclear." by medium agreement degree. The total mean for “Flexible” reached (3.96) by high agreement degree, which mean "Flexible" have high agreement from perspective of sample study.

4.2 Hypothesis Testing

The Main Hypothesis ($H_0$1): There is no direct impact of KM processes (Creation, Acquisition, Sharing, and Application) on the workforce agility (Proactive, Adaptive, and Flexible), at the level of significance ($\alpha \leq 0.05$).

To test this hypothesis, and to detect the impact of KM processes (Creation, Acquisition, Sharing, and Application) on the workforce agility (Proactive, Adaptive, and Flexible), the Multiple Regression Analysis was used as shown in table (13).

Table (12)

Multiple Regression Analysis of the impact of KM processes (Creation, Acquisition, Sharing, and Application) on workforce agility (Proactive, Adaptive, and Flexible)

Independent variable	"T" value	"T" sig	Beta	R	R^2	"F" value	"F" sig
Knowledge Creation	30.013	0.00	0.274	0.981	0.962	2318.05	0.00
Knowledge Acquisition	46.918	0.00	0.429				
Knowledge Sharing	30.064	0.00	0.275				
Knowledge Application	46.223	0.00	0.431				

***Dependent variable:** Workforce agility

Table (12) shows that a statistically a significant effect at a significant level (α ≤0. 05) of KM processes (Creation, Acquisition, Sharing, and Application) on the workforce agility (Proactive, Adaptive, and Flexible)**,** where "f" value reached (2318.05) by statistically significant (0.00). (R) value reached (0.981), (R^2) value reached (0.962); which means that the value of 98% of changes in the workforce agility (Proactive, Adaptive, and Flexible) , from the perspective of innovation resulted from changes in the KM processes (Creation, Acquisition, Sharing, and Application) at all.

However, the main hypothesis was rejecting and accepts the alternative hypothesis as following:

- **$H_0$1-1: There is no direct impact of KM processes (Creation, Acquisition, Sharing, and Application) on Proactive agility, at the level of significance (α ≤ 0.05).**

  To test this hypothesis, and to detect the impact of KM processes (Creation, Acquisition, Share, and Application) on Proactive agility, (Stepwise Multiple Regression) analysis was used as shown in table (13).

Table (13)

Stepwise Multiple Regression Analysis of the impact of KM processes (Creation, Acquisition, Sharing, and Application) on Proactive agility

Independent variable	"T" value	"T" sig	B	R	R^2	"F" value	"F" sig
KM processes	14.101	0.00	0.461	0.549	0.301	198.84	0.00

*** Dependent variable:** Proactive agility

Table (13) shows that a statistically a significant effect at a significant level (α≤0. 05) of KM processes (Creation, Acquisition, Sharing, and Application) on Proactive agility**,** where "f" value reached (198.84) by statistically significant (0.00). (R) value reached (0.549), (R^2) value reached (0.301); which means that the value of 30% of changes in the workforce agility

(Proactive), from the perspective of innovation resulted from changes in the KM processes (Creation, Acquisition, Sharing, and Application).

There is a direct impact of KM processes (Creation, Acquisition, Sharing, and Application) on Proactive agility, at the level of significance ($\alpha \leq 0.05$).

- **$H_0$1-2: There is no direct impact of KM processes (Creation, Acquisition, Sharing, and Application) on Adaptive agility, at the level of significance ($\alpha \leq 0.05$).**

  To test this hypothesis, and to detect impact of KM processes (Creation, Acquisition, Sharing, and Application) on Adaptive agility, the (Stepwise Multiple Regression) analysis was used as shown in table (14):

Table (14)
Stepwise Multiple Regression Analysis of the impact of KM processes (Creation, Acquisition, Sharing, and Application) on Adaptive agility

Independent variable	"T" value	"T" sig	B	R	R^2	"F" value	"F" sig
KM processes	7.131	0.00	0.391	0.315	0.599	50.86	0.00

*** Dependent variable:** Adaptive agility

Table (14) shows that a statistically a significant effect at a significant level ($\alpha \leq 0.05$) of KM processes (Creation, Acquisition, Sharing, and Application) on Adaptive agility**,** where "f" value reached (50.86) by statistically significant (0.00). (R) value reached (0.315), (R^2) value reached (0.599); which means that the value of 59% of changes in the workforce agility (Adaptive), from the perspective of innovation resulted from changes in the KM processes (Creation, Acquisition, Sharing, and Application).

There is direct impact of KM processes (Creation, Acquisition, Sharing, and Application) on Adaptive agility, at the level of significance ($\alpha \leq 0.05$).

- **$H_0$1-3: There is no direct impact of KM processes (Creation, Acquisition, Sharing, and Application) on Flexible agility, at the level of significance ($\alpha \leq 0.05$).**

  To test this hypothesis, and to detect the effect of impact of KM processes (Creation, Acquisition, Sharing, and Application) on Flexible agility the (Stepwise Multiple Regression) analysis was used as shown in table (15):

Table (15)

Stepwise Multiple Regression Analysis of the impact of KM processes (Creation, Acquisition, Sharing, and Application) on Flexible agility

Independent variable	"T" value	"T" sig	B	R	R^2	"F" value	"F" sig
KM processes	19.182	0.00	0.442	0.666	0.443	367.96	0.00

*** Dependent variable:** Flexible agility

Table (15) shows that a statistically a significant effect at a significant level ($\alpha \leq 0.05$) of KM processes (Creation, Acquisition, Sharing, and Application) on Flexible agility**,** where "f" value reached (50.86) by statistically significant (0.00). (R) Value reached (0.315), (R^2) value reached (0.443); which means that the value of 44% of changes in the workforce agility (Flexible), from the perspective of innovation resulted from changes in the KM processes.

There is direct impact of KM processes (Creation, Acquisition, Sharing, and Application) on Flexible agility, at the level of significance ($\alpha \leq 0.05$).

Chapter Five

Results, Conclusion and Recommendations

5.1 Introduction

5.2 The Main Results of this Study

5.3 Study Conclusion

5.4 Study Recommendation

5.5 Scientific Recommendation

Chapter Five

Results, Conclusion and Recommendations

5.1 Introduction

The main objective of this study is to investigate the impact of KM processes on workforce agility at pharmaceutical companies in Jordan. To achieve objectives of this study, the study has developed a model to measure the impact of KM processes on workforce agility. An extensive literature review has been done to be able to build the study model. The model has two types of variables: the independent variables which include (creation, acquisition, sharing and application) and the dependent variables which include (proactive, adaptive and flexible). The said model was applied and tested at pharmaceutical companies in Jordan. However, the study investigated the importance of KM processes, workforce agility and integrated between them. In addition, the study tested how much KM processes affect workforce detentions, at the concerned companies.

5.2 The Main Results of this Study

Based on data analysis and tested hypotheses, results generated from this piece of work can be summarized as follows:

- There is a high degree of agreement on **"Knowledge Creation"**, from perspective among samples of this study. This result consistent with (Omotage, 2015) study, which indicated the need to implement KM processes successfully and the need to create knowledge to get its best results in companies.
- There is a high degree of agreement on **"Knowledge Acquisition"**, from perspective among samples of this study. This results disagree with (Almahamid, 2015) study, in which

knowledge acquisition become the second level after knowledge application in organizational intelligent at Jordanian commercial banks, which mean that knowledge acquisition has a medium degree.

- There is a high degree of agreement on **"Knowledge Sharing"**, from perspective among samples of this study. This result consistent with (Almahamid, 2015) study which has a high degree of knowledge sharing on the ability of banks to detect any changes on work environments.
- There is a high degree of agreement on **"Knowledge Application"**, from perspective among samples of this study. This result confirmed by (Sweis et al., 2011) study in which stated that there is a high degree of knowledge application on KM processes to achieve competitive advantage in telecom group "Orange" in Jordan. Also, (Almahamid, 2015) study, confirmed this result in an empirical investigation on Jordan commercial banks in which knowledge application has the highest level in KM processes.
- There is a high degree of agreement on **"Proactive"**, from perspective among samples of this study. This result consistent with (Alavi et al., 2014) study in which stated that proactive behavior on workforce agility can be reconfigured quickly in response to change conditions at organization.
- There is a high degree of agreement on **"Adaptive"**, from perspective among sample of study. This result consistent with (Alavi et al., 2014) study in which stated that adaptive behavior on workforce agility can be reconfigured quickly in response to change conditions among organization.

- There is a high degree of agreement on **"Flexible"**, from perspective among samples of this study. This result consistent with (Sohrabi et al., 2014) study which indicated that there's a positive relationship between coping with stress, and workforce agility.
- There is direct impact of KM processes (Creation, Acquisition, Sharing, and Application) on workforce agility, at the level of significance ($\alpha \leq 0.05$). The study results confirmed by (Alavi et al., 2014) study which supported agility based on knowledge levels. Also, (Guangya, 2012) study indicated that there is a positive relationship between KM processes and agility.
- There is a direct impact of KM processes (Creation, Acquisition, Sharing, and Application) on Proactive agility, at the level of significance ($\alpha \leq 0.05$). (Sherehiy, 2008) study confirmed this result which establish a positive impact of KM processes and complex job on proactive and adaptive performance.
- There is a direct impact of KM processes (Creation, Acquisition, Sharing, and Application) on Adaptive agility, at the level of significance ($\alpha \leq 0.05$). The study results consistent with (Meuse, Karunaratne and Alexander, 2012) study which indicated that there is a direct impact on learning agility as a personal adaptability and KM processes.
- There is a direct impact of KM processes (Creation, Acquisition, Sharing, and Application) on Flexible agility, at the level of significance ($\alpha \leq 0.05$). This result consistent with (Sherehiy, 2008) study which indicated that employees are able to perform their jobs in a flexible way.

5.3 Study Conclusions

Based on the results of this study, the study concludes the following points:

1. There are a real agreement within the pharmaceutical companies regarding the importance of KM processes and workforce agility.
2. Managers and head of departments at pharmaceutical companies in Jordan believe on the importance of KM processes (Creation, Acquisition, Sharing, and Application) to enhance workforce agility dimensions (Proactive, Adaptive, and Flexible).
3. Pharmaceutical companies would achieve excellent benefits of the KM processes. If they pay more attention to knowledge acquisition and knowledge sharing.
4. There is a high agreement with KM processes and workforce agility in pharmaceutical companies in Jordan.

5.4 Study Recommendation

Based on the results, the study presents the following recommendations:

1. Upper levels management should be prepared for the use of KM processes in their daily performance and companies should encourage this through meeting, brainstorming, lectures and communication.
2. Top levels managers should be adapted for KM processes and companies should encourage them to apply KM processes through various training programs.
3. Companies should prepared different training programmes for top level management to enhance their abilities, knowledge and skills.
4. Encourage all employees at all levels to share knowledge and useful information with their collegues.

5.There is a need to establish a specialized unit within the companies to coordinate all efforts to implement KM processes in other units successfully.

6. To encourage the use of electronic communications and the development of internet programs as a mean of acquiring and sharing knowledge.

5.5 Scientific Recommendation

7. Encourage others to conduct more studies and researches in field of workforce agility in the future.

8. Encourage more studies in difference fields of agility such as: organization agility, manufacture agility, strategic agility, supply chain agility and customer agility in the future studies.

9. Encourage future studies in this filed to use the same model but with larger sample.

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7. Appendix (1)

The Questionnaire in English

Dear Participant,

The study currently conducting a scientific study intended to identify the: "**The Impact of Knowledge Management Processes on Workforce Agility: An Empirical Investigation at Pharmaceutical Companies in Jordan".**

The purpose of this study is obtain master's degree in e-Business, your assistance to answer the study questionnaire means a lot to us, and will add value to our study. It will be used only for academic purpose and will not be used outside the scope of this scientific research.

I should appreciate very much your kind assistance to answer the attached questions.

Thank you very much in anticipation.

Supervisor **Researcher**

Prof. Dr. Soud Almahamid Zain Sami Aladwan

First Section: Demographic Variables

Gender

□ Male. □ Female.

Age

□ Less than 28 years old. □ 28-38 years old.

□ 39-48 years old. □ 49-58 years old.

□ More than 58 years old.

Educational Qualification

□ Collage/ Diploma. □ Bachelor's Degree.

□ Master's Degree. □ PHD Degree.

□ Other…….

Job Title

□ Executive Manager. □ Director General.

□ Administrative Manager. □ Head of Section.

□ Other Position……..

Years of Experience in Current Company

□ Less than 5 years. □ 5-14 years.

□ 15-20 years. □ More than 21 years.

Second Section: Knowledge Management Processes

This section is seeking about knowledge management processes that have four processes: (Creation, Acquisition, Sharing, and Application). Please read the following questions and tick (√) in the appropriate column which you think is appropriate:

No.	Knowledge Management Processes	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
Knowledge Creation						
1.	The company regularly monitors the renewable knowledge that comes from the various sources.					
2.	The company regularly monitors the available knowledge that comes from the various sources.					
3.	The company works constantly to update the different kind of knowledge it has.					
4.	Top management is well aware of the company's needs for knowledge in different aspects of its daily activities					
5.	The company works to support the creative ideas of its own.					
Knowledge Acquisition						
6.	There is support for good and creative knowledge to develop competitive advantage.					

7.	There is sector inside the company to provide studies and researches.					
8.	There is transformation from tacit knowledge to explicit knowledge.					
9.	The company encourages the workers to develop their knowledge.					
10.	The company allows workers to help with the problem that faces the company.					
11.	The company works on development of knowledge that they has.					
12.	The company provides mechanisms for receiving views and suggestions among employees.					
Knowledge Sharing						
13.	We have specific mechanisms for sharing lessons learned in organizational activities from department to department (unit to unit, team to team).					
14.	Top management repeatedly emphasizes the importance of knowledge sharing in our company.					
15.	We always analyze unsuccessful organizational endeavors and communicate the lessons learned widely.					
16.	There is a good deal of organization conversation that keeps alive the lessons learned from history.					
17.	There is facilitating for processes of consulting between the company and the research centers.					
18.	Promote a supportive environment for knowledge exchange of ideas among all employees.					
Knowledge Application						
19.	There is an initiative to deliver the knowledge that available to all employees.					
20.	There has an easy access for all employees to reach its own knowledge bases.					

21.	There has working teams of specialists for scientific consultations.					
22.	The company held different workshops, lectures and others, which related to knowledge.					
23.	The company has a policy to invite outside experts to participate on its workshops and training programs that related to knowledge.					
24.	The company encourages its employees to benefit from its own knowledge inventory.					

Third Section: Workforce Agility

This section is seeking about workforce agility that has three dimensions: (Proactive, Adaptive, and Flexible). Please read the following questions and tick (√) in the appropriate column which you think is appropriate:

No.	Workforce Agility	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Proactive						
25.	I am able to solve new and complex problems at work.					
26.	I am able to predict the problems that might occur in my work.					
27.	When I see something that I do not like, I am trying to fix it.					
28.	I look for opportunities to make improvements at work.					
29.	I am trying to find out more effective ways to perform my job.					
30.	I let time take care of things that I have to do.					
31.	I design new procedures or processes for my work area.					

Adaptive						
32.	I adjust to the requirements of new equipment.					
33.	I adjusts to work with teams that have different customs.					
34.	I use new equipment at work.					
35.	Change my behavior to work more effectively with other people.					
36.	I accept critical feedback.					
37.	I communicate well with people of different backgrounds.					
38.	I change plans when the necessary supplies or equipment are suddenly unavailable.					
Flexible						
39.	The changes at work frustrate me.					
40.	I like to change old ways of doing things.					
41.	I am able to perform the job without knowing the total picture.					
42.	I am able to work out what to do when work instructions are unclear.					
43.	I remain calm and composed when faced with difficult circumstances.					
44.	When a difficult situation occurs, I react by trying to manage the problem.					
45.	I drop everything and takes an alternate course of action to deal with an urgent problem.					

Appendix 2

The Questionnaire in Arabic

الإخوة/الأخوات مسؤولي شركات الأدوية الأردنية،

تحية طيبة وبعد،

تقوم الباحثة حالياً بإجراء دراسة علمية تهدف إلى التعرف إلى "**أثر عمليات إدارة المعرفة في سرعة استجابة العاملين: دراسة ميدانية في شركات الأدوية الأردنية**".

إنَّ الغرض من هذه الدراسة هو الحصول على درجة الماجستير في الأعمال الإلكترونية، وإن استجابتكم لهذه الاستبانه تعني لنا الكثير وتضيف قيمة لدراستنا وسيتم استخدامها فقط للأغراض الأكاديمية ولن يتم استخدامها خارج نطاق هذا البحث العلمي.

نقدر كثيراً مساعدتكم الكريمة للإجابة على الأسئلة المرفقة.

أشكركم مقدماً

المشرف **الباحثة**

الأستاذ الدكتور **زين سامي العدوان**

اسعود المحاميد

الجزء الأول: بيانات عامة

- **النوع الاجتماعي**

□ ذكر. □ أنثى.

- **العمر**

□ أقل من 28 سنه. □ 28- 38 سنة.

□ 39-48 سنة. □ 49-58 سنة.

□ أكثر من 58 سنه.

- **المؤهل العلمي**

□ كلية/ دبلوم. □ بكالوريوس.

□ ماجستير. □ دكتوراه.

□ أخرى حددها .....

- **المسمى الوظيفي**

□ مدير تنفيذي. □ مدير عام.

□ مدير إداري. □ رئيس قسم.

□ أخرى حددها.....

- **سنوات الخبرة في الشركة الحالية**

□ 5 سنوات فأقل. □ 5-14 سنوات.

□ 15-20 سنة. □ 21 سنة فأكثر.

الجزء الثاني: عمليات إدارة المعرفة

يتعلق هذا الجزء بالبحث عن عمليات إدارة المعرفة من خلال (خلق، اكتساب، مشاركة، تطبيق المعرفة). يرجى قراءة كل سؤال و وضع إشارة (√) في العمود الذي ترونه مناسباً.

الرقم	عمليات إدارة المعرفة Knowledge Management Processes	أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة
	خلق المعرفة Knowledge Creation					
.1	تقوم الشركة بالرصد المنتظم للمعرفة المتاحة من مصادرها المختلفة.					
.2	تقوم الشركة بالرصد المنتظم للمعرفة المتجددة من مصادرها المختلفة.					
.3	تعمل الشركة على تحديث المعرفة المتوافرة لديها باستمرار.					
.4	تدرك الإدارة جيداً احتياجات الشركة للمعرفة في الجوانب التي تتعلق بأعمالها.					
.5	تعمل الشركة على دعم الأفكار الإبداعية للعاملين.					
	اكتساب المعرفة Knowledge Acquisition					
.6	تقوم الشركة بالحصول على المعرفة من مصادر خارجية.					
.7	يوجد قسم داخل الشركة لتقديم الدراسات والأبحاث.					
.8	هناك تحول للمعرفة الضمنية إلى معرفة صريحة.					
.9	تشجع الشركة العاملين على تطوير المعرفة لديهم.					
.10	تسمح للعاملين بالمساعده في مواجهة المشاكل التي تواجه الشركة.					
.11	تعمل الشركة على تطوير موجودات المعرفة					

	لديها.					
.12	تـوفر آليـات لاسـتقبال الآراء والمقترحـات بـين العاملين.					
مشاركة المعرفة **Knowledge Sharing**						
.13	هناك آليات خاصة لنشر الدروس المستفادة من نشاطات الشركة من قسم الى قسم (فريق الى فريق).					
.14	تحفـز الإدارة العليـا مـراراً و تكـراراً علـى تبـادل المعرفة في شركتنا.					
.15	تقـوم الإدارة العليـا بتحليـل أسـباب عـدم نجـاح مساعي الشركة وتعمل كذلك على الاستفادة من الدروس التي تمر بها.					
.16	هناك قدرة كبيرة للشركة لتحافظ على الدروس المستفادة من تاريخ الشركة.					
.17	هنـاك تسـهيل لعمليـة الاستشـارات بـين الشـركة ومراكز البحث.					
.18	تعزيز مناخ داعم لتبادل المعرفة في الأفكار بين كافة العاملين.					
تطبيق المعرفة **Knowledge Application**						
.19	تقوم الشركة على العمل لإيصال المعرفة المتوفرة إلى جميع العاملين.					
.20	تسـعى الإدارة العليـا علـى تسـهيل وصـول جميـع العاملين إلى قواعد المعرفة التي تمتلكها.					
.21	تكوين فرق عمل من أصحاب الخبرة للاستشارات العلمية.					
.22	تعقد الشركة ورش عمل وندوات وغير ذلك مما له علاقة بالمعرفة.					
.23	تعمل الشركة على دعوه خبراء من خارج الشركة للمشاركة في ورش عمل والندوات والمحاضرات					

	ذات العلاقة بالمعرفة.					
.24	تشجع العاملين على الاستفادة من مخزون المعرفة الذي تمتلكه الشركة.					

الجزء الثالث: سرعة استجابة العاملين

يتعلق هذا الجزء بقياس سرعة استجابة العاملين من خلال ثلاثة أبعاد (الإستباقية، التكيفية، المرونة). يرجى قراءة كل سؤال و وضع إشارة (√) في العمود الذي ترونه مناسباً.

الرقم	أبعاد سرعة استجابة العاملين Workforce Agility	أوافق بشدة	أوافق	محايد	لا أوافق	لا أوافق بشدة
الإستباقية Proactive						
.25	لدي القدرة على حل المشاكل المعقدة والتي تحدث لأول مرة في العمل.					
.26	لدي القدرة على التنبؤ بالمشاكل التي قد تحدث في العمل.					
.27	أحاول بمساعدة زملائي على إصلاح الأمور غير المرغوبة في العمل.					
.28	أبحث عن فرص لإجراء تطوير في العمل.					
.29	أسعى بمساعدة الزملاء على إيجاد طرق فعّالة لتحسين العمل.					
.30	أهتم بوقت العمل.					
.31	أصمم عمليات جديدة أو إجراءات لمنطقة عملي.					
التكيفية Adaptive						
.32	أتكيف مع المعدات الجديدة التي ستقدمها الشركة في مجال عملي.					

.33	أستطيع التأقلم مع المجموعات ذات الثقافات المتعددة داخل بيئة العمل.					
.34	أستخدم آلات جديدة أثناء العمل.					
.35	يتغير سلوكي تلقائياً عند التعامل مع الأشخاص الآخرين داخل بيئة العمل.					
.36	أتقبل التغذية الراجعة (ردود الفعل).					
.37	أتواصل مع الأشخاص متعددي الخلفيات كل ما أتيحت لي الفرصة.					
.38	أتصرف بطريقة إيجابية عندما لا تتوفر اللوازم و المعدات بشكل مفاجئ.					
المرونة Flexible						
.39	التغيرات السلبية في العمل تحبطني.					
.40	أرغب بتغيير طرق العمل القديمة.					
.41	أستطيع القيام بالعمل دون معرفة التفاصيل.					
.42	أستطيع القيام بالأعمال بالرغم من عدم وضوح المعلومات.					
.43	أتعامل بهدوء مع ظروف العمل الصعبة.					
.44	عند حدوث موقف صعب، أحاول جاهداً إدارة هذه المشكلة.					
.45	أتخذ مسارات بديلة عندما أواجه مشاكل طارئة.					

شكراً لحسن تعاونكم

Appendix (3)

Professors' Questioner Jury

No.	Professor Name	University	Faculty
1.	Dr. Hebah Nasseraldeen	MEU	Business Admin.
2.	Dr. Sami Aladwan	MEU	Business Admin.
3.	Dr. Ahmad Saleh	MEU	Business Admin.
4.	Dr. Sameer Aljabaly	MEU	Business Admin.
5.	Dr. Bader Obeidat	UJ	School of Business
6.	Dr. Raed Bani Yaseen	UJ	School of Business
7.	Dr. Muhammad Alzubi	UJ	School of Business

Appendix (4)

List of Members of Jordanian Association of Pharmaceutical Manufacturers (JAPM).

No.	Company Name
1.	RAM Pharma
2.	Dar Al-Dawa Develop& Invst.Co
3.	Hikma Pharmaceuticals
4.	The Jordanian Pharm. Mfg. Co
5.	Arab Center for Pharm. & Chem.
6.	United Pharmaceuticals
7.	Hayat Pharm. Ind. Co. Ltd.
8.	The Arab Pharm .Mfg. Co. Ltd.
9.	MID Pharma
10.	Pharma International
11.	Jordan Sweden Medical & Strz.
12.	TQ PHARMA
13.	Jordan River Pharm. Ind.
14.	Amman Pharmaceutical Industries.

جامعة الشرق الأوسط
MEU MIDDLE EAST UNIVERSITY

مكتب رئيس الجامعة
President's Office

الرقم: ٧٢٠/٤٥/٢/د
التاريخ: ٢٠١٧/٤/١

السادة شركات الأدوية الأردنية المحترمون

تحية طيبة وبعد،،

أرجو التكرم بالموافقة على تسهيل مهمة الطالبة **زين سامي العدوان** ماجستير/ إدارة الأعمال، وذلك بتوزيع استبانة على جميع العاملين في الشركة لإتمام مقترح الرسالة المعنون بـ "أثر عمليات إدارة المعرفة على رشاقة العاملين- دراسة ميدانية في شركات الأدوية الأردنية"، علماً بأن المعلومات التي ستحصل عليها ستبقى سرية ولن تستخدم إلا لأغراض البحث العلمي فقط.

وتفضلوا بقبول فائق الاحترام والتقدير،،،

رئيس الجامعة
29.3.2017
أ.د. محمد محمود الحيلة